Chairman's Desk:

Our this issue of newsletter is last one and thus final for our series of invited authors for contribution of articles for the year 2008-9. We have received so much affection and respect from all our eminent contributors that all of them have not only contributed their articles in their agreed stipulated timings but helped us for improving our style, format and content of the newsletter. Newsletter of March 2008 Vol-3, No-3 issue is unique because of all the contributors are eminent personalities of Universal/ Design For All. Prof Edward Steinfeld and Prof Abir Mullick who are part of the core group and members of formulation committee of principle of Universal Design, have contributed their valuable article for the benefits of our readers.

If we mention his name with respect or whether we thank him, it does not matter for him. He keeps on carrying his work with same energy. His affection and love for our efforts of popularizing the concepts of Universal Design/ Design For All will never diminish or change for these insignificant gesture and will remain same as it was from the day of inception of our institute. He is none other than our philosopher and Guide Mr. Richard Duncan who has worked with Center of Design of North Carolina state university for more than 20 years. We owe too many things to him and feel indebted for what we are today.

It is really honor for us that Prof Jim Sandhu has accepted our invitation for being Guest Editor in one of our forthcoming issues of our newsletter. He would invite the authors of his choice and arrange, edit that special issue.

Above all our readers have raised us to the real international platform for the genuine voice for Universal/ Design For All/ Inclusive/ Barrier Free Design. The successes stories of our readers have made us a part of the world's oldest organization IDSA (Industrial Designers Society of America) that has accepted our invitation for special issue on contribution of IDSA. The head of Universal Division of IDSA, Mr. Jim Muller has accepted the Guest Editor of that special issue. Salute to our large reader's base.

We keep requesting our readers for their feedback to our efforts and based on their letters. We have identified few areas which required our attention and were ignored earlier because of either we were not mature and experienced or we were not having large number of contributors base, in other words we were short of resources or we were not properly attentive to the need of the readers. Our efforts are individualistic where as we wish to inference the thought process of designers all over. In January 2008 Vol-3, No-1 issue of newsletter, we began new section of CASE STUDY and from February 2008 Vol-

3, No-2 we have introduced a new section of BOOK REVIEW along with case study. In March 2008 Vol-3 No-3, we are serving a new section of INTERVIEW along with our regular features. In this issue we are publishing an interview of a distinguished person in Design and Co-founder of NEXTDESIGN Mr. G K VanPatter and interviewer is a reader of NextDesign Mr. Rick Poyner. We believe our readers would respond properly and send us publishing material for our regular and newly introduced features of our newsletter

We feel happy since we have found certain groups of people are working selflessly for social movement within their limited resources. What does it make some person to forget everything even their existence and behave in height of obsessive ness to achieve his desired goal? It reminds me- 'Men are so necessarily mad, that not to be mad would amount to another form of madness, -Pascal' I feel Madness has in our age become some sort of lost truth. "Truth" perhaps, is not so much a matter of coherence of related meanings and it is certainly not a simplistic conjunction of pseudo fact and pseudo experience. The truth of madness is what madness is. What madness is is a form of vision that destroys itself by its own choice of oblivion in the face of existing forms of social tactics and strategy. When I find some individual or group or institute with some sort of madness it delights me and I try every

possible way to enfold them within our madness. It is the same madness which creates new meaning and takes to that mystical area where no one ever dare to unfold and even tread for that mystery. Initially, it is in the vague form and that person can only foresee in his vision who is absolutely mad in for making his dream into reality. He achieves gradually and that reaches the special level or command respect or status. But this journey from nowhere to something is known to the person who is mad and as an sympathizer I can only realize his pain and difficulties   but can not enjoy his experiences of relieving himself from the pain to successes . Similarly the pain of Design for All Institute of India is known to us and to make it genuine voice of Universal/ Design For All. It is not magic. It is our selfless hard work which today is taking some sort of shape. It is yet to establish but dye has casted. It is still a mystery and we do not know where it will lead to us. Our friends have to wait and see how mystery is unfolded. Magic is not pleasant form to watch. Your senses tell something and your experiences tell the opposite. We believe in perspiration. That is higher and unique forms of experiences enliven a spiritual content to a degree.

 It becomes our moral duty to join those groups and we can do best for them by providing our platform and vast readerships This mutual collaboration not

only help us to know what new things are happening in area of our interest but it expends readers base for both . We appeal and invite such groups to join with us and share their knowledge with our platform. It is an unusual effort to seize something through vision spread vast on the horizon and lying. The mountains of ignorance are far larger than the tiny hills of knowledge raised so far.

Continuation of our earlier efforts of highlighting the contribution of institute/ organization/ country, we have invited Dr. John P. S Salmen, Publisher & Editor of Universal Design Newsletter and requested him to be Guest Editor of that Special issue (April 2008 Vol-3, No-4). Our April 2008 Vol-3, No-4 is with Universal Design Newsletter.

Our philosophy is that not to rear any prejudice rather, always allow all to express their own ideas. We never know what idea he has in his mind for selection of articles (It may be I may give certain article a special attention and feel that publication will enhance the knowledge of our readers or may reject feeling nothing is significant in this article) and never know his art of expressing his ideas. Idea of painting is important, medium is immaterial it may be watercolor, charcoal or oil.

When we do something in life and are focused (Mind, heart and actions are aligned), the conclusion of that work will never mislead and will take you that level

for what we are struggling. It means focus attitude makes us not to care for any laws and we follow the whispering of our heart. Bottom of every heart has pure voice and that guides us for what we are striving. Similarly so many laws exist but base of all law is moral. No law is above than moral law. If you follow moral law you can follow any law of any land. The "moral law" is what we have the authority to demand of one another. Your authority to demand that I treat you in this way is the (source of the) distinctive reason marked by the concept of moral obligation.

When we hold someone morally responsible for their actions, we are acknowledging, reiterating, or perhaps even making it the case that, among others things, they are member of particular sort of club, namely the moral community. Members of the club are eligible for such assessments and non-members are exempt. But what does it take to be or to become a member? Why are assessments of moral responsibility intelligible and appropriate only for those on the inside? And what does it takes to lose membership or not to be a member in the first place?

When we praise or blame expressive to hold someone morally responsible, in the paradigm case ; consist of the interplay between at least two agents. One who praises or blames and the other who

ostensibly hears understands, and either accepts or rejects the demand, and such an exchange is possible only for those who have capacity to enter into a certain kind of relationship with one another. Call those who share this capacity, then moral agents, and call the collection of moral agents a moral community.

We can not separate duty from rights. Ethics is based on sense of fear with consciousness. Noble laureate Rabinder Nath Tagore wrote a wonderful novel 'GORA'. In this story, during the mutiny, one British officer throws his newly born child in a place to save his life from the enemy who were chasing him to kill his family. Parents were killed by Indian army. That orphaned child was raised by orthodox Hindu Bengali family without ever disclosing that he was an orphan .That child was eldest in family and fair in complexion so they named him Gora (in English white skin). That boy grew in Hinduism and became strong believer of this religion and any small wrong reference or criticism, he used to boil to fight or argue with others person. It is practice in Hinduism that last rite of father would be performed by eldest son. One day British doctor visited to see the sick and in last lag of life the Gora's Bengali father and informed the dying man that his last moment had come and share your secret with your family members. Father called Gora and allowed the

British Doctor to be in his room. Dying man requested everyone to leave the room, he whispered with tearful eyes to Gora 'Do not perform my last rites because you are son of British family and I am not your real father'. This announcement shattered him inside and realizes that British sitting close to the dying man was closer to him and person who has cared for his upbringing is at far distant. This story is first real story of UNIVERSAL MAN and Tagore means to ridicule the orthodoxy of Hinduism which had overtaken the truth of human relations

So long man is conquering outside world, he dreams. When he searches knowledge inwardly to know 'who he is' .His investigation leads him to moral side and that represents our sense of awakening. Awakening experience of human of everywhere in the world is universal.

We hope this issue would provide new healthy practical minds and concrete ideas for new ways to deploy and manage Universal Design for increased social voice.

As our vision steadily becomes a reality. I hope that you will continue to lend us with your valuable support and encouragement.

Enjoy reading and awaken your soul for betterment of universal man

With Regards

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1.

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Dr. Steinfeld is a registered architect and design researcher. He is a Professor of Architecture and Adjunct Professor of Occupational Therapy at the University at Bufaflo.

One of the developers of the seminal Principles of Universal Design, he has published extensively and is known internationally for his research. Dr. Steinfeld has received 2 Progressive Architecture Awards for Applied Research and a Research Recognition Award from the National Endowment for the Arts. In 2003, Dr. Steinfeld received a Distinguished Professor award by the American Collegiate Schools of Architecture.

Dr. Steinfeld is a member of RESNA, HFES, and AIA.

2.
Abir Mullick

Professor Abir Mullick is the Director of the Industrial Design Program in the College of Architecture at the Georgia Institute of Technology. Previously at the State University of New York (SUNY), Buffalo he was associate professor of architecture and project director at the Center for Inclusive Design and Environmental Access. Nationally known for his work in the field of universal design, he is one of the authors of the seven principles of universal design. An active researcher, Professor Mullick has directed many sponsored projects and developed designs that highlight universal access in products, as well as in environments. Currently, he is directing the Inclusive Indoor Play, funded by the National Institute on Disability, U.S. department of Education. Recipient of national awards, he holds many patents for his designs and several have been commercialized. Well known for his international work, he has served as a consultant to the United Nations and has advised many non-governmental organizations. Professor Mullick is a member of the Industrial Designers Society of America, Human Factors and Ergonomics Society, and Rehabilitation Engineering and Assistive Technology Society of North America

3.
Richard Duncan

He has worked as MRP in Center of Universal Design in North Carolina State University, USA for more than decade and currently he has joined organization those who designs the houses for senior citizen on the concept of Universal Design. He has very vast knowledge and few living legend in Universal Design
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practice experience and is an expert in the areas of

ADA compliance, universal design, and accessible design. Her experience includes architectural design for residential and commercial buildings, home modifications, ADA compliance audits, accessibility assessments, feasibility studies, and post occupancy evaluations.

5

Richard Bergman is the President of Heartland Homes and has over 20 years of building experience. He was previously a design instructor at the University of Buffalo for 7 years and also built custom cabinets for the top furniture design stores. Heartland Homes builds high-quality, custom homes for people seeking to make their "Dream Houses" a reality.

6.
Rachna Khare

Rachna Khare is a recipient of the prestigious Fulbright fellowship for professional and doctoral research and currently affiliated with College of Architecture at the Georgia Institute of Technology,

Atlanta, USA working with Professor Abir Mullick . She is an architect and teaches at the Department of Architecture of the Birla Institute of Technology, Mesra, India. Her research interests in the field of designing for people with special needs have earned her grants from All India Council of Technical Education and University Grants Commission of India. She has organized a National Workshop on "Architecture for the Challenged" in collaboration with National Institute for Orthopedically Handicapped in 2004. She has edited a special issue of an internationally refereed journal called 'ABACUS' devoted on 'Architecture for All' in September 2007 and has many papers in various National and International conferences and journals to her credit. Rachna is well known as an activist and is Secretary of a NGO called 'Movement for Intervention, Training and Rehabilitation of Autistics' (MITRA) as well as Convener, Kislaya Vidya Mandir, A school for underprivileged children in BIT Mesra campus supported by 'Asha' Stanford.`

Content of March 2008 Vol-3, No-3

Forthcoming issue of April 2008 Vol-3, No-4

Our April issue is very Special issue of Newsletter that is edited by Dr James P. S Salmen of Universal Design letter and contributors are choice of Editor.

Many More...

Our forthcoming issues are special on IDSA, Brazil, Design Center of San Francisco State University, Prof Jim Sandhu's Special and Group of Finland Designers.

Article-1:

The Need for Evidence Based Practice in Universal Design

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As we share information globally and develop international standards and guidelines, the need for a shared evidence base for the practice of universal design becomes more evident. What are the issues we need to address to develop such an evidence base? Design standards are the primary strategy used to increase the accessibility and usability of the built environment. They convey knowledge from research and theory to practice. Thus, a review of design standards can help to understand these issues.

Do standards reflect universal design concerns? Dion (2006) compared accessibility standards in 14 countries. A review of her findings indicates that very few countries have any requirements to assist people with sensory disabilities at all and none have requirements that are directed toward cognitive issues. Thus, existing standards are primarily focused on mobility impairments. This clearly

reflects the lack of a universal design perspective in most countries.

One would expect standards to vary across different countries and to be similar across similar countries due to variation in local conditions, such as economic development status, the general standard of construction (e.g. paved versus unpaved roads), politics (e.g. strength of the disability rights movement), life experiences of people with disabilities (e.g. living with families or independently), available assistive technology (e.g. types of wheelchairs) or available building products. Yet, Dion's survey identified some technical standards in some less developed countries are even more stringent than in more developed countries. And, accessibility standards in countries as dissimilar as Fuji and Sweden, are more likely to be similar than different.

Variation may also be caused by different ways of life and cultural values from country to country? For example, standards for linen storage in houses differ greatly between Ireland and the U.S. because the Irish put greater value on linens and standards for kitchen, and, space standards for seating in India reflect a historical pattern of sitting on the floor compared to Western countries where people historically sat in chairs (Rapoport and Watson, 1972). Van der Voordt (1999) illustrated how different cultural assumptions in Northern Europe

and North America are reflected in different accessibility standards. For example, in Europe, standards for accessible toilet areas have space on both sides to accommodate both right and left handed transfers whereas in the U.S. they provide space on only one side. And Christopherson (1999) demonstrated that accessible standards for housing are developed to fit with the historical approach to housing design in different countries.

The similarity of many standards in very *different* countries suggests that not enough is known about the variation in needs from country to country. Standards developed in one place are being adopted in another. The differences across standards in *similar* countries also suggest that there are different knowledge bases used in standards development. Are these patterns based on solid evidence or on the opinions and values of the developers alone?

A third issue is the form of standards. An historical comparison of the table of contents of the U.S. consensus standard on accessibility, ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities, demonstrates a gradual increase in the number of requirements addressing sensory disabilities (hearing and vision). But, the number of sensory issues addressed is still much lower in comparison to the attention given to mobility issues. There are still no requirements that address

cognitive issues. All the requirements in ICC/ANSI A117.1 provide only minimum criteria. The A117.1 Standard is adopted by government regulatory agencies as part of building codes. Its format and language are very detailed and specific, leaving little room for interpretation and alternative approaches. The requirements are highly technical and quantitative and do not consider aesthetic impact at all. The standard does not include best practices nor does it foster innovation and creativity.

In contrast, the European Concept for Accessibility Technical Manual (ECA, 2003) was developed to be a model for governments to follow in developing accessibility regulations. Although voluntary, it is translated into many languages and distributed throughout the EU. A review of the "Accessibility Standards" in the Appendix of the Manual found only a very few provisions for people with visual impairments and none for people with hearing impairments. However, the Technical Manual provided extensive recommendations beyond the minimum standards that include a great deal of attention to sensory and cognitive issues. Moreover, it also addresses a wide range of populations and includes many best practice examples and highlights the importance of aesthetics in acceptance of solutions.

Which of these approaches is most effective in promoting universal design? Should standards be

specific and only address critical design issues and minimum requirements, or, should they be more general, address a wider variety of issues and provide information for designers to go beyond minimum requirements?

Another concern is the validity of standards. Van der Voordt (1999), Christopherson (1997), Dion (2006) and Steinfeld, et al. (2007) compared technical accessibility provisions in different countries. All the studies identified differences and similarities across countries. Dion used a small expert consultant group to identify "best practices" for each criterion by consensus. No information was provided on how the consultant group was assembled nor why specific people were chosen over others or what guidelines or logic were used to establish a consensus. Thus, these "best practices" can be understood as the "best guess" of this select group of experts. Van der Voordt, (1999) and Steinfeld, et al. (2005) evaluated standards for wheeled mobility. They compared the requirements in standards to available research data. Van der Voordt used two-dimensional computer aided design simulations to establish "best practice" clearances although these simulations were not validated with actual individuals. Steinfeld et al. used anthropometric data collected from a recent sample of wheeled mobility users. Both of these studies identified inadequacies in existing standards, when compared to research results. They

demonstrate the need to establish a strong research base for standards and keep it up to date.

In conclusion, the transition from the accessible design paradigm to the universal design paradigm means that the knowledge base of standards should include more attention to sensory and cognitive disabilities. The form of standards should also be given some attention. We need research that can help us determine the best way to introduce universal design into standards to support designers who seek to go beyond minimal requirements. There is clearly a need for a valid evidence base for practicing universal design - one that transcends national boundaries and is based on empirical evidence wherever possible. In light of these issues, we need to be thinking about how international standards should be developed. Of particular importance is how international standards can address contextual issues. Should they be uniform across the world or should they allow room for adjustments to reflect different conditions?

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Article-2
Universal Design – Clarification And Development

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Preface

Universal design has been adopted by the Norwegian government as a strategy of importance in a number of political areas. These include transportation, planning, building, housing, information and communication technology, and health and social services. This significant emphasis on universal design has been approved by the Norwegian Parliament (Storting). Universal design is replacing the concepts of accessibility and usability in most areas of government and society. In addition, universal design is now being used in new areas where accessibility issues have formerly not been observed.

The Norwegian definition of universal design is a direct translation of the definition developed by The Center for Universal Design at North Carolina State University.

Besides being used as a general policy instrument, universal design is being applied in laws and regulations. Universal design is already implemented in laws concerning the learning environment (buildings, equipment etc.) in universities, colleges, non-degree granting colleges, and in kindergartens. Additionally, the concept will be included in new laws on public procurement, planning and building and non-discrimination. The idea is being used in regulations for impact assessment in planning and may be considered for use in building regulations.

This extensive use of universal design has revealed a wide-ranging need for clarification and development of the concept of universal design to make it precise and operational.

It is of particular importance at this stage to clarify the scope of the concept of universal design as an objective and as a practical policy. Likewise, practical methods to achieve universal design need to be presented.

To respond to these issues, the Ministry of the Environment commissioned this report to explain, detail, and extend key universal design concepts, and to explore the practical dimensions of applying universal design concepts in real world situations.

Universell Utforming – Universal Design

It is generally agreed that the term *universal design* first entered into usage in the mid-1980's by United States (US) architect, Ronald L. Mace, FAIA [1]Since

then the concept of universal design has spread worldwide and has influenced and joined related concepts such as Design for All, Life Span Design, and Inclusive Design. In its 20-year history in the US, universal design has slowly gained acceptance but has seen an uneven adoption.

Universal design still remains a strategy that has been implemented by different sectors of the private and public domains, selectively and for fairly narrowly framed purposes.

From the perspective of more usable and supportive environments, the US remains principally focused on accessibility: developing regulations, codes, standards, policies and procedures to provide societal inclusion to people with disabilities.

The emergence of universal design depended substantially on many years of work on accessibility and the lessons learned from those activities. Accessibility efforts and the fundamental values of the disability rights movement in large part formed the foundation on which universal design concepts were built. But, universal design came into being

partly because of the nature of accessibility that existed in the US by 1985; it was neither commonly found nor was it creatively applied. However, the appearance of universal design did not herald the end of accessibility. Two of the most significant American federal laws requiring accessibility were yet to be enacted by the time universal design began

to emerge: the Fair Housing Amendments Act was signed in 1988 and the Americans with Disabilities Act passed in 1990. Universal design and accessibility have continued to develop in a connected yet parallel manner, during the time of the *greatest* activity in the realm of accessibility code compliance. To be sure, the philosophical basis for the accessibility movement and universal design are quite similar: inclusion, full participation, and social equity. Universal design extends beyond the confines of accessibility to include all persons and creates that inclusion by promoting integrated and mainstreamed products, environmental features, and services.

The national expansion of accessibility provisions into private buildings, multifamily housing, and beyond, has continued the dominant role of accessible design. This has presented a challenge for advocates of universal design in their promotion of conceptual, policy and practical distinctions. While the great advantage of 50 years worth of work on accessible design has been the creation of a markedly accessible nonresidential built environment, it has also carved a large space in the collective psychology of people in the US. For example, universal design as a distinct idea is often confused with, if not subsumed by, the more narrowly targeted concept of accessible design.

Broadening the beneficiary group of more usable designing to include all of society is a significant practical and symbolic step that still requires much more effort.

Norway has adopted the universal design concept and applied it more broadly and from higher levels of the federal government than is the case in the United States. In making universal design and its philosophy an explicit part of broad national policy, [2]Norway has surpassed the status of universal design in the US. Regardless, this report will briefly document the origins, progress and vigorous activity in universal design as well as suggest useful lessons from the decades of accessibility successes.

I. Background

Universal design is the design of products and environments to be usable by all people, *to the greatest extent possible, without the need for adaptation or specialized design. –Ron Mace, 1988*

User-focused design did not begin in the past century with accessibility and universal design. Examples of user-tailored or human-centric design [3] extend back thousands of years, and often focus on occupational issues such as tools adapted to certain tasks, and features that facilitate the loading and unloading of material and goods, such as ramps at loading docks. Umbach (2006) cites Roman chariots built to the scale of warriors and notes the

historic use of the dimensional term "foot" as evidence of our attention to the human form.

The architectural trends of the late 19th and early 20th centuries toward modernist and functionalist design seemed to consider the day-to-day needs of individuals. Architects such as Klint, Corbusier, Aalto, Oud and those in the Bauhaus and De Stijl schools promoted an assortment of anthropometrics, affordability, efficient use of space, mass production, and housing for the general population. [4] [5] Nearly 70 years ago, Lewis Mumford was also promoting the concept of *social architecture* that was more responsive to society and to individuals. [5]. These movements never created a groundswell of adoption in architectural practice. Nor did architectural practice in most of the 20th century of the century become known for attention to lifespan issues and the 'nonaverage'.[6] This was to be imposed on the field increasingly, beginning in the 1960's.

Early in the 20th century, the field of industrial design developed in tandem with the fields of ergonomics and human factors. One can trace the more effective response of the industrial design field to usability issues and considerations than was the case with architecture.

The accessibility field in the US has been part of the civil rights movement for people with disabilities that began after World War II, and was related to

the larger worldwide human rights movement principally identified with the United Nations. [7], [8] The US disability activities paralleled other similar civil rights movements by disenfranchised groups in the US at that time, for example women, African Americans, and Native Americans. During the 1960's and since then, the disability community in the US has vigorously advocated for the creation of civil rights legislation and building regulations that provided accessibility features, e.g., curb cuts, stepless entrances, and lever door hardware. The initial major push into accessible building design came after the publication of the American National Standards Institute's (ANSI) 117.1 standard in 1961 [9], the first US accessibility design standard.

When Universal Design arose 25 years later, the success of the accessibility work in the intervening years had made great progress by appearing in some federal and state policies with respect to programs and services, architecture, transportation, public rights of way, public spaces, and to a lesser extent, housing. Although not uniformly applied or consistently rendered, by the mid-1980 accessible design was becoming more of a reality for the design and construction industry across the US. Standards such as ANSI 117.1, and its many later revisions and other accessibility provisions that were based on it were a great step forward in the field, yet had similar flaws. Those flaws revealed the limitations of

a code-based approach. Later analysis by Lusher and Mace showed that the codes and standards "... have been developed by an approach of modifying the norm through the use of a few specially designed features and products to accommodate the 'few' who vary from the norm. "Page 754 [10] .The authors point out that this approach led to an 'after-the-fact' implementation of access features (even in new construction) which resulted in "... facilities which have their own 'functional limitations' and aesthetic problems." Page 754 [10] other code-based challenges were also noted. "As architects began to wrestle with the implementation of standards, it became apparent that segregated accessible features were 'special,' more expensive, and usually ugly." Page 10 [11]

Yet, by 1985 people with disabilities had begun to gain significant access to buildings, programs and services. Unfortunately the access was not always equal or appropriate. In many cases, this access was via separate building features and components. In those stillearly days of this field, common occurrences were separate entrances, longer routes of travel, confusing wayfinding, and inconsistently rendered accessibility. At that time, these access features were found more commonly in newly constructed buildings. Renovated buildings often escaped requirements. The features were often stigmatizing and weren't integrated into the overall

design scheme of a product or feature of a building or environment.

The creative process of design professionals often seemed limited when confronted by accessibility goals, as if minimum, replicated access features were all that were needed.

Therefore, people with disabilities (and others who could take advantage of those features whether they identified themselves as 'disabled' or not) were still marginalized even though access to the world was improving.

This marginalized status was unintentionally perpetuated in the short term by expensive changes that were required in completed projects that did not comply with relevant accessibility requirements. These code compliance errors often cost designers and owners a great deal of time and money to correct. The fear of mistakes, combined with a general lack of understanding, foresight, and experience produced a conservative design result. There was a concern that any deviation from strict code adherence might expose those responsible for errors to significant liability. Only after many years of practical experience did the profession begin to move toward more creative and universal outcomes. However, those in the public and the private sectors are still trying to get basic accessibility implemented correctly, if not always embracing universal design.

Figure 1 illustrates how increasingly sophisticated approaches to accessibility compliance can result in universal outcomes. Providing appropriate sightlines and transaction counters for short or seated people is important in retail settings. This objective has been incorporated into a clever arrangement that also serves as the access and security gate for the staff of this information booth.

As early as the 1980's there were those who began to recognize that, even if imperfectly realized, many of the environmental features that were part of the accessibility provisions of

Figure 1: Flexible gate/counter

Design Photo by Leslie Young

that time, seemed to have a much broader beneficiary group than might have been expected. Story says of that time, "It ...became apparent that many of the environmental changes needed to

accommodate people with disabilities actually benefited everyone." Page 10 [11] The broad beneficiary group for accessibility, extending far beyond the presumably small and static group of people regarded as having a disability, began to change our notion of accessibility and our ideas of whom we are designing for.

1. Principle one: Equitable Use

The design is useful and marketable to people with diverse abilities.

GUIDELINES

• Provide the same means of use for all users: identical whenever possible; equivalent when not.

• Avoid segregating or stigmatizing any users.

• Provisions for privacy, security, and safety should be equally available to all users.

• Make the design appealing to all users.

2 principles two: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

GUIDELINES

• Provide choice in methods of use.

• Accommodate right- or left-handed access and use.

• Facilitate the user's accuracy and precision.

• Provide adaptability to the user's pace.

3 principle three: Simple and Intuitive

Use of the design is easy to understand, regardless of the

user's experience, knowledge, language skills, or current concentration level.

GUIDELINES

• **Eliminate unnecessary complexity.**

• **Be consistent with user expectations and intuition.**

• **Accommodate a wide range of literacy and language skills.**

• **Arrange information consistent with its importance.**

• **Provide effective prompting and feedback during and after task completion.**

4 principle four: Perceptible Information

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

GUIDELINE

• **Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.**

• **Provide adequate contrast between essential information and its surroundings.**

• **Maximize "legibility" of essential information.**

• **Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions).**

• **Provide compatibility with a variety of techniques or devices used by people with sensory limitations.**

5 principle five: Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

GUIDELINES

• **Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.**

• **Provide warnings of hazards and errors.**

• **Provide fail-safe features.**

• **Discourage unconscious action in tasks that require vigilance.**

6 principle six: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

GUIDELINES

• **Allow user to maintain a neutral body position.**

• **Use reasonable operating forces.**

• **Minimize repetitive actions.**

• **Minimize sustained physical effort**

7 principle seven: Size and Space for

Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

GUIDELINES

• **Provide a clear line of sight to important elements for any seated or standing user.**

• **Make reach to all components comfortable for any seated or standing user.**

• **Accommodate variations in hand and grip size.**

• **Provide adequate space for the use of assistive devices**

or personal assistance.

Human Factors, Ergonomics and Social Equity

Inclusion and integration of everyone in family, work and community life are major goals of universal design. If applied, the ergonomics and human factors elements in Principles' 2-7 (See Figure 2) will drive a number of decisions that will help achieve those goals.

However, the primary social equity instrument among the universal design principles is found in Principle 1: Equitable Use, The design is useful and marketable to people with diverse abilities. In fact, without Principle 1 being represented in combination with other principles, (and Guideline 1d. specifically: Make the design appealing to all users) a universal result is difficult to accomplish. The emphasis on design integration and mainstreaming of features found in Principle 1 helps leverage universal design into common usage and common acceptance.

Figure 3: Stairway with pool and seating Photo Credit: Leslie Young

The stairway images above (Figure 3) show a building element whose primary positive attributes relate to Principles 4 (Perceptible Information) and 5 (Tolerance for Error) because the pool and sitting wall prevent a blind or inattentive person from hitting their head on the underside of the stair. The fountain may offer audible cueing for people with vision impairments also. Secondary attributes that pertain to principles 3 (Simple and Intuitive) and 7 (Size and Space for Approach and Use) might apply because it presents a familiar and uncomplicated manner of use (3.b.) and that the handrails are properly placed and sized (7.c.). All of these might be considered to be adding functionality to the overall scheme, without including the mainstreaming effect of Principle 1 (Equitable Use). With this principle absent, it might have been built as a safe or ergonomically useful element rather than one that is inviting and appealing. It should be noted that his stair element, by itself, does not constitute a universal result for moving between floors of a building. It does not meet the needs of those who

cannot use stairs, regardless of how well designed the stairs are. However the stairway, combined with a proximately located elevator, produces an acceptable UD solution.

The twenty-five years of work on accessible design in the US, from 1960 – 1985, formed the body of work from which universal design emerged. Continued progress in the realm of accessibility since then has firmly established accessible design as a fundamental discipline and outcome that has benefited many. Done well and creatively, good accessible design can be truly universal. As was said nearly 10 years ago, "The demographic, legislative, economic, and social changes that brought us to this point are increasing the momentum that will propel us into the 21st century that will need to be more accommodating of individual differences. Universal design provides a blueprint for maximum inclusion of all people." Page 13 [11]

2. Universal Design as a Practical Policy

The intent of universal design is to simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost. Universal design benefits people of all ages and abilities. Ron Mace, 1988

American and European commentators offer important insights into goals and beneficiaries commonly associated with Universal Design. The

European Commission notes, *"In most respects, the integration of older people and people with disabilities into society will only come about as a result of designing mainstream products and services to be accessible by as broad a range of users as possible"* Page 10 [12] Story and Mace assert that universal design should *"...integrate people with disabilities into the mainstream..."* Page 11 [11] and that it will *"...reduce the physical and attitudinal barriers between people with and without disabilities."* Page 11 *Italics added* [11] Danford states that universal design will *"...yield advantages for everyone but will be of particularimportance to people with disabilities."*[13] Commentators also mention what is regarded as the core constituencies of universal design: those with disabilities and older persons. The disability movement is properly credited with creating the context from which universal design could materialize in the 20th century. The aging phenomenon seems to be a prime driving force for universal design in the 21st century. Partially due to success of accessibility implementation and compliance in recent years, the term "accessibility" and the ideas about an "accessible" built environment are commonly known, if imperfectly understood. For example, to many people "fully accessible" means primarily usable by people who use wheelchairs, losing the

inclusionary aspect of responding to the needs of people with other disabling conditions.

One result of this pervasive consciousness about and misunderstandings of accessibility is confusion about the nature of universal design.

Common myths include:

• That universal design is really "just accessibility that is dressed up to look good".

If this were true, a new paint job might suffice.

• Or, that universal design is just *fully accessible* design but with the addition of characteristics that makes it usable by other people too. Well-engineered functionality is crucial to a universal outcome but will always fall short if the design is not integrated or mainstreamed. Often misused in this regard is the term *universal access*.

• That universal design is an umbrella term that now covers all things accessible and assistive. This lacks recognition of the broad beneficiary groups, the integrated and mainstreamed aspects of universal design, and the differences between accessibility, assistive technology, and universal design.

• A related idea is that universal design is the *new age* or current term for

accessible design. It is "*what we are calling it*" now. This suggests the notion that universal design is merely the politically correct term that one must be careful to use in polite company. With this thinking,

universal design is grouped together with code compliance and other efforts.

While originally developed at the Center for Universal Design, there is no restriction to an individual or organization adopting or adapting the basic universal design concepts.

The Center has no control over these adaptations, hence the wide dispersion of many competing interpretations and similar innovative concepts. There is legitimate confusion between universal design and more similar concepts or concepts from other places such as visitability (an US-based approach, limited to housing, that promotes limited usability features), Design for All (a similar idea to universal design, principally in use in Europe), Life Span Design (used in the US, principally reflecting age sensitive design), Transgenerational Design (an idea formed in the US that good design now must accommodate people of all ages), Flex Housing (developed by Canadian Housing and Mortgage that includes features of accessibility as well as other innovative design ideas), and Lifetime Homes (developed in the UK, broadly applied standards with specific usability features) , among many others. The variety of concepts and common misunderstandings regarding universal design highlights the need for continued educational activities and suggests the need for international communication and collaboration.

An important component of a universal approach to design challenges focuses on the process of design. In this manner, an appropriate outcome can be assured through the process itself. Termed 'universal designing' page 188 [14], a broad and inclusive design process includes many perspectives and is mindful of the ergonomic, human factors, and social equity considerations.

A. The Application of Universal Design

Universal design is now being applied to numerous disciplines and domains. It is not clear that such broad applications were actively considered when universal design was first conceived. Early domains certainly included products, graphics, buildings, housing, and outdoor spaces. However, at the time of universal design's inception in the 1980's, a number of still-developing areas were untested or unknown. The Internet was not envisioned. Widespread personal computer use was new and untested. At the time of the creation of the principles and guidelines in 1997, the extent of future Internet and wireless use was not fully anticipated. In 2007, the list of domains and disciplines where one can find or imagine universal design taking a meaningful role is extensive: architecture, landscape architecture, parks and recreation areas, computing, product design, online resources, housing, education, urban planning, interiors, transportation, and graphics. It is regarded as being applicable at all

scales of the built environment, information technology, and to systems and processes. Universal Design is considered so broadly now that few areas seem beyond its reach.

Application Challenges

An unfortunate response to the challenge of more accessible environments is to gravitate toward one of two extremes. One path is to mistakenly attempt to make everything "fully usable by everyone" by abandoning creative, interesting and challenging designs. The other path that is sometimes followed is an unfortunate refusal to meaningfully engage the issue by assuming that nothing can be done and that implementing an accessibility or universal design scheme will ruin the integrity of an existing building or proposed design. For example, a challenge is posed in large or complex environments, where it is sometimes not possible for each element to be universal in all respects. The inclination to make all outdoor play spaces fully accessible to children and adults with serious mobility problems is probably misplaced. It is important to be creative about making as much as accessible as possible, keeping in mind all users – parents, grandparents, other family members - within the constraints of a particular project. Where physical access is not always possible, alternate means should be employed to provide comparable meaningful experiences. So a playground or recreation area might be quite

universal while not having every place or every experience fully usable by all.

In other cases, it may be feasible to solve a universal design challenge at a larger scale.

For example, fixed seating or benches such as those found in parks are typically installed at an average height, pitch, and seat depth. Because users need widely varied seat types to accommodate variations in height, leg length, balance and postural requirements, many people are poorly served by single-style seating. Many modern office chairs today offer options, choices, adjustments, and flexibility to respond to these personal variations. One solution might be to offer different sitting opportunities in the same seating area, whether with benches or other sitting opportunities. Although, fixed seats designed to address one person's needs may be uncomfortable for others to use, providing different dimensioned fixed height seats in an array of seating might accommodate a wider range of users and produce a universal result in aggregate.

Taking the second path with minimal engagement can produce cursory results. For instance, some believe that single story homes are the only option for universal housing, ignoring the many opportunities for traveling between floor levels that are possible in a universal multi-level home. This effect is also encountered in the realms of historic preservation and renovations where a presumption

may exist that nothing can meaningfully be achieved. In less developed outdoor environments such as parks and wilderness areas a related fear is that of nature being paved over. In each case, a thoughtful and creative approach can produce surprisingly effective results that balance several competing interests.

Still, we know that universal solutions aren't possible for all situations. This is why it is promoted as a goal toward which to strive. More narrowly framed and targeted solutions (accessible and assistive technology) will always be required in cases where a particular feature does not meet an individual's needs. But the growth in the application of universal design will mean that those instances where additional, custom features are required will be fewer, less frequent, more limited, and less costly.

Education

An important area of application of universal design is educational pedagogy and methodology. Extending beyond teaching *about* universal design, this stream of inquiry and practice is working on *how* to teach universally. Educational approaches have increasingly reflected different learning styles, accommodating varying individual needs within an overall structure. [15] Organizations such as the Center for Applied Special Technologies (CAST)[16], have helped research, promote and extend these

ideas and have adapted and adopted a universal design philosophy and applied it to diverse student populations. Learning goals, instructional methods, instructional materials, and assessments are increasingly designed to be inclusive of as many students as possible.

New Applications

Recent connections have been made in the areas of community and urban design, particularly in efforts from *Livable Communities*, Smart *Growth*, *Transit Oriented Design*, and *New Urbanism*, among others. From a universal perspective these planning initiatives promote a number of positive in elements such as sidewalks, slower street traffic, transit options, neighborhood connectivity, higher densities, and closer community origins and destinations. These neighborhood characteristics work well for a broad audience, provide choice, and are particularly appropriate for those who don't have regular or safe access to cars: children and teenagers, older people, low wealth households, as well as those with temporary or chronic disabling conditions. As reviewed in Kochtitzky and Duncan, "New urbanist and traditional neighborhood design are most often transit-oriented, pedestrian friendly, and senior friendly." Page 62 [17]

They note that *Livable Communities*, *Healthy Communities* as well as *Smart Growth* directly or indirectly address, "... the transportation problems

facing large populations of aging Americans in suburban and rural areas."63 [17] The areas of vision, cognition, and wayfinding are clearly issues with broad beneficiary groups that include those with vision problems and for people unfamiliar with a locale. There is a lack of agreement on means and methods and a lack of consistent application of the ideas that are accepted. Finding and implementing consistent ground surfaces that can help in this regard may be a crucial component in this area. Research on this topic is currently being conducted at the College of Design, NC State University. Providing these key community characteristics leads to greater participation in family and community life, which lies at the heart of universal design.

Architectural design was at one time characterized by bifurcated practice: either mainstream design or "accessible design". Design practice now seems to be headed toward more integration of usability features. Website design has had a similar, but more recent, pattern and may not have evolved quite so far. Efforts have largely been expended to design accessible websites rather than truly universal websites. These efforts typically produce two website styles. Some sites are largely graphics free, textonly and accessible for people with low vision or who are blind. Most sites are fully graphical. Some sites offer these two options. While the majority of websites don't seem to make attempts to

accommodate low vision users, the improvements to user software have made more of the web ore accessible. These software improvements shouldn't relieve the responsibility for web designers to address a broader audience.

B. Beneficiaries of Universal Design

The world's altered demographics have strengthened the relevance of accessible and universal design. The aging of many societies and the increased numbers of people with disabilities creates an undeniably larger number of people who are obvious, immediate and significant beneficiaries of a more supportive environment. Often cited as the reason for considering a universal design approach in recent years, the changing demographics instead offer the occasion for focusing on improved usability, safety and inclusion. Motives to include universal design features have been present for many years, as surely all human societies have included people with a wide range of human performance characteristics: tall, short, strong, weak, good and impaired hearing and vision, etc. The changing demographics provide an urgency to adapt design approaches and standards and to adopt universal design as policy and practice to catch up to the reality of the evolving international population.

As outlined earlier, the success of the accessibility movement in the US has created certain unintended challenges for universal design. The clear societal

imperative to end discrimination against people with disabilities leaves a concept that is not particularly useful for the design process. The term disability is lumpy. It groups all those to whom the term is applied (even if subdivided) into broad categories of impairment that lose specificity. It is also not helpful to say that something is 'accessible to people with disabilities'. We know that people with disabilities have a vast range of abilities and impairments. A more useful way to consider the users of design is to understand the reality that we all exist along a continuum of human performance and other characteristics. We all vary widely in height, strength, visual ability, hearing acuity, mobility, balance, etc. Each person's characteristics can vary widely from each other and over time: Someone who has a strong torso may have vision that requires the use of assistive technology to see adequately, e.g., eyeglasses. Someone who uses a wheelchair to move from place to place may have acute hearing, and so on. In spite of the frequent associations with accessible design and consequently with the misunderstanding that universal design is solely about design for people with a disability, universal design lends a general focus on the needs of all users ("user needs design"). This is a key distinction of universal design when contrasted with accessibility and assistive technology. As Mace said, "Every individual is unique and as a group, the

human species is quite diverse." Page 2[11] Designers need to appreciate the human diversity that exists within and outside of a disability construct.

Extending beyond disability and beyond natural diversity we can also examine personal circumstances and temporary health problems. Many people appreciate and directly benefit from accessible and universal features in the environment. "Families with baby carriages appreciate a transit system that makes it easy for them to get around. People with health problems that affect the spine—'bad backs'—are much better off in homes where they do not have to bend or reach so much. Many individuals—delivery people, bicyclists, and those with rolling luggage—use and appreciate curb cuts, stepless entries into buildings, and automatic opening doors. Together with family, friends, and colleagues (including those who may move with some difficulty), all people can enjoy the pleasures of a park or recreation area with stairless and accessible walking paths and accessible amenities." Page 56 [17] The consideration of friends, family, and colleagues greatly multiplies the impact of more or less supportive environments beyond individuals to the social groups in which we all exist. Not to be forgotten are those who we might term, 'circumstantially disabled'. These are people who, in the course of every day life, find themselves

operating differently because of their activities. Carrying a briefcase, coffee, or a child will force any of us alter the way we interact with the environment. In the broadest sense, perhaps it is more useful to think of everyone as possessing varying degrees of ability and disability instead of either fully-abled or disabled; or to use other terms that reflect the temporal nature of all our characteristics — temporarily able bodied, fully visual, etc. Perhaps a universal approach will help society move toward a more inclusive considerations of the users of design. Kochtitzky noted, "... the concept of "functional accessibility" for specific groups, few in number, has started a trend toward universally designed solutions that benefit a wide range of people throughout their daily and life-long transitions." Page 56 [17] So a universal outcome, even though the process requires that the needs of a wide audience be considered, does not, by definition, mean that every aspect of each item at all scales be universally usable to everyone. As similarly cited by many authors, including those from Norway, "...*all products, buildings and surroundings shall be made to be used on equal terms by as many as possible.*" Page 4 [2] author's emphasis. Echoing the idea of "universal designing", Danford asks, "How can every graphic, product, place, or system be usable by everyone? Universal design does not claim to accommodate everyone in every circumstance.

Rather, it continuously moves toward this goal of universal usability.

Consequently, a more appropriate term may be universal design, as a verb rather than a noun."

Page 2 [18] Cognitive issues, addressed by the human factors component of the principles and guidelines (primarily in Principles 2-5) suggest broadly applicable concepts and interfaces that are appropriate for all ages, and literacies within a particular cultural context. The applicability of universal design in different cultural contexts is a matter for ongoing discussion. *See Section 4.*

Many consumers benefit from universal design through safer, more comfortable and usable products and environments, as well as the ability to confidently remain in place at times of temporary disability and as abilities change over time. Producers benefit from an expanded market for fewer products. Universal design improves independence, affordability, marketability, and user image and identity. It is a multidimensional and interdisciplinary issue that requires change in the knowledge, strategies and procedures of designers, manufacturers, builders and marketers in all industries.

The image below depicts the broad beneficiary groups of a universal circulation element.

The following text provides a sample of how a space might reveal universal design principles.

Figure 4: Locating the elevator and escalators together avoids segregating group members with different

modes of mobility. Photo Credit: Center for Universal Design

Primary Universal Design Principles/Guidelines:

Principle 1. Equitable Use

1a. Provide the same means of use for all users: identical whenever possible; equivalent when not.

1b. Avoid segregating or stigmatizing any users.

1c. Provisions for privacy, security, and safety should be equally available to all users.

1d. Make the design appealing to all users.

Principle 2.Flexibility in Use

2a. Provide choice in methods of use.

Principle 3. Simple and Intuitive

3a. Eliminate unnecessary complexity. !

3b. Be consistent with user expectations and intuition. !

3c. Accommodate a wide range of literacy and language skills.

Principle 6. Low Physical Effort

6b. Use reasonable operating forces. !

6d. Minimize sustained physical effort.

Principle 7 Size and Space for Approach and Use

7d. Provide adequate space for the use of assistive devices or personal assistance.

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C. The Boundaries of Universal Design

Universal design is gradually permeating the collective awareness and finding its way into design practice. However, practical universal design applications with long and tried histories are few. The dominance of accessibility in the US, and the federal and state level compliance mechanisms that have been developed, have created a number of specific means to balance accessibility and non discrimination goals against other governmental and private interests. Because some goals of accessibility and universal design are shared, lessons may be transferable from one to another.

It is generally agreed that universal design may not always be 100% achievable in a single product, feature, or element. This realization shouldn't be used to 'opt out' of grappling with the many challenges of achieving a universal outcome. Challenges are not hard to find: for example, establishing universal characteristics while still

ensuring maximum affordability; achieving context sensitive solutions, providing greater usability in wilderness recreation areas, and finding appropriate solutions in historic structures or places. A key process-oriented step in this regard is to assure that designers and others are creatively engaged to think through challenges. Many roadblocks can be overcome with intentional thinking and creative design.

Costs and Affordability

The most frequent trade-off encountered in universal design is that of affordability. This is the same concern heard over many years with respect to accessible and barrier free features as well. Many suggest that an otherwise universally designed product or feature that is quite expensive may, in practice, not be considered universal because of its lack of affordability to many people. A case can be made that if universal features are only available at high cost, the limited access for many would discriminatory. This is one reason why universal design proponents work to confirm and communicate the actual low cost of most universal features (particularly in housing, see discussion below).

Those who are skeptical of accessible and universal design may attempt to cite high cost, especially when it is just for a "few people's" advantage. The reality of broad beneficiary groups for universal

design, discussed earlier, successfully counters this argument. It is becoming more difficult to assert that few are benefited by improvements to building usability.

It is the clear intent of accessibility provisions in the US is to provide full access to everyone and much effort has been expended to make that happen. However, many

government units have attempted to balance the impact of accessibility requirements against the rights of individuals to an accessible environment. Because of the large number of older buildings, a good deal of attention is paid to the most challenging aspect of environmental accessibility: changing existing buildings, elements, and facilities.

Adapting existing buildings for accessibility can be expensive as are virtually all renovation projects. Some mechanisms for determining appropriate levels of added

accessibility involve assessing the financial exposure of a particular entity in order to achieve a particular level of accessibility. Factors may include the size of an organization, and the costs of accessibility, and the type of planned renovations, measuring the relative importance of an alteration compared to its financial impact on the entity that will pay for the capital improvements. The US Department of Housing and Urban Development sorts out the obligations of local housing authorities by

establishing the requirement to provide an accommodation to an individual with a disability, "...unless doing so would result in a fundamental alteration in the nature of the program or an undue financial or administrative burden." Page 5 [19] One balancing mechanism provided by the ADA for private entities is the concept of "readily achievable" barrier removal in existing facilities. The regulations allow efforts commensurate with the resources that are available. On this topic Cronburg (1991) states "The law requires that architectural and communications barriers be removed in *existing facilities* when their removal is *readily achievable*, or easily accomplished and able to be carried out without much difficulty or expense. What is considered readily achievable will vary from organization to organization; a modification may be readily achievable for one place but not for another. Factors to be considered include the nature and cost of the remedial action; the organization's financial resources,...size...and type..." Page 5 [20] Cronburg (1991) gives additional decisionmaking guidance by pointing out the existence of a definite hierarchy of priorities to be considered. Access to the facility is considered most important, then access to goods and services, followed by access to restrooms. Similar prioritization might be created across a number of domains.

Full accessibility may also be hindered by structural impracticality or technical infeasibility. If the cost of providing a given level of accessibility is great, other mechanisms might be used. Other means to be considered include providing accessibility through alternative methods, the consideration of auxiliary aids, [20] alternate facilitation, and providing reasonable accommodations. Processes are suggested such as the creation of an access plan, planning in advance, and staff training. In many cases, it is essential for an organization to develop and document a plan for accessibility implementation in stages or phases. Universal design principle 1, Guideline a., strongly ties-in with this regulatory method regarding alternative means, "Provide the same means of use for all users: identical whenever possible; equivalent when not." It should be understood that even environments that are very universal might not meet everyone's needs. The use of assistive technology (purpose built, narrowly framed, specialty devices) or other technological solutions in these instances may be required.

The US federal government has also established incentives through the tax system to overcome financial challenges faced by small businesses in implementing accessibility improvements. Tax credits and tax deductions can be used in some circumstances by businesses to remove barriers,

provide interpreters or to provide alternate materials or equipment to benefit employees or customers.[21]

Housing

Because of the decades-long implementation of accessible design in the non-residential built environment in the US there is increasing sophistication in how accessibility is rendered. It is possible to see universal results in many places. Over this time period, the costs for accessibility and universal design seem to have been accounted for in most non-housing new construction. That is, the increased usability is no longer considered a Universal Design – strict add-on to "normal" design and construction practice as it was initially. Most single-family housing in the US has escaped accessibility requirements and consequently

is still designed and built in a manner typical of homes of many years ago. It is this sector that is now experiencing some of these cost challenges.

A comprehensive assessment of affordability includes a balance between initial costs and building life cycle costs, household lifetime costs, and cost savings as well as the costs and benefits that are external to a particular circumscribed project. This becomes particularly relevant where project costs are immediately borne by one sector and benefits are accrued by another, or when those benefits are deferred until much later.

For builders of private housing the market seems not to have priced the long-term value of universal design, not rewarding the initiative and effort of some builders (notwithstanding the modest cost add-ons for including basic universal features – *See Appendix*). The current lack of consumer demand for homes with universal features don't easily allow for higher prices that builders would like to charge for them. The builder would prefer that this long-term housing quality be priced into the home at the time of initial sale. That would mean that the universal home, when compared to otherwise equivalent homes, would command a higher price to the consumer.

For owners and residents of universal housing, two of the key advantages are regarded as added value and cost savings. The value resides in current and future ease of use and convenience as well as the possible increased price of the home later. Cost savings will accrue because a resident household will spend fewer dollars on alternate care arrangements because moving to nursing, hospital, or assisted living settings may be delayed or minimized. The household living in a universal home can also realize savings by avoiding the costs of expensive remodeling (home access modifications) because the house has far fewer areas that might need customization for an individual. Financial savings can also accrue to insurers or government

entities that fund or share funding for these health care and life care services. Builders are seen as making an effort to build better homes so that consumers, insurers, and the government can reap benefits over 5-40 years.

Scale

How far one needs to go to make an environment, especially a complex environment, universal may also depend on the unit and level of analysis that is used. To use a common example: must every toilet stall in each multi-stall restroom be universally designed? Current requirements call for one or more accessible stalls per restroom.

Some question the adequacy of this standard. Given peoples' great variations in size, strength, and needs for support getting on and off — "one (or two)-design-fits-all" doesn't work. However, there is no consensus of what constitutes a universal toilet stall, much less a fully accessible toilet stall. An ideal universal multi-stall restroom might provide four or five very different stall types that might include a combination of right and left hand stalls, wide stalls and narrow stalls, and low, medium, and high toilet seat heights. Further research and development is needed to explore this issue further.

Information and Choice

Other approaches may involve including information and providing choices. In natural environments where terrain changes, weather, ground surfaces,

climate and steep grades are a constant reality, difficult choices must be made about which and how many trails and routes of travel need to be accommodating. An analogy is that of the ski slope grading system that allows skiers to assess the appropriateness of a particular slope's challenges. In this way, an individual can match their skills to the slope's level of difficulty because they have been provided information about slope characteristics. So providing choices and options while allowing for "levels of challenge" is not inconsistent with a universal approach . Providing clear and usable information about what to expect is crucial to the success of this approach.

D. Accessibility, Assistive Technology and Adaptation

Universal design emerged out of a world of special accommodations for people with performance characteristics that varied from what was regarded, at that time, as average. Whether accessibility features in buildings or assistive technology equipment at home or in workplaces, *special* and *different* were primary characteristics of many accommodations through the 1980's and beyond. Universal design arose in part from the realization that many of the "specialty" design features characterized by accessible design turned out to improve life for others and have much broader beneficiaries than was presumed. It also arose

because the specialty features were often rendered in a way that limited the availability of their broader benefits. For example, special ramps leading to side entrances were much less appealing and useful than a level entrance that was easily traversed and obviously available to everyone, without forcing people to hunt for it or to navigate a longer, out-of-the-way route.

This idea of integrated design is represented in Principle 1: *Equitable Use* and more precisely in Guideline 1.d.: *Make the design appealing to all users*. This fundamental social equity component was intended to "raise all boats" in the rising tide of better, more useful, and more supportive environments. There was never the expectation that a more universal world would eliminate all need for customization of the environment to meet people's particular functional needs.

Even in a very universal world, all need for purpose-built, custom and specialized features and devices will not disappear. Rather, as Steinfeld said, "...the idea is to improve the general environment in order to reduce the need for such settings and devices." Page 1 [22] Universal design should become part of the standard process of getting to good design outcomes. As Steinfeld said, "Universal Design is a normative concept used as a goal in design of products, environments and communication systems." Page 2 [23]

Figure 5: Adaptable Bathroom Cabinet. Photo Credit; Center for Universal Design

In considering the current definition of universal design, perhaps the term "adaptation" itself should be removed or fully explained. Adaptation is unacceptable as a means to universal design if common understandings of the term are used: reconstruction, renovation, or remodeling. This implies a good deal of effort and cost. However, designing for simple and low effort alterations (more like the idea of adjustability) may be an acceptable route to a universal outcome. The distinction is important because a small-scale adaptation allows some design and user flexibility while maintaining user competency in his/her interaction with the environment. It will also help achieve a mainstreamed appeal and affordability as expensive changes can be avoided. Consider the challenge of modifying standard kitchen or bathroom cabinets for use by someone who operates from a seated position, e.g., someone who uses a wheelchair or who can only stand for short periods of time. This alteration is typically messy, and quite costly, and can't legitimately be included as part of a universal definition. Cabinets such as those developed at the

Center for Universal Design that allow for quick, simple, and low effort changes would be an acceptable solution. (See figure 5)

E. Other Factors

There is much in common between universal design and most other progressive design and planning concepts. The evolution of building codes has also begun to reflect the more inclusive philosophy of universal design.

Code Compliance

Decades of experience with accessibility code compliance, has produced a slow movement towards improved accessibility. Accessibility has become accepted as normative practice while the industry is producing more buildings that even have universal qualities. Evidence of this progress can now be seen in a major US building code. In the 2006 International Building Code Commentary section, the authors note this shift in approach from accessibility being applied in selective areas only when specified, to the current position requiring an approach to accessibility from the perspective that, "...if it is not specifically exempted, it must be accessible." This section also specifically acknowledges the benefits to others of many accessibility features, for instance the prohibition of protrusions into paths of travel originally conceived to enable people who are blind; also benefiting those who may be distracted. Page 11-3 [24] The code council acknowledges the

mainstreaming of accessibility and the benefits that accrue over all of our lives.

Sustainability

Universal design, as part of a supportive and enabling environment, can be seen as a component of social sustainability as it helps the full inclusion and participation in family and community life for all. Universal housing also connects well with the environmental sustainability movement. As Kochtitzky and Duncan said, (2006) in referencing Peterson and Dorsey, "A universal housing approach is consistent with sustainable design principles in that it prevents or reduces otherwise unnecessary (and often very expensive) renovations that might be needed to make a home functional and accessible for someone with disabilities." Page 62 [17] This also saves natural resources by avoiding the need to use more products and building materials.

Aesthetics

A critical aspect of universal design, aesthetics, is near the core of universal design and helps to differentiate it from design solutions that might be considered just accessible, assistive or ergonomic. Principle 1 (Equitable Use) clearly requires an appeal in the market place. This drives one fundamental aspect of universal design – characteristics are built in, integrated into the overall scheme, and therefore mainstreamed – not separate and distinct. A universal solution has to work well and look good.

While this is true, universal design can also be described as 'astylistic' [25] in that the principles can be applied to, but don't require, any particular architectural or design style to be successful.

Public Health

A relatively new area of influence for universal design is in public health. Interest is growing in the US from federal agencies such as the Centers for Disease Control and Prevention, as indicated in their *Healthy People 2010* plan. [26]This plan cited issues of environmental design as important in promoting good health and preventing adverse health outcomes as measured by public health criteria. "To be truly healthy, an individual must have a good quality of life as measured in a number of dimensions.

Community designers, such as planners, engineers, and architects, can greatly influence and help fulfill many of these dimensions, as described in *Healthy People 2010.* The health and quality of life of all people is either promoted or degraded by community design choices made at the local, state, and federal levels." Page 63 [17] Norway reinforces the important relationship to broader environmental and health concerns. "Heavily polluted air leads to immediate illness among people with asthma, but in the long run may also damage other people's health." Page 7 [2] It is important to emphasize individual and collective positive health outcomes

from universal design, and to note the negative health outcomes from less supportive environments.

Planning

Current land use and planning initiatives such as traditional neighborhood design, new urbanism, smart growth, transit oriented design, livable communities and others provide superior land-use, infrastructure, public rights of way, and transportation advantages from a universal design perspective. The Congress of the New Urbanism's Charter offers great hope. It states, "...neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as cars; cities and towns should be shaped by physically designed and universally accessible public spaces..." [27] While we can take comfort in the synergies between universal design and these other movements, gaps still exist. The positive attributes associated with these initiatives are not carried through to the housing that is produced. In some cases, "The streetscapes and building frontages often result in brownstones and row houses, both of which typically feature deep, narrow building forms set close to the street with first floors three to five feet above the sidewalk, reached by a set of stairs. In residential settings with wood frame homes—detached or attached—a similar scenario is created: small lots with porches set close to the front lot line and/or

sidewalk." Page 62 [17] As with so many other areas of challenge, the application of creative thinking should produce solutions to the seeming impasse. "With a little foresight, creativity, and design experimentation, new urbanist designers could achieve universal design outcomes." Page 63 [17] This new mixed-use development brings residential, retail, and office uses into close proximity. The apartments over the stores are accessed via elevators.

Many other dwellings in the project, however, are impossible to enter if a person has difficulty walking.

Figure 6: Mixed Use Project Photo Credit: Richard Duncan

3. Implementation Methods

While formal policy adoption of universal design in the US has been sporadic, several examples where universal design is at least nominally applied are worth citing:

• A small sector of the federal government, the Office on Accessibility of the National Endowment for the Arts (NEAR) has adopted Universal Design as

their preferred strategy for increased access to the arts when they provide funding for that purpose. [28]

• The federal Department of Housing and Urban Development, a major federal department focusing on economic development, infrastructure and housing, suggests using universal design for some of the housing that it funds. Page 16 [29]

• The federal Department of Education funds a number of universal design-focused research centers, for example on the topics of telecommunications, medical instrumentation and workplaces. [30]

• The most far-reaching federal regulation is based on the Individuals with Disabilities Education Improvement Act of 2004 from the Department of Education. Its regulations direct educators to use universal design in assessment and curriculum development, and teaching modalities and methodologies.[31]

• Several state-level, public affordable housing developers (state housing finance agencies) require a universal approach with the housing that they fund, for example, the Kentucky Housing Corporation.[32]

• There is at least nominal interest in universal design from the society sectors that address the US's aging population. The National Association of Home Builders' 50+ Housing Council -the association that

targets older householdsnominally supports a universal approach. Their Certified Active Adult Specialist in Housing designation educational program (developed with help from the Center for Universal Design) includes useful universal design information.[33]

• The oldest and most successful national builder of housing targeted for older households, Del Web Inc., routinely includes basic universal features such as stepless entries, wider interior doors, and lever door handles.

• St Louis, Missouri. [34] and Howard County, Maryland page 276 [35]have both implemented a limited universal design housing strategy for certain types of housing built in their areas In addition, related housing concepts such as visitability have been adopted at the state and local level in various places. [36] A Federal law referencing visitability, the Inclusive Home Design Act, has been proposed in Congress. Considered broadly, the Fair Housing Amendments Act guidelines incorporate a portion of the functionality of universal design. The list could be extended but the resulting picture would remain the same: universal design is sporadically used as a broad organizing strategy for service provision, planning, and policy in the US. Accessibility, grounded in non-discrimination towards and full inclusion of people with disabilities, through state

and federal law and regulations, infuses public and private sector activities and policies.

Housing

Single Family housing is the last major sector of the built environment in the US that remains principally unaffected by accessibility requirements. With the exception of one housing, segment consumers are not demanding universal features, therefore builders are not responding. Because voluntary adoption of universal design by the building industry is uncommon, most existing and newly constructed homes in the US have a lot a ground to make up. "While home builders seem to willingly follow the home buying market, when market demand isn't obvious, inclusion of universal features is uncommon." When discussing this difficulty in England, Rob Imrie observes in *Disability and Society*, "...builders are unlikely to incorporate standards that are not part of a legal requirement." Page 372 [37] Interest in universal design comes from the housing sector focused on older households.

Consumers seem to be responding favorably, and a number of builders are including some universal features. With this sector in mind, and with increased media and journalistic coverage, some see the US market close to a demand tipping point. Others see ground being lost each year and, once again, look to the actions of local, state, or federal

government to influence the implementation of universally designed homes.

Actions can include funding, zoning and development incentives, or design requirements as leveraged through state housing finance agencies, local and county level zoning boards, and local housing funders.

Evaluative Tools

Scores of assessment protocols and implementation methods have been developed to evaluate and ensure environmental accessibility, reaching a zenith in the 1990's after the introduction of the ADA. Many compliance assessment protocols have been developed that are tied to the ADA Accessibility Guidelines or the Fair Housing Amendments Act Guidelines. One earlier approach on an urban scale for the City of Boston assisted development teams to focus on the specific accessibility issues that arise early in project. [38] This assures that appropriate attention will be paid, at the appropriate scale, at a time when an issue can be properly addressed, avoiding costly re-design.

Two other early [39, 40] landmark efforts for the State of Massachusetts created a mechanism to assess accessibility in existing buildings, determine design solutions, price the alterations and establish priorities. Because universal design is only beginning to be implemented, numerous standard and parallel methods have yet to be developed.

Universal design's spread and growing recognition has created an interest in developing detailed regulations and standards. Performance standards are being considered in some venues. [41] However, some assert that universal design should be left as principles and guidelines, and allowed to remain as a goal. It has been suggested that to allow universal design to evolve into standards would risk them becoming another set of minimum requirements that must be followed. While there is merit in this argument, there exists the constant challenge of relevance, impact, evaluation and application if the principles remain as is. How can the "universality" of something be evaluated? How can one thing be said to be more universal than another? How many principles need to be represented (and how many guidelines within the principles need to be present) to be able to say that something is "universally designed"? If three principles are expressed in one item and four in another, is the winner the one with four? Or is there a difference between and among the principles such that one must differently evaluate each principle and guideline to determine the level of universal success? These are all questions that are being addressed as different sectors grapple with the practical application of universal design, a process that may take years.

Some of the mechanisms that have adopted a universal design approach:

• The Center for Universal Design developed and uses a three-tiered approach (Gold, Silver and Bronze: Universal Design Features In Houses) [42] for implementing a universal housing strategy that has been widely distributed, adapted and adopted by individual builders and locales It recognizes the gradations of usability that can be present in almost any product or environment.

The approach also acknowledges the basic usability that must be present if one is to "clear the bar" and be able to authentically apply a "universal design" label.

• Universal product evaluations were developed by the Center to help teach about the principles and to guide the development of more universally usable products. [43] [44]

• Ostroff and Weisman (2004) proposed a dual evaluative scheme for assessing building and site usability considering both ADA compliance and universal design.

[45] Developed with the recognition that accessibility features are being rendered in a more sophisticated way, it is hoped that improved outcomes might be encouraged by its use. While not addressing outdoor environments to any depth, it is believed to be the first attempt at integrating the detail and minimums of accessibility specifications with the breadth and design quality associated with universal design.

It is understood that universal design is a goal toward which one can strive but which may be difficult to achieve. Whatever evaluative systems are adopted to assess universal design, care should be taken to avoid an approach that yields a binary outcome: universal versus not universal. The challenge might be characterized as more vs. less universal or universal in certain ways rather than universal or not. A variety of principles and guidelines, to varying degrees, could characterize a feature. For example, it might be possible for something to be more or less ergonomic (Principle 6: Low Physical Effort) or that it might possess positive human factors characteristics (Principle 5: Tolerance for Error). It might be less easy to pursue a qualitative evaluation of the "degree to which something is integrated and broadly appealing" as found in Principle 1 (Equitable Use).

While there is agreement on the overwhelming importance of the objective of mainstreamed features and the goal of social inclusion and maximum participation, how to measure the degree of wide appeal, specified in Principle 1, is another matter. How is one to decide what is appealing? It is surely a subjective evaluation, particularly when contrasted with quantitative assessments. The most innovative yet comprehensive assessment tool for determining universal design achievement was created from the Center for Universal Design's,

Universal Design Assessment Project (UDAP). While it is still under development and has not been refined into a workable scheme, it attempts to match an array of human performance criteria with the principles and guidelines. This tool might grade how a space might work for certain mobility issues or for hearing, vision, cognition, etc. Its goal is to produce a fine-grained evaluation of environments as they function for diverse populations.

Process

An inclusive planning process is appropriate in all cases. When the ADA was first enacted in the US, there were few sure ways to assess, much less ensure, compliance.

Evaluative tools were yet to be developed, expertise was rare, and enforcement was retroactive. This was particularly vexing for the private sector because "ADA" building plan approval was not possible. Years would pass before local building officials were able to render judgments on code compliance of features that were substantially the same as the ADA guidelines. Then and now part of the solution is to engage particularly affected groups such as people with disabilities and those who are older. "To achieve more universal solutions it is necessary that these groups genuinely participate throughout the whole process from an early stage" Page 5 [2] It was clear that an open and inclusive planning process was fundamental to an ADA compliant

outcome. That lesson seems appropriate at this time for many instances where universal design is being applied. In any case, it is clear that universal design should join other design criteria as an important consideration in producing a superior result. As Alaskan (1997) said, "The principles of universal design could be regarded as one component of a *quality-assurance process of functionality*, from the start of a project to the final result. " Page 5 [2] author's emphasis .

4. Principles Re-Considered and Future Work

In spite of the progress that has been made in the field of universal design, it must be remembered that this field is still young: Accessibility itself has only been practiced for 50 years, seriously for only for 25 years. Universal design is just a bit over 20 years since its conceptualization and the principles and guidelines are only marking the10 year anniversary in 2007. Areas of potential remain relatively un-examined, much research is needed, the principles themselves might evolve, and practical implementation needs to be developed.

Areas of Study

Research is needed into:

• Common reach ranges for standing and seated adults and children,

• Understanding and improving wayfinding methods in general and ground surface types specifically,

where great variations in theory and practice make consistency and true usability difficult,

• Costs and benefits of universal housing, including health benefits,

• The relationship between universal features, higher physical activity levels and increased community participation. Connections and collaborations between public health, planning, and design professions are essential. Collaborations between disciplines must continue to "...identify critical intervention points and to educate and to empower each other in the specifics of their work..." Page 64 [17] Work must develop and disseminate:

• Validated, practical environmental assessment tools,

• Best practice designs.

Steinfeld and others are considering the inter-relationship between universal design and the International Classification of Functioning. "Both the ICF and the Principles are based on similar underlying theoretical constructs. Both recognize the environment as a major influence on human experience, and both recognize that people without impairments also experience limitations due to the influence of non-supportive environments." Page 7 [23]

Universal Design Principles Reformulation

Enough time has passed since universal design and the principles were formulated for re-evaluation and

reconsideration. All agree that the definition and principles should not remain static, but should be examined, altered and dynamically adapted. There are legitimate issues in several areas. Steinfeld notes, "The principles are internationally acknowledged as defining what UD is, but they are criticized by some for being vague, incomplete and difficult to understand. Others argue that they apply more to product and graphic design than to building design." Page 4 [23] Many possible avenues for consideration exist, none of which question or undermine the essential philosophy of universal design to promote greater usability, mainstreaming and inclusion.

• Revise the definition by rewording, lengthening or shortening it. For example, one option would be to delete, replace or explain the word "adaptation

• Adding principles such as those related to affordability or sustainability.

• Articulate in any revised or expanded universal design definition and commentary the closely related concepts and generally agreed outcomes of a universal approach: comfort, safety, welcoming, competency, independence, participation, mainstreaming, integration, cultural and gender appropriateness, and inclusion. For example, safety is expressed in Principle 5: Tolerance for Error, in that the environment should be designed with the anticipation of people acting in predictable ways,

which include distraction, lack of vigilance and attention, etc. all of which can lead to accidents and injury. Competency, understood as the ability to be successful or capable, is also implied but not called out in the principles. Rather it is an outcome of applying them.

Competency is enhanced by an environment that meets expectations, and is easy to understand, allowing choice by providing alternate methods of use, related to Principle 3: Simple and Intuitive.

• Attendant to this is the question of the term's worldwide acceptance and appropriateness. It does not translate well into all languages. There is a current search for a universally usable term and logo that can help focus international efforts and promotion.

• Make the language of the principles and guidelines parallel and consistent in grammar and syntax.

• There is also the additional challenge with a lack of weighting of principles: does each of them need to be considered as important as the others? When questions of tradeoffs are inevitably encountered, which principles, if any, should take precedence?

This report has reviewed the philosophical and practical grounding of universal design in disability advocacy and accessibility and traced the evolution of universal design as a distinct concept. It considered the broad beneficiary groups for universal design, and in particular the idea that

everyone can benefit from universal design. This was closely linked by the report to the paramount universal characteristics of greater usability tied to integrated design. The paper reviewed various strategies that have been used to balance different interests in achieving accessible outcomes and summarized several mechanisms to assess and apply a universal approach. The report outlined corollary and confusing concepts and considered the practical limits to a universal approach. Finally the paper discussed the several key areas for future work, in particular reviewing the principles themselves.

The fact that people increasingly have the chance to live long lives is a positive sign of a prosperous and healthy society. It is an indicator of good public health, good health care, nutrition and occupational safety. The demographic trends in the developed world will not level off until the middle of the 21st century. Until then the populations of these nations will be in transition, moving towards a stable status of more equal age cohorts with only small diminutions at each level until the later years. This is good. But during this worldwide transition, these societies will be coping with the demographic changes in several key areas. The viability of pension and retirement programs are being stressed, healthcare costs are being stretched, and caregiving systems are struggling to maintain services. All of these systems will have to adapt to

the changing population. It should come as no surprise that the built environment would need to make adjustments as well. If the planet can avoid calamity, the developing world might join these ranks before the end of this century and perhaps benefit from the lessons that are now being learned. By embracing universal design, policies, and design and planning practices will be better able to handle those demands and ensure that quality of life values are included.

Appendix

Costs of Universal Housing

A major concern about universal design is that it adds substantial cost to otherwise equivalent homes, making them less affordable. There are perceived costs of universal home features, there are transition costs of a builder switching to a universal standard, and there are true costs of universal design.

Limited and dated research holds that the costs of essential universal housing features add 0%-5% to the otherwise equivalent typical home built without universal features.

Costs can actually range considerably higher if many additional features or higher-cost products and fixtures are used. Anecdotal evidence points to added costs of universal design being marginal. Builders report that larger homes and market rate homes involve many configuration, fixture, and

product and finish choices. The costs associated with these choices can be much more significant than the costs associated with universal features.

Basic universal design costs occurs in two categories: soft costs and construction costs.

At the scale of the individual builder or developer, soft costs are incurred when transitioning from designing and building traditional homes to universal homes. Once the transition is accomplished, these costs will disappear. These include the costs of retraining staff and colleagues and subcontractors, and the costs of redrawing plans. To the extent that soft costs can be overcome, there may still remain particular costs associated with construction, installation and specifications in universal homes.

However, many of these involve more detailed and optional aspects of universal home features.

Products

While less of an issue in more expensive homes, several more usable appliances or products are currently more expensive than standard products. Side by side refrigerators and front control ranges are typically more expensive than over/under refrigerators and rear control ranges. Front-loading clothes washers and front control clothes dryers cost 50%-100% more than ordinary top loading models. Other products such as lever door hardware, rocker panel light switches add marginal costs to the

overall home pricing. Casement windows are more expensive than double hung windows, the usual specified product. Grab bars, which aren't currently part of basic universal features, are typically an added item to a home's costs.

Materials Expenses

One of the basic, hidden universal housing features is plywood sheathing in bathrooms.

As indoor air quality has become more of acknowledged health concern, universal design has embraced measures that improve indoor air. One of the basic new-home elements that can help assure better air quality in many pats of the county is sealed foundations. In areas of the south or west where crawlspace foundations are common, a sealed crawl space — that includes foundation wall waterproofing, and moisture barriers — can reduce the occurrence of moisture, mildew and mold related problems.

Entrances

The single biggest cost, design, engineering challenge in universal housing is the entrance.

Experience shows that (with the exceptions noted above) many of the basic interior universal features can be accomplished easily. Entrance access can involve the close consideration of site selection, orientation, grading, and foundation styles. Additional costs can be incurred from subcontractors for careful grading, extra excavation, and additional

drainage. A corollary advantage of sealed crawlspaces is that it can reduce the added costs listed above.

Affordable Housing

Anecdotal reports from work with affordable housing developers and market rate builders reveal that the smaller the size and the affordability of the home, the greater are the challenges associated with achieving a universal outcome. However, basic universal design features are absolutely achievable in homes of any size. Where space and funds are at a premium, fewer universal features are possible, particularly with respect to cabinetry, products, appliances, and fixtures.

Experience with affordable home builders such as Habitat for Humanity have shown that basic universal design can be achieved even in extremely modest sized homes (1,200 sf,three bedrooms) without altering the footprint of the home, one of the most expensive reasons for increased home costs.

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Article-3:

A Research Study:

Designing Educational Spaces for Children with Autism

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This work deals with the 'design of educational spaces for children with autism' and it is carried out by Prof. Rachna Khare, Birla Institute of Technology under the auspices of the Fulbright program. Prof. Khare is working with Prof. Abir Mullick, one of the authors of the universal design principles and presently Director, Industrial Design Program at Georgia Institute of Technology, Atlanta, USA.
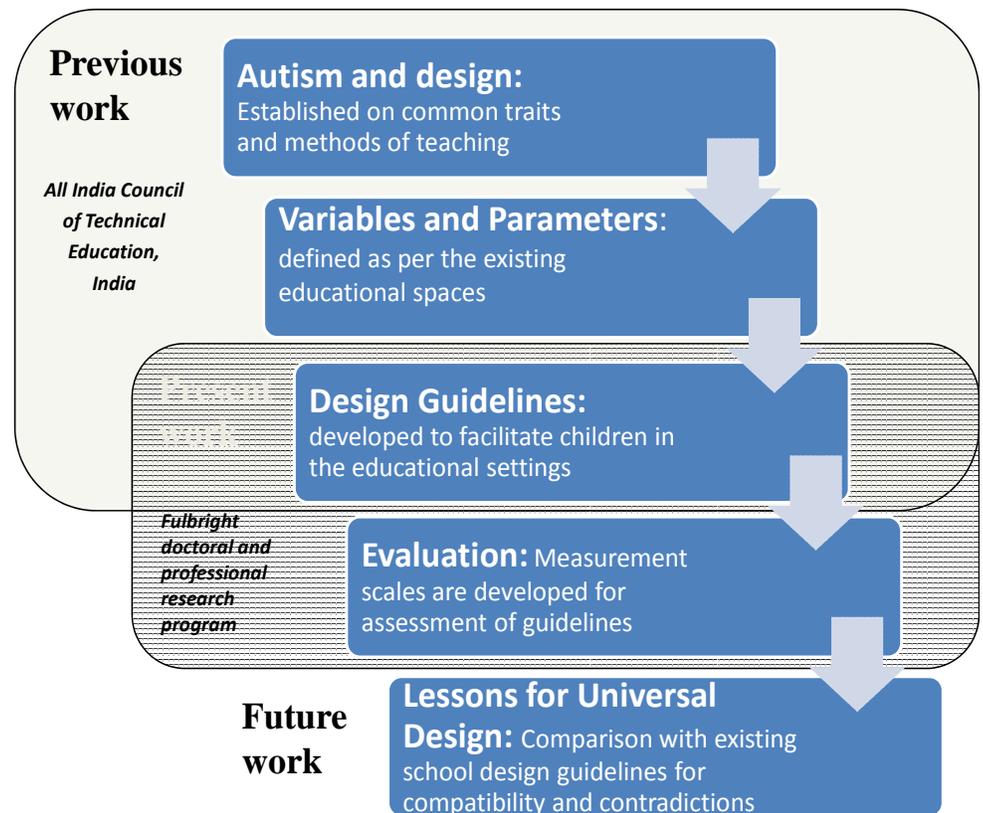
"Autism is a severely incapacitating lifelong developmental disability that typically appears during the first three years of life. It occurs in approximately fifteen out of every 10,000 births and is four times more common in

boys than girls. It has been found throughout the world in families of all racial, ethnic and social backgrounds. No known factors in the psychological environment of a child have been shown to cause autism. Autism is defined by a certain set of behaviors and is a spectrum disorder that affects individuals differently and to varying degrees" (Autism Society of America).

The present study is carried out based on the belief that 'Performance of pupils with autism is enhanced in appropriate physical environment'. The objective is to identify the enabling aspects of educational environments, measure their affects on educational performance and develop design guidelines that will lead to the development of effective educational spaces for autistic children. The study intends to create a framework for designing educational facilities and it will offer a tool for architects, designers and facility managers to design high performance educational spaces.

The study is carried out in two stages that consist of four parts (figure-1). In the first stage, a set of design guidelines that establish the relationship between design and autism was developed. This was done by Prof. Khare at Birla Institute of Technology, Mesra, India
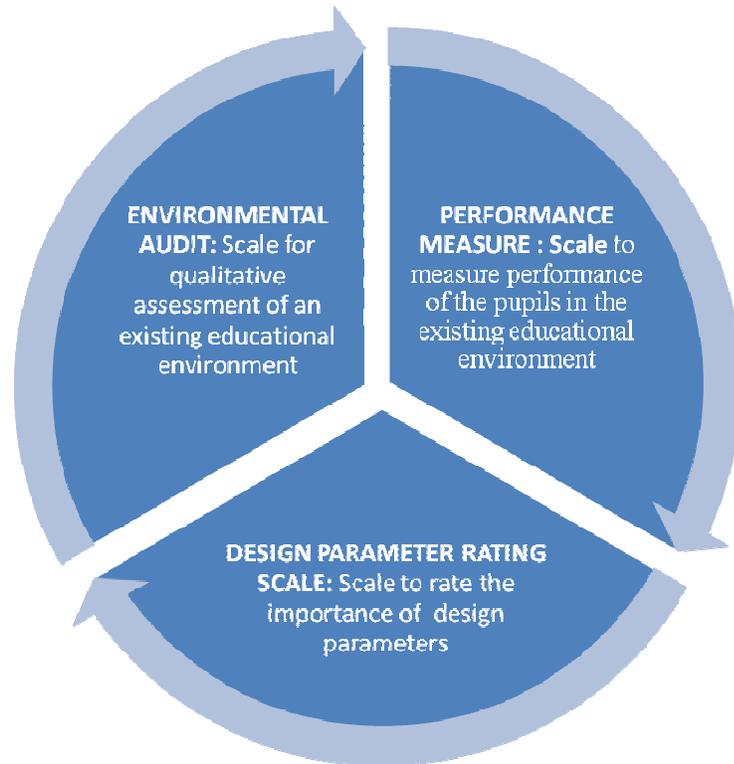
under 'Research and Development program' of 'All India Council of Technical Education in 2003-05. These guidelines produced autism-friendly environments and they were based on the autism characteristics, teaching methods and existing facilities for autism.

Previous work

All India Council of Technical Education, India

Autism and design: Established on common traits and methods of teaching

Variables and Parameters: defined as per the existing educational spaces

Present work

Design Guidelines: developed to facilitate children in the educational settings

Fulbright doctoral and professional research program

Evaluation: Measurement scales are developed for assessment of guidelines

Future work

Lessons for Universal Design: Comparison with existing school design guidelines for compatibility and contradictions

Figure-1- Two stages of the study consisting of four parts

Next, the study is extended at Georgia Tech, Atlanta, 2007-08 to develop three testing tools to evaluate the prepared design guidelines. These tools have a tripodic relationship between deficits, conditions and spectrum. These tools are the

environmental audit (EA), performance measurement scale for pupil with autism (PMPA) and design parameter rating scale (DPRS) (see figure-2)

ENVIRONMENTAL AUDIT: Scale for qualitative assessment of an existing educational environment

PERFORMANCE MEASURE : Scale to measure performance of the pupils in the existing educational environment

DESIGN PARAMETER RATING SCALE: Scale to rate the importance of design parameters

Figure-2- Three point scale for testing the prepared guidelines on existing educational spaces

The four parts of the study that explains the overall process includes (1) Relation between design and autism, and it is established depending on common traits in autism (2) Variables and parameters affecting the design and they are defined as per the behavior in existing educational spaces (3) Detailed design guidelines that are prepared for educational setting for children with autism. (4) The measurement scales that are developed for

evaluation of guidelines. In future, the study plans to draw inferences for universal design by comparing the developed guidelines with the existing school design guidelines for compatibility and contradictions.

Although designing physical environment for autism requires a good understanding of autism and the need of individual requirements, some design principles can be applied to improve their responses to teaching and therapies. The study will identify important environmental issues of importance for educating children with autism and then measure the significance of these issues through the developed testing tools.

Professor and Director *Abir Mullick,*

abirmullick@coa.gatech.edu

Rachna Khare, rkhare6@gatech.edu

Industrial Design
College of Architecture
Georgia Institute of Technology
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Interview:

Ask your question to our expert Van Patter of NextDesign

Rick Poynor:

I am writing a piece about design and design thinking for I.D. magazine. I would very much appreciate your answer(s) to these two questions:

1. Does design have a cultural value beyond its business uses and functional purpose and, if it does, what is that cultural value?

2. If you think that design does have a cultural value, then what contribution does the level of aesthetic quality in a design make to its cultural value?

GK VanPatter:

Answers to these questions inevitably become entangled in definitions of design as well as various possible meanings for the terms function, culture, value, contribution and even business. Today all of these words are quite slippery. Some of us might be referring to design in the individual sense, a designer person, while others might use the same word to refer to a company, a discipline or number of disciplines. Some might be referring to a process and a way of thinking. Today all disciplines including design are patterns in motion.

Some patterns are moving at a snails pace while others are rapidly accelerating. Unfortunately it is what design was ten years ago that remains the primary focus of the traditional design press. (Don't expect to find the future there.) The currency and precisions of design have already forever changed beyond that old picture. The reality is that some among us are most comfortable using old precisions and the old currency configurations while others are already using the new precisions, the new currency, freshly minted and still quite experimental. All of this makes for considerable confusion within and around the fields of design today. It also makes for an extremely exciting time for many of us.

In the 21st century Design is essentially about creating new worlds. It's just that some of us think in terms of tiny worlds and others think larger scale. Generally speaking the scale of thinking, the scale of design is increasing and for numerous reasons, many of which are related to what is going on globally outside of design.

It is not possible to understand the future of design that has already arrived by looking through lenses created by and geared towards traditional design practice, traditional design education or the traditional design press. It's just not possible.

For us it has been many years since we felt like we belonged in the design business. Much of what we do at Humantific has for numerous years been outside of traditional definitions of design. If we interpret design as a static entity that would mean we left that place ten years ago. Instead, we prefer to think of design as an organic pattern that is always in motion and must be constantly rethought and reconceptualized in the context of a world that is itself in motion.

We have contributed our share of redefining and rethinking.

In our NextD work you see us actively seeking to expand the boundaries of design, its meaning and therefore its functions, purposes and value. At NextD we create new lenses to understand design in the 21st century. For better and for worse, we live in an era when many people seem to be writing hemselves into and out of the design profession.

At NextDesign Leadership Institute we have, since 2002 been primarily focused on exploring and explaining Design 3.0, sometimes referred to as strategic design, transformation design, or innovation design. When we are talking about the shifts underway we are referring to paradigms within and around design that include the purposes, functions and applications of design in the broadest sense possible.

The fact is that the challenges facing the real world are increasing in complexity not getting simpler. By this I do not just mean the business challenges but the enormous social challenges that various countries face as well as the myriad of challenges facing our planet. If we let the business oriented folks define every problem in the strategic space we might end up with the next iPod but it is unlikely that we will end up with a human-centered world. It is not enough to wish for a better world. We must step up and get ourselves prepared to participate and lead in the strategic activity space where priorities are set and decisions are made. Some of us already engaged in this activity space seek to engage and help in ways beyond designing more consumer products or posters for world peace. Those solution sets reflect only a tiny portion of the problem types now facing us.

Design oriented firms already operating in the 3.0 activity space seek to bring a different set of skills, tools and precisions that are more aligned with the types and scale of challenges that we now face. Many of those challenges are not clearly defined in client briefs. They are instead what we call fuzzy situations.

Engaging around a brief (a framed problem) is very different from jumping off from a fuzzy situation. This is just one aspect of the paradigm shift

underway (see Dimensions of a Revolution in Motion below).

This might address part of your question: Humantific clients tell us that they want to work with us because "we improve the quality of their thinking". Is improving thinking a functional purpose or a cultural one? You tell me. We look out into the world and see great need for better thinking skills.

Companies contact us and ask if we can help them get some of that "design thinking stuff". We have an entire executive program up and running. The most important thing to understand is that what we teach does not have much to do with the traditional methods of design, so-called Design 1.0 that was primarily focused on small scale defined problems, addressed intertribally, using methods that were/are primarily intuition based.

If those are attributes of your definition of design that is not the "design thinking" that we see huge interest in and need for.

There are probably lots of ways to improve thinking. As a human-centered practice what we bring to the party is a collection of cross-disciplinary skills and a hybrid, human-centered toolbox. Many of those skills and tools did not originate in traditional design practice. Many have been adopted and adapted.

Let me put it this way: While aesthetics focused experts like Virginia Postrel might talk about the "Substance of Style" the rise of "Aesthetic Value",

the "Power of Design" and "The Aesthetics Economy" we are more inclined to talk more broadly about the Substance of Human-Centeredness, the rise of Human-Centered Value, the Power of Inclusive Innovation and the Innovation Economy as it connects directly to globalization.

As a design oriented company bringing aesthetic precisions to the table is an integral part of what we do. As a practice we have deliberately bolted on many other value adding precisions as well. As our old friend Richard Wurman would often say; aesthetic considerations are on the train but they are most often not driving the train. If an engineer or a social scientist were to do what we do the journey and the outcomes would look and be very different. In the global marketplace we often see that other problem finders/solvers lack aesthetic precisions.

For us aesthetics have become an integral aspect of human-centeredness rather then a stand-alone add-on. We think having those precisions on board makes the experience more human-centered. In the simplest terms: Designers know how to connect in meaningful ways with multiple human constituents including users.

To flesh out this "design thinking" picture for you a little further I might try to quickly explain the story from one other direction...

Some might call what we do "design thinking" or "enabling design thinking" or "enabling innovation" but it is not possible to understand what it is by looking through traditional lenses of design. It took us ten years to figure out how to explain this in five minutes (or less).

To do this we often use this handy little two-part construct: Sense-Making and Strange-Making to explain one important dimension of the paradigm shift underway. To be brief: Sense-Making is about what WJJ Gordon called "making the strange familiar" while Strange-Making is about "making the familiar strange".

Strange-Making is about differencing ie: how to make one toothbrush, book, car, etc look different then the other .

As a mental activity and as a practice or discipline Sense-Making and Strange-Making are quite different.

The branding business is a differencing focused industry. For decades design was taught as and thought about primarily as differencing. You can still see this well intended but totally behind the times interpretation in many institutions, in design schools, design magazines, embedded in professional associations such as AIGA etc. However it is dressed up, differencing as a stand-alone value-add is the old currency of design.

Most traditional design firms are differencing focused. In the context of projects this means that typically their work involves a small degree of Sense-Making on the front end and a more significant amount of time and energy expended on Strange-Making . At Humantific and in other design oriented firms already operating in the strategic space the proportions are the reverse. Most of our work involves a huge amount of Sense-Making and a lesser amount of Strange-Making.

To say this in a slightly different way: There is a revolution within the revolution of Design 3.0 and that is: Sense-Making itself is being transformed. In an increasingly complex world Sense-Making is becoming the fuel for helping humans address the myriad of challenges facing us. Many of those challenges have nothing to do with business. Sense-Making as FUEL is an entire subject unto itself that we can perhaps talk about another day. We are at work organizing a symposium on this subject this spring in Madrid.

When we teach "design thinking" what we are teaching is Sense-Making and Strange-Making as well as how to synchronize the two. Sense-Making in the fuzzy problem space is one of the most difficult aspects of what we teach. Sense-Making around the humans in the problem space is also highly complex. Much of that Sense-Making work has to occur before

meaningful Strange-Making (differencing) can even begin.

The difference between how we teach "design thinking" and how others are doing so is that we are not focused on teaching people how to create products.

We teach how to work effectively in cross-disciplinary team settings tackling complex fuzzy challenges of all kinds including organizational challenges. We have no preconceived notion that the solutions will be consumer products.

Using new tools and methods design oriented firms operating in the Design 3.0 space have moved far upstream in the process. These firms are doing the Sense-Making that will inform briefs rather then waiting for them to be written by others. Participating upstream is among the most effective ways for designers to add enormous value that will inevitably come to impact cultures however we choose to define that term.

All of this means that the boundaries of design are in motion, what design oriented firms do has already forever changed. It is a challenging and exciting time to be a design school educated designer but not a time for the faint-of-heart.

Hope this is helpful Rick...:-)

Dimensions of a Revolution in Motion

Design is moving from:

1. Tactical to Strategic

2. Defined Briefs to Fuzzy Situations

3. Aesthetic-Centered to Human-Centered

4. Trends Tracking to Complexity Navigation

5. Strange-Making to Sense-Making & Strange-Making

6. Vertical Content Expertise to Adaptable Process Expertise

7. Intertribal Communication to Cross-Disciplinary Communication

8. Creating Ideas & Products to Co-Creating Strategies & Organizations

9. Thinking & Doing to Thinking, Doing & Enabling

10. Deliberate Exclusion to Deliberate Inclusion

11. Object Creating to Culture Building

12. Design as Subservience to Design as Leadership

GK VanPatter

Co-Founder

NextDesign Leadership Institute

New York

NextD

Design is Changing! Are You?

http://nextd.org

.

Co-Founder, Director of Strategy Humantific

StrategyLab | UnderstandingLab | InnovationLab

New York / Madrid

http://www.humantific.com

Case Study:

1. Universal Design- Home Model

Danise Levine is an architect and the Assistant Director at the IDEA Center. Buffalo University, USA

Richard Bergman is the President of Heartland Homes, USA

Description:

In July 2007, Danise Levine from the IDEA Center and Richard Bergman from Heartland Homes completed a universally designed model home that was featured in the Horizon Home Show in Amherst, NY. This 3200 sq. ft single-story home includes 3 bedrooms, 2.5 bathrooms, a large great room, library, kitchen, dining room, and large rear porch. This house demonstrates the possibilities of incorporating universal design practices into contemporary, single-family housing. It also incorporates green building principles and Energy Star architectural design.

Universal Design provides improved usability and safety to all members of the household, regardless of age, stature or physical ability. The Universal Design features include:

- Driveway sloped to minimize grading No-step entry through garage

- Higher, elongated toilets

- Lever handles on all doors

- Double doors for additional clearance into the owner's suite

- Rocker type light switches mounted within reach at 48" above the floor

- Raised outlets to eliminate bending

- Wider 36" doors throughout

- Pot filler over stove

- Dry-cleaning receiving box

- Lowered windows throughout the house

- Wide hallways for increased maneuverability

- Walk-in closets with storage at differing heights

- Blocking behind walls at shower and toilet in all bathrooms to accommodate future grab bars

- Oversized roll-in steam shower with handheld, height adjustable showerhead

- Full-length side panels at front door for security and light

- Decorative grab rail for additional support at toilets

- Abundance of storage in kitche n within a reachable height

- Pull-out shelves to bring storage closer and eliminate reaching

- Work triangle less than 27', with no leg shorter than 4', no longer than 9'

- Instant hot water dispenser with fresh water filtration

- Pull-out faucet spray with handheld control

- Wall framed to accommodate a future door for direct access from den to powder room

Green Building Principles and Energy Star Architectural designs:

- High rating in EPA's ENERGY STAR® program that demonstrates the adoption of energy efficient products and practices

- Heat recovery ventilator (HRV) to provide clean, fresh air while helping keep energy costs low

- Reverse osmosis water purification system

- Soy base spray insulation

- Non VOC paints, adhesives and carpets to preserve both indoor and outdoor air quality

- CFI Fluorescent Lighting for energy efficiency, visual comfort, and controlled light distribution

- High efficient windows and doors

- Hot water on demand

- Hot water recirculation system on demand

- 5 step window install protection

- Building science and moisture control

- Central vacuum system

Danise Levine is an architect and the Assistant Director at the IDEA Center. Buffalo University, USA

Richard Bergman is the President of Heartland Homes,USA

Letter:

1.   Dear Dr. Sunil Bhatia

I will do that.

I would like to ask you if you and your colleagues would like to join an organization that some of us in the US have initiated: Association of Transportation Professional of Indian Origin (ATPIO). We have a website http://www.public.asu.edu/~rpendyal/atpio/index.htm . It needs updating but can give you am overview of our organization and we would like to encourage membership from India. All students are eligible for free membership. Please consider joining us to make it a major forum for interchange of ideas and sharing of activities.

Lalita Sen

Department of Urban Planning & Environmental Policy

Texas Southern University

Houston, Texas 77004

2. Dear Sunil Bhatia,

I appreciate distribution of the Newsletter and I send here and e-mail version, I hope will do. We sent can you tell me how many addresses sent to, and thank you.

Best regards

K. Harald Drager

TIEMS President

3. To
Dr. Sunil Bhatia
Hi,

It's a good initiative and would like to connect whenever convenient.

Do send in some details.

with warm regards,

Anil U Joshi
Program Director
Human Ability & Accessibility
IBM India Research Lab
4 Block C, ISID Campus
Institutional Area, Vasant Kunj
Phase II, New Delhi 110 070
Tel No.: 91-11-66192100
Fax No.:91-11-26138889
Direct No.:91-11-41292144
Mobile : 9818830940
email : anijoshi@in.ibm.com
"Those who are aware of their mission are strong. Those who live for a mission are beautiful." - Ikeda Sensei

Appeal:

1.

who can develop a short animation as a freelance project. One of the requirements is that the person should be based out of Bombay.

Please get in touch if you are in Bombay and are into freelance animation work.

"Malvika Gupta" malvika1981@yahoo.co.in

2

Hi All,

I have created a post of online resources that I refer to. Hope it would be useful to new entrants.

http://designprevai ls.blogspot. com/2008/ 03/ia-resources. html

Regards,

Praveen Verma

3.

Ria.kearney ria.kearney@yahoo.com

We're looking for inspiring young people from around the world, who've made a real difference to their own lives and those of others by getting their voices heard about the issues that matter to them.

Whether it was lobbying your council to improve the local park, setting up an action group to combat bullying, or even producing your own film, if you (or someone you know) has used speaking and listening skills to achieve something positive, we want to hear about it!

The Awards...BT, in partnership with the UK Youth Parliament, organise the Seenand Heard Awards as part of the Better World Campaign, which aims to provide young people with the skills and opportunities to effect real social change.

If you are successful, you will be invited to attend a Seen and Heard awards ceremony to meet other young people and hear about their projects. You'll also get the chance to tell your story through the 2008 Seen and Heard report - a

publication which will be seen by young people, MPs and other decision makers around the world.

How to enter…Entering the awards is easy. If you are young person, just tell us a little about what you have achieved by answering the questions on our entry form. You can also nominate a young person or group using the same downloadable form.

To nominate an adult or organization that has helped you to be Seen and Heard, simply follow the instructions on the website. Find out more about the awards and read stories from last year's winners by visiting the BT Better World website at www.btbetterworld.com or by emailing us at seenandheard@bt.com The closing date for entries is 9th May 2008, so get those nominations in today…
The BT Seen and Heard team

News:

1.

HCI International NEWS - March 2008 - Number 28
The HCI International Newsletter is also available on-line: http://www.hci-international.org/index.php?module=newsletter&MMN_position=3:3
If you have any questions or comments, or if you would like to contribute, please contact the Editor, Dr. Abbas Moallem (news@hcii2009.org**). The opinions that are expressed in this Newsletter are the sole responsibility of its authors and do not represent any institution or company.**
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HCI International 2009
http://www.hcii2009.org
HCI International Conference series website:
http://www.hci-international.org

2.

Subject: PSC Europe Newsletter Special Issue

If you have any comments on the PSC Europe newsletter please contact the editor at info@psc-europe.eu

PSC Europe Newsletter Special Issue

Editorial

This issue is insofar "special" as it addresses one single feature – a "show case" story - to demonstrate how, in case of emergency, existing and/or future telecommunication technologies might be used for civil protection purposes to give access to and to ensure information flow between public safety actors with such efficiency as is needed.

3.

Journal of HCI Vistas Vol-IV, Article 5, March2008

User Centred IT for the Public: A Corporate Partnership in e-Governance

Authors: Jhumkee Iyengar and Ranjit Gadgil

The high tech and world class IT Corporations in the rapidly growing city of Pune, India and its low-tech Government organizations serving the public form a striking contrast. The gap in work

cultures between the two makes joint projects a challenge, even though much needed and apparently feasible.

To view the poster..

http://www.hceye. org/UsabilityIns ights/?p= 94

Journal of HCI Vistas

Vol-IV, Article 4, Feb 2008

Significance of Participatory Design in Offshore Software Development Scenario

Author: Atul Manohar

The UCD team needs to interact with users number of times for identifying their requirements and for presenting the wireframes and prototypes of the solution. The luxury of meeting the users so frequently may not be feasible and affordable in the offshore software projects.

 To read more…..

http://www.hceye. org/UsabilityIns ights/?p= 88

4.

Design and animation institute planned in Pune

 In a bid to tap more than 80,000 jobs that would come to Indians through outsourcing in animation, gaming and industrial design sectors over next three to four years, the France-based Chamber of Commerce and Valenciennois (CCIV) has joined hands with Pune-based DSK Group to launch the International Institute of Industrial Design, Gaming and Animation in Pune.

The institute will work on parallel lines to CCIV schools to develop designers and animators who can meet the demands of the fast-paced design industry.

CCIV runs three schools in France namely, Iinstitut Supérieur de Design (ISD), Supinfogame and Supinfocom, which are considered to be the top-most design schools in the world.

Searching for the right talent to develop designers, CCIV decided to enter Indian education circles and tied up with DSK International Institute of Industrial Design, Gaming and Animation.

The institute, located along the Pune-Hyderabad national highway in Phursungi village, around 20 kilometres away from Pune, will conduct a two-year-long fundamental course and a three-year-long advanced course in all three disciplines. Globally renowned designers and animators will train the students at the institute.

"DSK Group and CCIV have set up the campus on 20 acre land as per a Memorandum of Understanding (MoU). The total investments that have gone into this project are worth Rs 200 crore," said Ashok Kolaskar, managing director, DSK International Institute of Industrial Design, Gaming and Animation.

"The outsourcing business is not just about information technology. In fact, the number of jobs outsourced to India is increasing in fields such as animation, gaming and industrial designing.

Unfortunately, the Indian academic system does not train students in these interesting disciplines. Our school will prepare students to explore and utilise opportunities in these three sectors," Kolaskar added.

Kolaskar, a bio-informatics scientist and former vice-chancellor of Pune, pointed out that India is probably the best talent hub for global designing industry.

"We are developing this institute on the lines of IITs and IIMs. After completion of the course, Commission Nationale de Certification Professionnelle (CNCP), France, will issue its certificate to all students. This certification is considered to be the best in the business globally," he added.

The institute will follow the curriculum, selection procedure and teaching methodologies from its parent institution. The first batch of students will join the institute from August this year and an entrance test for the same has been planned in June.

5.
Hi-tech touch for cleaning railway tracks
BS Reporter / New Delhi March 25, 2008

As Railway Minister Lalu Prasad's railway budget addresses popular concerns and also envisages increased efficiency and cleanliness without making passengers cough up more money, a robot designed by a lecturer at the National Institute of Technology (NIT) in Jalandhar for cleaning the surface beneath the railway tracks can help in giving the platforms a cleaner look, of course, in a high-tech manner.

The robot fitted with a high pressure water jet can be programmed according to the departure and arrival of the trains. Apart from increasing the efficiency in cleaning, it can also prove to be a big leap in withdrawing the manual involvement in removing the filth in the railway tracks.

With successful completion of the project, for which Union HRD ministry had given a grant of Rs 30 lakh, its creator Kuldeep Singh Nagla has also been nominated by the government of India for Commonwealth Scholarship for pursuing his PhD in Robotics and Artificial Intelligence in UK.

"I have studied the cleaning of garbage and the design provided for it at the railway tracks along the platforms. While working over the robot's efficiency, its programming for synchronisation with the train traffic was also a major thrust," Nagla said. "This robot will be an on-line and off-line programmable system combined with various indicators and sirens," he added.

It is a flexible system and can even be controlled through Ethernet from a centralised control," he revealed while adding that to make its control very easy the control panel had been provided with a touch screen operation. "While on one hand it would increase the efficiency of cleaning through high pressure water jet and with optimal trajectory planning of nozzle on the other it would also save water, energy while and over all cost over cleaning," he claimed.

"We have in mind that the controller should be designed according to the world standards," he said while adding that he had also read presented a paper about this robot in International Conference on Mechatronics and Automation held in China last year. It can make the cleaning a hassle free process at stations with heavy train traffic as it can be easily programmed for working between the arrival and departure of two trains

and would not work during the halt of a train at platform. "However it can be used for washing trains from outside also, he explained. Dr Mouinuddin, Director of the NIT, who also happens to be the supervisor of this project along with department head R Jha, revealed that they would right to Ministry of Railways for allowing its installation at New Delhi Railway Station for its testing in real life conditions.

"Though a number of features have already been added into it but we think that after testing at the busiest railway station in the country necessary modifications can be made and we shall working to make it more intelligent with sensors," he added.

Program & Events:

1. **BW-NID Design Brilliance Awards 2008**
Businessworld invites entries for the Design Brilliance Awards 2008.

Send in your entries now, or wait till it's too late.

Some people are always at the right place at right time. The rest, well, they're called `the rest' for a reason. We invite you to send your entries for the "Design Brilliance Awards". To participate, visit www.businessworld.in and fill up   form on the micro site. Last date for accepting entries is 12 March 2008.

Categories for Design Brilliance Awards 2008:
- **Urban town planning**
- **Fashion and lifestyle**
- **Social design including products and services**
- **Stage/film set design, production and cinematography**
- **Digital design**
- **Graphic design**
- **Product design**
- **Furniture design**
- **Transportation and automobile design**
- **Packaging design**
- **Animation**
- **New media installation**
- **Green and sustainable design**

Participation Fee:
- **Student: Rs. 500/-**
- **Individuals: Rs. 2,000/-**
- **SME's: Rs. 5,000/-**
- **Corporate: Rs. 10,000/-**

2.
Greetings user experience enthusiasts! Welcome to another year of conversations and events on product and services innovation through User Experience and Design.

2007 was an important year for the Bangalore

community. We all managed to collaborate and host seminal events including lectures, conferences, World Usability Day, and Face to Face meetings. CHI, UPA, IxDA continued to grow. We managed to achieve some of our objectives like reaching out to students, connecting with more practitioners, technologists & business professionals and be visible in public forums.

In the year 2008, we aspire to broaden the Bangalore UX community base, and continue supporting the culture of Innovation and User Experience Design in Bangalore and India. To kick-start 2008, we have setup an informal next community meeting.
March 2008 event announcement
Topic: "Creativity and design thinking for achieving breakthrough innovations"
Speaker: Murli Nagasundaram (http://www.murli. com) — See bio and details below
Date: March 6, 2008 (Thursday)
Schedule:
6:00-6:30 pm—Socializing
6:30-7:30 pm— Feature presentation
7:30-8:30 pm— Open discussion on community vision and directions and key roles
Location
Oracle, Prestige Technology Park, Block Venus Level G, 1, 2, 3, 4, 5 Survey Nos. 29, Sarjapur Maratha Halli Ring Road, Kadabeesanahalli Village, (Panathur Village), Varthur Hobli, Banaglore East Taluk
Boardline number: 080 - 4029 6000.

 Registration contact
http://hcibangalore .pbwiki.com/ or email
pande.amit@gmail. com
Presentation and speaker details
"Murli Nagasundaram is an innovation and design thinking trainer, facilitator and consultant, and a professor at Boise State University in the US. He has a Ph.D., MBA and BE. Murli has experience in academia and industry, including startups, in

India and the US. He helped design a pioneering electronic brainstorming/ decision- support system called VisionQuest. His website is at: http://www.murli. com."

Murli will cover several topics in his presentation including processes for driving creativity and innovative thinking that can lead to breakthroughs in processes, services and systems. He will also talk about how the Design and User Experience community could leverage new thinking tools to drive innovation in their ventures. In this interactive session, Murli will also discuss issues that block innovative thinking on the part of individuals/ groups/organizat ions and how to overcome them. He will briefly cover specific innovation/creative thinking methodologies, such as Osborne Parnes and CPS. Hope to see you guys there...

Navneet

3.

International Journal of Design

CALL FOR PAPERS: A Special Issue on *Cultural Aspects of Interaction Design*

Deadline Extended to March 31

(Authors are encouraged to submit their papers as early as possible. All papers will be reviewed as they are submitted.)

The notion of interaction design has become an indispensable aspect of product design and development, especially for those products with embedded information technologies. While traditional industrial design focuses on a product's functionality and its physical features, interaction design focuses on the interactive experience of users. Since products are becoming more pervasively and more tightly interwoven with our daily activities, design calls for a deeper understanding of the diverse perspectives of product use.

Culture has been considered to play a critical role for users in their understanding, acceptance, positioning, and use of an artifact. The quality of an interactive experience is produced in a particular cultural context and is determined or

evaluated in that context. Yet, when it comes to incorporating cultural factors effectively in design practice, knowledge is insufficient at all levels -- conceptual, theoretical, methodological, and practical. Cultural factors need to be integrated in the design process in order to achieve the high quality of product interaction that enables our experience with a product to be effective and enjoyable.

For this special issue of the International Journal of Design, we are seeking papers that present breakthroughs in conceptual, theoretical, methodological and practical research that enhance the formalization of design knowledge with regard to the "cultural aspects of interaction design." In particular, these contributions should focus on representing cultural factors in describable, operable, and usable forms of design knowledge with relevance to interaction design. The following topics are of particular interest, covering fundamental and contemporary issues in this domain:

- Conceptual framework of cultural factors in interaction design
- Acquisition and representation methods for cultural factors in design
- Formal models of cultural factors in interaction design
- Planning, design, and evaluation methods that involve cultural perspectives
- Cultural aspects of interaction methods and languages
- Assessment of the cultural effects of new interactive products
- Cultural factors in Kansei/emotional/affective aspects of interaction
- Cultural contexts of interaction design for ambient intelligence environments
- Cultural factors related to usability

Schedule:
Full Paper Due: 31 March 2008
Notification of Acceptance: 31 May 2008

Final Version of Paper Due: 30 June 2008
Special Issue Publication Date: 1 August 2008
Submission of Papers:
Manuscripts should be prepared in accordance with the guidelines found at www.ijdesign.org/authorGuidelines. Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. A double-blind review process will be employed for this special issue. Manuscripts should be sent through the on-line system at www.ijdesign.org/submissions. Authors should choose "Special Issue on Cultural Aspects of Interaction Design" as the Journal Section when submitting papers.
Special Issue Editors:
Keiichi Sato
Institute of Design
Illinois Institute of Technology, USA
Tel: 312-595-4912
E-mail: sato@id.iit.edu
Kuohsiang Chen
Department and Institute of Industrial Design
National Cheng Kung University, Taiwan
Tel: +886 6-2757575, ext. 54335
E-mail: kchen@mail.ncku.edu.tw

4.
The University of the Arts London in collaboration with RSA India has announced a scholarship for one Indian student at Central Saint Martins,London for MA Industrial Design starting September 08. The duration of the course is 2 years and the scholarship will cover tution fees only.
The deadline for application is 21 March.
For further information about the Course and the application procedure please visit the website www.maindustrialdesign.com

5.

Event: CIRP Design Conference 2008: Design Synthesis

Date: 07 - 09 April 2008

Design more and more becomes the art of bringing together expertise and experts from different domains in creating future products.

This multi-disciplinary character requires changes of the design environments, methods and tools in all phases of the development cycle.

Besides the analysis based approach, effective and adequate design synthesis is required to master the many faces of the future design process.

In this, synthesis implies composing design elements and approaches, so as to form a whole, as well as combining diverse conceptions into a coherent whole.

Design synthesis therefore relies on e.g. adequate process descriptions and methods, on structured means for information and knowledge management, on effective (analysis and simulation) tools, on stimulating (virtual reality) environments and on suitable methods to govern the entire process.

But the decisive factor is the effective and far-reaching facilitation of the interaction between designers, domain experts and users.

This conference focuses on all aspects of design synthesis, from theoretical onsets to practical implementations and educational perspective.

For more information, please visit:
http://www.cirpdesignconference.com/

6.

**EUROPEAN
DESIGN
AWARDS**
A CELEBRATION
OF EUROPEAN
COMMUNICATION
DESIGN

European Design is a Paneuropean institution consisting of an awards scheme, a conference and an annual catalogue for the European communication design industry. The three events are organized by European Design in collaboration with the European Design Media Network (EDMN).
Award ceremony:
May 18, 2008 Södra teatern, Stockholm, Sweden

Södra teatern, Stockholm
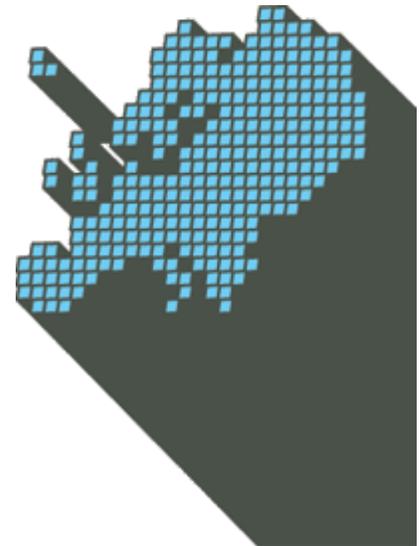
7.
On May 17 and 18, 2008, Amsterdam sees its first European design Trade Show UNDESIGNABLE. 26 galleries and dealers from all over Europe will present their finest 20th century design pieces at Amsterdam's KNSM island, Loods 6.
The UNDESIGNABLE fair shows a wide choice of objects, e.g. exquisite genuine furniture, lighting, paintings, prints, jewelerry and decorative and art pieces from plastic, glass or ceramics.
Design aficionados attracted to last century's period from the 50s to the 80s may find their own dream piece, or just browse and enjoy the stylish variety of these decades.

Works of famous designers as Cees Braakman, Friso Kramer, Jean Prouvé, Arne Jacobsen, Bruno Mathsson, Charles and Ray Eames or Joe Colombo and many others will be on show at the exhibition area that expands to some 700 sqm. Most of the dealers and galleries, from the Netherlands, Germany and Belgium, will present their treasures for the very first time in Amsterdam.

All merchandise offered for sale during the event is authentic; with no reproductions permitted.

Following the start in Dutch design Mecca Eindhoven in May 2007 and after the successful Trade Show in Berlin in November 2007, UNDESIGNABLE aims at establishing a new location in Amsterdam, and add to the city's fashion design scene as a periodical event.

Professional visitors, dealers and press may preview UNDESIGNABLE on May 16, 2008, starting at 18 hrs. The fair opens its gates for the public on May 17 and 18, from 11 through 17 hrs. (Admission: 5 Euro).

UNDESIGNABLE is organized by Reistad-Serrault, Richard Serrault, who also organize other renowned Trade Show in Berlin, Germany. The organizers have stated, "We are excited to build a good class design event to Amsterdam, a city which has always been in the forefront of 20th Century design."

http://www.undesignable.eu

Press Contact:

Reistad-Serrault Events

Boxhagener Strasse 110, DE 10245, Berlin, Germany. (+49 163 8695 041)

post@reistad-serrault.eu

Undesignable trade shows Since 2007, conducted by our passion for traveling and history of 20th century Design, we launched and are organizing European Trade Shows dedicated to post-war Design.

 8.

   Greetings user experience enthusiasts!

As CHI Mumbai continues to grow, 2008 promises to be a year full of exciting events and activities.

In 2008, we aspire to broaden the Mumbai UX community, and continue supporting the culture of User Experience Design in India. To commence the

series of events that will accomplish these goals, we have organized a presentation by Dr. Susan Weinschenk, Chief of Technical staff, HFI, one of the world's foremost UX practitioners and speakers. The presentation will cover a selection of the latest research in the realm of UX and critical design trends like persuasion architecture and emotional design.

March 2008 event announcement

Topic: *Recent Research and Moving Forward: What Makes You Click?*

Speaker: Dr. Susan Weinschenk – See bio and details below

Date: March 12, 2008 (Wednesday)

Schedule

5:00-6:30 pm—Susan's Presentation

6:30-7:00 - Socializing and Snacks

Location

Club.Chai, Human Factors International

Ground Floor, Unit No. 7, Srishti Plaza

Next to Killick Nixxon, Off Saki Vihar Road

Andheri East, Mumbai 400072

Ph: 022 4017 0400

Registration details

Registration will happen on a first come-first serve basis. We have only 25 seats available, so pls contact us at the earliest, if you are interested in attending the event.

For registration, write to us at **hitesh@humanfactors.com**

Presentation and Speaker details

In this presentation, Dr. Susan Weinschenk, Chief of Technical Staff at Human Factors International, examines some of her favorite recent research studies in human-computer interaction and their practical impact on user experience design. She also explores some of the new trends in usability and user experience including generational differences, persuasion architecture and emotional design.

http://www.humanfac tors.com/ about/susan. asp

Susan Weinschenk is Chief of Technical Staff at Human Factors International (HFI). Prior to working with HFI, Susan was the owner and principal consultant with Weinschenk Consulting Group. For more than 25 years she has used her expertise in

psychology to design technology products, including Web sites and applications, for Fortune 500 companies. Dr. Weinschenk's work spans legacy systems, graphical user interfaces, Internets, intranets, and Web applications. She has developed dozens of leading-edge seminars, and is a highly rated speaker at national conferences.

Her consulting expertise includes work on speech applications, integrating software methodologies with user-centered design methodologies, and the design of interfaces for complicated Web applications. One of her specialties is mentoring executives and practitioners in the user-centered design process and helping organizations make the transition to a "user-centered" culture.

Susan has three books published by John Wiley and Sons and was chosen one of the "Top 100 Women in Computing" by Open Computing magazine. She has a doctorate in Psychology from Pennsylvania State University.

9.

The Design Program, Indian Institute of Technology Kanpur organizes the Annual Design Exposition (ADEX) every year to celebrate the creative spirit of Design. ADEX is a platform for young designers to display their year long churning of thoughts and works. This year, ADEX will be held from 30th March to 1st April 2008. ADEX08 will

feature seminars by eminent speakers and leading designers from the academia and industry along with innovative products and multimedia displays by the students.

Design Program along with JCBL is also organizing a National Design Challenge on Bus Styling called Bus for us wherein students from all

over the country have participated .The design and prototypes of the finalists shall also be displayed in the exhibition.

We are also announcing for the first time a separate section in the exhibition for the IIT non-design students.

For details visit www.iitk.ac.in/design

Do join us in this celebration of design-as a way of

life.
Design Program, IITK

10.

We are happy to introduce ourselves as Apparel Concept Lab, Bangalore. ACL is a design cluster born out of design, incorporated with the entrepreneur spirit. Design requires considerable research, thought modeling, interactive adjustment before translating to the final product.
Therefore we as a design studio strive to create something that is both functional and aesthetically pleasing, in terms of fashion and industrial design. We work as the creators of change for the design led industry; equipped with the professional expertise in providing efficient design related support and value added services. Our team includes designers who have been internationally exposed to the design sector, especially from European countries like Italy. We foster new innovation process to create and deliver new value as a major driver of economic growth for the industry.
"OUR MISSION IS TO CREATE MUTUAL BENEFICIAL BUSINESS DESIGN RELATIONSHIPS THROUGH INNOVATION AND CREATIVITY THAT DELIVERS VALUE TO OUR COMPANY AND OUR CUSTOMERS."
Our services include:
Market analysis, Branding Strategy User Analysis, Brand Extension Research on seasonal trends and creative direction Developing concepts- story boards, mood boards and color board Design collections based on developed concepts
Prototypes realization, Product development and merchandising We look forward to hear from you,
Apparel concept Lab
2,#9, 20th 'K' Cross,
Chandra Reddy Layout,
Ejipura, Bangalore-47
Tel: 080-41150889

Job Opening:

1.

We are currently looking for highly experienced individuals to work with our design team on projects for some world renowned companies. If you want to design award winning products, work in a fun environment, experience a talented and passionate design team, we believe you should get in touch with us now.

Responsibility

You will be involved in the projects right from conceptualization to implementation. You will design, help create a design language and mentor juniors and interns at Bang*.

Specific Skills We are looking for somebody who has:2-3 years experience in taking a project from ideation to implementation.

Strong skills with focus on problem solving and cutting edge styling in different categories are required.

Strong visualization capability including concept sketching, detailed illustrations, quick 3D mock-ups are required.

Expert level in CAD skills in ProE (ISDx) or equivalent design and styling software are essential.

Please feel free to respond off this list for those of you that are interested in working us. For others, I request you to forward this mail to those who might be interested.

Prashant Subhedar

www.bang.co.in

2.

Need some one from Fine arts background, for preparing Art work...in Home textiles.

Pl contacts me as soon as possible.

Nishy Singh

9899905287

3.

For Viacom18 (previously MTV Networks) - designing for print, on air shows/promos and events for channels MTV and Vh1. We are currently looking for graphic

designers (to add to our brilliant team of 3) with interesting portfolios and illustration styles to suit the channels and its brand. Interested souls may send a sample of their work (keep a tab on the size of the attachments) / Links to their online portfolios, flickers, doodles etc to panickerh@mtv-asia.com

4.

We are looking for a technical person who has graphic design software skills like corel draw, adobe photoshop to implement the concepts. Although the current work is for 3-4 days , there is a possibility that we would take the same person for our other ongoing and future projects.

Nijoo Menon

Associate Faculty (Design For Retail Experience)

Coordinator NID-Asian Paints Colour Research Lab

National Institute of Design

R&D Campus Bangalore

5.

burrp! is one of the hottest internet startups in India. We are currently live in 8 cities. If you are passionate about design and want to work in a fast paced, fun, rewarding startup environment then read on: User Experience Designer

- 4+ years experience designing web-based interfaces.
- Academic background in human-computer interaction or related field.
- Defining the user experience and interface for new Products and features.
- Recommending usability enhancements for new and existing products, and making recommendations for change.
- Conceptualizing and presenting design ideas & concepts through mock-ups/ wire frames/ or product walk-through to run by the internal team or users for feedback /approvals.
- Be actively involved in understanding user patterns through web analytics, user surveys and interviews.
- Hands on experience with tools such as Flash, Photoshop, Illustrator, Corel Draw, Dreamweaver, Go Live etc.
- Advanced Skills in HTML, XHTML, CSS a huge plus

Senior Web/ Visual Designer
- 3+ years of design experience in a product company/ portal / interactive agency.
- We are looking for individuals with strong creative skills and a keen interest to design for the new web paradigm.
- On the product side, you will work collaboratively with the Engineering Team to evolve the design of the site to support new features and enhancements.
- On the business side, you will work collaboratively with the Marketing / Communication Team to develop compelling visuals & layouts for campaigns & product related communication or e-marketing collateral
- Design for and troubleshoot cross browser compatibility issues
- Create clean mark-up that is scalable, accessible and search engine friendly
- Bonus points for passionate hand-coders who hate the WSIWYG editor and enjoy writing lean, lightweight, standards-based markup
- Strong hands on experience with tools such as Flash, Photoshop, Illustrator, Corel Draw, Dreamweaver, Go Live etc.
- Thorough understanding of HTML, XHTML, CSS.

About burrp!
We are a technology startup, located in Mumbai that develops and operates the
http://www.burrp.com/site . Currently we are live in 8 cities - (Mumbai, Bangalore, Kolkata, Chennai, Hyderabad, Pune, Delhi - NCR and Ahmedabad. burrp! is a fun way to find and share your views and opinions on local places like restaurants, bars, clubs, road-side stalls etc. We are also working on a Television related product which is currently in a private beta phase - besides a ton of features are slated for the next release of the local product.

We've been featured in Business World, Business Today, CNBC and on NDTV Profit as the hottest internet startup to watch in India. We were recently featured in Business 2.0 as one of the top 30 Web 2.0 companies worldwide. We have

content syndication partnerships with companies like Google and Times of India for our local content.

Please send in your resume + links /portfolio to jobs@burrp.com

6.
About company:
'&then' is a brand, it creates anything for its clients and itself. &then we solve client problems with experimental media neutral answers. &then designs identities to wall fashion to buildings to rugs to lifestyle products to furniture to (your product goes here). &then creates brands and the communication for anything (tobacco & other illegals) &then is an open minded experimental space where open minds create art/ &then… is what you make of it.
www.inandthen.wordpress.com
Requirement:
We are looking for Designers with radical Grey cells based in Mumbai. Years of experience doesn't matter as long as you like to be free.
Send in your portfolios to
soham.sarcar@gmail.com

7.

Dear all
All India Artisans & Craft workers Welfare Association is looking for a designer+marketing coordinator.
Detailed job profile available at their website
www.aiacaonline.org
Those interested may contact them directly.

For free Registration: write to
subscribe@designforall.in

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