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THROUGH THEIR OWN WORDS:A GLIMPSE INTO THE ROLE OF DESIGN IN LIVES OF PERSONS WITH AUTISM

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1.0 Abstract

User-centered design research is an approach which actively involves users for the development of more effective, efficient and safe designs. It is extremely relevant for vulnerable populations which are otherwise excluded in the design decisions. This approach gives insight into the users' needs, wants and aspirations, and encourage designers to design with them. The current paper has used an innovative user centered approach to learn from autobiographies of persons with autism. This is a minimally intrusive approach respecting the social and communication deficit of persons with autism. The paper would present the learnings from users' accounts by systematically enlisting their experiences followed by its manifestation in the built environment. The paper finally concludes with a summary on needs and concerns of persons with autism in the built environment.

2.0 Aim and Objectives

The aim of this research is to understand the needs of persons with autism and establish concerns in the built environment through their own experiences. The objectives are:

- *To identify the persons with autism who have expressed their experiences either verbally or in writing.*

- *To identify the literature and other online resources where their experiences are available for review.*
- *To consolidate their experience and establish its connection with the design of the built environment.*
- *To reconfirm the connection with the existing literature on design and autism, and also with the other users' experiences.*

3.0 Methodology

The research has explored the experiences of persons with autism through secondary sources like autobiographies, videos and articles authored by persons with autism. To start with, the author has identified the persons with autism who shared their experiences in literature and then analyzed their experiences to understand its connection with the design of the built environment. The research also connected with the other researches related with autism and design which helped in summarizing and concluding however, the current paper focuses only on learning from autobiographies.

4.0 Understanding Experiences: Through Their Own Words

The clinical approach in understanding autism represents a restricted understanding of the daily lives of persons with autism and therefore is inadequate to inform their design requirements. It treats autism as a disorder having a set of core signs and symptoms rather than a way of being. This outlook fails to inform about their everyday experiences and encounters. Whereas user centric approach in design respects the autism as a condition and collaboratively explore the ways in which design can support their way of life. In this section, various excerpts from the accounts of persons with autism are categorized in fourteen identified themes relating to their interaction with the built environment.

4.1 Patterns of processing

a. Associative Thinking

"An autistic child will often use a word in an inappropriate manner. Sometimes these uses have a logical associative meaning and other times they don't. For example, an autistic child might say the word "dog" is associated with going outside. In my own case, I can remember both logical and illogical use of inappropriate words" (Grandin, 2006)

"French toast" may mean happy if the child was happy while eating it. When the child visualizes a piece of French toast, he becomes happy. A visual image or word becomes associated with an experience." (Grandin, 2006)

"Ted's thought processes aren't logical, they are associational. This explains Ted's statement " I'm not afraid of planes. That's why they fly so high". In his mind, planes fly high because he is not afraid of them; he combines two pieces of information, that planes fly high and that he is not afraid of heights." (Hart, 1991)

Inferences:

- ***From the above excerpts, it is inferred that one of the ways persons with autism think is via making associations. For them, all the things have a very literal connection, completely missing the logic.***
- ***It can also be understood that for Ted, the idea of a 'plane' was associated with the idea of 'height' and not with transportation as both of them have the similarities of being high.***
- ***This indicates the literal-associational way of reasoning and not deducing the logical-associational meaning of it.***
- ***Temple emphasizes the associational nature of experiences with words, objects, people, or anything that is a part of the***

experience. The elements of an experience when seen separately might mean different things in isolation but it could become difficult for a person with autism to separate them. This can be clearly understood from the relation of the dog with the act of going out that she has described in the above excerpt. formation of visual images in the mind of an individual with autism. These associations are sometimes logical and sometimes illogical.

b. Visual Thinking

"For when he heard or read a word, it was at once converted into a visual image corresponding with the object the word signified for him." (Luria, 1968)

"Growing up, I learned to convert abstract ideas into pictures as a way to understand them. I visualized concepts such as peace or honesty with symbolic images. I thought of peace as a dove, an Indian peace pipe, or TV or newsreel footage of the signing a peace agreement. Honesty was represented by an image of placing one's hand on the bible in court." (Grandin, 2006)

"You may be looking at the exact same things as us, but how we perceive them appears to be different. When you see an object, it seems that you see it as an entire thing first, and only afterwards do its details follow on. But for people with autism, the details jump straight out at us first of all, and then only gradually, detail by detail, does the whole image sort of float up into focus." (Higashida, 2016)

Inferences:

- *Visual thinking is translation of words into images. These translations in some cases can be very realistic and, in some cases, have a symbolic and very personal meaning attached to it.*

- ***Naaoki Higashida explains in the above excerpt that there can be two ways of perceiving an object. Either from whole to part or part to whole. He regards persons with autism to have a part to whole approach resulting in delayed processing. This can mean that when they see an object, for example, an orange, they might not recognize it instantly by just looking at it once. First its color will come into their notice and then perhaps shape or texture and only then will they be able to identify it as an orange.***

4.2 Incomprehensibility of Society and People

"My consolation, my safe retreat in the world, was a brown armchair in one corner. I could just fit in behind it. With my face close to the back of it, I would stare into the upholstery so that I could see every tiny little bit of it. I became absorbed in the brown material, in its threads, in the minute holes between the threads." (Gerland, 1996)

"There was no energy to be found there, but there was rest, a way of keeping my mouth shut and holding on to a little of the energy that had otherwise been spent in trying to understand what was incomprehensible, how everything hung together." (Gerland, 1996)

"People were never safety points to me" "I didn't want to move house, most certainly not. Our house and garden were my security. The house was closer to me than people were." (Gerland, 1996)

"When I'm not concentrating on people, they just look like shapes, like furniture and trees are shapes." (Rand, 1997)

"The world inside my head is quiet and peaceful and there are no people inside and nothing hard to figure out. So, it is a safe place when the real world gets too confusing." (Rand, 1997)

"Machines were never mean to me. They challenged me when I tried to figure them out. They never tricked me, and they never hurt my

***feelings. I was in charge of the machines. I liked that. I felt safe around them. I also felt safe around animals, most of the time.”
“Even at five, I was beginning to understand the world of things better than the world of people.” (Robison, 2009)***

Inferences:

- ***Physical entities (objects and built spaces) play a very crucial part in the lives of people with autism as:***
- ***They give them a sense of security and certainty. Like something tangible, something to hold on to or orient oneself when lost.***
- ***They are devoid of complex emotions and hence it is easier to comprehend things rather than people.***
- ***One can have full control over objects and with people it's rather opposite. This highlights the need of having some control over the environment that they are a part of.***

4.3 Problems in Social Communication

a. Interaction

“The worst of it was, my teachers and most other people saw my behavior as bad when I was actually trying to be kind.” (Robison, 2009)

“I’d watch my parents talking to grown-ups and I figured I could talk to Chuckie. But I had overlooked one key thing: Successful conversation requires a give and take between both people. Being Aspergian, I missed that. Totally. I never interacted with Chuckie again. I never interacted with any of the kids.” (Robison, 2009)

“I walked with a mechanical robotic gait, I moved clumsily. My facial expressions were rigid, and I seldom smiled. Often, I failed to respond to other people at all. I acted as if they weren’t even there.

Most of the time, I stayed alone, in my own little world, apart from peers.” (Robison, 2009)

b. Interpretation

“It never occurred to me that Chuckie might not respond to petting the same way a dog would. The difference between a small person and a medium sized dog was not really clear to me.” (Robison, 2009)

“I had severe receptive language processing problems into late childhood, but from around the age of nine I began to grasp that people were speaking with meaning. The interpretive world progressively opened up for me, but it was sluggish and slow and shut down quickly, as if that part of my brain had batteries which quickly went flat.” (Williams, 2015)

“I sometimes get so tired—you have such complicated rules in your world! And all the time I have to think and think and think about them” (Gerland, 1996)

c. Response

“I figured out how to talk to other children. I suddenly realized that when a kid said, “look at my Tonka truck,” he expected an answer that made sense in the context of what he had said.” “The other kid’s words did not change the course of my thoughts. It was almost like I didn’t hear him. But on some level, I did hear, because I responded. Even though the response didn’t make any sense to the person speaking to me.” (Robison, 2009)

“When I’m talking in a weird voice, I’m not doing it on purpose. Sure, there are some times when I find the sound of my own voice comforting, when I’ll use familiar words or easy-to-say phrases. But the voice I can’t control is different. This one blurts out, not because I want it to: it’s more like a reflex.” (Higashida, 2016)

"Besty said, "Did you hear about Eleanor Parker's son? Last Saturday he got hit by a train and killed. He was playing on the tracks." I smiled to her words, she turned to me with a shocked expression on her face. "What! Do you think that's funny?"

"Here is what went through my mind:Someone got killed. Damn! I am glad I didn't get killed. I am glad Varmint or my parents didn't get killed. I am glad all my friends are okay. He must have been a pretty dumb kid, playing on the train tracks, I would never get over by a train like that. I'm glad I'm okay. At the end, I smiled with relief." (Robison, 2009)

Inferences:

- **From analyzing the above text, it is very clear that the larger part of having communication problems lies in 'interpretation' of the message received.**
- **Persons with autism are regarded as having impaired communication and interaction skills. One of the reasons understood for it could be that verbal language and the meanings attached to it makes no or different sense than how typically they might mean. This results in different interpretations of the message received resulting in varied or no response. In addition, a verbal way of communicating might not be the best way to communicate with some persons with autism.**

4.4 Non-Verbal Communication

"Without the use of gestural signing, my brain seems to struggle to keep up with putting any concepts to words and I seem unable to hold them consciously. Even when I do understand them, after three seconds the meaning of what I've heard is mostly jumbled and large chunks of it seem to have fallen away." (Williams, 2005)

"Our expressions only seem limited because you think differently from us. It's troubled me for quite a while that I can't laugh along when everyone else is laughing. For a person with autism, the idea of what's fun or funny doesn't match yours, I guess." [...] At other times, if we're surprised, or feel tense, or embarrassed, we just freeze up and become unable to show any emotion whatsoever" (Higashida, 2016)

Inferences:

- ***Understanding Nonverbal communication like hand gestures, body language, etc. becomes very difficult for individuals with autism as hand gestures become too distracting for them to focus on the spoken words.***
- ***On the contrary, for some of them, hand gestures become crucial as it helps them associate with the verbal language used and becomes a pivotal point to concentrate or focus on, as described by Donna Williams above.***

4.5 Repetitive Behavior and Mannerism

"It's true; I always ask the same questions. 'What day is it today?' or 'Is it a school day tomorrow?' 'Because I very quickly forget what it is I've just heard. So, I do understand things, but my way of remembering them works differently from everyone else's. I imagine a normal person's memory is arranged continuously, like a line. My memory, however, is more like a pool of dots. I'm always 'picking up' these dots – by asking my questions –So I can arrive back at the memory that the dots represent."(Higashida, 2016)

"My body's always moving about. I just can't stay still. I'm always on the lookout for an exit. Everyone tells people with autism, 'Calm down, stop fidgeting, stay still,' when we're busy moving around.

But because I feel so much more relaxed when I am moving,” (Higashida, 2016)

“For a long time, I’ve noticed that people with autism often repeat questions, like parrots. Firing the question back is a way of sifting through our memories to pick up clues about what the questioner is asking. We understand the question okay, but we can’t answer it until we fish out the right ‘memory picture’ in our head.” (Higashida, 2016)

Inferences:

- ***Repeating the same words or phrases can have multiple reasons and might not always be an act that needs alleviation. For some people, the words or actions that they repeat are the only things they understand and can relate to. This sense of familiarity and comfort that repetition provides might actually be a means to alleviate other invisible distress.***
- ***Some persons with autism have memory issues which might deviate them from the ongoing. Repetition as an act can also be seen as a way to align themselves, provide orientation and regain perspective to the current.***
- ***Repetitive behaviors are more like coping mechanisms to an underlying discomfort and less like acts that need to put a stop to. Behaviors such as rocking back and forth, hand flipping, etc. are done to decrease the built-up anxiety and tension. The more extreme the movement, the greater the feeling they try to combat.***
- ***Hence, it is very evident from the above text that showing repetitive behavior is not a dysfunction but is a way for them to relax, calm down and regulate themselves.***

4.6 Sense of Order

"I would use my mother's kitchen spoon to scoop out a ditch. Then I would carefully lay out a line of blue blocks. I never mixed my food, and I never mixed my blocks. Blue blocks went with blue blocks, and red blocks with red ones." (Robison, 2009)

"I desperately wanted to understand, and this led me to theories: if everything looked in a certain way in the living-room- the sun shining in through the curtains, the ashtray on the table with a newspaper beside it- and if Kerstin then came back from school...I thought that everything had to look exactly the same the next day, for her to come back from the school. And in fact, it often was." (Gerland, 1996)

"I also often don't recognize objects when they are not in their expected place, and I can take up to two seconds to recognize the nature of an object. Unless it moves, unless I can experience it, it often doesn't mean anything at first, sometimes it doesn't mean anything for quite some time." (Williams, 2015)

Inferences:

- From the above excerpts, the need for order in the day to day can be clearly observed. This is also very closely related to spatial sequencing and organization in a built space.
- As understood from the book, Look me in the eye, John Edler thought that there can only be one way of playing with his tonka truck and there can be only one way to arrange his blocks. Similarly, as stated by GunillaGerland above, for her the idea of the living room had more to do with the image of how she perceived the sun, curtains, ashtray in the same sequence, same position, every day and everything had to look the same even the next day. Donna Williams also stated that it was

difficult to recognize the same object if they were displaced from their position.

- This observation leads to an explanation that the idea of any place or object is formed by 'mentally grouping' the objects once observed into different bags in a particular order in the mind. This helps in memory retention and easy comprehension. For example, the idea of a classroom for a lot of students can be formed based on the sequence that they follow after entering the class and the number of people, chairs, objects, etc., that they see every day. Any new addition or removal can disturb them as they can feel lost and confused.

4.7 Sense of Boundary

"Except for your senses, you have other means at your disposal to know who you are, and to define the boundaries between yourself and what is around you." "At a certain moment, the interface of the chair is as warm as my body temperature, and at that moment I have lost the boundary between me and that chair."(Landschip& Modderman, 2004)

"People with autism sometimes have body boundary problems. They are unable to judge by feel where their body ends and the chair they are sitting on or the object they are holding begins, much like what happens when a person loses a limb but still experiences the feeling of the limb being there." (Grandin, 2006)

"Time is a continuous thing with no clear boundaries, which is why it's so confusing for people with autism." "The hands of a clock may show that some time has passed, but the fact we can't actually feel it makes us nervous." (Higashida, 2016)

Inferences:

- ***Having a sense of boundary creates a distinction between two separate entities. Without these boundaries, things become unclear and confusing. Landschip describes how he perceives the surrounding space by means of his body, and uses the perception of the boundaries of his body as a reference. In this context, he describes his fear of remaining seated on a chair for too long. It ends up blurring the difference between the chair and his body.***
- ***This need can be addressed in design by providing a clear distinction between different spaces by compartmentalizing them.***

4.8 Sense of Certainty and Safety

"That bicycle is literally and metaphorically something to hold on to, an anchor, a point of departure that makes me know, all the time, what is upside and what is downside of reality" (Landschip& Modderman, 2004)

"The din made the ground under my feet disappear and I could neither see nor feel the world around me. Up and down were suddenly in the same place and I had no sense of where my feet were." " I had to feel something that stood still, something anchored, in a world that had suddenly become totally unpredictable." (Gerland, 1996)

Inferences:

- ***As explained by GunillaGerland in the above text, she lost the sense of ground; up and down suddenly became the same for her which resulted in complete uncertainty.***
- ***It is constantly being observed that persons with autism need pivot points in their surroundings to anchor themselves. They usually find it in tangible and fixed entities.***

- *They have difficulty locating themselves in relation to their surroundings. This explains why they have difficulties finding their way in a space and can get lost easily.*
- *For them, the distinction between separate entities is very crucial to establish. This will aid them in having a sense of direction and orientation.*
- *This understanding can be used while designing where there can be a stark distinction between the vertical elements in the space to the horizontal ones. For example: walls and flooring can have different color finishes to create a visual distinction.*

4.9 Fear of Change: Transitions

"The really big challenge for me was making the transition from high school to college. People with autism have tremendous difficulty with change. In order to deal with a major change such as leaving high school, I needed a way to rehearse it, acting out each phase in my life by walking through an actual door, window, or gate. "
(Grandin, 2006)

"I just cannot take it when a fixed arrangement doesn't proceed as per the visual schedule. I understand that changes can't always be avoided, but my brain shouts back, No way, that's not acceptable."
(Higashida, 2016)

Inferences:

- *Difficulty in transition is interconnected change. Change from one space to another or one activity to another could be facilitated by providing suitable transitions.*
- *Temple, in the above texts tries to explain the challenges she faced while transitioning from one phase to another in her life. She had to rehearse the entire scene or sequence multiple times in her head in order to make her prepare for the*

upcoming change. She used to pass through actual doors to prepare herself as the door symbolized the entry into a new phase.

- *Hence, it can be concluded that one of the possible solutions to transition is to provide time to prepare for change and use of symbolic elements which symbolizes the idea of change.*

4.10 Cues and Prompts

"Written words were too abstract for me to remember." "It is much easier for me to understand written text that describes something that can be easily translated into pictures." (Grandin, 2006)

"Autistic have problems in learning things that cannot be thought about in pictures. The easiest words for an autistic child to learn are nouns, because they directly relate to pictures." (Grandin, 2006)

"Lower functioning children often learn better by association, with the aid of word labels attached to objects in their environment. Some very impaired children learn more easily if words are spelled out with plastic letters they can feel." (Grandin, 2006)

"People with autism are sometimes unable to move on to their next action without a verbal prompt. For example, even after we ask for a glass of juice and are given it, we won't actually start drinking until someone's said, 'Enjoy' or 'Go ahead and drink'" "Doing the action without the cue can be really, really tough. In the same way as you don't walk over the crossing until the light turns green, I can't 'switch on' the next action until my brain receives the right prompt." (Higashida, 2016)

Inferences:

- *Cues and prompts can be seen as crucial elements to everyday functioning. Cues or signages in specifics need to be visual rather than written as most of the persons with autism have a*

visual way of thinking and can associate to something easily with the aid of pictures. This can be used as a tool for wayfinding in built spaces.

4.11 Orientation and Wayfinding

"We don't really know where we ought to be. You could tell us that we ought to follow someone else, or hold their hand, but the fact is that, with or without your suggestion, we're still going to lose our way." "we wander off – or run away – in search of some location where we do feel at ease. Then eventually we get lost, and have to be escorted back to the place we were at, or the person we were with, before." (Higashida, 2016)

"There must be a sign of some sort on the doors, because the others didn't hesitate over where they should go." (Higashida, 2016)

Inferences:

- A recurring problem concerns orientation and wayfinding. Several autobiographers describe situations in which they lose their spatial orientation in outside environments as well as inside a building.
- NaaokiHigashida mentions the need to always follow someone to find their way and emphasis on the search of 'safe place' which makes them run away and eventually get lost.
- GunillaGerland faces problems in dealing with the environment, but especially the realization of a different use or interpretation of the environment compared to others, makes her question which innate abilities enable the others to retrieve this logic.

4.12 Affinity towards Curve

"It's because my nervous system is rectilinear that I need to acquire a curve from outside. As if, when I really need an inner curve so as

***not to be so rigid, I have to find it somewhere outside myself.”
(Gerland, 1996)***

Inference:

- ***Gerland longs to relate the environment to her own senses. Furthermore, she explains her bent towards curved objects, her desire to touch them, triggered by the feeling of being so 'straight' inside.***

4.13 Distraction

“To this day, when I speak, I find visual input to be distracting. When I was younger, if I saw something interesting, I might begin to watch it and stop speaking entirely.” (Higashida, 2016)

“That’s why I usually look somewhere neutral - at the ground or off into the distance-when I’m talking to someone. Because speaking while watching things has always been difficult for me.” (Higashida, 2016)

Inferences:

- ***Not making eye contact while speaking is a distinctive feature of autism. One of the reasons could be due to distracting/overpowering visual input.***
- ***Inability to distinguish between background and foreground information results in confusion, due to which individuals with autism are unable to bifurcate between inputs that are important and the inputs which need to be kept as a part of the background.***

4.14 Sound and Light

“There are certain noises you don’t notice, but that really get to us. The problem here is that you don’t understand how these noises affect us.”

"At times like these, it feels as if the ground is shaking and the landscape around us starts coming to get us, and it's absolutely terrifying. So, cupping our ears is a measure we take to protect ourselves, and get back our grip on where we are." (Higashida, 2016)

"Flapping our fingers and hands in front of our faces allows the light to enter our eyes in a pleasant, filtered fashion. Light that reaches us like this feels soft and gentle, like moonlight. But 'unfiltered' direct light sort of 'needles' its way into the eyeballs of people with autism in sharp straight lines, so we see too many points of light. This actually makes our eyes hurt." (Higashida, 2016)

Inferences:

- ***The above excerpts highlight how the elements of the built space can become a means of distress. Sensory stimulations caused by these elements can result in behaviors that might be seen as 'not normal'.***
- ***NaaokiHigashida explains that persons with autism can notice auditory inputs that we can't and noises can affect them badly. He feels terrified and as a reaction he cups his ears with his palm as a coping mechanism.***
- ***Need for soft, indirect light has been expressed by NaaokiHigashida. He states that direct light for him feels like a needle into the eye balls.***

5.0 Conclusion

It is evident from the way authors described their experiences in day-to-day life that the way they perceive the world and process or interpret information from the environment is unique and very different from us. There is a need to understand the underlying cause behind the responses that are seen and work towards making

the environmental conditions appropriate rather than changing the responses.

This analysis reflected that the built environment serves as a point of anchor, something tangible and fixed which comforts persons with autism by providing a sense of safety, certainty and security. But despite the certainty offered by the fixed physical space, the conceived organization and assumed logic behind the tangible space causes distraction, confusion and makes them lose their sense of direction altogether in a space. This makes the environment threatening and illogical for them.

5.1 Needs of Persons with Autism in the Built Environment

5.1.1. Need for Order

Need to follow an order or having a set sequence in things that persons with autism encounter is essential to their ability to comprehend. This is also because of 'mentally grouping' the objects once observed into different bags in a particular order in the mind. Once the order is set in the mind, the information can then be used again and again for comprehension.

5.1.2. Need for Cues and prompts

People with autism are sometimes unable to move on to their next action without receiving a prompt or cue from the environment. This cue helps them know where they are in a space, what they are expected to do and guide them for how they can move forward.

5.1.3. Need for spaces to sensitize and desensitize

As identified, there are 2 kinds of sensitivity persons with autism have. They are hypersensitive to some stimuli and hypo sensitive to some. In the former, they seek spaces that calm and relax and in latter they look for spaces that provide stimulations. So, there should be a provision for both.

5.1.4. Need for having a sense of boundary

Having a sense of boundary creates distinction between two separate entities. Without these boundaries things become unclear and confusing.

5.2 Major Concerns of Persons with Autism Related to Built Environment

5.2.1. Perception

Perception is nothing but arrangement of various sensations together, in a manner that could be organized in patterns that could be understood together, resulting in cognition of information.

Stimulation Theories are being used to understand the different ways of perception and cognition by persons with autism. It regards the physical environment as a source of sensory information which is received by our senses to hear, see, taste, smell, balance and orient ourselves boundaries in the information received

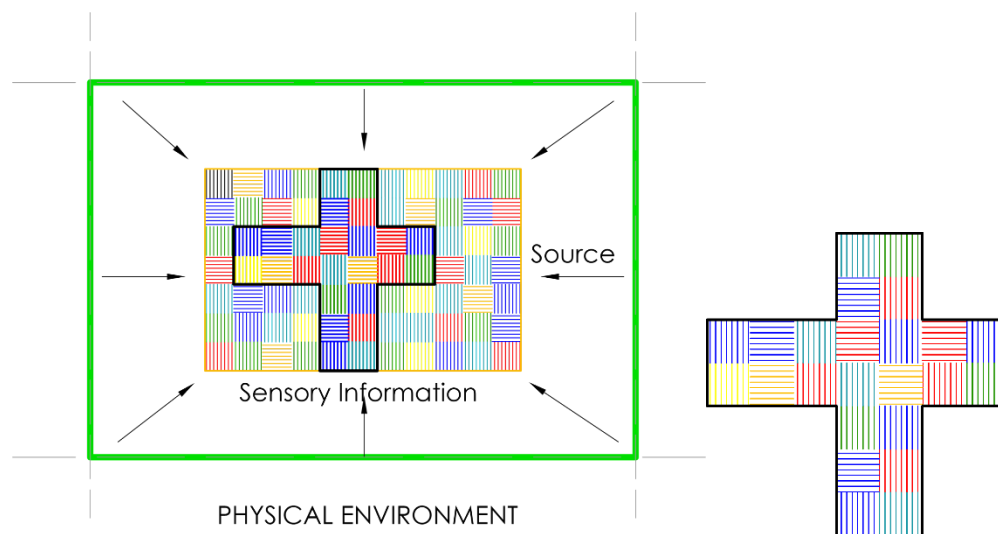


Figure 1: Information to be perceived, perception of sensory information

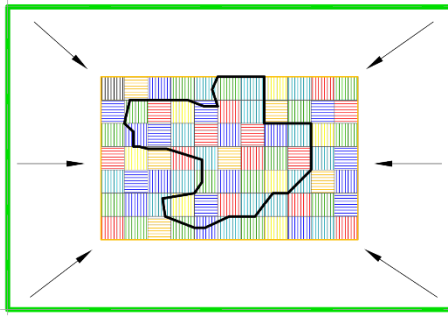


Figure 2: Confusion understanding the boundaries in the information received

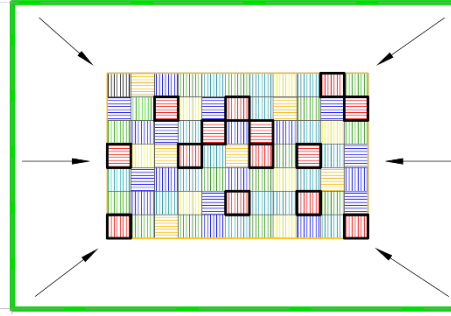


Figure 3: One stimulus overpowers

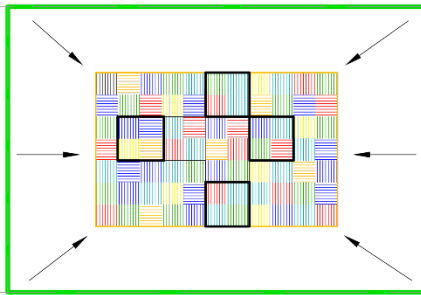


Figure 4: Delayed processing, receives

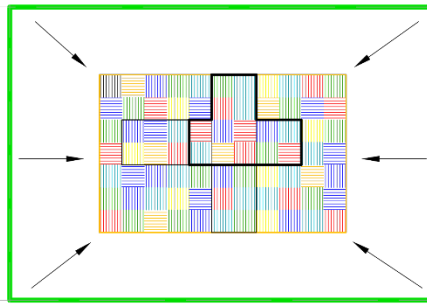


Figure 5: Reception of half information in parts

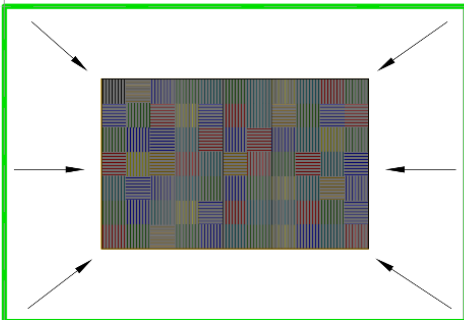


Figure 6: No information received, sensory shutdown

5.2.2. Distraction

Environment becomes a constant source of distraction and it becomes difficult to focus or pay attention to one particular person or thing.

5.2.3. Wayfinding

A recurring problem concerns orientation and wayfinding. They have difficulty locating themselves in relation to their surroundings. This explains why they have difficulties finding their way in space and can get lost easily. Several auto biographers describe situations in which they lose their spatial orientation, in outside environments as well as inside a building.

5.2.4. Transition

The whole idea of change is very difficult to grasp. Entering from one space to another having different spatial configuration and arrangement scares them as comprehending two different kinds of environments becomes difficult for them.

5.2.5. Sensory overload

The brains of individuals are not able to filter out irrelevant information such as background noise, patterns on walls, the feeling of clothing or people moving. This leads to too much processing by the brain at once and creates overload.

5.2.6. Unable to distinguish between background and foreground information

It's difficult for persons with autism to 'break' the whole picture into meaningful parts and focus on the information immediately in front of them. This distorts their understanding of what is in front of them and what is behind affecting focus and attention.

5.2.7. Distorted depth perception

A lot of auto-biographies talk about trouble with understanding boundaries and relationships between objects in space and their own bodies. This problem happens due to distorted depth perception which leads to distortions of shape, size and movement.

6.0 Acknowledgement

This study is extension of undergraduate architecture thesis work of Ms Shivani Shah titled as, "An Inquiry into the Learning Environments for the 'Differently-Abled, focusing on the Spectrum Condition of Autism." This research-based thesis was submitted to School of Environmental Design and Architecture (SEDA), Navrachana University, Baroda, Gujarat in the year 2019. Extending sincere gratitude to Ms Pragya Shankar, Program Chair - Landscape and Associate Professor at SEDA, without her constant guidance and support, this study could not have been possible. Also, conveying sincere acknowledgement to SEDA, Navrachana University for encouraging such works in the department.

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***Sugandh Malhotra, Ph.D.
Associate Professor,
Coordinator: Mobility and Vehicle Design program,
IDC School of Design, IIT Bombay***

Dr. Sugandh Malhotra has over seventeen years of professional experience in industrial design and automotive design industry. He has worked on design projects for marquee brands in the industry that include Honda R&D, Hero Global Design, Hi-Tech Robotic Systemz Ltd., SETI Labs Berkley, Aprilia Motors Italy, Bombardier Canada and most of the leading automotive and consumer brands of India. He has worked on over 75 projects and has been instrumental in design of over 23 techno-commercially successful launched products at a pan India level. He has won many International and National level design awards. Dr. Malhotra takes keen interest in teaching design and had been mentoring students from many leading institutions such as IIT Delhi, IIT Roorkee, SPA Delhi, Lady Irving College, IILM, Pearl Academy among others.

Since 2016, Dr. Sugandh Malhotra is working as an Assistant Professor and the Coordinator of MVD program in IDC School of Design at IIT Bombay.

His research interest areas include design research methods, future design possibilities, trend research and design forecasting and intelligent mobility systems.

Dear friends,

Soaked greetings from an over-rained city of Western India.

If there is one thing that past one and half year of struggle against pandemic has taught us, it is the famous parable 'United we stand and divided we fall'. World has survived many adversities and it is through a common goal and united perseverance that we managed to pull through. Additionally, pandemic also brought spotlight back on the basics of human life. The will to survive, focus on health and well-being, and necessity to socially connect reinforced the basic essential values of life. Many of my friends shared their joyful moments of seeing their office neighbors after months of home isolation. The very same office neighbors who were perhaps invisible until a few months back.

As a faculty who teaches Industrial design and mobility & vehicle design courses, I wonder everyday about the fundamental question, what could be the ideal mobility solution to move a nation of over 1.4 billion people? I am nowhere close to the answer but I am also convinced it will certainly not be an exclusive large car. The roads that are choking with crawling traffic are a ready reference to the abysmal conditions that we live and dwell in. A luxury car interior often provides comfort to the solo traveler but it certainly does make the journey longer and therefore cuts down on quality time that he would have otherwise spent with family or playing with kids. A normal office goer in metropolitan city like Mumbai spends 1/4th to 1/5th of his awake time in traveling to office and back.

Mobility for today and future:

There has been a lot of buzz about autonomous cars in recent years. Although the trial runs has given successful results in many research labs across the world, automation of cars on roads seems well within our grasp, and an achievable reality. However, what is plausible is quite difficult to be possible. The main reason for the same can be attributed to diversity and complexity of traffic on roads. In 2016, I led a team of design researchers at IDC School of Design, IIT Bombay and conducted a study on identifying what would the people do if the car drove by itself. And the results of the study were quite intriguing. Over 82% drivers agreed that they did not feel good about missing their favorite entertainment shows when they were driving and reaching home late; while around 60% drivers wished they had more time to make calls and talk to their friends and relatives, and surprisingly over 50% indicated that if they had spare time, they would love to finish their breakfast that they had missed to skip the morning traffic. Besides these indicators there were several others that solidify how much we are missing while being stuck in traffic.

On the other hand, there are several established case studies that illustrate how specific products have been replaced by more efficient product services. The recent up rise of efficient product services such as rented bicycles and rented cars, Ola/Uber shared cabs have provided a viable substitute to owning the car itself. This has significantly started to impact the sale of pre-owned cars. Although some of these services have existed for decades, it is only now that we saw the focus shift towards a more standardized design of exteriors and features, and a more elaborate interiors, especially the

design of rear-seat where the passenger sits. Then there is no concern of parking, operational running expenses, maintenance, no guilt of running on fossil fuels, etc. This has become a big influencer while deciding whether to buy a car in first place or not. This makes me wonder about the future of automobiles on Indian (or anywhere in the world) roads.

I see two possible directions while moving ahead:

1) Mobility for all: One of the smarter ways to design and manufacture automobiles is to make a modular, adaptable, standard platform that can allow further development. This has been followed but not so holistically. Recent developments of skateboard chassis are a step-up from previous generation base designs that provided only limited scope of further developments. This is a positive development but we have a long distance to cover before this becomes optimal and sustainable. If the same chassis platform of the automobile provides foundation to be (or to build) a vehicle for everyone and even the neighbors, that is the true 'Mobility for all'. The simple yet elegant solution will offer flexibility for modifications and building-up to provide appreciation to individual taste.

2) Mobility of All: A good transportation system is a backbone of any city, whether big or small. An efficient and effective well-connected transportation system provides the city inhabitants with an effective alternate way to travel. I have several friends who prefer moving around Mumbai city in the famous Mumbai local. Though overcrowded, it is notably the most efficient, quick and economical (both in money as well as time) means to

travel. I do not know of any great city that is so without the support of a good and well-connected transportation system. However, the cities of future have very diverse and complex requirements and thus need a multi-tiered, multi-pronged network of transportation systems. This has scope for so much new developments and innovations to facilitate movement of people. I believe that our mainstream automotive OEMs of the world should start looking at public transportation system as a potential area of investment and development for the future.

I remember the famous quote from Star Trek that says, “Needs of the many outweighs needs of the few (or one)”. It is to the benefit of everyone if we have fewer products on the road but those that are really efficient and significantly better not only for individual but more importantly for the entire community.

I sincerely wish that the design schools teach the value of ‘compassion’ to budding design students alongside ‘passion’ that is needed to create beautiful objects. I believe that through an inclusive thinking and consideration of community over individual gains we would be able to overcome shortsightedness that impedes our growth and development. Corporates and thought leaders should focus not only on the financial and economic growth but it should be the ‘people’ that should come before everything else. It is the human value that would help us endure and prosper and create a world that is indeed better for our next generation. Mahatma Gandhi once quoted, “World has enough for everybody’s need but not everyone’s greed.” If I could humbly replace ‘greed’ with ‘want’, it should be the ‘need of many’ should take precedence over the ‘need of few’. It

is with these core values of universal design that Design for All newsletter has been serving design readers for over 16 years.

With all sincerity and earnest offering, DFA has been providing authors a platform to present their ideas and views / opinions freely and on the other hand, DFA has been able to reach far and near, to over a million readers. It is an emotional moment for the entire DFA family to come up with the 199th issue as we leap into the next chapter of our journey. A few months back DFA registered to be a research journal and we plan to stick to our base values of providing knowledge that is open-access. This is a major step ahead as we plan to make an online website where one could read selected articles in a more user-friendly format. We intend to include many new features, workshops, tutorials and video logs etc. to take interactions to the next level. We would need your continuous support to realize this dream.

But for now, let us celebrate our 199th issue with prayers to heal and recover from the recent tragedies caused by pandemic.

With warm regards and best wishes

Sugandh Malhotra



Letter from the Chairman's Desk By Sunil Bhatia PhD

Never thought of such an unimaginable experience in the presence of concerned authority at the inaugural ceremony for the renovation of an old department building in the university, as labourers entered the basement for starting the civil works, they returned running in shock and shouting "snakes! Snakes!!..". I thought that portion was dark and for years it was not open and turned muddy and a snake may be living and as I proceeded for entrance, a labourer shouted, "there are hundreds of living snakes".

I called the forest department and the officer informed us that 'you should put some high voltage electric lights in the basement in possible places in the basement and in three or four days they will vanish. They live in dark'. I informed him it is not a few but in hundreds. He further said "Do not worry. Even thousands will vanish." His words came true.

Immediately an idea struck me 'Does life need darkness? Is light a kind of pollution? Has excessive or artificial light has affected and changed our life that does not match with our designed body for living in darkness or limited exposure with light ' My mind was disturbed and found every living being's life begins in darkness. It is human or animal mating cells that multiply in the ovary that is the

dark chamber. A child gestates for months in the mother's womb and birth that is very disturbing takes to light. Seeds are buried in the earth and a plant surface. What happens in the dark is still a mystery for us. What changes take that is the reason for the beginning of life in the dark is unknown to us but need further proper study for unfolding mystery. It is true that every living being comes to existence under the envelope of darkness but simply keeping seeds or human sperm in darkness does not give new life but dies out with the passage of time. It is ancient wisdom in farmers that out of harvested products they keep a portion of seeds for next harvesting in the dark. Every thought takes place in a dark chamber of mind and how it is striking is a mystery but works. It is said that the spirit of God lives in the heights of darkness. The Christian Bible says "in the beginning, the world was void and filled with darkness and God said let there be light and there was light."

Is light pollution? Why does light exist on earth and space in dark ? It works as a catalyst for expediting the mechanism of giving life in darkness. After coming out of the darkness, every being sustained and regulated their life with sunlight. Should the light be in limited access? Excessive light is not good for every living thing and is treated as pollution.

One day a researcher in Africa was interviewing for a television program about almost extinct and a few surviving hunters and gatherers about their life 'what does sky, star and sun mean to you'. There was no answer from anyone because they never bother what the sky means but a young hunter said ' it is difficult to hunt in full moon and we sleep without food'. Sun or moonlight rise and set have no role in their life but understand getting the food of animals is difficult in a full moon.

In primitive times the role of sunlight or moonlight was limited in regulating lives but the discovery and learning of the art of fire management have changed the face of the human lifestyle. Fire has two major components, one is light, and the other is heating. The man understood its role in early life and used fire as the light that was the first step from moving away from natural life to artificial life. Artificial life was assuring for safety, security and fire was gradually coming under control for heating as well for lighting. Initially, they might have used dry grass or tinder for burning and gradually shifted to heavy logs for longer and high intensity for meeting high needs of heat or light. They did this exercise when they understood the fire intensity can be enhanced by the selection of fire medium. Lighting was possible with a bonfire but it was static and the fire torch was designed for carrying wherever they moved where one end of the log was with fire and the other end for holding. Later design of oil lamps with the burning of animal fat or extraction of oil was a well-thought design for avoiding any accidental fire damage. This was the well thought planned journey for coming out from darkness to live in the light. The biggest revolution came with the invention of the electric bulb by Edison and even he has not thought it will change the human thought process and face of civilization.

The invention of electricity has proved the ultimate victory over darkness and changed our lifestyle. Venturing into the darkness withholding light has made man more daring and fearless. An earlier man was accessing limited skylight or the fire of a volcano in a few places so his routine life was set accordingly. Light bulb and presence of artificial light from carrying the torch, to city lights for illuminating dark spots never allowed a modern person to look toward the sky, and day-night concepts are diminished. He can work

anytime in day or night with the same comfort and faces no challenges. I have heard and no data that can justify in support that once California or Singapore faces electric long hours breakdown and people realized some kind of blue sky exists above them. The idea of punishment has changed with light and prisoners are put in a dark cell in the confined solitary cell because they are habitual of living round the day and night in light and darkness can be removed with the press of the electric switch. Torture has got a new dimension where excessive light with high voltage bulbs are placed close to the person for not allowing him to sleep and under physiological pressure, he surrenders. Social embarrassment by blackening the face of the culprit helps to attract the attention of the crowd. Other colors were present but why selected dark black color for social punishment?

Modern designers are working on energy-efficient systems and never given thought to the role of darkness. One day my friend bought a plastic transparent sprouting device for grains and pulses- having a two-chamber stack on one another, one bottom for storage of water, and at the top for keeping washed pulses. I realized it is not properly designed because the role of darkness in beginning life is unknown to them. In place of transparency, it would have opaque or advisory should be written that keep it in a dark place. I am happy that pharmaceutical industries understood the role of light in changing the chemical properties of medicine and issued advisory to keep vials in a dark place. Domestic refrigerator is designed for energy-efficient and keeps a small bulb that gives light when the door is open otherwise it is dark. If the bulb is on after closing the door it will demand more work from the compressor for keeping the fridge at desired regulated cooling but forget that the dark chamber

is a conducive environment for growing bacteria or fungus etc. Curd maker has a regulated heating chamber and sometimes it has a transparent lid or unknowingly has an opaque lid made of metal. If it is opaque, curd bacteria grow in a different manner and it is healthy but transparent lid bacteria grows because of the correct temperature and missing the role of darkness in growth. It is also observed in farms, hens are kept under continuous light for more production of eggs because of confusion of day and night. Labour laws has come to the existence for controlling the exploitation of working hours from sun rise to set for proper working conditions Presently it has lost relevance with design of artificial light. In India at the roadside mosquito sellers display their net and customers are mostly attracted with dark colour. Customers do not know dark colour allows the mosquitoes for easy hiding where white or cream does not. Mosquitoes will be attracted to dark colour and will not come close to light shade. It is not a problem of the customer or seller but it is a problem of designers. Army personnel wear dark colour for easy hiding where security for attacking is focused but medical personnel wear white because it should not attract bacteria or virus for hiding.

In some cultures, yeast is much used in cooking and I found an illiterate woman who was preparing at home with ingredients available in the kitchen but kept that prepared material in a pot with a lid in a dark place. I just asked her 'Why are you keeping that pot in the dark?'. Her answer was astonishing 'It will grow bacteria and release heat in the process. That heat should not be wasted. I covered it with a lid and what heat bacteria are producing is enough for faster growth and natural light disturbs their growth'. I recall my mother keeping the glass jar under direct sunlight for few days for

killing possible bacteria in raw mangoes for making of pickles after cutting into pieces(this increases surface area of unit mango) , coated with spices, salt and edible oil for preservation so all the possible bacteria should not get conducive environment for growth and get killed. Commercial companies rely more on preservatives for avoiding sunlight exposure event under the time constraint of making pickles. It is our ancient wisdom where our ancestors understood the winemaking where bacteria should multiply faster for better result and created an environment by burying the pot for natural fermentation underground for days and with the smell they were able to tell if it is properly ripened or not. When we apply medicine over the cut area that works as a lid and the bandage provides darkness for growing faster human cells for faster growth and side by side it protects from external infections. We provide support by applying medicines for killing external bacteria or disturbed their growth and all energy of bacteria diverted for destroying foreign elements that are applied medicine over cut and in meantime, our cells multiply and repair the wound. It is natural healing.

Mosquito trapper is designed with LED of blue colour for attraction and a fan sucks into a chamber filled with insecticide kills. A tribal community hunts the red ants by carrying a pot with salt and asks 'what will you do with this pot'. He answered that when we put ants in it immediately kills and does not bite me. Why do we not use normal salt as insecticides? Next curiosity was 'Why mosquitoes are attracted to blue color light'. I think the change in light patterns understanding in insects is better and the lowest frequencies are ultra-light and the highest is infrared. Any light that reaches ultraviolet indicates the next stage will be darkness and insects get

attracted in search of darkness for hiding. The oil flame is yellow and the biologist says the same color of light is released by the female from her back as an invitation for a mating that attracts a male partner and dies with the burn. Firefly releases light as an invitation or attraction for prey and that blinking has given new thought to the human mind. They learned the art of fire management that was used as a weapon for killing and safety. A new thought surfaced with blinking and some part of the world used it for entertainment . The idea of fireworks took place where different possible patterns were thought with chemical properties for the delay in the ignition that produces dark and light. I give all credit to our ancestors for giving us an idea of the arrangement of light and dark in a specific pattern that is responsible for giving an idea of pixel and binary number and it later gave us a computer. The arrangement of dark and light is the brain behind the existence of the digital world. Ultrasound is designed where the varied intensity of striking sound effects with the objects are translated into light and dark spots for photography. Photography of black and white is the real foundation for color photography and it is another popular product where objects' images are translated by light and dark spots with the varied intensity of light and real revolution has come with the design of inbuilt camera in mobile phone technology for turning even a layman into a photographer .

My mother was spreading different washed clothes for dry in sun light and carefully she was spreading dark dresses under shade not in direct sun light for avoiding color fade where white clothes were properly exposed to sun shine. As she finished and before leaving for shopping, passed the order that before my return the house should be properly clean- dusting, brooming and wet mopping. I

could not dare to say no but did the cleaning with a heavy heart and before her return from the market, I put all the curtains so that it should be dark and it will help in covering my not proper cleaning. As my mother entered she ordered me to remove the curtain I wanted to inspect in light. A guilt feeling surfaced but I thought generally crimes take place in darkness and investigation in daylight for the search of pieces of evidence to catch the real culprit. Technology is changing the face of crime and criminals are even attempting crimes in daylight.

One day my friend visited my place and his mobile was constantly ringing and was busy attending call after one another. I reminded him ' you have come to see me and never come carrying phone or keep silent or switch off before entering my place'. He laughed as there was nothing wrong with my advice. Suddenly my house light went off and he quickly before I got up for the candle and match stick for the light, switched on his phone. I was waiting 'let my eyes be accustomed to darkness'. I am familiar with every inch of my house and found it difficult and what confidence I enjoy in light that was shaky and every step was with caution in the dark .That time I realized the power of the screen light that completely made the room illuminated where we can see everything clearly in the room and avoid any eventualities because of walking in darkness. That power of light has some effect on us and has the capability of altering our behavior. Those who are sleeping and frequently see the mobile phone gets disturbs sleep .

Our modern designers know the use of light and even provide options to users to select the intensity of it for the energy-efficient concept is known and use of LED is rampant because it works with very low consumption and works for longer hours limited

back up power of battery in mobile or laptop. They never think how the screen light is affecting and altering their behavior because of artificial light continuously falling on the senses as and when it is on. Why did the designer not think of an alternative? Have designers thought of not using light where it is thrown out of the screen rather a concept where light is inverted for going into the screen and serving the same purpose that today's screen is doing? Using anti glare glasses for the protection of eyes is not a proper solution but it is better.

Imagination element in humans in individual is the greatest and most beautiful gift of nature that helps in drawing some kind of figures, a character out of nothingness or darkness and it is nothing but one kind of light of innovations . It is the foundation of the origin of the religious and spiritual world where devils and gods are in a constant war that disturbs peace and growth. Encouragement for venturing into this world helps in keeping aside differences among humans living on earth and it works as a unifying force for collective efforts. Humans live in peace in light and ultimately rest in peace in dark.

Lambert Academic publication for celebration of 150th special issue by publishing a book by compiling editorials "Design For All, Drivers of Design" translated in eight different languages from ENGLISH into French, German, Italian, Russian, Dutch and Portuguese. Kindly click the following link for book. "Morebooks", one of the largest online bookstores. Here's the link to it:

<https://www.morebooks.de/store/gb/book/design-for-all/isbn/978-613-9-83306-1>

With Regards

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Forthcoming Issues

August 2021 Vol-16 No-8 (200th Issue)



Assistant Professor Dr Antika Sawadsri
Chairperson, Council of Deans for Architecture School of Thailand –
CDAST and Dean for School of Architecture, Art, and Design, KMITL

- Assistant Professor Dr Antika Sawadsri has experience in academic research and design practice on Universal Design concept. Her PhD research at the Newcastle University, UK focused on interplay between disabled people and their accessibility in public space as a socio-political platform to understand social inclusion of Thailand society. Her academic research and service involve with 'user-centric design approach'.

Recently Antika and her team co-create mobile COVID19 swab

testing units and distribute to many COVID19 infected cluster throughout Thailand. Those mobile units have been co-designed with other disciplines such as engineering, medical and healthcare staff at the frontline."

September 2021 Vol-16 No-9



Prof. (Dr.) Mandeep Singh is presently Head Industrial Design (second tenure), former Dean (2015-17) and has held position of Head Architecture (2017-19, 2014-15) Head Urban Design (2011-14) Industrial Design (2005-10). He is full time faculty in SPA Delhi since 1986. His PhD topic Seismic Conscious Architecture resulted in Evaluation Tools for Architects, which an architect can use to evaluate built form in absence of an engineer with seismic considerations.

In addition to teaching since last 34 years and guiding many design and research projects, he has designed many buildings, Urban Design and Industrial Design projects. He won many design awards notable being part of team member which won First Prize of Urban Design of GGSIPU University, first prize of HUDCO competition of low cost housing etc.

During his tenure in Industrial Design program as Head (2005-11), he has worked with students on many design assignments especially on issues related to common man notable areas being Design for

Elderly, Design for Physically Challenged, Design for Safety and Security, Energy Efficient Products etc.

He was also been invited/organized following conf./workshops, notable being Indian Design Council program at Tokyo, Japan, Planned and Exhibited students work of SPA in Venice Biennale, organized many other exhibitions of students of B.Arch and M.Arch (I.D.) in SPA.

He has been consultant, advisor and peer reviewer to many public and private sector, notable being World Bank, NDMA (on Architecture curriculum), CPWD (Rajghat, C Hexagon), Shri Mata Vaishno Devi Shrine Board, Reliance Infrastructure, advisor to Ministry of Defence for National War Memorial Competition, Selection and suggestion committee of Republic Day Tableaux (2019-21), Competition Commission of India, Basmati Export Development Foundation, Golchha Organization (Nepal) are among few notable ones. He was also associated by Bureau of Police Research and Development (BPRD) for creating identity of Police Station and conducting architectural competition.

Due to his vast experience of designing many projects, recently he has also associated with clients in selection of architects and advisor for various projects which include hotel, hospital and industrial projects. He has also been invited as jury member in selection of architects. Ranchi High Court is one such example. He is also associated with other academic institutes as member board of studies, faculty selection, jury member etc.

He has also written many papers for National and International Conferences, notable being Multidisciplinary approach to earthquake engineering in 7NCEE at Boston and Public Transportation for Elderly and Disabled - Transed 2007 at Montreal, and Habitat Earthquake

and Reconstruction at World Congress on Natural Disaster Mitigation, in addition to co-author of papers with Phd scholars (list is enclosed). In addition to Six PhD scholars he is guiding, four of the scholars guided by him have been awarded Phd.

Major Projects:

Prof. Mandeep Singh has been involved in institutional consultancy work of SPA as project in charge. The important projects include, Lawn 5 & 6 of C-Hexagon, Rajghat development, Urban Design proposal of Vaishno Devi shrine, Design of DurgaBhawan, Yatri management at Bhawan and Bhairon proposal at Vaishno Devi, Urban Design proposal for Nursing college for shrine board, institutional building for National Institute of Open Schooling (NIOS) headquarter building in Noida, factory for Machino Polymers and interior for SFAC and National Horticulture Board.

October 2021 Vol-16 No-10



Jane Bringolf is Chair of Centre for Universal Design Australia (CUDA), a registered charity seeking a more inclusive world. She wants to see a world where designers and policy makers automatically consider the diversity of the population and create inclusive built environments, products, services, and communications. Her passion for the topic is based on forty years working in the community sector. She writes regularly on universal

design and inclusive practices and curates the weekly newsletter for CUDA. Jane also contributes to various advisory panels and education sessions on universal design. Jane holds a BSSc, MBA and PhD and is also a Churchill Fellow.

Africa Origin Designer year 2021 December 2021 Vol-16 No-12



Ricardo Gomes, IDSA

Professor Ricardo Gomes has been a faculty member in the School of Design at San Francisco State University for over 29 years. He was the Chair of the DAI Department from 2002-2012.

Prof. Gomes coordinates the Design Center for Global Needs and the Shapira Design Archive Project in the School of Design (DES).

This non-profit international research and development center is dedicated to promoting responsive design thinking methods and solutions to local, regional and global issues such as: inclusive/universal design, health care, the aging, community development, social innovation and sustainability of the built environment.

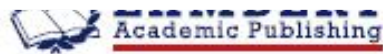
Prof. Gomes was awarded the 2020 Faculty Award for Excellence in Service Learning, from the Institute for Civic and Community Engagement, SFSU; and the IDSA 2020 Education Award presented in recognition of significant, distinguished, and long-term contributions of faculty to the field of industrial design academia

Prof. Gomes is on the Board of Directors of the Institute for Human Centered Design in Boston. He is also a member of the Industrial Designers Society of America; and Trustee of the Beta Beta Chapter, Epsilon Pi Tau International Honor Society for Technology in the School of Design, SFSU. Prof. Gomes was a Fulbright Research Scholar from 1984-1986 at the University of Nairobi, Kenya. He conducted post-graduate research and product development of a container system for mobile health care delivery in East Africa from 1982 – 1987. In 1986, he was Program Coordinator of Design Projects in Developing Countries, Les Ateliers, Ecole nationale supérieure de création industrielle (ENSCI) in Paris, France where he directed student liaison projects with European international development agencies.

For over 30 years, Prof. Gomes has conducted keynote speeches, presentations, symposiums and workshops at universities and international conferences throughout Africa, Asia, Europe, Latin America and the U.S. In addition, he has served on juries related to Inclusive Design; Universal Design; Design for Social Responsibility; Sustainability; and Equity for BIPoC in the Built Environment.

Prof. Gomes received his MFA in Industrial Design for Low-Income Economies from the University of California, Los Angeles (Design of a Container System for Mobile Health Care Delivery in East Africa). He received an M.A. in Architectural Building Technology from School of Architecture and Urban Planning at UCLA (Analysis of Alternative Building Materials and Construction Systems for Small-scale Industries in the Cape Verde Islands, West Africa); and a BFA in Industrial Design from Massachusetts College of Art (Design of an Adaptive Structural Environment for Severely Disabled and Developmentally Challenged Children).

New Books



ISBN 978-613-9-83306-1



Sunil Bhatia

Design for All

Drivers of Design

Expression of gratitude to unknown, unsung, unacknowledged, unmentioned and selfless millions of heroes who have contributed immensely in making our society worth living, their design of comb, kite, fireworks, glass, mirror even thread concept have revolutionized the thought process of human minds and prepared blueprint of future. Modern people may take for granted but its beyond imagination the hardships and how these innovative ideas could strike their minds. Discovery of fire was possible because of its presence in nature but management of fire through manmade designs was a significant attempt of thinking beyond survival and no

doubt this contributed in establishing our supremacy over other living beings. Somewhere in journey of progress we lost the legacy of our ancestors in shaping minds of future generations and completely ignored their philosophy and established a society that was beyond their imagination. I picked up such drivers that have contributed in our progress and continue guiding but we failed to recognize its role and functions. Even tears, confusion in designing products was marvelous attempt and design of ladder and many more helped in sustainable, inclusive growth.

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it is available on www.morebooks.de one of the largest online bookstores. Here's the link to it: <https://www.morebooks.de/store/gb/book/design-for-all/isbn/978-613-9-83306-1>

The Ultimate Resource for Aging in Place With Dignity and Grace!



Are you looking for housing options that are safer and more accommodating for independently aging in place? Do you want to enjoy comfort, accessibility, safety and peace of mind – despite your disabilities, limitations and health challenges? The help you need is available in the **Universal Design Toolkit: Time-saving ideas, resources, solutions, and guidance for making homes accessible.**

This is the ultimate resource for individuals and professionals who want to save time, money and energy when designing, building, remodeling or downsizing a home. The **Universal Design Toolkit** will help you take the steps to design homes for your clients or yourself while eliminating the costly trial and error challenges you'd inevitably encounter if faced with this learning curve on your own.

Rosemarie Rossetti, Ph.D., teamed with her husband Mark Leder in creating this unique Toolkit. They bring ten years of research, design and building expertise by serving as the general contractors for their home, the **Universal Design Living Laboratory**– which is the highest rated universal design home in North America.

Within the Toolkit's 200 richly illustrated pages, you'll find: Insights that distinguish *essential* products, services and resources from the *unnecessary*.

Proven, realistic tips for finding the right home.

Home features you need to look for. Nothing is assumed or left out.

Handy home checklists and assessments.

Interview questions to help you hire industry professionals with knowledge and experience. Photographs that provide a frame of reference to inspire, clarify and illuminate features and benefits.

Valuable resources to save you time, money and energy.

Helpful sources of funding.

Space planning dimensions for access using assistive devices such as wheelchairs and walkers.

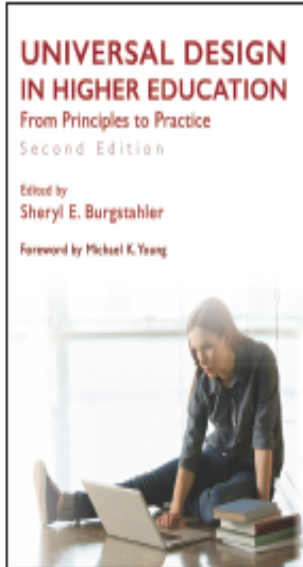
And so much more!

If you want useful, dependable advice and easy to implement ideas from respected experts who know the ropes, you'll love Rossetti and Leder's perspective. As a speaker, author and consultant who uses a wheelchair, Rossetti has helped hundreds of people design their ideal homes. Now her comprehensive Toolkit is available to help and support you!

Get the **Universal Design Toolkit** now to start your project!

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

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



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UNIVERSAL DESIGN IN HIGHER EDUCATION

From Principles to Practice, Second Edition

EDITED BY SHERYL E. BURGSTAHLER • FOREWORD BY MICHAEL K. YOUNG

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

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

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

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

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

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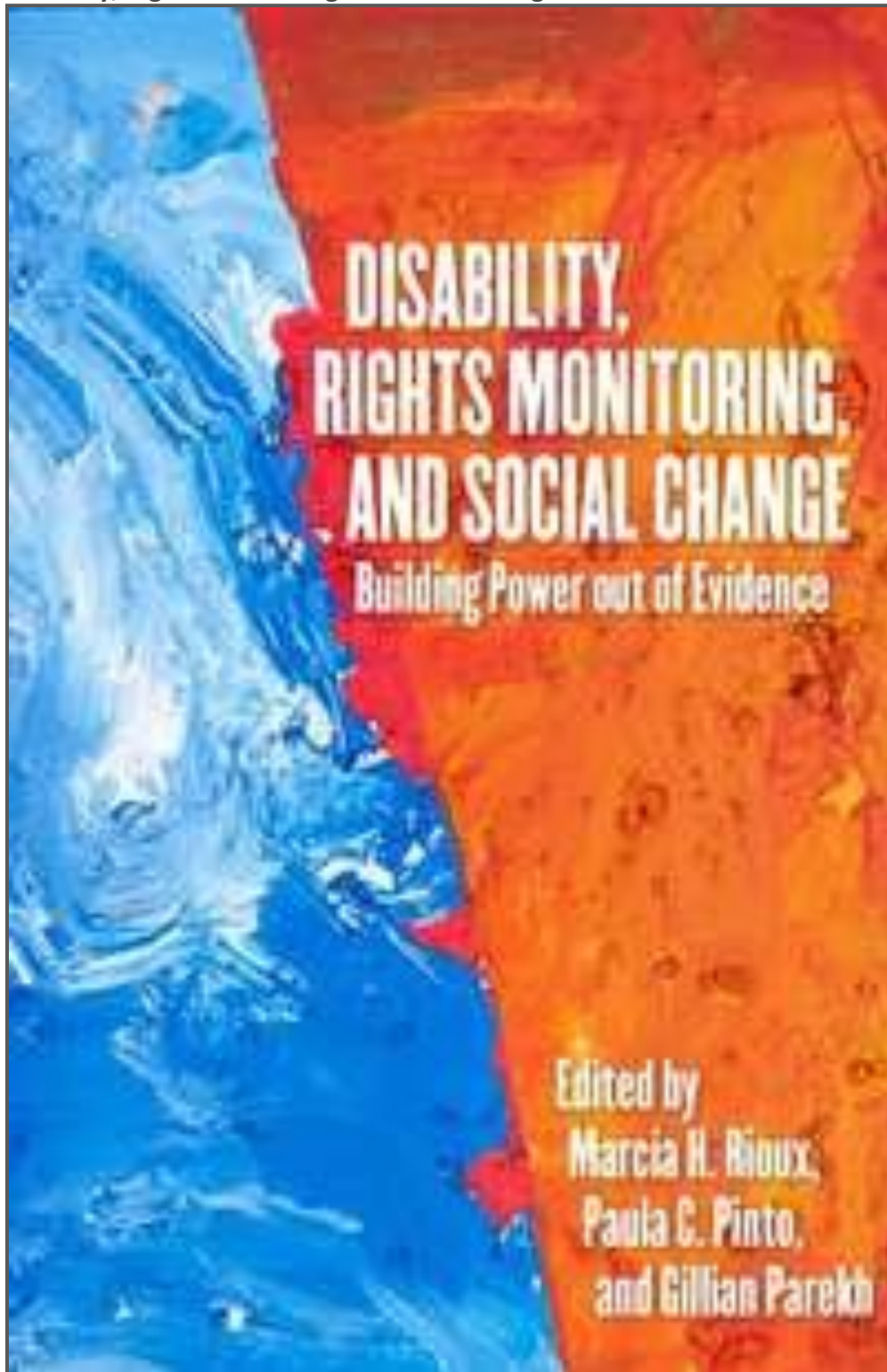
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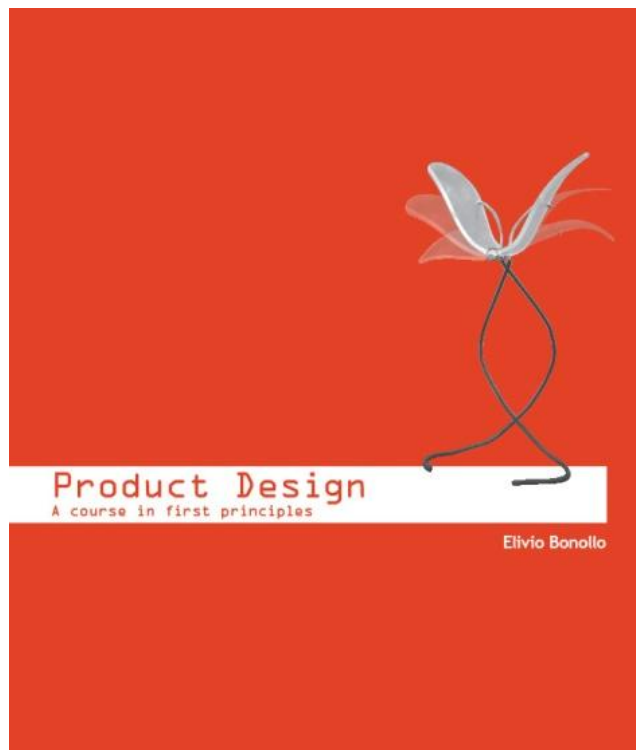
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Disability, Rights Monitoring and Social Change:



New Update: ELIVIO BONOLLO (2015/16) PRODUCT DESIGN: A COURSE IN FIRST PRINCIPLES



Available as a paperback (320 pages), in black and white and full colour versions (book reviewed in *Design and Technology Education: An International Journal* 17.3, and on amazon.com).

The 2018, eBook edition is available in mobi (Kindle) and ePub (iBook) file versions on the amazon and other worldwide networks; including on the following websites:

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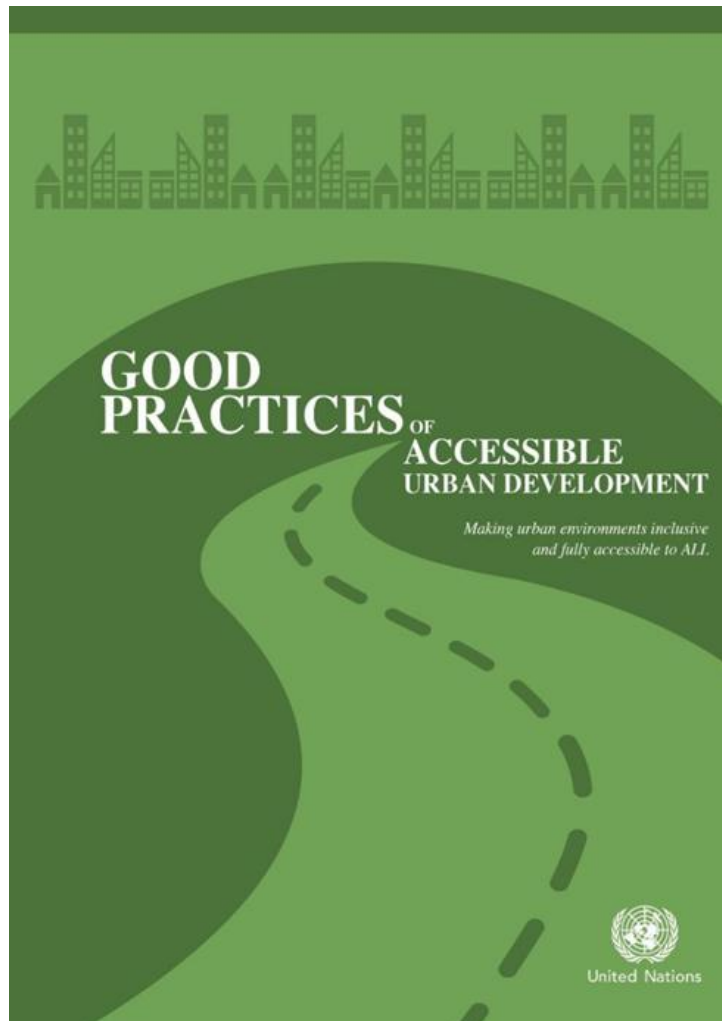
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INCLUSION



BRANDING

Revealing Secrets to
Maximize ROI



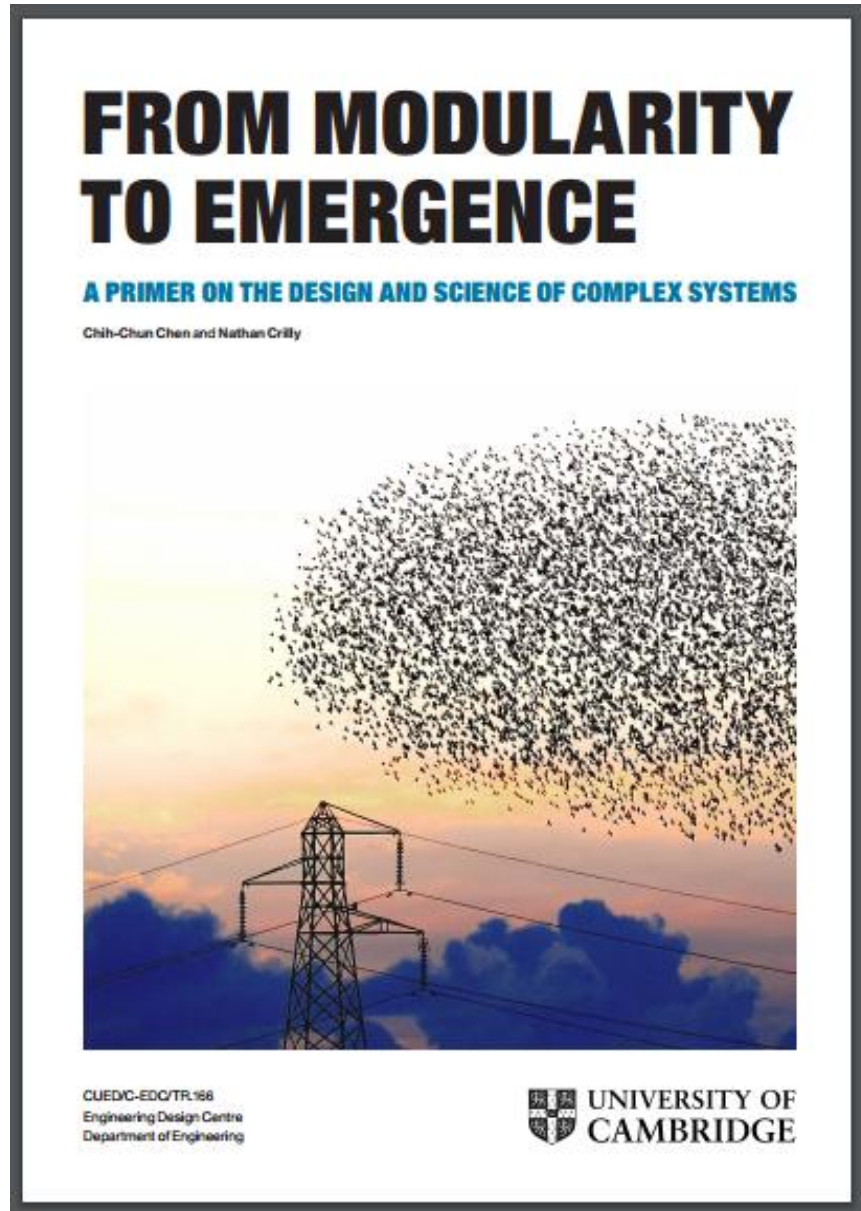
In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: "Good practices of accessible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

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

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

The advance unedited text is available

at: http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.pdf

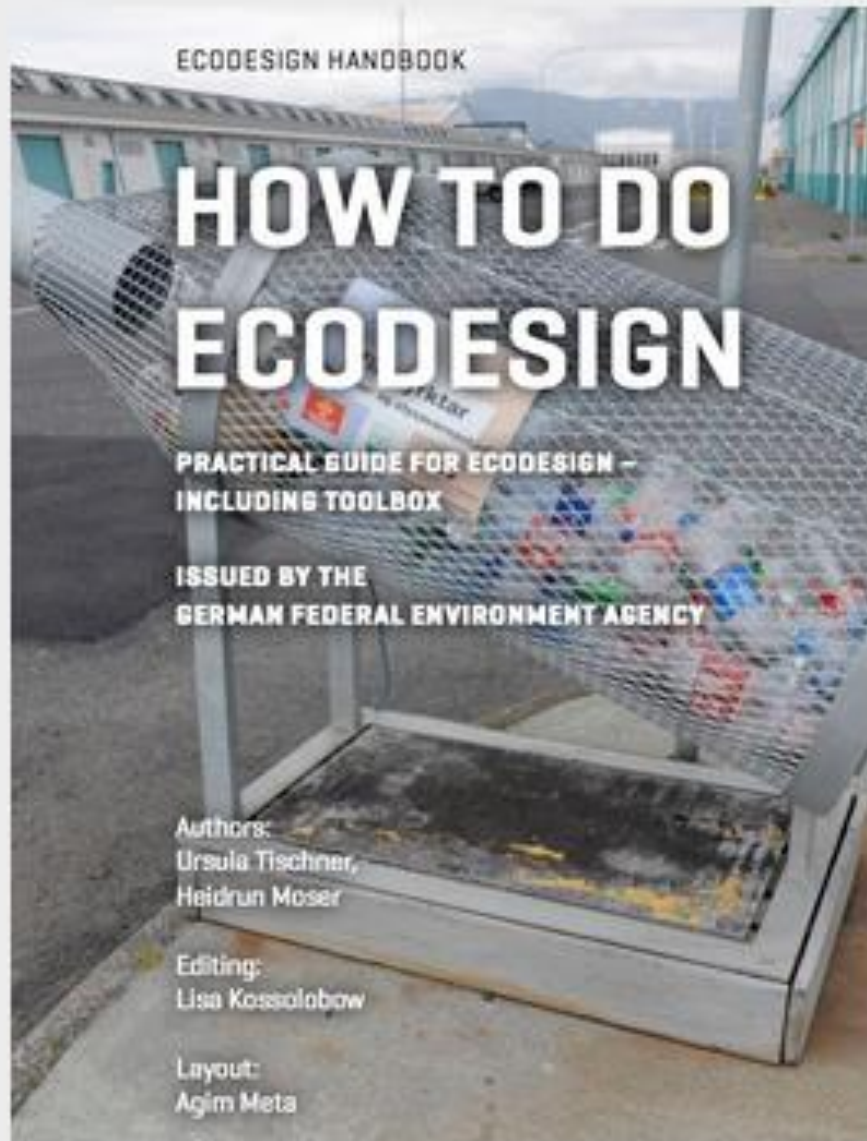


Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, *'A Primer on the Design and Science of Complex Systems'*.
This project is funded by the UK Engineering and Physical Sciences Research Council (EP/K008196/1).
The book is available at URL: <http://complexityprimer.eng.cam.ac.uk>

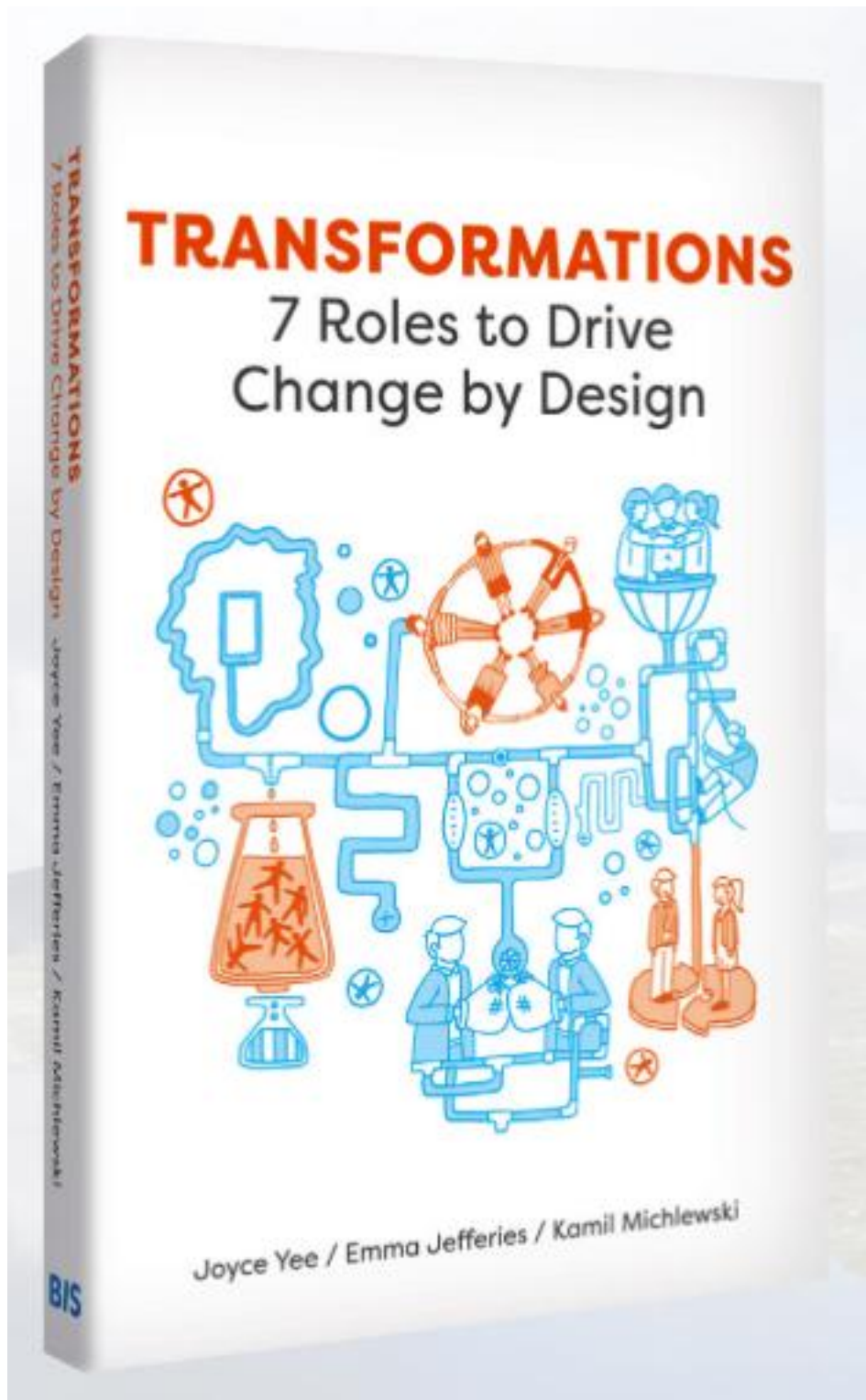
Changing Paradigms: Designing for a Sustainable Future



New iBook / ebook: HOW TO DO ECODESIGN



Practical Guide for Ecodesign – Including a
Toolbox
Author: Ursula Tischner



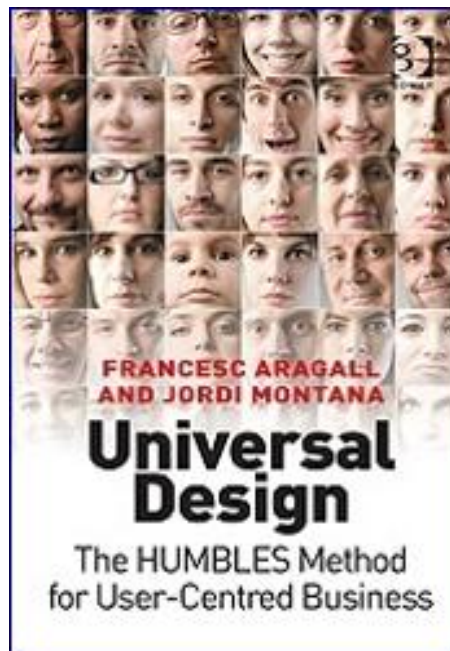
Amar Arnason and Sigurjón Baldur Hafsteinsson

DEATH AND GOVERNMENTALITY

Neo-liberalism, grief and the nation form



Universal Design: The HUMBLE Method for User-Centred Business



“Universal Design: The HUMBLE Method for User-Centred Business”, written by Francesc Aragall and Jordi Montaña and published by Gower, provides an innovative method to support businesses wishing to increase the number of satisfied users and clients and enhance their reputation by adapting their products and services to the diversity of their actual and potential customers, taking into account their needs, wishes and expectations.

The HUMBLE method (© Aragall) consists of a progressive, seven-phase approach for implementing Design for All within a business. By incorporating the user’s point of view, it enables companies to evaluate their business strategies in order to improve provide an improved, more customer-oriented experience, and thereby gain a competitive advantage in the marketplace. As well as a comprehensive guide to the method, the book provides case studies of multinational business which have successfully incorporated Design for All into their working practices.

According to Sandro Rossell, President of FC Barcelona, who in company with other leading business professionals endorsed the publication, it is “required reading for those who wish to understand how universal design is the only way to connect a brand to the widest possible public, increasing client loyalty and enhancing company prestige”. To purchase the book, visit either the [Design for All Foundation website](#)

Appeal



Professor Ricardo Gomes offers a holistic vision of 2049 that relies on empathy and observation to build trust and embed healthcare services on an experiential level.

https://www.health2049.com/health2049/designing-world-class-healthcare?fbclid=IwAR0mko9EDgspEOme_Ph3R8vwAkVGNyqLe8C3jbN-68RCgCp_p1kdDZg8-g

Ricardo Gomes, IDSA

Professor/Coordinator

Design Center for Global Needs/Shapira Design Archive

School of Design

San Francisco State University

415-338-2229

<https://faculty.sfsu.edu/~ricgomes/>

2.

Digital Accessibility Rights Education (DARE) Academy: Apply for the DARE Academy Scholarship Fund

The Digital Accessibility Rights Education (DARE) Academy reflects G3ict's mission to "Promoting the Rights of Persons with Disabilities in the Digital Age."

DARE Academy Scholarship Fund is G3ict's pilot program dedicated to opening new potentials for persons with disabilities who are interested in and passionate about advocating for digital accessibility and to get certified as professionals in the field.

If you are interested in getting certified as accessibility professional, you are welcome to benefit from our recently launched DARE Academy Scholarship Fund. A program that is dedicated to opening new potentials for persons with disabilities who are interested in and passionate about advocating for digital accessibility and to get certified as professionals in this field. This scholarship fund will enable potential candidates to have free access to G3ict's International Association of Accessibility Professionals' education material and examination process in partnership with Princeton University.

Why a person engaged in digital accessibility advocacy should take the time to take the CPACC Preparation Course and Exam to become a Certified Professional in Accessibility Core Competencies (CPACC)? Why is it relevant to become informed, proficient in technology, innovation, and digital accessibility?

- **To better understand cross-disability digital accessibility challenges and opportunities.**
- **To make their own organization more accessible.**
- **To better negotiate with their own governments the availability of accessible products, content, and services for their own communities.**
- **To join a global community of Digital Accessibility Champions sharing to this end know-how and good practices in advancing specific advocacy initiatives.**
- **To strengthen their negotiation position with public and private sector representatives via committees and task forces developing or implementing digital accessibility policies and programs.**

Benefits

In addition to being awarded a scholarship to get certified as an accessibility professional, awardees also receive:

- Access to the IAAP Membership for one year that consists of individuals and organizations representing various industries including the private sector, government, nonprofit, and educational institutions.
- Free registration for the G3ict's DARE Academy Webinar Series on Digital Inclusion. The series of webinars, based on findings of the DARE Index, are dedicated to contributing to the documentation process of countries' best practices for ensuring the availability of a reliable and comprehensive source of educational references and awareness raising tools in the arena of digital accessibility and inclusive ICTs.
- An opportunity to participate in G3ict's DARE Academy Global Network of Digital Accessibility Champions. The network is open for persons and organizations who are involved in areas of advocacy, awareness raising, knowledge development, and policy making around issues and strategies of inclusive ICTs.

Eligibility

To be considered for the DARE Academy Scholarship, applicants must:

- Be a person with disability,
- Have the minimum of secondary education degree and be a minimum of 18 years to apply,
- Be working or actively engaged in the field of digital accessibility,
- Demonstrate a passion for promoting the rights of persons with disabilities in ensuring digital accessibility.

How to Apply

Applications are processed by the G3ict's Institutional Advocacy Division. If you are interested in submitting your application, please submit your application to be considered in Cycle 1 of the scholarship by August 15, 2021 (11:59 p.m. New York time). Applicants must ensure all information provided is accurate and in aptly detailed. All questions and fields indicated with an asterisk sign (*) are required.

Important links

- Learn more about the DARE Academy.
- Visit the DARE Scholarship webpage for more details on the Program of Study, Selection Criteria, Important Dates, Scholarship Award Process and FAQs.

For any questions or further clarifications, please email us at dareacademy@g3ict.org.

(Courtsey:G3ict)



News

1.

Designing for disability

Who are we building it for? It's a question that requires constant revision if you are in the design or architecture profession. There's a lot riding on the answer, which, down the line, gets rendered in bricks and mortar and will be used by the public.

The notion of a public building suggests it can be used by anyone, but that isn't always the case when it comes to members of the public with disabilities.

Wheelchair accessibility is one thing, but how are we accounting for the needs of people with intellectual disabilities as well?

To answer that question, you might want to take a look at the newly-built Springfield Community Hub in Melbourne's south-east.

It integrates universal design principles — including assistive technologies spread throughout the space — designed to aid users with a variety of needs.

The project resulted from the direct input of people with lived experience of disability, which included design consultant Pam Jacobs.

She worked with project architect Lauren Smith, of the firm Morton Dunn, to realise the building.

They joined Blueprint's Jonathan Green alongside Pam's carer Lyndi Nuthall, as well as Robyn Wallis — another Springfield Community Hub building user.

Find more Blueprint via the ABC Listen app or wherever you get your podcasts.

(Courtsey: ABC National Radio)

2.

Design for Disassembly: This Old Idea is the Wave of the Future

Minimize materials, simple mechanical fasteners, clearly label components with their material type, and ensure components can be disassembled with everyday tool

The stats feel tired at this point: the EPA tells us that over 10 million tons of furniture are taken to US landfills each year, and more than 2 thousand tons of major appliances will be tossed onto the heap in 2021 alone. As product designers, this can lead us straight to an existential fever dream, imagining Victor Papanek whispering in our ear: "There are professions more harmful than industrial design, but only a few."

The reality is that consumption-based capitalism isn't going anywhere. But we as designers and business leaders have the opportunity and the agency to devise ways to implement healthier making and sourcing methods by rethinking our approaches to design.

How can our products' life spans be prolonged? How can our designs encourage repair? How can we insist on our work's participation in a circular economy? I give you, with as much bravado as I may, our solution: Design for Disassembly (DfD). DfD is the wave of the future, but it is also an old idea. This article will kick off a four-part series to address the importance of designing for disassembly, acknowledge its

traditional roots, and review how designers are implementing it in industries not typically associated with DfD.

A Refresher: Remind Me Again What Design for Disassembly is?

Design for Disassembly (DfD) is the straightforward design method and philosophy that ensures that all elements of a product can be disassembled for repair and for "end of life." This allows for and encourages repairs, with the result that a product's life cycle is prolonged; and it allows for a product to be taken apart at the end of its life so that each component can be reclaimed as a technical nutrient (i.e. recycled) or biological nutrient (i.e. composted). Among other shifts in thinking and making, this means minimizing materials, using simple mechanical fasteners instead of adhesives, clearly labeling components with their material type, and ensuring components can be disassembled with everyday tools.

When I broke the glass vessel of my French press this weekend, I ordered a replacement vessel instead of purchasing an entirely new coffee maker. This was only possible because my French press was designed so that it could be easily disassembled. On the other hand, my electric kettle has started to leak. There are no small screws for me to open it – in fact, it's mostly glued together. This means that when I finally cave and admit that this kettle is broken, I have no way to repair it and no way to recycle its parts. In contrast to the French press, the product was not designed for disassembly. My only option is to throw it out, and to buy a new one.

As mentioned, DfD is not a new concept. (My favorite past Core 77 article espousing its virtues is Alex Denier's [Essential Guide to Design for Disassembly](#), which still feels like a very handy guide even 10 years later.) DfD is, however, a concept that has been painfully slow to catch on despite its obvious

benefits, with plenty of companies backsliding in the opposite direction towards glued, bonded, and overshot parts – if not planned obsolescence.

Green It Like You Mean It

Unlike the nebulous goal of designing a "sustainable" product, designing a product for disassembly is a more concrete, quantifiable approach to ecologically sound making and to consumption. Off the bat, it throws the curtain back on corporate greenwashing. If a company says they're sustainable, how is the average customer to know what's really going on behind the scenes? If a company commits to DfD, however, then we can concretely understand their barometer for sustainable production.

Here in the U.S., sustainability goals often hinge on material choices, a common example being the choice of materials from recycled content (or materials that can be recycled). Designing with recyclable materials is great but, at best, it kicks the can down the road, placing the burden onto future generations or users. At worst, it gambles that the customer cares, that they can recognize or are paying attention to a wide variety of materials in the first place, and that they live in a municipality that recycles at all.

Designing with recyclable (or recycled) material, simply put, is the bare minimum that we designers can do. On the other hand, upping our commitment to DfD encourages longevity through a culture of repair. It sets the stage for building a stronger relationship with consumers through a more enduring product-user engagement, and establishes an advantageous association with "premium" and quality design – that is, designs made to last.

Europe Loves to Set the Pace

Outside of the U.S. it can be more common to see a system-based approach to reducing waste and increasing a product's

longevity. The **Right to Repair Law**, for example, was passed in Europe last Spring. It requires that electronics like washing machines, televisions, and hair dryers sold in the E.U. must be designed to allow for easy repair for at least 10 years after the product comes to market. This legislation intentionally prolongs a product's durability and repairability while minimizing e-waste. (Additional upcoming legislation in the E.U. focuses on smartphones and laptops, which account for a large portion of global e-waste.) The most straightforward way to fulfill these new requirements is to make sure that DfD is front and center in universal design processes – and, to precede that, in universal design conversations and education, too.

The U.S. is often just a few years behind the E.U. when it comes to sustainability regulations, so this is a likely harbinger of what requirements will soon be instituted more globally. From there, public opinion and consumer behavior soon follow. So to proactively design products for disassembly means that our work as designers can become more universally compliant, while also satisfying more world-wide cultural expectations from the consumer side.

Standardizing DfD is an important step in establishing a more circular economy. It allows us to reclaim product components for future use and reduces costs of goods sold by eliminating materials redundancy; positions us to use safer and more healthful materials that in turn affect conditions in both factory and in end-user settings; and it removes the onus from consumers to figure out how to responsibly dispose of their products. It's a win-win-win. And these "wins" are necessary for the future of design, and the future of our planet.

(Courtsey: Core 77)

Programme and Events



[Conferences](#) / [2021](#) / [August 2021 in London](#) / [Inclusive Design and Manufacturing](#)

ICIDM 2021: 15. International Conference on Inclusive Design and Manufacturing
August 19-20, 2021 in London, United Kingdom



FIFTH INTERNATIONAL CONFERENCE ON UNIVERSAL DESIGN

June 9 - 11 2021 at Aalto University, Espoo



GET READY TO CELEBRATE GREAT DESIGN!

As restrictions start to ease across Australia we can't wait to celebrate the very best in design and innovation with our 2021 Good Design Award Winners. Booked for Fri 17 September at The Star in Sydney, this year's Good Design Awards Ceremony will be one you don't want to miss!

ENTER GOOD
DESIGN AWARDS

We think our design community deserves an extra special celebration this year, so save the date and get your entries in!



IDCS Design Excellence Awards 2021

Mar 27, 2021 2:27 am EDT

The [Interior Design Confederation Singapore](#) (IDCS) is calling for entries for its 2021 Design Excellence Awards.

The leading awards program showcases the best interior design talent in Asia-Pacific.

The deadline for submissions is August 31, 2021.

TypoDay2021

6th & 7th August 2021

TypoDay 2021

6th & 7th August 2021

<http://typoday.in/>

Sixth International Conference on Universal Design

September 7-9 2022 - Brescia, Italy



The UD2022 conference is co-organized by University of Brescia, Ca' Foscari University of Venice and University of Trieste, Italy.

This sixth conference in a series of major biennial international conferences on Universal Design: [UD2012 \(Oslo\)](#), [UD2014 \(Lund\)](#), [UD2016 \(York\)](#), [UDHEIT2018 \(Dublin\)](#), [UD2021 \(Helsinki\)](#) is the first one to be organized in southern Europe.

The conference is targeted at professionals and academics interested in the theme of Universal Design related to the built environment and users' wellbeing. The themes cover also mobility and urban environments, knowledge, and information transfer. The conference provides research knowledge and best practices from all over the world.



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23rd International Conference on Engineering & Product Design Education (E&PDE 2021)

VIA Design, VIA University in Herning, Denmark

Workshops and Registration: 8th September 2021

Conference: 9th & 10th September 2021



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