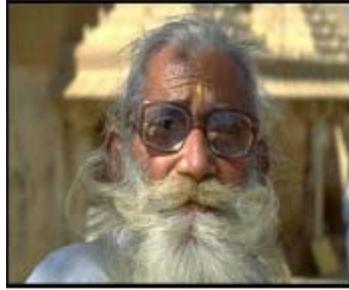


# Design for All

Year: 2007, No. 01

A publication of the Design for All Institute of India.



Student Special

November 2007



### **Chairman's Desk:**

**How do we define a student? Was Aristotle a true student of Great philosopher Plato? Was the latter responsible to mentor Aristotle as Philosopher as he himself among all the students in his class? Why could not he mentor other students of the same class of Aristotle as Aristotle? It is difficult to say who was student of whom? Was Socrates tutored Plato or Plato influenced the thought of Aristotle or Aristotle was the real force to Alexander? If Aristotle was really a person of great intellect & wisdom why had he educated & trained Alexander the warrior and did not moderate the ambitious student Alexander to conquer the world with mighty force. Why could not he make him like himself as a philosopher? Socrates unjust death made the Plato to follow his legacy or Socrates succeeded in making only Plato as himself.**

**Teachers are in fact universal. Only the effort of a particular individual student makes him distinct. The responsibility of the teacher is to help & train the mind of the pupil in such a manner that wherever he goes, he should work for the progress of the man & society. Learned students climbed the height and make the qualitative differences in the humanity quickly with their developed faculties of minds. The moral duty of the teacher is to acquaint the student from all possibilities and show the student more sides of the coin than simply heads and tails.**

One student asks his teacher 'What is God?' Teacher explains 'As we could not earlier perceive and define about five or six or many dimensions that exist in this world because of our limited knowledge. As our knowledge grows we are getting aware of other dimensions. Similarly our current knowledge is not sufficient to define God at all. May be in future with our more refined knowledge, we shall be able to do so. Our present know-how is limited for this complex question of God'. Because with time we grow in wisdom and knowledge, and this is gradually accumulated over the ages. The lesson of the story is that teacher should know his limitations and make aware the student that everything is open to him and he has to explore many things which are not known to mankind and these are yet to be explored.

To make the society better, it is not necessary that a person should be highly tutored under some eminent teacher. If someone is born with innate wisdom and is not enough lucky or privileged or has been deprived to get under some formal training, still there is a probability; he may shine of his own without refuge to go under any formal quality training. When I see the work of painter, sculptor and craftsman like Ram Kinkar who was picked up by Nobel Laureate Rabinder Nath Tagore from a remote village of India where there was no school .He never dreamt in his life that the person who never had the opportunity to visit any school would work with Vishwa

**Bharti Vishvidalay established by the said Nobel laureate and he would be honored by national and international agencies for granting him for showcasing his talents for most prestigious assignment for sculptures, paintings etc for years. He created our precious heritage and his works are national treasures. Tagore himself never studied in any formal school; still Nobel committee honored him.**

**WISDOM and right ATTITUDE of human's mind do not need any kind of support. What a normal student may achieve after very long training and hardship, brilliant mind may have such inborn talents or he may start there professions from either that point for which normal student is struggling hard to come up or that far distant point where society can not even dream. Wisdom always moves ahead with the time. Society moves at its own pace and may lag behind in wisdom. It is not in position to evaluate the well-advanced work of the genius. Had not society failed in evaluating the work of Bole who anticipated the computer 150 years ago before the birth of computer?**

**Teachers can guide the ordinary student how to be extra ordinary but they cannot make him extra ordinary. It is the individual who himself shines and proves he is extra ordinary .He finds himself in some right opportunity or develops right opportunity for his path of rise. Einstein was established as world genius of the past century, he once visited his school. He found the same old teacher of**

mathematics was teaching with the same passion as he used to when he was student of same class. Einstein introduced himself to his teacher. He answered, he had vague idea & just could recall that Albert was student in his class. The incident reminds me that teacher can keep on working on his duty and never bothers how many of his students really succeed in their lives. A teacher may succeed in producing a best student in his lifetime that can change the face of humanity that is more than enough for him and would ultimately a matter of great satisfaction for him.

I personally believe we should provide the equal opportunities to all. Let everyone should prove what he or she could do for society. If some people avail the opportunities and excel we keep praising them and do not care for those who fail. Is this society's mechanism to reward or punish those who succeed or failed? Why till today society could not have develop the formula to rightly reward the labor of the individual? I personally think I am not in position to judge anyone whether he should qualify or disqualify for certain work because our knowledge is imperfect and in search of truth. What today seems right may prove wrong tomorrow. Education is evolving and finding everyday new paths to attain more and more of perfection. It is not necessary that what premises I have thought to qualify the person for specific job may not at all required judging for that specific job. I have no set formula to judge the intelligence of the

person, but utmost what I can do at least by helping and providing the equal opportunity to all we can serve the humanity in better sense.

In this continuation of beginning of our philosophy we are providing opportunity to those who wish to do something better for society. Does the attitude of a particular individual help the progress of the society? These parameters are not sufficient but this thought suites us. We have dedicated our special issue of November 2007 Vol-2, No-11 to those students who have zeal and are ready to accept the challenges of the life. One good turn deserves another. Most people that aphorism to heart – so much so, studies show, that after receiving help, we are more willing than before to help someone else, even a stranger. Our students have visited the old age home and felt designers can do a lot for betterment of old and aged through the designs. It is a kind of expressing our gratitude and concernment to our past and believes in sense of continuation of history. One day every one has to reach that phase of life if he or she is lucky to survive. The outcome of our November 2007, Vol-2, No-11 newsletter is nothing but way of expressing our respect to those who wish to serve the humanity and those who have served the humanity but living in isolation without concernment of others. They need our utmost care. When light will strike and who will be responsible for ignition of Holy light is yet to explore and

best way is to give care to those who wish to ignite the light with their wisdom.

Our second celebration of annual issue of newsletter is with EIDD- European Design For All and former President of EIDD Mr. Pete Kercher has accepted the invitation of Guest Editor for that Special issue of December 2007, Vol-2, No-12.

Our third year publication of newsletter would commence from January 2008; Vol-3, No-1 with the contribution of articles of invited ten eminent personalities from Universal Design/ Design for All/ Inclusive Design/ Barrier free Design. It is our humble request that kindly help us in popularizing the concepts of Design For All among all the sections of society (Government, Non government, academic, institutes, organizations, allied areas and individual) by registering E- mail address with us or forwarding our newsletter to concern persons.

Wishing our esteem readers "Marry Christmas"

With regards

Dr. Sunil Bhatia

Design For All Institute Of India

[www.designforall.in](http://www.designforall.in)

[dr\\_subha@yahoo.com](mailto:dr_subha@yahoo.com)

Tel: 91-11-27853470®

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## **From the Editors Desk:**

**I am pleased to bring our November 2007, Vol- 2, No-11 issue of our newsletter devoted to students in particular. We hope that student work will become a regular feature. We invite students from various design institutes to put together special issues on the theme concerning Design for All / Universal Design / Design Neglect.**

**This issue has a few articles from students of Design program from various institutes. The work from IIT Delhi is part of an assignment aimed at making them reflect on problems of old age. Assignment submission by Kumud Jacob, Assey Abbe, Hamendra Singh and Amruta Ranade are all in this category. They all were asked to study different aspects of old age from the designers viewpoint. We have a very special article from Center for Universal Design North Carolina State University, USA and we have special thanks for Prof Dr. Sharon Joines who responded to our invitation and in such short notice she persuaded her student to submit article for our student special.**

**Next we have another set of assignments from San Francisco State University. Ricardo Gomes, M.F.A. Industrial Design, M.A. Architecture, who has contributed a submission from his classroom. The second article also by him is a result of his 6 month sabbatical study. It investigates the evolving role of designers in the 21st century. The study assesses the social, economic and political contexts of our work in the product and built environment. It documents various approaches utilized by**

different universities, research centers, government and non-governmental agencies concerned with the value of inclusive and universal design. This is a very detailed study and should be not lost in the hay stack.

We need more issues on student perception and work on issues concerning Design for All. I do hope that students around the world will come forth.

Enjoy reading and pass on to your students.

Lalit Das

Industrial Design

IIT Delhi

India

[lalitdas@gmail.com](mailto:lalitdas@gmail.com)

## **Forthcoming issue of Newsletter**

**December 2007 Vol-2, No-12 is our second annual issue of Newsletter and our Guest Editor of this special issue is Former President Mr. Pete Kercher of EIDD- Design For All Europe He is inviting different authors those who are members of EIDD for contribution of articles. It is a very special event for Design For All Institute Of India and EIDD and to maintain the curiosity of our esteem readers we are asking them to hold the breath till we are celebrating our second annual issue of newsletter.**

**It has many surprises. Our journey is marching forward.**

1.  
**Incorporation of Universal Design Principles in the Development of a Kangaroo Care Simulator for use in Neonatal Incubator**

Ashley Vercoe<sup>1</sup>, Bryan Laffitte<sup>2</sup>, and Sharon Joines<sup>3</sup>, PhD

<sup>1</sup>*Industrial Design Student*

<sup>2</sup>*Associate Professor of Industrial Design*

<sup>3</sup>*Assistant Professor of Industrial Design*

*College of Design*

*North Carolina State University, USA*

**Problem Statement:**

Neonatal intensive care unit incubators are sterile, isolated environments. There are no soothing qualities for an infant in an incubator. See

**Figure 1.**

**The Problem**

Sick and premature babies require intensive care to become well enough to go home from the hospital.

These babies live in sterile, isolated environments.

A vast majority of the touch they receive is procedural rather than soothing, comforting touch.



**Figure 1: Premies in incubators**

### **Goal:**

Incubators provide monitoring and vital life support equipment for premature and ill infants. Skin-to-skin contact of mother and infant (also known as kangaroo care) provides soothing aspects for premature and ill infants as well as providing health benefits as well. My goal is to bridge the gap between the lifesaving technologies of incubators and the natural benefits of kangaroo care and provide this type of care when parents are absent.

### **Background:**

In the womb, a baby rests in a warm, dark, and quiet environment. There is constant communication between baby and mother and familiar rhythms and sounds that engulf the baby.

Premature babies, however, are exposed to un-familiar and over stimulating lights, sounds, and smell much earlier than they are physically and neurologically ready to endure. Because of this, this vital time of growth and development is compromised.

In a neonatal intensive care unit, premature babies receive touch, but it is procedural rather than soothing. The auditory stimulus that is comforting in the womb is replaced with unfamiliar and distracting noises constantly bombarding them.

While incubators provide lifesaving means to premature and sick infants, there are limitations to how modern medicine can help these babies. Infants who have enough muscle development can scoot their body to the side or corner of the incubator to have some contact and sense of boundary within the isolated environment. This contact gives them a sense of security. Not the ideal contact by any means, this boundary at least gives them some comfort in the incubator. See Figure 1.

### Research:

Kangaroo Care involves placing a diapered baby in an upright position on a parent's bare chest. The baby's ear is placed above the parent's heart. This care was established in 1983 in Bogota, Columbia by Edgar Rey and Hector Martinez.<sup>2</sup> It was found to be a natural, inexpensive alternative to modern medical practices. There were an outstanding number of benefits associated with kangaroo care. See

Figure 2.

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<sup>2</sup> "Kangaroo Care Benefits", Krisanne Larimer.  
<http://www.prematurity.org/baby/kangaroo.html>

## Kangaroo Care

Kangaroo Care involves placing a diapered baby on a mother or father's bare chest. This care was found to be a natural, inexpensive alternative to modern medicine.

Kangaroo Care has many benefits that cannot be achieved in the incubator alone including to help the babies stay calm to conserve vital energy, creating a bond between baby and mother, and regulated heart rate, body temperature, and breathing rate.



Figure 2: Kangaroo Care

**Babies who receive kangaroo care have more regulated body temperature, heart rate, and breathing rates than babies who remain in incubators. These babies also have more rapid weight gain. Kangaroo care helps babies to fall into a deep sleep which helps to conserve vital energy. Kangaroo care helps the babies to relax and be calm which leads to less crying. Lastly, infants who receive kangaroo care have up to 50% shorter hospital stay. While most studies have proven that kangaroo care has major, positive impacts on babies and parents, some studies have proven there are no changes: but no study has proven that kangaroo care has had harmful side effects for either infant**

or parent.<sup>3</sup> The benefits associated with Kangaroo Care may include decreased costs, increased bonding with family, reduced burden on the hospital, and decreased chance for infection (by being in the incubator).

“Recent research has shown that separation [in incubator] causes adverse effects. Maternal-infant skin-to-skin contact (SSC) provides an alternative habitat to the incubator, with proven benefits for stable preterm infants; this has not been established for unstable or newborn low-birthweight infants.”<sup>4</sup> This was a randomized controlled trial of skin-to-skin contact from birth versus conventional incubator for physiological stabilization in 1200- to 2199-gram newborns. The simulation of kangaroo care within the incubator can potentially reach those preterm infants who are unstable or low-birth weight.

Harry Harlow conducted a study in the 1950s that involved removing infant monkeys from their mothers, and offered them a choice between two surrogate “mothers”, one made of terrycloth, and the other of wire. In the first part of the study, one group was given the terrycloth mother who provided no food, while the wire mother did. In the second group, the terrycloth mother provided food and the wire mother did not. It was found that the infant monkeys held on to the terrycloth mother whether it provided food or not, and the monkeys

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<sup>3</sup> Larimer, Krisanne, “Kangaroo Care Benefits”.

<http://www.prematurity.org/baby/kangaroo.html>

<sup>4</sup> NJ Bergman, LL Linley, SR Fawcus (2004) Randomized controlled trial of skin-to-skin contact from birth versus conventional incubator for physiological stabilization in 1200- to 2199-gram newborns. *Acta Paediatrica* 93 (6), 779–785.

would only chose the wire "mother" when it provided food.<sup>5</sup> While a contradictory study, these findings are hard to ignore. The need for comforting touch is vital to the development of infants. Harlow himself stated in his book, "It takes more than a baby and a box to make a normal monkey."<sup>2</sup> While not the intention of the incubator, isolation and infrequent comforting touch is a common occurrence in the incubator environment. "Critics of Harlow's claims have observed that clinging is a matter of survival in young rhesus monkeys, but not in humans, and have suggested that his conclusions, when applied to humans, overestimated the importance of contact comfort and underestimated the importance of nursing."<sup>6</sup> Conclusions from Harlow's study may seem extreme to apply to human infants, yet it is impossible to ignore the findings of this controversial study. See

Figure 3.

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<sup>5</sup> Harlow, Harry F., "The Nature of Love". Washington: American Psychological Association, 1958.

<sup>6</sup> Mason, W.A. Early social deprivation in the nonhuman primates: Implications for human behavior. 70-101; in Glass, D.C. (ed.) Environmental Influences. New York: Rockefeller University and Russell Sage Foundation, 1968. Excerpt in Stevens, M.L. Maternal Deprivation Experiments in Psychology: A Critique of Animal Models. 11; The American Anti-Vivisection Society. 1986. Via [http://en.wikipedia.org/wiki/Harry\\_Harlow](http://en.wikipedia.org/wiki/Harry_Harlow)

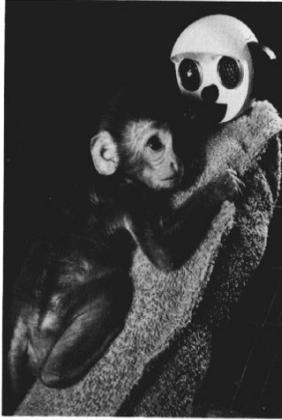


Figure 14. Typical response to cloth mother surrogate in fear test.

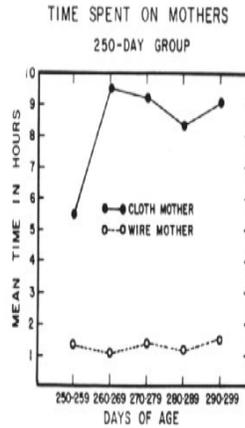


Figure 25. Differential time spent on cloth and wire mother surrogates by monkeys started at 250 days of age.

Figure 3: Harlow's Nature of Love

## Market Research:

Many products are currently on the market for positioning and soothing infants while in the NICU (see Figure 4). Children's Medical Ventures is a leading provider of products for infants, who are hospitalized, healthy, and premature. These products can be used in hospital settings, the home environment, or both. Zakeez, Inc has a product on the market called "The Zaky". It is an ergonomically designed, award-winning bonding, therapeutic, and positioning product for infants. "The Zaky" is intended for hospital settings.

Product

Product Description

Fredrick T. Frog\*



A beanbag positioning aid designed for developmentally supportive positioning. The product can be positioned around the hips, head, neck or extremities.

Snoedel\*



A flannel doll designed to absorb the parent's scent and provide babies with a sense of comfort.

Snuggle Up\*



A "nest" that helps proper positioning and stability for infants. Once nested in the SnuggleUp, examining, transporting and moving can be performed with minimal stress and disruption.

Bendy Bumper\*



A bendable positioning aid that holds its shape once positioned. Products promotes containment, correct musculoskeletal development and positioning, and flexion.

Zaky\*\*



An ergonomic infant pillow designed to mimic the size, weight, touch, and feel of a parent's hand.

\* Children's Medical Ventures: <http://chmv.respironics.com>

\*\* The Zaky": <http://www.thezaky.com/en/home/index.php>

**Figure 4: Market Research**

## Design Development

The table below contrasts the shortcomings of the incubator with the strengths of kangaroo care to identify opportunities for the KC simulator.

**Table 1: Benefits associated with care environment or approach**

Benefit	Kangaroo Care	Incubator	Kangaroo Care Simulation
Recognition of parent	*		*
Respond to infant's thermal needs	*	*	*
Normal Temperature <sup>7</sup>	*	*	*
Normal heart rate <sup>6</sup>	*	*	*
Normal respiratory rate <sup>6</sup>	*	*	*
Strengthens infant's immune system, through breast milk <sup>8</sup>	*		

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<sup>7</sup> Ludington-Hoe et al., 2005

<sup>8</sup>

[http://en.wikipedia.org/wiki/Kangaroo\\_care#Benefits\\_of\\_kangaroo\\_care](http://en.wikipedia.org/wiki/Kangaroo_care#Benefits_of_kangaroo_care)

Contact causes calming effect <sup>9</sup>	*		*
Increased weight gain <sup>10</sup>	*		*
Enhanced mother-infant bonding <sup>11</sup>	*		Unknown
Restful sleep <sup>12</sup>	*		*
Earlier discharge <sup>13</sup>	*		*
Positive impact on motor development <sup>14</sup>	Possibly		*
Less crying <sup>15</sup>	*		*
Confidence of parents <sup>16</sup>	*		
Oxygen		*	*
Monitor Vitals		*	*
Phototherapy		*	*

Note: This KC simulator is being designed with features to take advantage of attributes associated with other care approaches and environments but have not been tested.

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<sup>9</sup> McCain, Ludington-Hoe, Swinth, & Hadeed, 2005; Charpak et al., 2005

<sup>10</sup> Charpak, Ruiz-Pelaez, & Figueroa, 2005

<sup>11</sup> Dodd, 2005

<sup>12</sup> Ludington, Hosseini, & Torowicz, 2005

<sup>13</sup> London et al., 2006

<sup>14</sup> Penalva & Schwartzman, 2006

<sup>15</sup> NJ Bergman, LL Linley, SR Fawcus (2004)

<sup>16</sup> Tessier et al., 1998; Conde-Agudelo, Diaz-Rossello, & Belizan, 2003; Kirsten, Bergman, & Hann, 2001

## **KC Simulation Characteristics:**

### **Scent:**

Scent is one of the first senses to develop and is the first way that babies recognize their parents. Having the familiar scent of a mother calms and relaxes premature infants. This leads to deeper sleep and therefore more energy for vital development. Since the babies are calmer, they are not struggling to get comfortable within the incubator, thus further conserving vital energy.

Incorporating the sense of smell involves the parents to hold the fabric covering of the kangaroo care simulator to absorb their scent into the fabric. There are conflicting opinions about the ability to provide a fabric with a parents scent on a fabric without introducing bacteria. The solution may be to provide the fabric for scent collection once the parent has scrubbed into the neonatal area.

### **Movement:**

Movement helps premature babies with motor maturation, auditory, and visual response, and reduces apnea. The slight movement encourages preterm infants to tense their muscles to counter the movement going on around them. A lot of premature infants lie in an incubator "spread-eagle" with straight arms and legs. This is due to the lack of muscle development to change their position. This slight movement will encourage flexion of their underdeveloped muscles ultimately stimulating muscle development.

Movement is introduced in the product in the form of a slim, flat plane housed within the memory foam core.

Movement is produced by a simple involute gear system turning a rod with elliptical form on the end to create the rise and fall of the flat plane.

### **Sound:**

Providing recognizable rhythmic sounds for preterm infants can also encourage a restful state and help regulate the baby's vitals. Having the sound of the mother's heartbeat helps regulate the baby's heartbeat and breathing rates. Keeping sound to a minimum is important to preventing over stimulation of preterm infants. "Loud, sharp sounds can raise noise levels to 100-200 db, which may damage cells in the ear. ...Loud or sharp sounds can cause physiological changes like tachycardia, tachypnoea, apnea, oxygen desaturation and sudden increase in mean arterial blood pressure, disturb sleep, startle the baby and may even produce intracranial hemorrhage in a micropremiee."<sup>17</sup> The maximum noise level appropriate for a NICU should be 55 decibels.<sup>18</sup>

To capture a recording of the mother's heartbeat, and electronic stethoscope will be used to record the heartbeat directly to an electronic device similar to an MP3 player which could be downloaded to a computer. The recorded heartbeat would then be played back in the incubator

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<sup>17</sup> Editorial : "NICU Environment : Can we be Ignorant?". Col MNG Nair\*, Surg Cdr Girish Gupta+, Lt Col SK Jatana, MJAFI 2003; 59 : 93-95

<sup>18</sup> Altimier, L. "Healing environments: for patients and providers.", *Newborn and Infant Nursing Reviews*, Volume 4, Issue 2, Pages 89-92

through the speakers within the simulator. A separate recording of each mother's heartbeat would be recorded for their baby.

### **Touch:**

The element of touch is one of the main focuses in current products addressing premature infants today. Touch can be used to create proper positioning and physiological stability. The sense of touch also has an emotional connection. As discussed previously, babies will scoot to the edge of the incubator to have contact with something: to create a boundary to give the sense of security and stability. This sense of enclosure is comforting and in some ways mimics the womb.

The bumper on the kangaroo care simulator aids in this important sense of touch. It provides a boundary, support at the feet for a sense of security, and promotion of flexion and correct positioning. The fabric used as the covering is a soft fabric that would either be similar to a high-quality fleece or suede finish. An important aspect of this is that the fabric does not release fibers that the baby could potentially breathe in while in the incubator.

Each characteristic can be turned on and off with the control interface that is stored on the outside of the incubator. Each aspect of kangaroo care that is being simulated can be turned on and off whenever needed. Every baby has cues that they respond to best while others may be too stimulating and increase stress. Therefore, it is

an important feature to be able to create the appropriate aspects for each individual infant.

### **Interface:**

The user interface is an important consideration in the design. Having a low tolerance for error is important for any design, especially equipment designed for hospitals. A simple and intuitive interface is achieved through universal/ recognizable icons for interactions. A display panel is located along the side of the product with a diagram showing to orient the baby in the kangaroo care simulator. This is to insure that the baby is safely and comfortably interacting with the product.

Having recognizable icons reduces error from interpretation of operations. Since the interface is primarily pictorial, users do not have to read the button labels to operate.

Assistive access is achieved through the LCD screen on the top of the control panel. If users need further instruction on operation of machine, information can be accessed through the screen. This screen also doubles to display patient information such as info on recording uploaded to the device to insure the correct heartbeat is played for each infant.

Buttons are placed far enough apart from one another so that buttons are not accidentally pressed. At the same time, the buttons are oriented together for grouping of activities within the product. A slight rise in the center of

the button insures that users have tactile feedback when they press a button.

Icons have a glow from under the buttons to illuminate in low lighting as well as to indicate which state is currently selected within the kangaroo care simulator.

Figure 5.

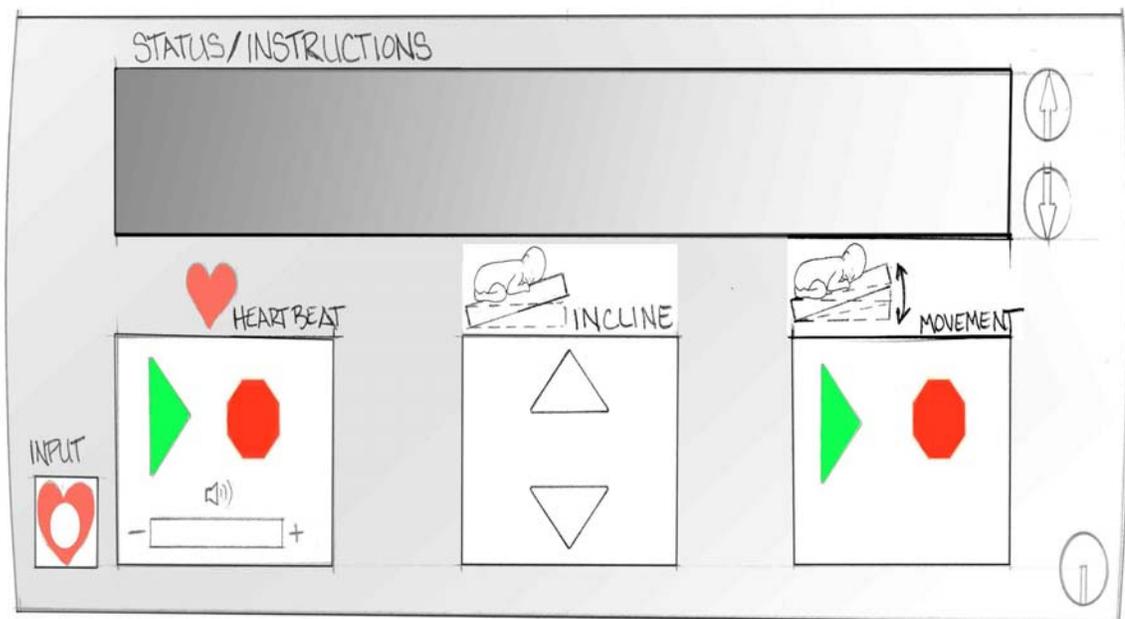


Figure 5: KC Simulator Interface

### Process Drawings:

The form of the kangaroo care simulator has just as much of a function as the sound and movement that are apart of the design. Form therefore follows function for this product. The form must support correct posture, give a

boundary and sense of security, and contain the infant safely, securely, and comfortably. Overall form, angle, and combination of shapes are explored to come up with the final form. See Figure 6.

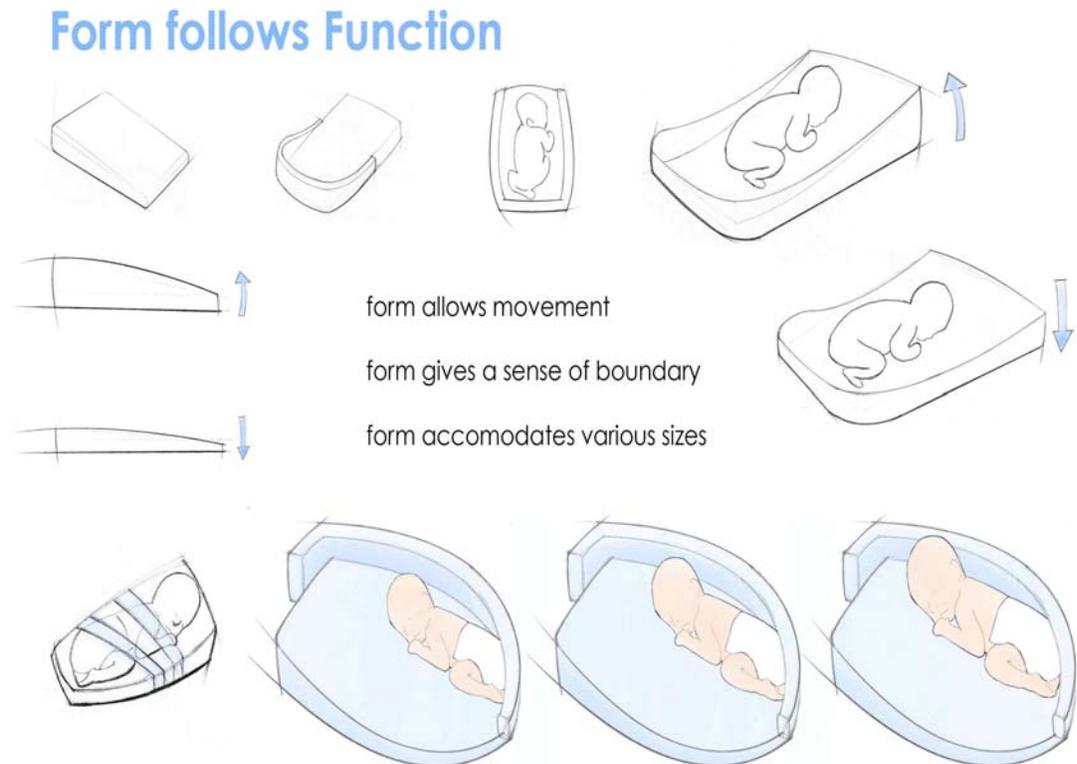


Figure 6: Ideation and developmental process

### Materials:

Various materials are explored through the design process. The materials chosen below are suggestions and reflex the research of which materials are appropriate for a hospital setting, meet the needs of the user and patient, and are comfortable for the end user.

**Antimicrobial Viscoelastic (Memory Foam) core supports baby, create stable laying area, mutes potential sound if internal mechanism to move product as well as the speakers.**

**Polyester Fiberfill fills bumper for a soft cushion border for baby.**

**Bacterial, stain, and water resistant fabric (ex. Crypton ultrasuede fabrics) cover for product. Removable, washable, absorbs scent, soft to touch (soothing)**

**Rubberized layer in area where bumper meets mat. Provides support for bumper to stay in place without noise. (as compared to a material like Velcro)**

**Polypropylene/rubber blend for mechanics to provide movement of product.**

### **Universal Design:**

**One of the overarching sets of principles used while designing this simulator were principle of universal design. The design lent itself to guidance from four of the principles (see Table 2): equitable use, simple and intuitive to use, perceptible information, and tolerance for error. The remaining three principle were consider in the design phase but play a lesser role in the design development owing to the placement of the simulator with in existing incubators. These three principles will play a strong role in future incubator redesigns (which is beyond the scope of this student design project).**

**Table 2: Application of Universal Design Principles**

	<b>Universal Design Principles</b>	<b>Kangaroo Care Simulation</b>	<b>Bendy Bumper</b>	<b>Zachy Infant Pillow</b>
Principles primarily influencing design	Equitable Use	Yes	Yes	Yes
	Simple and Intuitive to Use	Yes	Yes	Yes
	Perceptible Information	Yes	No	No
	Tolerance for Error	Yes	Yes	No

Low Physical Effort

Size and Space for Approach and Use

Flexibility in Use

**Final Design:**

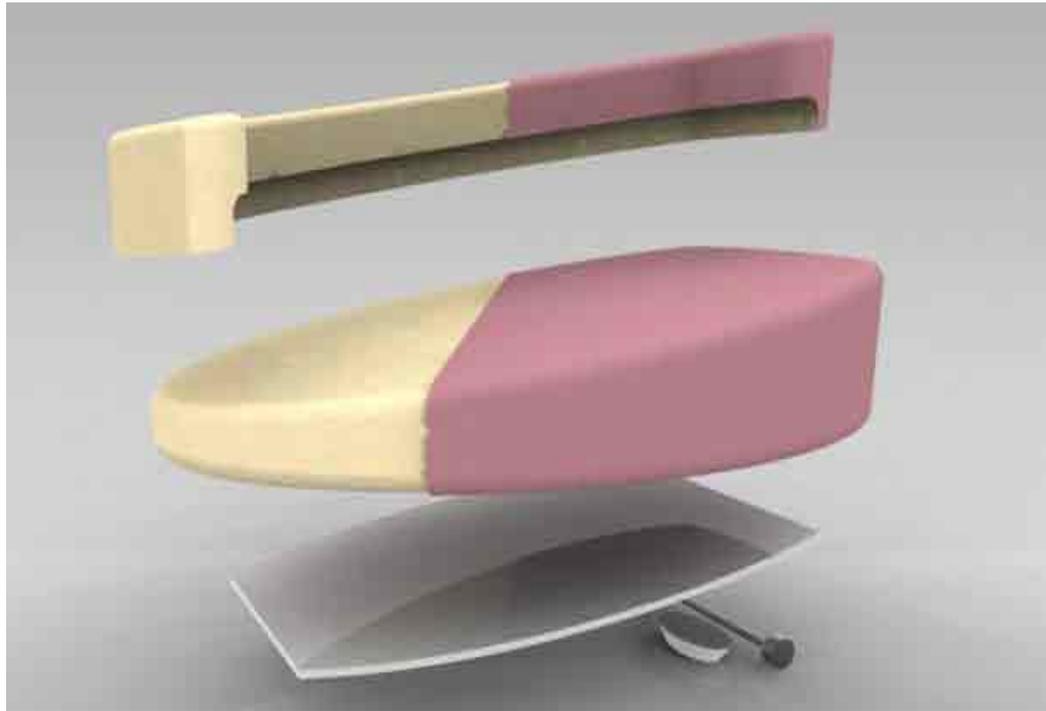


Figure 7: Exploded View of parts and materials

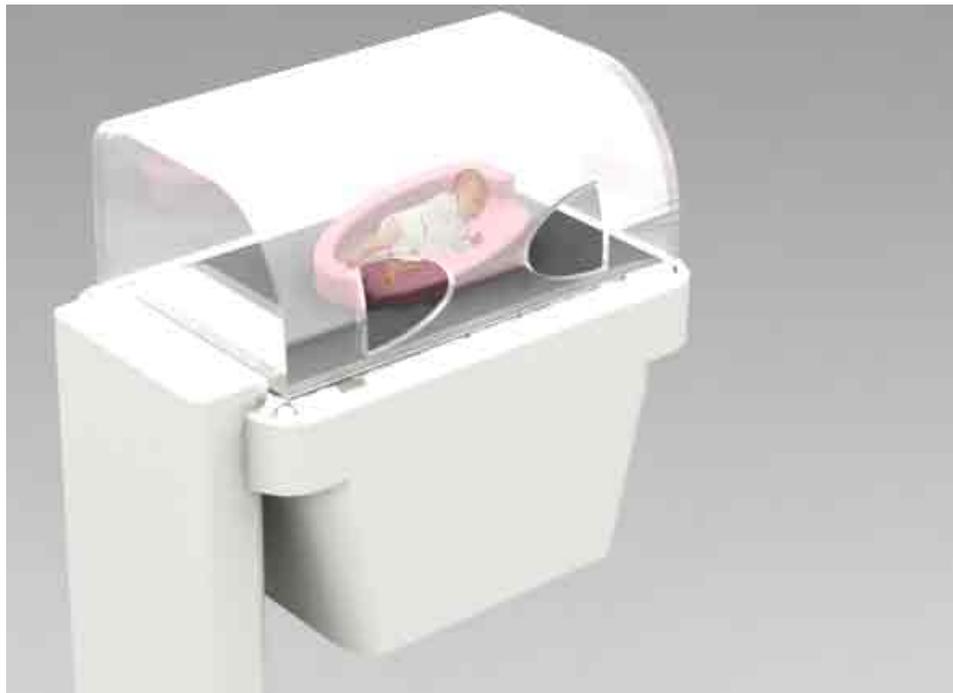
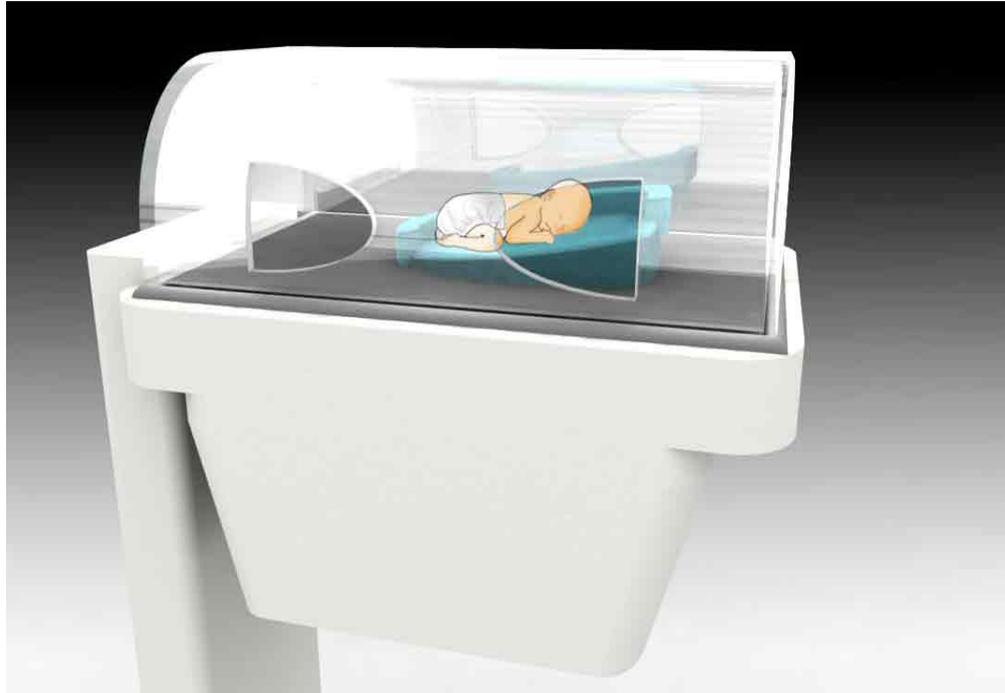


Figure 8: Product within Incubator Environment



**Figure 9: Product within Environment**

**Discussion and Future Design Direction:**

Universal design is an important part of this design and it ensures as many users as possible have their needs met through the design. Many times, design choices are made to meet the needs of the majority, and neglect the needs of the minority. The kangaroo care simulator has a very specific end user in mind that falls into the category of the minority of the population. Special accommodations must be made in order to ensure their best survival and recovery.

End users of this product are not only the infant, but also the hospital staff. Universal design principles were applied to both of these users to develop the end product.

Infants will receive the maximal amount of benefits with this product by combining the sterile environment, state of the art technology of the incubator with the soothing, comforting affects of kangaroo care.

Hospitals benefit from this product as well by having a NICU of calm, relaxed infants who have a shorter hospital stay.

**Timeline:**

ID 200 Studio            JPMA contest project (not submitted)  
ID 300 Studio            Project revisited for revision  
ID 445 Human Center Design    Research into human factors  
and universal design

(Ashley Vercoe , Bryan Laffitte , and Sharon Joines  
NCSU, USA)

2.

## **PLEXUS – Personal vehicle for transporting Wheelchair**

**Vishwas Morgure & Lalit Kumar Das**

**M. Des. Industrial Design, IIT,**

**New Delhi 110016 India**

Manual wheelchair is the most versatile mode of transport for the persons with loco motor impairment; however manual wheelchair offers mobility only over short distances and at very limited speed.

In present scenario the wheelchair neither provides mobility over long distances nor at high speeds (upto 40 km / hr). The wheel user also finds it cumbersome to store the wheel chair in a car / van and then drive the vehicle. For connecting wheelchair users with their offices, study centers, market places, there is a need for another personal vehicle which can enable wheel chair users to derive the vehicle, while still sitting in the wheel chair. This enable the users to switch back to their personal wheelchair for short distance / narrow space / within building mobility.

The study done during this project regarding 'customized vehicle' for physically impaired people brought into light the biggest problem for their people, shifting from the wheelchair to another vehicle. This shifting is a pain area for the user and generally some assistance is required for

this, and again, at destination some help or wheel chair may be required, as the person cannot carry his wheelchair along with him. Another major problem with the customized vehicle was that they project an image of being handicap and dependent on help of an assistant, which the user may not appreciate.

Considering all the above problems related to the vehicles available in the market for the physically challenged people, it is obvious that there is a need for more novel solutions.

The concept of PLEXUS (wheelchair-transporter) is a solution for those who are in wheelchair and needs some transport and connectivity for the long distances. The concept enables the user to communicate longer distances with his wheelchair. The uniqueness of the concept is that the wheelchair itself becomes the driver's seat and one can drive the vehicle while on his wheelchair, and the concept does not project the image of a handicap vehicle or a customized vehicle.

The vehicle has a three-wheel layout with two front and one rear driven by a 65cc engine with a self starting system and a automatic transmission. Telescopic ramps on either side of rear wheel allow the user to maneuver his wheelchair to the vehicle and a pull on the side grab rails of the vehicle and the ramps retracts along with the logged wheelchair. Once on the vehicle, a locking mechanism

secures the wheelchair thus converting it into a fully functional scooter.

The cost of the customized vehicle in the market is very high, if one would go for a scooter with a two wheel attachment, then the attachment will cost around Rs. 10,000 and one has to pay for the scooter which in any case does not seem to solve the problem, thus the total cost is around fifty thousand for the thing that is of no use for the paraplegic. Similarly the cost of a four-wheeler with automatic transmission is also high, and these vehicles are customized, so it's better to place a product especially for the paraplegics and wheelchair users.

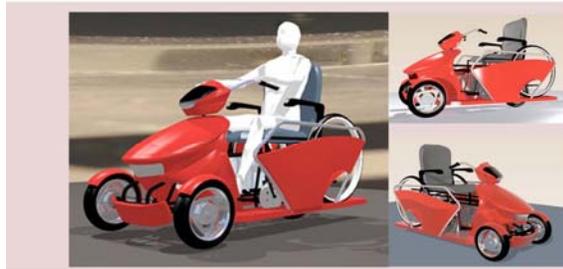
Though the market for the handicap vehicle has low volume but that is because of not having an appropriate product catering to most of the user segments.

This concept developed, can serve the paraplegic user segment better than a customized scooter as this is designed considering the problem they face in day today life.

## Personal Vehicle for transporting Wheelchair over long distances for the people with Locomotor impairment.

The fabrication was done at Chatterpur, Mehrauli in ms framework. A 65 cc Hero puch engine with a self starting system and automatic transmission was adapted as the final requirement was a single seater vehicle. The final mechanism for wheelchair was tested and fabricated at the studio itself.

—Aesthetics also play a very important role in this particular project as the form the face of the Vehicle gives an image of a handicap vehicle so the styling has been done to avoid such a feel. Since driving is pleasure so one should not be devoid of that just because he/she is a physically challenged



The Final prototype has been tested with the help of a user and the important finding was, that it need a little customisation in a vehicle so that it caters a particular kind of disability, and some training will be necessary before moving out on the roads.

**Vishwas Morgure & Lalit Kumar Das**  
**M. Des. Industrial Design, IIT Delhi, New Delhi 110016**  
**(INDIA)**

### 3. Mobility and Old Age

Kumud Jacob Lugun

M.Des, IIT, New Delhi

110016, India

“A home for the old age people” . This statement is personally very disturbing .A home is place that offers security and happiness to a person. It is a place where a person lives it could be a small hut or a huge mansion. The question is that, why do we need to design for the old what is lacking in the existing layouts of the homes. What is old age?

To me old age is later period of life. Just another phase which one has to go through. It is inevitable and hence one should be more sensitive to this issue both as a person and a designer. I had a look into this topic considering the problems faced by the elderly in mobility.

The old age is a phase where the person faces a lot of problems as the eye sight is weakened, the muscle lose their strength, there could be pain in the joints and the reflexes are slow and hence the reaction time too. The effect of all these results is in impediments to mobility. Mobility of a person within and out side the premises of home. Mobility is affected due to.

- Neural changes in the brain...
- Weak muscles and joints
- Anatomical changes in the eye...

Neural Changes in the Brain .....

- The nervous system is made up of specialized cells called neurons. Neurons are unique because they are the only cells in the body that communicate through chemical and

electrical signals. Perception relies heavily on the nervous system because neurons pass the information to the brain, which then processes the information.

- Because neurons in the brain do not regenerate, this cell death results in diminished abilities to perceive different aspects of visual stimuli.
- Neurons throughout the body communicate through the use of chemicals called neurotransmitters. When the body produces too many or too few neurotransmitters, neurons do not communicate properly. As we age, the brain begins to produce neurotransmitters in abnormal proportions. This affects the visual system by changing the abilities of neurons in the visual pathways to communicate. The loss of short-term memory is another neural change that affects vision in older persons. Short-term memory loss can also impair vision when the elderly must organize incoming stimuli.

Musculoskeletal.....

- To enable any kind of mobility we require the mobility of the limbs supported by the strength in muscles and freedom of the movement of joints. We require coordination of the body and brain to make our movements perfect, our brain makes all those calculations much faster than we think and we move in a well-coordinated manner. As we grow old the musculoskeletal soft tissue function declines, susceptibility to degenerative diseases and injuries increases, and the ability to recover from disease or injury declines; these changes increase the probability of impairment.

### **Effect of vision on mobility.....**

- **The human visual system weakens with age as changes takes place in the eyes and the visual pathways of the brain impair the vision of elderly persons in ways that can significantly disable their mobility.**

**In the confinement of ones home the elderly people are most comfortable as they are familiar with the surroundings and over the time have acclimatized to all the rooms of the home.**

**The movement of the elderly can be listed as the following activities within the home: -**

- **Movement from one room to another**
- **Getting in and out of bed**
- **In the kitchen**
- **In the lavatory**
- **In the bath room**
- **Climbing up and down the ladder**

**The area of movement should be well lit always. There should be proper ventilation to ensure accessibility to fresh air always. The floor should be evenly flat with no difference in the surface height. Let us consider each part of the room separately starting from the entrance: -**

- **The latches and locks should be easily accessible**
- **Safety chain should be installed for their safety as their reflexes and sight is weak**
- **The eye spy lens should be installed in manner that it covers the maximum area around the entrance.**

- **If possible the elderly should have a pet that would provide both company and security**

**The bedroom: -**

**The elderly like to spend most of their time in their bedroom or the living room.**

**The bedroom should be well ventilated. The accessibility to the medicines should be easy. The water should be at arms reach.**

**In the lavatory there should be ample space for movement. Protrusions on the wall should be avoided as maximum injuries occur as the slipping occurs and people are hurt by protrusions. The range of movements is lessened by the effect of stiffening of joints and muscles and hence if they fall down they cannot balance themselves quickly.**

**In the kitchen there should be sufficient light and the drawers should be labeled in bold words easily distinguishable and every edge should be rounded and filleted.**

**Ageing is inevitable and one day we too will age and hence if we take care of these things and details our lives would have good quality of living when we are at our later stage of life. The accessories that the elderly use should be easily accessible and movement should not be constrained or limited .The placement of furniture's and other goods should not interfered in their normal daily movement .The mobility of elderly can be assisted by walking sticks, walker, wheel chair etc depending upon their disability.**

**Kumud Jacob Lugun**

**M.DES, IIT, New Delhi-110016**

4.

**DESIGN OF HOMES FOR OLD AGE PEOPLE  
STUDIES AND APPROACH-OLD AGE AND  
CIRCULATION**

**Asay Abebe Kassa**

**M. Des, IIT, New Delhi -110016**

**India**

**I. GENERAL INTRODUCCION**

In relation to the material and technological advancements in human sphere these days, the number of senior people is showing a gradual increase everywhere in the world. The word material has to be under lined here for the spiritual realm is almost neglected that human achievements so far have failed to properly address problems related to senior pillars of a society, except for mere shift in the life expectancy. But here "homes for old age people" as a major topic has been viewed through the light of design from different angles like personal hygiene, relaxation and rest, kitchen and toilets.... To assess and unravel untouched but yet sensitive issues of the same. The separate topics are as windows to look though for a better communication or interaction between the elements with in and the elements with out. This simply means the problems are technically divided in to two as ones that manifest because of problems from biological systems in the self (body) and existential interactions between the self and the environment.

This write-up tries to connect the two by looking in to special relationships holistically, for every material and idea is framed in time and needs space to manifest. It is very difficult and will be out of the scope of the theme to attempt to challenge time. But space can be designed organizing and reorganizing matter. Therefore the topic here discusses circulation and old age.

## **II. CIRCULATION AND OLD AGE**

### **IS OLD AGE NATURAL?**

I believe man shall not attempt to fight with nature for it eventually wins. That is why it will be very important to ask in the beginning if ageing at all is natural or some thing that can be avoided.

A lot of studies have been conducted and still are proved failures to avert the process and the consequences of aging. What ever the case may be energy and only ENERGY IS!!. Based on this philosophical idea we find out that life is a form of energy that can't be created nor destroyed. It is even difficult to trace its start for it is beyond time and it has no end for same reason. Therefore no parties for birth day and no commemoration for death of energy. Only celebration of the process of its transformation is real. This can be further elaborated by looking in to the life of stars in the universe. We should not ask what the clouds are or where they come from but just say Stars begin their lives as condensing clouds of gas, called protostars, within the cool shelter of the dusty \_ pockets of space. These regions are at least a thousand times denser with hydrogen and other molecules than the rest of interstellar space.

Once a star begins to fuse atoms of hydrogen together to form helium, it is called a main sequence star. Energy generated by fusion produces an outward force that balances the inward pull of gravity. The mass of hydrogen fuel that a star contains determines how long it will remain in its main sequence stage. More massive stars spend less time in this stage, about 100,000 years, because of the fast rate with which they burn through their hydrogen fuel. Less massive stars, on the other hand, with smaller stores of hydrogen could remain in this balanced state for 50 billion years. Our own Sun, which is a modest-sized star, is about halfway through its main sequence life and will have enough fuel to continue fusion of hydrogen for about another 5 billion years. • Planetary Nebula

A red giant continues fusion, but begins to fuse atoms of helium together as its main power source, producing heavier atoms deep within its core. Eventually the outer layers become separated from the star and gradually blow outward to form a planetary nebula. The dramatic visual displays of planetary nebulae are rather short-lived, in the cosmic sense of time, and may last for only 10,000 years before dissipating. White Dwarfs

A white dwarf, very much like a glowing hot cinder is composed mostly of densely packed carbon since the main sequence star was not hot enough to fuse the carbon core into heavier elements like iron. The atoms that make up the star are as densely packed, as the atoms will allow. Once the outer shells of gas are shed by the red giant, and the core collapses, the star is unable to continue fusion. As a

white dwarf, the star will continue to glow with residual heat for as long as several billion years. Eventually the star will grow dimmer and dimmer as the energy is dissipated finally ending up a dead, black dwarf

The same is true for human life and old age is but the dissipation of energy.

## **THE NEED FOR CONCERN**

Some spatial interaction of elements in and out side the body can be causes for accelerated ageing As discussed earlier though it is a natural phenomenon the rate and effects of ageing can be normalized. Excluding the presence of abnormal gene and degenerative cells that are either natural or put of human capabilities, the causes are the physical and psychological pressures from biological and environmental malfunctioning of systems. Therefore in addition to mere look on the economic and political impacts of the increase in number one has to consider the holistic importance or significance of transmission of knowledge, experience, tradition and culture from individual to social and global levels.

## **THE SIGNS OF OLD AGE**

Changes are bound to come with time. In human it is generally accepted that signs of aging start to show near around 65. And these are basically related to the

performances of the senses going down. These happen at different stages like Vision— the mid 50's, Touch—the mid 50's, Taste—the late 50's, Hearing—the mid 40's, Smell—the mid 70's. And muscle strength lessens, soft tissues such as skin and blood vessels becoming less flexible. Memory system and intelligence also diminish. Generally there is a decline in the body tone. But our focus is on organs and problems related to their spatial interaction.

## **CIRCULATION WITH IN**

Human life, as a stable structure or architectural piece is supported and sustained by four pillars as patterns of spatial communication. The blood circulation, the respiratory, nervous and digestive systems. If there is any problem in any one of the aforementioned, abnormalities of many different sorts will cause and hasten ageing. Blood circulation for instance reaches all necessary nutrients to all humanly known smallest elements of life called the cells. In conventionally normal process of aging the average amount of blood pumped by the heart drops from about 6.9 liters per minute at age 20 to only 3.5 liters pumped per minute at age 85. For this same age range, the average amount of blood flowing through the kidneys drops from approximately 0.6 liters per minute to 0.3 liters. This shows that the circulation has a problem somewhere in its complete path. And the solution also is modifying the circulation only. The more active the circulation, the more

free from obstructions and impurities it is, the more nourished healthy and radiating the body will be.

## **EFFECTS OF AGING**

As partly mentioned under the signs of aging, and just above internal biological problems in circulation will be reflected as effects. The most common and easily avoidable of these are accidents due to reduced performances in mobility, hearing, and vision.

## **CIRCULATION WITH OUT**

These are paces where all kinds of dynamic interactions between the body and the environment happen. In a house for example there is rooms, corridors, porches, verandahs, lobby and the like that hold different activities. Similarly there are streets, squares and parks in township. The standard and appropriateness of such as well has implication on the living condition and age related problems of a society.

## **SOLUTIONS**

The ill effects and acceleration of ageing due to biological reasons, referred to here as internal spatial relation can be addressed mainly by medical aid and self help systems such as proper diet, regular exercise, consulting physician.... But the others design intervention is essential.

**This starts from ergonomic and safety issues of a product and goes wide up to design, organization and detailing of spaces and space elements in architectural, urban design and land use levels.**

**Asay Abebe Kassa**

**M. Des, IIT, New Delhi-110016**

**India**

5.

## **The old age: Personal Hygiene Of elderly people and Improvements**

**Hamendra Singh**

**M. Des, IIT, New Delhi-110016  
India**

**The finding of definition of old age is as interesting because the very nature of old age is different from one person to another. The best definition that came up is:**

**“Continued in life; advanced in the course of existence; advanced far in years or life; having lived till toward the end of the ordinary term of living ; designating the age of a person or thing ”**

**The age distribution of the world’s population is changing. With advances in medicine and prolonged life expectancy, the proportion of older people will continue to rise worldwide. By 2050, there will be 2 billion people over the age of 60, 80% living in developing countries. The growth in this population is staggering, posing tremendous challenges in caring for this ageing population. As people age , their susceptibility to chronic and life-threatening diseases as well as acute infections increases, exacerbated by compromised immune systems. Cancer, cardiovascular diseases, diabetes, infections and poor oral health, most notably tooth loss and severe periodontal conditions, are more prevalent in this age group. The consequences of these diseases and conditions are significant, leading to disabilities and reduced quality of life. India is a vast country both in terms of area as well as population. Today**

the population of old age is above 54.7 million, which is more than half the total population. This is our responsibility to think and do about the people who are dependent on the younger generation for support and affection. When they were young, they bought us up with all they could and now they are old and needy and we it's the debt that we owe towards them and return with all we can. Thus personal hygiene is most important of all the issues with elderly person, as the hygienic person will probably not get ill and thus other miseries. We should also think about the old people who are living in rural areas because more than four times as many older persons live in the rural areas of India as in urban areas. Thus considering for old age means focusing on all the issues that come up with this age to find a better solution . The need for personal hygiene is the first priority that should be given because a healthy and clean person will have a better living and others will prefer to be close to the person. Personal hygiene involves cleansing of the body internally and externally. Classifying each point of hygiene will give a better understanding of the subject and discuss them in brief.

**Bathing:** Physiologically, bathing allows cleansing of the skin and removal of accumulated foreign matter. Bathing displaces dead skin, prevents irritations and rashes that would otherwise transform into infections, and washes away waste materials that can interfere with the normal functioning of the skin. Safety problems among the aged

are generally due to the loss of physical capabilities and poor design of bathing equipment. In order to compensate for loss of capabilities, the elderly tend to over-exert themselves. This seriously affects their security and personal well being. For example, the elderly have difficulty bending over and kneeling down. They are unable to access parts of their body when standing, and some even when sitting. The elderly are constrained by limited reach and poor grip strength. They feel exerted by the poor design and location of controls like tap and shower. They have problems reaching fixtures and grasping them. Many receive injuries from applying excessive force. Poor balance affects stabilization. Historically, the development of bathing equipment has been more of chance than conscious design. First, these products are outdated and they fail to meet the physical needs of the aging population. They point the need for alternative ways of bathing. Second, bath stools and showers are ability-specific products. They conform only to the functional capabilities and physical needs of young, able-bodied individuals, and place considerable physical and mental demands on the elderly, the children and those with disabilities. For example, the positioning of controls and accessories often requires standing and a wide range of motion. Showers require good balance while bathing. The loss of reach from a person's restricted movement makes controls and accessories inaccessible. Thus for much of their lives, people either bathe in unsafe conditions or they are dependent on assistance. Opening faucets and

adjusting water temperature are troublesome for many. Those who lack sensation in the hands frequently misjudge the water temperature and get scalded. Low level of illumination makes it difficult for bathers to see controls and accessories. Practically bathing is the hardest task for elderly people. Standing while bathing in the absence of adequate grab-bars is the most common of all unsafe practices. Most people ensure safety by being very careful about every activity. The physical and mental stress adds to this while bathing, getting irritated easily is a common problem.

### **Recommendations for Existing Bathrooms:**

- Presence of sliding doors for the elderly people.
- Easy width of clearance.
- Make sure towels, soap and shampoo are within easy reach. Bathing in a hurry can seriously jeopardize safety. Allocate enough time to make transfers and when reaching for articles. This will decrease psychological stress and increase bathing pleasure.
- Install emergency devices such as beep or intercom within easy reach of the users. These devices provide greater personal security.
- Light colored walls in the bathroom.
- Alternative of bathing can be done like sponge bath.
- Storage: Storage of cloths and bathing items within easy reach.

- **Round all edges and soften all corners to reduce the chances of injury in a fall installing non-skid floors.**
- **Grab Bars: install widespread distribution of grab bars in the form of handrails strengthen soap holders or towel rods so that they can act as invisible supports.**
- **Articles within Easy Grasp: To achieve this, position all accessories and controls within comfortable reach. Appropriately placed wall mounted storage greatly increase reach. Their placement must be carefully examined and the final location thoroughly tested on the basis of individual needs.**
- **Prevent over exertions: elderly people get irritated and exerted easily as such all care must be taken.**
- **Handheld Fixtures: Locate manual fixtures such as hand held showers to combat the difficulties due to inflexible positioning of tap/shower controls. Such fixtures will greatly increase access and prevent physical strain from over-extension.**
- **Bathing Devices: Devices such as wash mittens and bath brushes can greatly increase access to parts of the body. The wash mittens are usually made out of terry cloth, plastic mesh or soft sponge. Bath brushes are available in long, short or curved handles. They come with cloth head, sponge tip or nylon bristles. Wash mittens and bath brushes provide a person a great range of access and bathing independence.**

- After bathing be sure the person is thoroughly dry. Moisturizer on dry legs and arms also helps prevent skin tears and frail skin. Applying moisturizing lotion to the person's skin can be a soothing experience for the elderly person.
- Check toe / fingernails and trim them regularly.

**Lavatory:** The use of toilets by elderly people is again a painful work. Elderly people especially suffering from joint arthritis find it very difficult to use the toilets. The sitting and standing thus becomes more painful. They walk all along the corners of the wall to balance their body. The cleaning and balancing goes together. They do the change of clothes in toilets with a limited movement space and a risk of falling down. The toilets fail to meet the physical needs of the aging population. There is a need of alternative means of using toilets. These toilets have been designed with all age groups people in mind but the case of elderly people seem to have been neglected. The cleaning of hands involve opening of tap and search for soaps, here again the hand movements are shaky to gather foam, which can be better done by liquid soaps. The door has to be opened with both the hands as such difficulty in body balance, walking within toilet is not easy as there is a risk of slipping. The toilets are too low for the person to rise up safely. Some people's skin are too sensitive to be wiped with toilet paper (problems like hemorrhoids, constant wiping, allergies to dioxins in paper, and more), and even

vision impairments make it difficult for users to know when they are clean.

Ageing involves a range of biochemical and physiological changes that affect all parts of the body. Acute, but more often chronic illness, can increase the rate of degeneration in a particular body system. Dietary fiber softens the stool provides bulk, hence increasing the weight of the stool, and helps food pass more quickly through the gut. Good sources of fiber are whole meal and high fiber white bread, wholegrain cereals, whole meal flour, fruits and vegetables, beans and pulses. It is not advisable to take bran in its raw form. Care must be taken when encouraging high fiber diets in elderly people with poor appetites, as a small stomach can fill quickly and prevent them eating enough high-energy food and micronutrients.

Thus a good eating habit can keep the colon clean and free from infections.



#### Recommendations for Existing Lavatory:

- Special toilets must be addressed to in such way that it not a disabled toilet or an elderly toilet

- Self cleaning mechanism should be developed for indian toilet seats as well.
- Liquid soaps are better over soap bars for easy hand wash.
- Spacious toilets and support grab bars around the door are desirable
- An alarm is desirable; it will increase the convenience of the rest room
- The door lock should require little force (no friction)
- It should be possible to open and close the door lock with one hand (other hand can be used for stability)
- Always wear low-heeled shoes with rubber soles for good traction. Never wear slippers, shoes with leather soles or high heels
- A locked/unlocked indicator on the inside of the rest room is desirable
- The locking device inside the door must be placed above or on the handle

**Oral Hygiene:** The interrelationship between oral health and general health is particularly pronounced among older people. Poor oral health can increase the risks to general health and, with compromised chewing and eating abilities, affect nutritional intake. The maintenance of a good oral health should include controlled eating habits, regular application of fluoride, oral hygiene and regular dental examination. Other relevant issues include high sugar content diets, inadequate oral hygiene due to poor dexterity, and alcohol and tobacco use, risk factors that are detrimental to oral health. Elderly people use dentures, these are at times ill fitting, and as such food contents

remain in the spaces around them. The enamel is weak and hence brushes need to be with soft bristles. The hands and muscles are weak and difficult to brush at times. They may not like the taste of toothpaste. Oral health care may not be always available at rural areas. Elder people prefer to use lesser water. Medical conditions, such as dry mouth which reduces saliva's ability to wash away food, neutralize plaque acids, and keep tooth enamel strong, and arthritis which makes it hard to floss and brush.

### **Recommendations for Oral hygiene:**

- A good rinse of the mouth or even a drink of water after meals helps to clear the mouth of retained food particles, especially before replacing dentures.
- Fluoride is very important in the prevention of tooth decay. It encourages the tooth to reform following the acid attack. Fluoride should be applied to the mouth of elderly people regularly, either in the form of toothpaste, mouth rinses or spray. Rinses cannot be used as a substitute for daily tooth brushing since daily removal of plaque is essential for maintaining a healthy mouth.
- Ayurvedic tooth powder can be applied on gums and teeth with finger massage, to clean and strengthen muscles. The availability of neem tree barks is used as brush and their powder used for tooth and gum massaging.
- Need to develop some liquid cleanser for teeth, by rinsing of mouth and no water needed.

- Develop a taste of toothpaste that the elderly people may enjoy to brush.

**Clothing:** Clothing that is neat and clean, fits well, gives a feel of confidence. Older people are often *concerned* about their appearance. Most people like clothing that is easy to put on and take off. If a person needs help getting dressed and undressed, clothes that goes on and come off easily help everyone concerned. Many times elderly people have trouble raising their arms, bending or leaning. This makes getting dressed more painful, and is frustrating for the caregiver, as well. Clothes that fit loosely without being baggy are easier to get on and off. Features such as front openings, large zipper pulls, hook-and loop tape closures, or wrap styles may help. Clothing that is chosen with function in mind allows more comfortable movement in daily activities. While choosing the product following points should be kept in mind, the wearer's physical condition the frequency of changing required convenience of changing purchase costs time required and cost

**Clothing Comfort can be classified as:**

**Physical Comfort:** Clothing protects people from humidity, heat, and cold, and helps them feel physically comfortable. Characteristics of fabric that affect physical comfort include flexibility, bulkiness, weight, and texture. Garment construction also affects physical comfort.

**Psychological comfort**

**Clothing gives the wearer a sense of well being. It tells something about the person. Clothing also affects the way others see, think of, and react to the person.**

### **Social comfort**

**A person can be comfortable or uncomfortable wearing a certain garment or type of clothing in a social situation. Social comfort may be involved when a person wishes to “make an impression” through the clothing he or she wears.**

**The clothing should provide comfortable of movement, ease to wear it, and easy to wash.**

### **Recommendation for better clothing:**

- Waistlines loose enough to expand when the person is seated. If the waist is elastic, be sure it does not cut. Large neck openings.**
- Accessible loose front pockets for carrying personal items.**
- Use of soft cloth materials**
- Winters can have loose woolen sweaters for men and women with large neck and warm head coverings.**
- ] Loose fitting clothes are more comfortable, and are designed not to cause friction sores or bruising.**
- Wider sleeves allow for greater ease of movement for men and women.**
- Colors are bright and cheerful, for a better sense of health and well being.**
- It should always bring dignity to the wearer, should ease the pain of dressing, and save the caregiver time and frustration.**

- Use cardigans rather than pullovers, and other garments with front openings.
- Choose a spot in the room for the person to dress and a different spot for the person to get undressed and ready for bed. Try to use the same spots every day.

### **For men:**

**Try pants with elastic waistbands**

**Tube socks are easier to put on, because they have no heels.**

**T-Shirts tend to look okay even if worn backwards.**

**If snaps, hooks, zippers and belt buckles are too difficult to manage, replace them with Velcro tape.**

**Velcro closures on shoes allow the width to be easily adjusted for swelling.**

**Cloth materials should be little stretchable as well.**

**It is important to have good fitting shoes and slippers to allow safe mobility**

### **For women:**

**Try slip-on blouses, wrap-around or elastic waistband skirts or slacks.**

**Front fastening bras are easier for you both to manage. Not wearing a bra can cause soreness and discomfort; however, a cotton vest may be considered if the person has difficulty with a bra.**

**Older women can wear loose shalwar kameez rather than a saaree, for easy dressing.**

In summers loose t shirt and ghaagra can be worn for ease of wearing and movements.

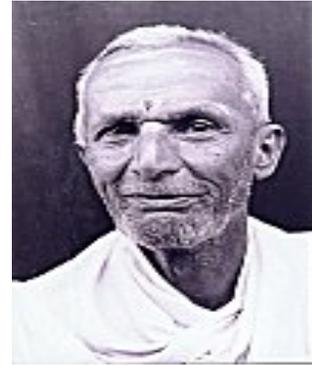
These aspects of personal hygiene indicate how important it is for the elderly people to be hygienic. As a designer's point of view, all the products are made in such a fashion that incorporates the elderly people to some extent if not to the full extent. More and more products can be innovated which improve the living condition and lifestyle of the elderly people. They should be comforted with love and affection and the products designed in a way that they accept to use happily. There is more physiologically and incorporating emotional support and encouraging them to use the same must remove emotional factor involved in personal hygiene and those fears of using the elements.

Hamendra Singh

IIT, New Delhi-110016

India

6.



## **RELAXATION AND REST – BEDROOMS OF OLD PEOPLE.**

**Amruta. K. Ranade**

**IIT-Delhi, India**

*Old age: The time when people retire and look forward to a calm and relaxing life.*

*A life in which each morning begins with a cup of hot piping tea and newspaper. Sitting on a rocking chair in the company of the morning sun!!*

Relaxation and rest is what one looks up too then. The early days of life are passed working hard for the family and spending no time on self. Old age i.e. after retirement from work is therefore the time when people look forward to spending time with their loved ones and relaxing and resting. In short doing all those things for which they couldn't find time in their young years.

**So what exactly is old age?**

Well we all intuitively know what “aging or old age” means, but it is difficult to define in words. One widely accepted definition of aging is

**“The process (es) that occur during life which culminate in changes that decrease an individual’s ability to handle biological challenges .”**

We will now talk about old age in a wider perspective. What is old age from a doctors point of view, from an lay mans point of view, from an old persons point of view and finally from a designers point of view.

Doctors or basically science has various theories to explain the phenomenon of old age.

Some of the theories put forth are:

**The Error Catastrophe Theory,” proposed by Dr. Leslie Orgel in 1963:**

If an error were made in the molecular copying processes (transcription or translation), that result in the synthesis of a given protein(s), the faulty protein could then set off a chain of flawed events which would result in an “error crisis”—a cascade of altered biochemical processes that impair cellular functioning, such as that which occurs in aging.

**In 1968, Dr. Johan Bjorksten proposed the “Crosslinkage Theory”:**

An alteration occurred in structural proteins which caused them to develop inter-and intramolecular cross-links with

other proteins. Bjorksten proposed that progressive crosslinking in the body, was responsible for the changes that occurred with aging

### **Neuroendocrine Theory of Aging:**

This theory proposes that aging is due to the loss of receptor sensitivity to feedback inhibition with time, resulting in a progressive shifting of homeostasis and alterations of hormone levels and their effects with time.

### **Free Radical Theory of Aging**

This theory postulates that aging results from an accumulation of changes caused by reactions in the body initiated by highly reactive molecules known as “free radicals.” The changes induced by free radicals are believed to be a major cause of aging, disease development or death. A major premise in this theory is that free radicals and their precursors may be produced endogenously

(within the body) through normal metabolic processes, or exogenously (outside the body) from sources such as cigarette smoking. The body’s defense mechanisms against these free radicals are referred to as antioxidants. When the amount of



antioxidants in the body is insufficient to do battle with the free radicals, these very reactive molecules easily react with vital molecules in the body, such as DNA, causing mutations (alterations) in the sequence of genetic material. The accumulation of changes is then thought to lead to the development of aging and degenerative diseases.

What a common man understands as old age can be



describe as: old age is the climax of the life cycle as a result of ageing. And ageing is the process of reaching the ages nearing the average lifespan of human beings. The aging process is a very natural one. It begins at conception and

continues throughout the life cycle. The manner in which someone ages depends on heredity, physical health, nutrition, mental, and other unknown factors. People describe old age as a phenomenon of changes that are progressive, universal, at times deleterious and thus far irreversible. Ageing is an important part of all human societies reflecting the biological changes that occur, but also reflecting cultural and societal associations. Age-related changes differ greatly from one individual to another in the same manner as each person differs from one another while moving from infancy to maturity.

The old themselves do not specifically see old age as a phenomenon but they see it as a part of their life. A phase of their life when they can spend time with the people they love can do things that they love and spend the rest of their life happily and merrily. Most of the old age



health problems are psychological and tend to be cured by rest and proper care and attention. Socializing is a

psychological need of old people and they always want to be with people, talk to them and share their experiences with them. Many people do not want to see themselves as being "old". They may notice their diminished capacity in many respects (energy, acuity, memory, and pace, to name a few), that they are weak and that they tire easily, see poorly, hear poorly – but they do not feel age as such. Thus, age is not built into their sense of self, their identity.

As a designer when one sees at old age it's an all together different view point .A designer understands that old age is not much different from any other phase of life but its just a part of life. The designer is sensitive to issues like health problems, ergonomic problems and psychological state of the old. A designer doesn't differentiate between old and young age. Instead he strives towards designing things that are more and more comfortable for the old. The designer tries to understand the general mentality of the old as stated below and tries to help the old in living the rest of their life exactly in the way they want to.

**General mentality and psychology of the older populations:**

- A common characteristic in older people is that they have many years of experience and have already realized much of what they want out of life. Many of them would very much like to continue to realize and perhaps renew, but above all, they want to maintain their abilities.

- For many people (but not all) it is of primary importance to be able to remain in habitual environments. In most cases, dreams of something new and different no longer dominate. Thus, the main design principle is: Change as little as possible.
- Elderly people are not particularly resistant to technology when they see that they can maintain functions and do what they have done before by means of it. If an older person is going to be able to retain the functions, habits and physical conditions that they want, it is necessary that products are made to be elder-friendly from the beginning.
- Older people also carry with them their own design history. Products should be designed to fit into these settings for elderly people while at the same time appealing to children and grandchildren so that they will be “things worth inheriting”.

Defining rest and relaxation in a broader perspective we will then see how we can relate rest and relaxation to old people and design for the old people:

Rest is defined as a bodily state characterized by minimal functional and metabolic activities or in simple words we can also define rest as peace of mind and spirit achieved by sleep.

Relaxation is the lengthening that characterizes inactive muscle fibers or muscles. In short relaxation is indulging in non taxing activities that give pleasure and involve stimulation of the mind and the body.

Rest for old people is activities like sleep and lying down or sitting in comfortable positions and places. Thus resting implies activities that slow down of the metabolic rate. It means giving rest to the body and the mind, whereas relaxation for old people is activities that involve stimulation of the mind and the body. Activities that make them think, activities that make them question and activities that give food for thought.

Activities like reading, praying, meditating, walking, perusing hobbies like knitting, listening to music, television, indoor games like chess, playing cards, carom, yoga, and some activities that enhance their inherent talent like making paper flowers, writing. Also one of the best ways to relax for the old people is communicating with others specially the young and sharing their experiences with them.

Now before going deeper into rest and relaxation of the old people we will now take a look at the different old age health problems. Health problems like hearing impairment, reduced vision, physical disabilities, mental illnesses and sleeping disorders are very common in old age. Problems faced by old people related to physical disabilities include poor muscle control, weakness and fatigue, shrinking of the body parts, difficulty walking, talking, seeing, speaking, sensing or grasping (due to pain or weakness), difficulty reaching things, and difficulty doing complex or compound manipulations (push and turn). Twisting motions may be difficult or impossible for people with many types of physical disabilities (including cerebral palsy, spinal cord

injury, arthritis, multiple sclerosis, muscular dystrophy, etc.). Also problems like insomnia or sleeping disorders are of importance while considering rest and relaxation.

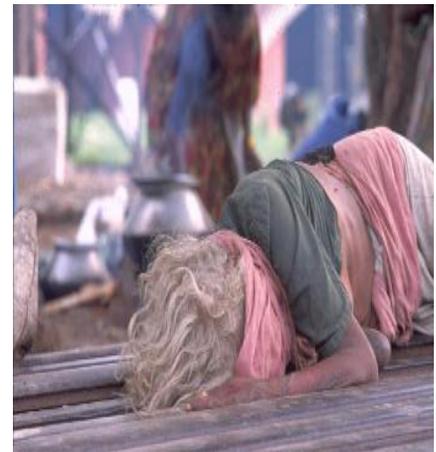
Relating these health issues to the topic of rest and relaxation we will why these problems should be taken into consideration while designing products for resting and relaxation.

- Arthritis is defined as pain in joints, usually reducing range of motion and causing weakness.
- Osteoporosis is characterized by a gradual loss of bone density due to minerals leaving the bone matrix.
- Insomnia refers to any sleeping difficulty, including difficulty falling asleep as well as difficulty staying asleep. Such conditions as headaches, irritability, lethargy, depression, anxiety, mental confusion, and even immune deficiencies can occur.
- Another problem to be considered is that as we age, our sleep patterns change. The elderly require less sleep time. It takes longer for them to fall asleep. Also, awakenings during the night increase. Hence the beds for the old people should be comfortable.

**Resting:** The furniture that the old people usually use for resting is beds, rocking chairs, durries, mats, chattis, chairs etc.

The rocking chairs are specially made keeping in mind the old people and a good chair is seldom a reason for problems. Also these chairs are mostly very comfortable and hence a good place to rest.

Considering beds and chairs we will now see some problems faced by old people when accessing the bedrooms and places of relaxation:



- Lack of place for resting and relaxing.
- Lack of proper furniture for resting and relaxation.
- If available the height of the furniture is a big concern as it is mostly either too high or too low.
- Normally the furniture that has been designed for the young and trendy and is difficult for the old people to adjust to.
- If chairs are present then the chairs with high height keep the legs dangling and thus lead to dead feet or pain. In case the old people are patients of arthritis or osteoporosis such chairs cause great pain.
- Also chairs without arm rests are not suitable for old people as they need a support to lift their body weight from the seat and no arm rest means added pressure on the knees while getting up leading to more pain.

- Then chairs with revolving base like the office chairs are also not suitable for the old and they are not firm and lack balance and leads to pressure on legs and knees which in turn gives rise to pain in joints and legs.
- The height of the bed should not be very high or very low otherwise there is an accessibility problem.
- The bed should be stable.
- Racks to keep medicines, water, and other necessary things should be provided at the bed side to facilitate easy access.
- The mattress on the bed should always be suitable to the person, some people with back problems need hard surface to sleep on whereas few others may need soft surfaces. This should be taken care of.
- Also while using durries and mats it is difficult for the old to sit on the floor due to pain in joints. Hence such low level sittings should be avoided.

And apart for all these we see that a tired body finds rest everywhere and anywhere. When we go around we see old people who are tired physically or mentally are lying down on grass, on benches, by joining two chairs and by using simple materials like cardboard and jute bags on the ground. And what is seen in these cases is that these people are having such a sound sleep that we wonder if a person who is sleeping on a feather bed made by a designer can ever have such a wonderful rest? *And these simple instances give us a direction to think in terms of products we make for the old people.*



### **Some suggestions are:**

- **Instead of redesigning the beds and chairs design mattresses. Mattresses with say uneven surfaces made using materials like hard foam or the beans used in bean bags etc.**
- **Use materials that are medium hard and soft for cushions on the rocking chairs and as upholstery of chairs.**
- **Make beds and other furniture like tables and chairs of adjustable heights so that these can be used normally and then adjusted slighted to suit the old also.**
- **Sleeping on the hard surface like floor on a chattai is very healthy for the old and they also tend to like it. So make such corners in the house where the floor is lifter to a height which is suitable for the old and then provide chattis**

on it for the old to sleep. This could also be used a seating in the room in case it's not being used as a bed.

- Also beds which provide proper support to the old while resting like may be inbuilt cushions and loads etc could also be considered.
- Chairs with heavy stable base and armrests should be made considering the ergonomics of the old and then these could be stylized to suit the modern lifestyle where everyone would like using these products.

But while carrying out these suggestions about designing and modifying the furniture for old the following things should be kept in mind.

Designing for the old means to create a supportive home environment as well as assisting them to achieve their goal of aging in their own places; their homes, their rooms. By doing these we can:

- Promote independence by making it easier to perform tasks.
- Facilitate care giving.
- Reduce accidents.
- Enable older adults to engage in major life activities.
- Reduce health care costs and delay institutionalization.

**Relaxing:** For relaxing the as mentioned above the old people indulge in activities like reading, praying, meditating, walking, perusing hobbies like knitting,

listening to music, television, indoor games like chess, playing cards, carom, yoga, and some activities that enhance their inherent talent like making paper flowers, writing and communication with young people and sharing their experiences.

These activities are the activities that stimulate their mind and body.

- Activities like going for walks, gardening, yoga, and old people clubs make the old people active and physically fit thus reducing the production of free radicals that lead to most of the health disorders and further ageing.
- Also hobbies like making paper flowers, knitting, listening to music, reading, and writing stimulate their brains and keep them busy in doing things that they like to do.
- Also sharing their experiences with young ones, playing cards, carom and chess helps the old in socializing. Socializing is very important for old people because it makes them feel needed and loved.
- Meditation and praying are activities that spiritually, physically and mentally enhance the health of old people.
- Also laughing with life is probably the most effective way to relax. This is the reason for the increasing laughter clubs for old people recently.

**Thus relaxation is very important for the overall stability and improvement of life in old age.**



**From a designers point of view some activities that the old can indulge in to relax are suggested below:**

- **Some new form of dance which does not exert the old but at the same time relaxes them and makes them very enthusiastic.**
- **Activities like Lateral Thinking and games like Mind Power, Pictionary, Scrabble, etc because in these activities they can involve their grandchildren and so relax and enjoy at the same time.**
- **Activities like bhajan groups and story telling sessions for the kids in the area could also be taken up. These activities provide entertainment at the same time helps socialize.**
- **Penning down their experiences so that they can share these with the near and dear ones is also a good way to relax. This also helps them in remembering all the good times that they had and this makes them more cheerful.**

- Learning new things like computers and new such new technologies can also help relax. The knowledge obtained at the same time can be used to interact on the net with relatives who live far away and also make new friends a great feeling for the old people.

**Finally before concluding here are a few suggestions to be kept in mind while designing (furniture or new activities) for old people:**

- Retain as much as possible in their habitual setting and change as little as possible.
- Maintain rhythms and balances if a change of setting is necessary after all.
- Facilitate communication with those who are nearest and dearest.
- Provide good accessibility to the local community and to telecommunications, physically and mentally.
- They should be able to change life styles with desired (and varying) degrees of dependence and independence.

**An insight into the area of “Elderly People and Design” will show that this area is of large and growing significance. We as designers should focus on bringing to light the experiences and perspectives of elderly people as users of technology, utilizing these and further improving them for the benefit of senior citizens and society. Another aim is to develop new ways of bringing the wisdom of elderly people to the fore and making use of it in the culture.”**

To conclude I would like to quote words of Longfellow who sums up the aging experience best:

**"Age is opportunity no less, than youth itself, though in another dress; and the evening twilight fades away, the sky is filled with stars, invisible by day."**



Amruta.K.Ranade

IIT- Delhi, India

## Teacher's Section:

(We have incorporated these two topics for the benefits of the teachers those who are engage in parting knowledge and undertake & supervise the projects undertaken by students because of partial requirement for fulfilling curriculum for their degrees program. It is highly informative and recommended by us.)

Editor

### 7. A) PART-



Summer Session 2007

Mon - Thurs 5:10 - 8:50 pm FA 163

Instructor: Ricardo Gomes, M.F.A. Industrial Design, M.A. Architecture

Office: FA 121C tel: 415-338-2229

e-mail#: [ricgomes@sfsu.edu](mailto:ricgomes@sfsu.edu)

Project #2: Inclusive & Sustainable Bench Design for SFSU Accessible Landscape

(Group Project- 2 Persons)

Background-The Landscapes for All projects, started in the early 1990's on the SFSU campus, aimed to question the current disabled accessibility standards. The project explores the idea of improving public landscapes based on inclusion for all through innovative design.

With the guidance of Phil Evans and the Grounds Department, We have set out to continue their mission by envisioning and producing universal design landscapes.

**Objectives:** The purpose of this assignment is to design an outdoor bench which can be utilized and accessible to as wide a range of the public as possible regardless of the user's ability, disability, age or gender.

Through research, Focus groups, and the implementation of the principles of Universal/Inclusive and Sustainable Design, the project focus is to design and construct an outdoor table and/or seating system that provides a more inclusive and sustainable user accessible environment.

**Identified Key Findings, Criteria and Recommendations:** The review of past focus groups and research conducted since 1992, there have been several key problems identified in existing designs of public tables and bench design applications:

**Leg and knee clearance-** ADA regulations specify that knee clearances are at least 27 in high, 30 in wide, and 19in. A single leg post in the center to hold up the tabletop has been proposed in previous designs to allow for dimensions consistent and beyond ADA regulations. The frame work beneath the table top has also been minimized to allow for maximum clearance space.

**Table height-**The height of the table top is an important factor because people come in various shapes and sizes, as do mechanical assist-devices such as wheelchairs and electrical scooters. Allowing the user a choice in table and seating heights achieves a broader range of accessibility, diverse usage and independence. In some of the prototype designs two identical tables form one larger table. The tables have been offset to give the user a choice between a fixed high or low table top. In

addition, the choice (at/after installation) can be made to have both tables at the same fixed height according to user need and location. The designated seating design is meant to be adjustable relative to the users desired height conditions.

O Possible incorporation of up a “Lazy Susan-type” screw height adjustment mechanism for table

- o Development of a study/eating table that can accommodate wheel chair users (static, or kinetic use) Sharp corners and rectangles- The elimination of sharp corners, reduces the chance of injury for all users as well as making the table more accommodating and easy to access. By giving the benches rounded, or elliptical ends, eases the motion of rotating the legs in and out from underneath the table when sitting down or getting up. By giving the wheelchair access points on the table a radius it allows the table to fit between the armrests of a wheelchair which can accommodate a wide range of wheel chair heights as well as allowing the user to pull up closer to the table.

- o Develop useful/resourceful/creative table & bench top shapes/forms

- o Implementation of table top surface material that is smooth and does not accumulate dirt, or filth

- o Use of sliding or rotating table top extensions

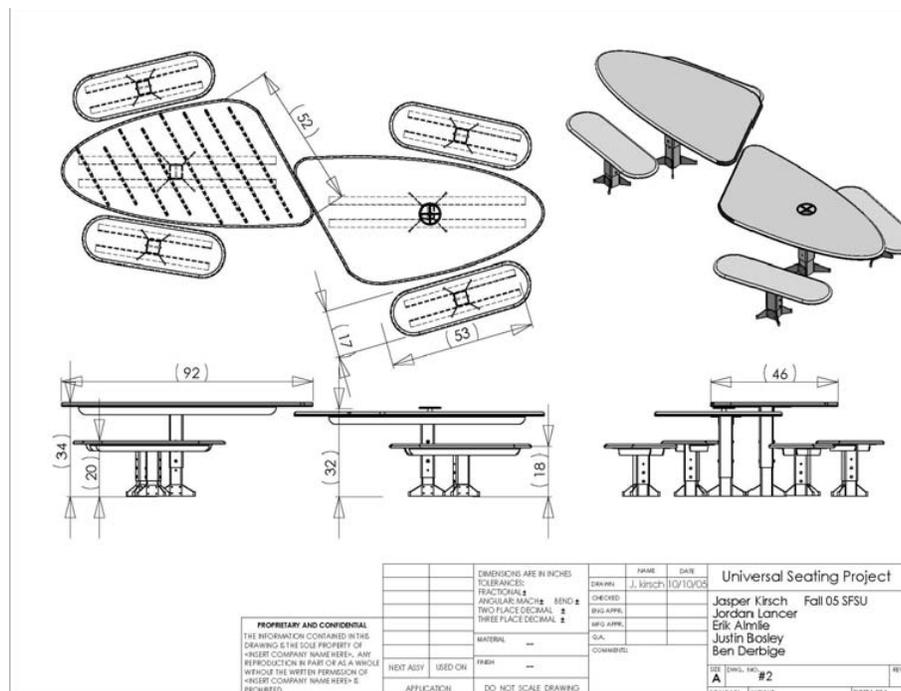
- o Possible use of planters to create windscreen, sun, audio and visual shelter

**Seating:** Flexible-use configurations that could be facilitated by cantilevered, rotating or sliding seats

**Inclusive Accessibility-**With many commercially available picnic tables wheel chair users are limited in choice regarding where they would like to sit at a table. Usually there are two accessible areas, one at each end of a rectangular picnic table so

that if two people in a wheel chair would like to sit together, they must sit at opposite ends. Another type of accessible table is one that has no seats, this type of table only allows for wheelchairs therefore stigmatizing and segregating its users, the same follows for a table which only have seats and no space for a wheelchairs. The existing prototype design has four designated seating areas with benches and four seating areas for wheelchairs which allow for six choices in seating positions. The bench areas and wheelchair areas are intermingled to encourage flexibility in use as well as interaction between various people.

**Parts & Gadgets-** It is desirable to have a table/bench design that is simple, intuitive, and flexible with low to minimum physical effort. Moving parts can often accommodate this criterion, but are often hard to maintain and potentially increase the chance of injury. The ideal objective is to keep the design simple yet flexible, while reducing the amount of parts and associated cost relative to part price, energy cost, as well as ease of assemble and disassemble for maintenance and/or relocation.



### **Consideration should be given to the following:**

- 1. Allows comfortable seating (in groups of 3 - 6) for people of all ages shapes, sizes, proportions and physical disabilities. Also allows a variety of modes of access to and exit from the seat surface.**
- 2. Allows for side by side seating when a group includes a wheelchair user.**
- 3. Attractive overall design suitable for most settings. Ideally, bench design is adaptable to a variety of material for interest, different climates and aesthetic need.**
- 4. Material specification should be for weatherproof and low maintenance materials (wood, metal, concrete, plastic). Finishes should be considered as well. Seat and /or backrest material will not collect water from rain, will not stain or splinter. Bench should incorporate armrests for comfort and ease of exit.**
- 5. Bench should incorporate specific fabrication processes and materials, with simple construction in consideration of costs reduction and value maximization.**
- 6. Modular construction concepts to enable customization or expansion are welcome.**

### **Project Criteria/Development Schedule:**

- 1. Develop Existing Environmental Assessment Study/Analysis [7/19-23/07; Due:7/23]**
- 2. Concept Sketches (30 -40) [Due: 7/23/07]**
- 3. ¼ (1:4) scale-study models (6): cardboard, foam core, etc. # 1 & 2 are to include placement within designated site. [Due: 7/25/07]**
- 4. User/Environmental Feedback/Focus Group Evaluation [Due: 7/25/07]**

5. Develop Full-scale Cardboard Mock Model – section only [Due: 7/26/07]
6. Full-scale Section Mock-up w/Orthographic Drawings: top, front and side views – 11"x 17" paper [Due: 7/30/07]
7. User/Environmental Feedback/Focus Group Evaluation [Due: 7/31/07]
8. Preliminary assembly/parts drawings detailing color and texture [Due: 8/6/07]
9. Preliminary materials specifications and samples detailing color and texture. [Due: 8/6/07]
10. Final model (1/4 scale): painted rigid foam, Ren-Shape, balsa, sheet metal, plastic [Due: 8/16/07]
11. Final Documentation/Presentation: User/Environmental Feedback/Focus Group Evaluation [Due: 8/16/07]
  - Powerpoint Presentation (20 slides)
  - Design Process Research/Development Booklet\* (11"x17") - binded
  - ¼ Scale Appearance Model

**Design Process Research/Development Booklet must contain the following contents:**

- 1- Cover Page
- 2- Table of Contents
- 3- Introduction (Background)
- 4- Comparative Market Analysis
- 5- Table/Bench Design Description
- 6- Product Inspiration/Drivers
- 7- Product Positioning Mapping Matrix
- 8- Environmental Analysis
- 9- User Profile/Target Market
- 10- Universal/Inclusive Design Assessment/Applications
- 11- Scenario of Use (User Personas/Scenarios)
- 12- Concept Ideation/Sketches

- 13- ¼-Scale Study Models
- 14- Full-scale Cardboard Mock Models
- 15- Concept Refinement/Final Development Drawings
- 16- Orthographic Control Drawings (2-D & 3-D CAD/Rhino3D or Solid works)
- 17- Assembly/Parts Diagram & Bill of Materials
- 18- ¼ Final Appearance Model
- 19- Bibliography/Reference Sources

7. B) PART.-

CONNECTING'07, 2007 ICSID/IDSA International Education Symposium, San Francisco

Abstract ID#: A158 - "Vida Brasil:" Connecting Design for Living in Brazil"

Prof. Ricardo Gomes, IDSA

Design Center for Global Needs

San Francisco State University

Design and Industry Department

[ricgomes@sfsu.edu](mailto:ricgomes@sfsu.edu)

**ABSTRACT**

This design research, based upon a 6 month sabbatical study, investigates the evolving role of designers in the 21st century. The study assesses the social, economic and political contexts of our work in the product and built environment. This paper explores the values of today's

designers in order to better understand what, why, and for whom we are designing for in a “majority world” that exists outside of our target market economy’s sphere of influence.

This study documents and evaluates the various approaches utilized by different universities, research centers, government and non-governmental agencies concerned with the value of inclusive and universal design. The research illustrates that the role of the designer will be more participatory and inclusive and not necessarily led by “traditional” designers. In this context, the study offers snapshots of successful outcomes which integrate three key components of any successful, socially-sensitive and responsive design endeavor: (1) the local context, (2) its community partnerships, and (3) sustainable/universal solutions.

## **KEYWORDS**

**Inclusive Design/ Design for the Majority/Participatory/Design Equity**

## **INTRODUCTION**

Over thirty years ago the British pop artist Richard Hamilton published a text entitled, “Popular Culture and Personal Responsibility,” in which he defined an ideal culture as, “one in which awareness of its condition is universal”<sup>1</sup>

Good design can be achieved by focusing the efforts of designers to develop products and environments that will be more inclusive - as opposed to preferential, in

enhancing and facilitating the areas of urban community development.

How do designers work with communities, respond to constraints, and maximize ownership by users and other stakeholders? The new paradigm shift in expanding the role of designers in the 21st Century must continue to promote exemplary projects with an emphasis on participatory design, universal design and social responsibility.

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*1 Hamilton, Richard, "Popular Culture and Personal Responsibility,"(1960) Material Culture and Everyday Life, Theories and Documents of Contemporary Art, Editor, Kristine Stiles, Peter Selz, pr. 298, University of California Press, Apr 18, 1996*

Design expresses the economic, social, political and cultural complexion of our society. It renders an image of the conditions of our society and the communities that directly profit, or are contingent to its benefits. In this sense, it communicates a vast amount about the priorities and values of our society. Nigel Whitley's *Design for Society* (1993) critically asserts this observation in an attempt to establish a foundation for a more socially-responsive development of design.<sup>2</sup>

This design sabbatical research investigates the role of design and designers within various social, economic and political contexts. It explores our values and ethics as

designers to better understand what, why, and for whom we are designing.

Historically, the principle role of the designer was to increase the sales and profitability of a product. However, in today's society there is a paramount need to broaden the awareness of the designer with respect to the economic livelihood and sustainability, of urban inner-city communities in Asia, Europe, and U.S, as well as the emerging nations in our global society.

Today, in the global paradigm shift that is currently in flux, we are looking at a "majority" designer and marketplace that does not design for the "majority"<sup>19</sup> world. The majority of the design world largely facilitates in urban contemporary society, but the majority of the world lives outside of that urban "westernized" contemporary sphere of influence. So the question and objective of design should be how can we better design and respond to the basic well being of the majority world in an inclusive and sustainable manner, from an environmental, economic and social level? The field research study which was conducted between November 2003 and February 2005, evaluates the various approaches and resources utilized by various universities, research centers, government and non-governmental agencies concerned with Accessibility and Universal Design issues in the U.S., Brazil and Argentina. This study examines the objectives, resources and applications of these centers in respect to what distinguishes, as well as characterizes, their research and practical approaches to

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<sup>19</sup>

<sup>19</sup> Whitely, Nigel, *Design for Society*, Reaktion Books, London 1993, p. 158

universal design, accessibility programs, policies and implementation. The research also assesses the diverse and equitable approaches to universal and inclusive design that will be more responsive to the inherent needs and sustainable implementation of indigenous society's cultural values, resources, and economies of scale. The objectives of establishing such resources are to formulate a network of compatible linkages that are interested in sharing common interest and consonant goals. The results of this study will be utilized to establish the Design Center for Global Needs (DCGN) at SFSU as a viable center for Universal Design Research and Inclusive Environments. The DCGN seeks to promote academic and applied research projects in this domain in the western region of the U.S. in conjunction with neighboring interest in Latin America and Pacific Rim.

During this one year research period, meetings, lectures, presentations and workshops were conducted at 17 universities and schools; 22 government and non-government agencies; and 10 professional design centers and organizations throughout the United States, Brazil and Argentina.

These organizations and agencies were comprised of:

- Institutional – NGO
- Institutional/Professional – NGO
- University/Institutional – NGO
- Government Agency

The study offers visual abstracts of successful outcomes which integrate three key components of any successful,

socially-sensitive design endeavor. All the solutions respect:

- (1) local context (culture & identity)
- (2) community partnerships (inclusive)
- (3) seek sustainable & universal solutions.

#### **Universal Design Centers and Agencies in Brazil (University/Institutional – NGO's)**

The Center of Independent Life of Rio De Janeiro (CVI-Rio), established in 1988, is an extremely dedicated and influential non-government organization with modest financial resources that are bolstered by an abundance of dedication, commitment and valor. As a leader in the independent living movement, it was the first “flagship” CVI organization in Brazil. Currently, there is a nationwide network of 22 CVI organizations throughout the urban centers in Brazil.<sup>3</sup> These centers are led by outstanding UD luminaries such as Regina Atalla of CVI-Salvador and Romeu Kazumi Sasaki of CVI-Araci Nallin.

Today CVI-Brasil continues to trailblaze the burgeoning independent living movement in many countries of Latin America. CVI-Rio, led by Lilia Pintos Martin and Veronica Camisao, is affiliated with the Catholic University in Rio de Janeiro (PUC-Rio) and located on the campus. It is an NGO and one of the more active and productive independent living centers in Brazil with a well experienced and professional staff and personnel. The center has a direct association with the<sup>20</sup> Industrial Design Department, its

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<sup>20</sup> *Centro de Vida Independents do Rio de Janeiro (CVI-Rio), <http://www.cvi-rio.org.br/cvi.asp>*

faculty and students who contribute to the wide range of publications and partnerships that have been established with the city government in Rio de Janeiro.

Many of the efforts that have been made in Brazil relative to accessibility and universal design have been led by organizations such as CVI-Rio through some of the publications that have initiated. These informative and educational guidelines that have focused on making the urban environment more accessible, particularly in regards to the urban commercial center in Rio de Janeiro.

In addition to the outstanding efforts that have been established as a result of the CVI organizations, there are a host of equally dedicated and prevailing NGO associations that are either have direct partnerships with academic institutions; design professional organizations, such as:

- Pro Nucleo Acesso located within the School of Architecture and Planning at the Federal University in Rio de Janeiro led by Regina Cohen
- The Universal Design Center in the School of Architecture & Design Federal University of Santa Catarina Florianopolis, Brazil, led by Professors Vera Moro Bins Ely and Marta Dischinger.
- VIDA Brasil, is an NGO organization in Salvador, Bahia whose objectives is to engage and disseminate information to design professionals, architects and engineers regarding accessible and equitable built environments. In this effort VIDA Brasil seeks to guide and raise the awareness of the

public and private sectors to inclusive and universal design measures.

For this the organization executes research, training, workshops, lectures, public policy campaigns. For the past three years, they have had a partnership with the Commission of Accessibility of Salvador - COCAS.

Despite the broad network of CVI organizations, university-affiliated and government agencies, communications amongst these individual organizations needs to be better facilitated and disseminated. Although the CVI groups maintain a supportive network, some groups are often so overwhelmed with their local constituencies, that they often do not have the time, or resources to look beyond their immediate locale. There is no question that the motivation, efforts, and objectives of the independent living community in Brazil are well integrated and representative of the vibrant, and unabashed festive fabric of Brazilian life, spirit and exuberant ambiance.

One of the most effective, constructive, visionary and resourceful agencies with the potential for the greatest influence in Brazil was the Comissao Permanente de Acessibilidade (CPA). CPA is a Sao Paulo Municipal Government agency under the Secretary of Habitat and Urban Development (SEHAB), was led by Edisson Passafaro in 2004. This agency put together a series of very resourceful guides for public buildings, streetscapes, transportation and the overall urban built environment.

CPA – Permanent Commission on Accessibility for the Sao Paulo City Municipality

**SEHAB – Secretary of Habitat and Urban Development**

**CPA employed a successful identity branding and marketing scheme through the design and application of its “A” logo, as a way to promote accessibility awareness and compliance. The bold black capital “A” in the center of a bold red circle outline was used as a symbol of certification for publicly recognizing buildings, offices, stores, restaurants and establishments that had met the CPA codes. The letter “A” symbolizes A-quality, awareness, accessibility and acceptance for ALL!**

**A noteworthy and exemplary project that CPA has conducted in Sao Paulo region under the design direction of former CPA architect Gustavo Partezani was the development of the prefabricated concrete ramp for the improved access of to and from the street corners of Sao Paulo metropolis. This collaborative and resourceful venture was done in partnership with the Portland Cement Association of Brazil. In order to effectively move forward the agenda and goals of universal design beyond the voice of the advocates, one must identify and promote the benefits of universal design to potential stakeholders and beneficiaries in the government, business and the manufacturing sectors. Such is the case with the partnership of a pro-active agency like CPA in aligning itself through its government affiliation in establishing profitable and beneficial municipal contracts with industry.**

One of the most effective, constructive, visionary and resourceful agencies with the potential for the greatest influence in Brazil was the Comissão Permanente de Acessibilidade (CPA). CPA is a Sao Paulo Municipal Government agency under the Secretary of Habitat and Urban Development (SEHAB), was led by Edisson Passafaro in 2004. This agency put together a series of very resourceful guides for public buildings, streetscapes, transportation and the overall urban built environment.



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The megalopolis of Sao Paulo, is a city of over 18 million people, the third largest city in the world. Do you think the Portland Cement Association is not aware of how many potential cement street corners with curb cut ramps that such a mega-city of this size will yield? As one can easily see, everyone benefits from Universal Design in the improvement and upgrading of the urban streetscape and built environment.

In the area of Outdoor/Public environments, the city government of Curitiba leads the way from its legendary hallmark urban transportation, city planning, streetscapes

and recycling system through its Institute for Research and Urban Planning of Curitiba (IPPUC) and Urbanizacao de Curitiba S.A. (URBS). As admired as the accomplishments and revered models of equitable social democratization have been established and documented in Curitiba, the city continues to strive to improve beyond its achievements.

The “Rua 24 Horas” (24 Hours Avenue) is a wonderful example of an inclusive city street mall in Curitiba. The street mall and its services is available and “accessible” to the public 24 hours, 365 days of the year. Street mall contains “accessible” public toilets, free internet service, “Inclusive Digital” for persons with disabilities, the poor and the homeless, cafes, bookstore, etc. Mall pathway and surrounding city sidewalks feature tactile “caning” surfaces to facilitate the visually impaired.

In many of the older, historical and tourist areas of urban centers, such as in Salvador (Pelhourino) and Rio de Janeiro (Corcovado and Sugar Loaf Mountain) the streetscape and building access problems of older buildings need to be upgraded to better facilitate general access for all users of varying physical abilities. This problem is certainly not unique to Brazil, but is a more common dilemma in older, historical centers in Europe, the U.S. and Asia. One of the unique features towards inclusive design in Brazil that wonderfully exemplifies the outgoing Brazilian lifestyle and affinity with its plethora of costal beaches, is an accessible urban beach in Salvador. This public accessible beachfront area had direct access to an accessible bus stop and public transportation.



Wheelchair Accessible Public Beach in Salvador, Bahia

Because the tourist industry is more economically developed and established in the traditional and more popular U.S., European and Asia venues, there tends to be a more structured and regulated standard. Since many baby boomers, retirees and older persons have more leisure time and disposable income, they comprise a significant and influential segment of tourist travelers. In addition, many families travel together, which may be comprised of small children to grandparents. Such diverse trans-generational needs must be accommodated in an inclusive and universal manner. Consequently, there is a greater need to accommodate these users if you desire to attract visitors, tourists and businesses in your city. So there's a challenge to make these cities more accessible. Barcelona and Valencia, Spain has established themselves as "accessible" tourist and business environment. Their

tourist bureaus promote how the city is as a tourist attraction because of its appealing accessibility, which makes the city more inviting, attractive environment for all users.

### Community Partnerships

The physical features and aspects of inclusive design are improving the quality of life. Well-being is only the beginning: Infrastructure and facilities programming offer opportunities for earning income which, in turn, enhance the general economic health of a community. But, the most important element for success is commitment by all, resulting in a true sense of partnership. The benefits are that people obtain an improved, healthy and secure living environment without being displaced. Experience has shown that urban upgrading projects are associated with strong social and economic benefits.

The point-of-view of the study affirms what the renowned economist-philosopher and author of *Small is Beautiful*, E.F. Schumacher, believed when he called for a reassessment of the role and status of design in society. Schumacher states:

“What is at stake is not economics, but culture; not the standard of living, but the quality of life”<sup>421</sup> Urban upgrading customarily provides a package of improvements in streets, footpaths and drainage as well. <sup>5</sup> It is an “inclusive” approach to the overall and sustainable

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<sup>4</sup> Eliahoo, Rebecca, *Designer Ethics, Creative Review* (March 1984), p.44.

<sup>5</sup> <http://www.thinkcycle.org/dtm/>

improvement of the environment for all. When one refers to the “sustainable” factors in a project, this reference is not only environmental, but also economic in respect to the investment, growth, supervision and maintenance of the project.

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Urban Upgrading is an area which you have not customarily seen addressed in the conventional concept of Universal Design. How does Inclusive, or Universal Design relate to low-income economies of the “Majority” World? How does Inclusive, or Universal Design relate to the informal sector

of our society; the slums, the non-industrial, or rural areas? How does a conventional designer, address and unconventional basic environmental infrastructure? So when you package the basic services in respect to access, clean water supply, adequate sewage disposal, this is where you can begin to establish an inclusive, universal design process with accessible measures. Such an “unconventional” design process is a very distinct approach that goes well beyond the conventional design process of passive brainstorming, sketching, visualizing and prototyping. It is not an esoteric, stylized design approach, but a more applied and essential approach that celebrates efficiency, comfort and environmental well-being.

It may be as simple as designing a sustainable urban pathway that can optimize the creative and feasible use of ramps. The physical improvement process is only the beginning of what must be a holistic and comprehensive process that incorporates income-generating opportunities and social incentives in terms of dealing with the economics and the health of the community.

Essentially, upgrading is an inclusive and participatory design development process that embarks the end-user on a path to becoming a recognized or regularized citizen.

Some of the basic infrastructural services and developments that are taking place, in terms of urban upgrading, are both feasible and practical in respect to the improvement of the community environment and means of accessibility. So, what is needed to make upgrading work? One must first identify the stakeholders and beneficiaries

of the projects, as well as the incentives that will stimulate their interest and commitment to the project. You have to keep people informed, and you have to be clearly defined the roles and responsibilities of the various agencies that are working together.

Monte Azul Favela (Slum), Sao Paulo A classic case study that best exemplifies this development application has been conducted by the Monte Azul Community Association in the Monte Azul favela, probably one of the more wellknown urban developments in Sao Paulo, or in Brazil. The Monte Azul Community Association is a NGO community development project that was established in 1979 by a German Waldorf School teacher, Ute Craemer. The mission and goals of the association is to promote equal opportunities through education, culture and health, especially to under-privileged people. The association's objective is to develop the material, social, conscience and spiritual well being of its constituents.



Monte Azul Favela (Slum), Sao Paulo

The association currently works on basic hygiene, environment and sanitation programs. In the favela (slum), pathways, bridges, clean water and sewage systems are built in association with the urbanization program of the City of São Paulo. One of the most positive results and indicators of the success of the community efforts in all sectors of local life is a significant decline of the rate of crime and violence. Monte Azul is not only physically visible but is also a place where people of different social levels and different cultures and countries meet to start transformation programs and improved way of life.<sup>6</sup>

Some of the services and resources that the association facilitates in the Monte Azul community are:

- Education and Skill Development (Technology/Computer lab)
- Primary Health and Dental Care Facility
- Food Store and Bakery (Health/Nutrition/Community Business)
- Children's Furniture/Toy Store, Design/Production Facility
- Community Theatre and Art Center
- Cultural Exchange Program

#### **Inclusive Design in the "Majority World"**

Progressive designers are beginning to respond to the demographic, environmental and economic realities of the 21st Century. Designers, educators and students should be encouraged to work and function outside of their "comfort zone" or sphere of influence.

In an effort to realize this dynamic, practical and participatory concept to a more “inclusive” universal design approach was implemented to the overall objectives of an international student design competition. This design competition was formulated in conjunction with Adaptive Environments in Boston, MA, the convener of the “Designing for the 21st Century III: International Conference on Universal Design” in Rio de Janeiro, Brazil, held in December 2004. This competition, which was one of the key drivers for the D21 conference, was a model for expanding the global perspective of universal design beyond the established mainstream convention. The objectives of this design mandate was to advocate designers, educators, students and policymakers to address the evolution of universal, inclusive and sustainable design in diverse cultures and economies-of-scale.

The Designing for the 21st Century Student Design Competition was a call to design visionaries to expand the power of design for the “majority world” that has traditionally been marginalized from the benefits of responsible design practice. The overall objective of the design competition was to generate innovative, resourceful and responsible design concepts and solutions for a Community Health Center that would be located at designated sites in the “majority world” regions of Africa, Asia and Latin America/Caribbean. Student Teams also had the choice of designating a site within the continents of these regions. The site specific community centers was

made available through the competition web site with details and images of the neighborhood or village culture, demographics, local norms of design and materials, economic conditions, assets, needs, and local resources.

In preparation for this student design competition, research was conducted through the Design Center for Global Needs at San Francisco State University to collect data profiling design programs at universities and colleges around the world. Research was conducted to identify and compile a comprehensive listing of over 600 architectural, landscape, industrial and interior design programs at universities and colleges around the world. Team project proposals were encouraged to be multidisciplinary in their consideration of more than one design discipline. As a result, nearly 200 registered projects from over 34 countries were received for the competition, representing regions in Africa, Asia, Europe, Latin America and the U.S.

An international jury of 14 members from Africa, Asia, Europe, Latin America and North America complimented the international forum of student design teams. The entire project submissions and jury process was conducted on-line through the Adaptive Environments/D21 Competition web site: <http://www.designfor21st.org>

The project proposals and final project design concepts were required to meet four criteria for all aspects of the design relative to Universal Design, Sustainable Design, Low Cost and Design Excellence.

The Competition Schedule began in December 2003 and concluded with the final submission of work in August of

2004. The international panel of jurors selected a very diverse and unique international pool of 14 Finalist from a final submission of 45 projects from 31 universities and 16 countries from Japan to South Africa. In the end, the Top Three Competition Finalists were from the Universidade de Mayor, School of Architecture; the University of New Mexico, USA; and San Francisco State University, USA. Each concept validated the need to recognize and embrace the expanded scope and applications of universal design in a unique and responsible manner, particularly as it related to the practical needs of the "majority" world on an equitable scale.



**What's Next? How do designers in the 21st Century:**

**1- Work with communities, respond to constraints, and maximize ownership by users and other stakeholders? - *By promoting exemplary projects with an emphasis on participatory design, universal design, and social responsibility.***

**2- Find ways to mobilize the resources to promote the creation of job skills training, mentoring, and capital recycling in low-income communities. - *Designers can***

*influence change and redefine the priorities and values of our society through such indirect methods.*

3- Conduct workshops and symposia that address these issues ones that are ideally sponsored by local universities, professional design and industry organizations

In 1963, the late Selby Mvusi, a prolific Black South African industrial designer, wrote:

“The truly excellent designed object is not the object that is rare or expensive...

This rightness of form and function before and after the object is made is both individual and social. It is in this sense of that society and culture, form intrinsic elements of design.

We do not therefore design for society or for that matter design in order to design society. We design because society and ourselves are in fact design. We do not design for living. We design to live”<sup>7</sup>

Selby Mvusi, *Design for Developing Countries: selected readings, 1963, South Africa, reprinted, Dr. Nathan Shapira, University of California, Los Angeles, 1991*

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1993, p. 158

**Letters:**

**Dear Dr. Sunil Bhatia**

Thanks for keeping me updated.

I know one interesting person in Universal Design and she would like to come to India to speak about her work. Please let us/ her know if any such opportunity is available.

**Her details:**

**Rosemarie Rossetti, Ph.D.**

**President**

**Rosemarie Speaks, a Rossetti Enterprises Inc. Company**

**Speaker - Trainer - Consultant - Author**

**1008 Eastchester Drive, Columbus, Ohio 43230-6230**

**Worldwide Phone: 1-614-471-6100**

**Toll Free Phone: 1-866-471-6110**

**Fax: 1-614-471-5575**

**E-mail: Rosemarie@RosemarieSpeaks.com**

**Web: <http://www.RosemarieSpeaks.com>**

**Keynote speaker who delivers success strategies to audiences internationally that motivate people to do their best, achieve goals, and take charge of their lives.**

**Expert on universal design for the housing industry. Creating a national demonstration home, the Universal Design Living Laboratory . <http://www.UDLL.com>**

**Author, co-author or contributor to 8 books including her latest "Take Back Your Life!"**

**Monthly columnist for Action Magazine and monthly inspirational articles published in assorted publications and web sites. To subscribe to her articles, go to: [www.RosemarieSpeaks.com](http://www.RosemarieSpeaks.com)**

**Ms. Wheelchair Ohio 2004**

**Warm Regards,**

**Sailesh Mishra**

**Advisor - Society for Serving Seniors**

**Life Member - ARDSI ,Mumbai Chapter**

**0091 9819819145**

**Blog: <http://peopleforsocialcause.blogspot.com/>**

**2.**

**This is to inform you that, Motorola is planning to come up with a designing contest. The contest will take place between January and March, 2008. We will like to understand the level of interest of the students of your Designing School and the possibility of their being a part of the contest.**

**Will like to have the schedule of the semesters and holidays during these three months, so that, we can help our client place the dates in accordance and convenience.**

**Waiting for your feedback**

Warm regards,  
Sampurna, Image Executive,  
Perfect Relations  
A 13 - Nizamuddin West,  
New Delhi- 110014  
Mobile - 9899992967  
Office - 011- 41827441/44

3.

Dear Dr Bhatia and Scott,

Thank you very much for introducing the journal as described below.

It would be highly appreciated if Dr Bhatia can tell us more about the journal which our Thai colleagues or myself ( if appropriate) might be able to contribute to.

Thanks and regards,

Aiko Akiyama

Social Affairs Officer

Emerging Social Issues Division (ESID)

UNESCAP

RAJDAMNERN NOK AVENUE,

BANGKOK 10200

THAILAND

Tel: 66-2-288-2315

Fax: 66-2-288-1030

Cellular: 66-81-830-9176

Email [akiyama@un.org](mailto:akiyama@un.org)

<http://www.unescap.org/esid/psis/disability/index.asp>

**NEWS:**

1. [Children's Learning Environments eNewsletter, September-October 2007](#)

Vol. VI, No 3, September-October 2007

In this issue

California Measure Would Ban Phthalates in Toys

Toy Safety Is in the Spotlight this Fall

Making Mindful Choices for Both Children and Mother Earth  
Institute on Creating Sustainable Environments for Young  
Children Announced for 2008

Check Out Our New Resource for Outdoor Environments

Building Early Childhood Facilities

Design Guide for Indoor Air Quality

Education and Child Development Director to Present at  
American Montessori Society Fall Conference

**Articles Published on Designing for All Children**

**Update on Three Rivers Park Children's Play & Discovery Center**

**Cyndi Nelson joins White Hutchinson**

**Going Through the New NAEYC Accreditation Process?**

**Feasibility Study for Non-Profit Child Care Project**

**Articles Published on Designing for All Children**

**Design for All Institute of India has recently published articles written by several authors and collected by Vicki Stoecklin, our company's Education & Child Development Director. These articles should help early childhood practitioners, designers, community planners, landscape architects and special educators better understand how to create environments that work for children with a wide range of abilities.**

**Design for All Institute of India has taken on the role of introducing the concept of universal design to India. The articles were contributed to help support the institute's mission and the work of Dr. Sunil Kumar Bhatia. White Hutchinson would like to thank Dr. Bhatia for requesting our participation and to gratefully acknowledge the contribution of several other authors who shared work and ideas across cultures and continents.**

**All three articles that were submitted have great photos and examples of how to support environments for all children. Vicki's article was titled "Creating Environments and Buildings That Support Children with All Abilities." Another article, written by Ingrid Kanics from the Center for Creative Play, was titled, "I Can Play -- Creating Universally Accessible Play Environments." The third article**

was written by authors from Boundless Playgrounds, including Jean Schappett, Dr. Lawrence Bruya and Antonio Malkusak, titled "Surfacing With All Children In Mind." These and other articles can be viewed at the Design for All Institute of India website.

**THANKS FOR YOUR COMMITMENT TO HIGH QUALITY ENVIRONMENTS FOR YOUNG CHILDREN**

**To Learn More About Our Services**

To learn more about our services and how we can help you with a new project or an existing one, don't hesitate to contact Vicki Stoecklin, our Education & Child Development Director, by e-mail at [vicki@whitehutchinson.com](mailto:vicki@whitehutchinson.com) or by phone at 816.931-1040 (Central Time Zone).

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If you change your e-mail address, remember to update your profile using the link at the end of this eNewsletter. Or sign up again on our website so you will continue to stay on our distribution list. Also, tell your colleagues and friends so they won't miss out.

The Children's Learning eNewsletter is published on an occasional basis, about once every month, by:

**White Hutchinson Leisure & Learning Group, Inc.**

**4036 Baltimore Avenue**

**Kansas City, Missouri 64111 USA**

**+816.931-1040**

**[vicki@whitehutchinson.com](mailto:vicki@whitehutchinson.com)**

2.

Avenue A | Razorfish <<http://avenuea-razorfish.com/>>, a US based interactive services firm, is looking to contract with an Indian user research firm (preferably in Delhi/Mumbai) for local research in India. Interested firms may approach Shiv Singh for details at Shiv dot Singh at avenuea-razorfish dot .com

3.

A free design job newsletter started at,

[www.indesign247.com](http://www.indesign247.com),

4.

**Bids accepted till November 17**

**Indian board invites bids for website**

The Indian board has invited bids for designing and hosting its website for a period of four years. The BCCI is the only ICC Full Member yet to have its own web portal.

In the bid, the board seeks to appoint a "reputed company of international standing" to acquire the web portal rights and the winning bidder will

design, develop, host and operate the website from January 1, 2008 to December 31, 2011.

Bids can be made for a non-refundable amount of Rs 5 lakh (US\$ 12,725) between November 8 and November 17 after which the board's marketing sub-committee will examine

them.

According to the tender: "The project scope includes [but is not limited to]: 1. Exploiting existing content to create packages for driving subscription revenues, 2. Creating new content, 3. Hosting, production and ongoing operations of the portal, 4. Generating traffic, users and revenues to the site, 5. Maintaining the books of accounts and providing detailed information regarding all the revenues whenever requested by the BCCI management."

In August last year, it was reported that software giants Microsoft and Wipro were competing for rights to BCCI's web portal. The board instead approved Accenture's

bid<<http://content-usa.cricinfo.com/india/content/story/256598.html>>for the portal. A website - [bcci.tv](http://bcci.tv) - was launched the next month but apart from offering tickets online, it has little else.

5.

## **National rating system planned for energy-friendly buildings**

**Sujay Mehdudia**

**For mainstreaming the sustainable habitat  
Incentives to developers based on their ratings**

**NEW DELHI: Seeking to set in place a rating system for upcoming buildings in the country, the government is soon to come up with a national rating system for green**

buildings, GRIHA. A memorandum of understanding has been entered into with the Tata Energy and Research Institute (TERI) to develop and operationalise this system.

This concept has been conceived and developed with the vision of main streaming the sustainable habitat. The ministry will constitute the Technical Advisory Committee (TEC) to guide modifications if required and this will be made applicable to all buildings typologies and across climatic zones. The National Advisory Council will provide advice and give directions to the national rating system.

In addition to this, Government is contemplating incentives to developers of energy-efficient buildings, based on a rating mechanism to be developed by TERI.

According to Ministry of New and Renewable Energy Secretary V. Subramaniam, the Ministry was partnering with TERI for developing a rare rating system for upcoming structures in India. "We are contemplating incentives to the developers based on their ratings," he added. He said the incentives could be in the form of tax breaks in property tax for the proposed structures.

TERI's Green Rating for Integrated Habitat Assessment (GRIHA) is a voluntary scheme that will evaluate the environmental performance of a building over its entire life cycle. The mechanism is based on inputs from the upcoming mandatory voluntary building codes being developed by the Bureau of Energy Efficiency, the Ministry of Non-conventional Energy Sources, Ministry of Environment and Forests and the Bureau of Indian Standards.

### **Evaluation**

The India-specific rating system would facilitate design, construction, operation and evaluation of environment-friendly buildings.

The system would ascertain greenness of new commercial, residential and institutional buildings, TERI Associate Director Mili Majumdar said.

She said the rating system would be extended to existing structures later on.

The rating would be carried out by an evaluation panel comprising eminent professionals.

6.

**EADS sets up sourcing centres in India**

2 Nov, 2007, 0251 hrs IST, TNN

**BANGALORE:** Aerospace and defence major European Aeronautic Defence and Space (EADS) has launched its sourcing centres in Bangalore and Delhi. These dedicated sourcing centres are aimed at identifying key sourcing opportunities for EADS business units in India.

Airbus, part of EADS, too has launched its engineering and pilot training centre in Bangalore. The Airbus engineering centre will cater to aerospace design activities, simulation and aerodynamics for all Airbus aircraft being developed globally including A350 and A380.

Currently, the Airbus engineering centre houses 30 engineers and this is expected to go up to 300 by 2009. EADS plans to move the existing engineering and training centre in the city to the technology centre that is being planned near the upcoming BIAL airport at Devanahalli.

The EADS technology centre, which is expected to become operational by 2009-2010, could become the largest on-site unit owned by the company.

The aerospace and defence major is still in the process of acquiring land near the upcoming international airport at Devanahalli. The technology centre is expected to create up to 2,000 jobs for the aerospace engineers.

“We are trying this model for the technology centre for the first time in the world,” said Airbus CEO, Tom Enders.

Airbus has also tied up with Canada-based pilot training institute CAE for operating the pilot training centre in Bangalore. However, the two parties are planning to rope

in another local partner for the pilot training centre that is expected to become operational next year.

7

## MICROMINI RADIO



K. JENSEN, ZETTL RESEARCH

GROUP/LBNL AND UNIVERSITY OF CALIFORNIA, BERKELEY

A carbon nanotube 10,000 times as thin as a human hair turns radio waves into music, acting like a tiny radio, in this image (wavy lines added) taken by researchers at the University of California, Irvine. AM radio waves cause the tube to vibrate; then an electric field forces electrons—that is, an electrical current—out of its tip. The current detects the vibrations, converting the waves to sound. This month in *Nano Letters*, Peter Burke and Christopher Rutherglen report using the device to transmit music wirelessly almost a meter from an iPod to a speaker. Scientists are finding that radio frequencies are well-suited to manipulating nanometer-sized parts, further opening up new horizons in nanotechnology.

8.

(Source: Science)

# Bad behaviour doesn't equal bad grades

## Findings can change how teachers and parents manage disruptive children

Benedict Carey  
New York, November 13

EDUCATORS AND psychologists have long feared that children entering school with behaviour problems were doomed to fall behind in the upper grades. But two new studies suggest that those fears are exaggerated.

One concluded that kindergartners who are identified as troubled do as well academically as their peers in elementary school.

The other found that children with attention deficit disorders suffer primarily from a delay in brain development, not from a deficit or flaw.

Experts said that the findings of the two studies, being published on Tuesday in separate journals, could change the way scientists, teachers and par-

ents understand and manage children who are disruptive or emotionally withdrawn in the early years of school.

The studies might even prompt a re-assessment of the possible causes of disruptive behaviour in some children.

In one study, an international team of researchers analysed measures of social and intellectual development from more than 16,000 children and found that disruptive or antisocial behaviour in kindergarten did not correlate with academic success at the end of elementary school.

Kindergartners who interrupted the teacher, defied instructions and even picked fights were performing as well in reading and math as well-behaved children of the same abilities when they both reached fifth grade, the study found.



SANJEEV VERMA/HT

One study found that children with attention deficit disorders suffer primarily from a delay in brain development, but not from a deficit or flaw.

Other researchers cautioned that the findings, being reported in the journal *Developmental Psychology*, did not imply that emotional problems

were trivial or could not derail academic success in the years before or after elementary school.

In the other study, researchers from

the National Institute of Mental Health and McGill University, using imaging techniques, found that the brains of children with attention-deficit hyperactivity disorder developed normally but more slowly in some areas than the brains of children without the disorder.

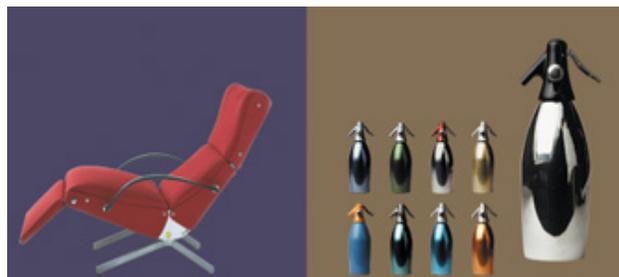
The disorder, also known as ADHD, is by far the most common psychiatric diagnosis given to disruptive young children; three to five per cent of school-age children are thought to be affected.

Researchers have long debated whether it was due to a brain deficit or to a delay in development.

Doctors said the report, being published in *The Proceedings of the National Academy of Sciences*, helped explain why so many children grow out of the diagnosis in middle school or later, often after taking stimulant medications to improve concentration in earlier grades.

The New York Times

9.



ICE and IICCI inaugurate '100 Objects of Italian Design' exhibition

The exhibition inaugurated at the prestigious Chhatrapati Shivaji Maharaj Vastu Sangrahalaya (former Prince of Wales Museum) and will reside there for the next 9 days

“100 Objects of Italian Design” – an itinerant exhibition organized presented by the Consulate General of Italy in Mumbai, La Triennale di Milano, The Italian Cultural Institute in New Delhi and the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya, inaugurated in Mumbai by H.E. Antonio Armellini, ambassador of Italy to India, Prof. Arturo Dell’Acqua Bellavitis, Vice President of La Triennale di Milano and B.G. Deshmukh, Chairman of CSMVS.

The exhibition by Italian Trade Commission (ICE) and the Indo- Italian Chamber of commerce and Industry (IICCI) along with Italian Cultural Institute and Enit under the patronage of the Italian Embassy and the Consulate Generals in Mumbai and Kolkata

The exhibition inaugurated at the prestigious Chhatrapati Shivaji Maharaj Vastu Sangrahalaya (former Prince of Wales Museum) and will reside there for the next 9 days before making visits to Bangalore and Ahmedabad, over the coming three months. The exhibition saw a very good response in New Delhi, where it was set up at the Lalit Kala Academy in early October, this year.

Italians are world-renowned for their creativity, innovative streak, precision and technique in design and art. Immensely gifted Italian designers have evolved timeless creations in the fields of fashion and lifestyle, architecture,

and sculpture. And bringing you an assortment of these timeless, unmatched creations is '100 Objects of Italian Design' – excerpts from the Permanent Collection at the La Triennale di Milano, the most premier Italian institute in the sector of architecture, visual and decorative arts, design, fashion and audio/video production.

The exhibition showcases a selection of some of the most meaningful objects of Italian design, ranging from the post-war period up to the present, and includes all creations that have marked and transformed the Italian way of life and modern culture and inspired creativity itself. Varying from the early mass-produced objects of the 1940s and 50s, through the rigorous modernism of the 60s and 70s, up to the experimenting with form of the 80s and 90s, the exhibition will display a great collection of unique and unparalleled creations, including 'one-of-a-kind' items, such as the Vespa scooter, the Olivetti typewriter and the Grillo telephone, the Blow armchair and the Tizio lamp.

The result is a diversified and fascinating picture that provides an account of the evolution of one of the most important sectors of Italian contemporary culture and of its economy. It is not just history of objects and ideas, but also of companies and designers, of aesthetics and technologies, all fused into a harmonious union of absolute excellence and indisputable originality.

"100 Objects of Italian Design" in Mumbai is also the opening event of Italian Festival/Festa Italiana 2007, a month long festival in India to showcase the best of the

**“Made in Italy” in several sectors, organized by the Italian Trade Commission and the Indo - Italian Chamber of Commerce and Industry, along with the Italian Cultural Institute in New Delhi and ENIT (Italian State Tourist Board), under the patronage of the Italian Embassy and the Consulates General in India**

**Speaking on the occasion, Antonio Armellini, Ambassador of Italy to India, said, “Both India and Italy are countries that boast a rich culture and tradition. Indian art and fine art and ancient Indian sculpture have been instrumental in inspiring contemporary art. Similarly, the Italians are world-renowned designers in the field of architecture, urban design, fashion, and textile, industrial and home design among others.”**

**He also said, “We are very proud to bring the 100 Objects of Italian Design exhibition to India, as a step towards closer cooperation between our two countries in fields in which we are both looking for innovative ways to combine the freedom of artistic expression with the needs of the market”**

**“The exhibition shows how design matches with the history of industrial production in Italy, being it a result of a close cooperation between companies and designers” – pointed out Prof. Arturo Dell’Acqua Bellavitis, Vice President of La Triennale di Milano - “The pieces in the Collection illustrate the innovation and experimentation that have made Italian design the distinctive trademark of “Made in Italy” and of Italian industry in the world.”**

He also said, "The influence of Italian design cannot be ignored, even in the most contemporary design. Through this exhibition, we hope to give everyone an opportunity to explore the various possibilities that exist in creating something new and completely unique. Yet the objects have been chosen because of their unusual design, their innovative technology and materials, their ability to capture and convey the trends and culture of a certain period in time"

Also present at the event were, Fabio Rugge, Consul General of Italy in Mumbai, S. Mukherjee, Director of CSMVS, Prof. Patrizia Raveggi, Director of the Italian Cultural Institute and Thomas Berloff, designer and curator of the Exhibition.

(Source: India Infoline News Service)

## **Program & Events:**

1. Techshare India 2008 – Breaking the Barriers is the first ever accessibility conference-cum- exhibition bringing the entire ecosystem; the government, the corporates, the NGOs, the disabled, the product companies, and the education providers under one roof.

Techshare India 2008 will be held on 4<sup>th</sup> and 5<sup>th</sup> February, 2008 at New Delhi, India .

### Highlights of Techshare India 2008

We envisage Techshare India 2008 as a milestone that would bring a revolution in the society for including people with disabilities in the main stream.

- First "2-day Accessibility Conference-cum- Exhibition" in India
- Organizing committee featuring international bodies such as Royal National Institute for the Blind (RNIB), UK
- 500 plus delegates from government, non-profit, education institutes, and corporate from across the globe
- 50 plus speakers, 4 Tracks, 6 accessibility workshops
- State-of-the- art experience lab showcasing assistive technology
- Exhibition with 25 plus stalls displaying assistive aids pan disability

### Call of Papers

We invite you to submit abstracts to present at the Techshare India 2008 conference before the 30<sup>th</sup> November, 2007. All abstracts will be reviewed by the Organizing Committee.

For submission procedures and suggested topics please visit our call for paper page at <http://www.barrierbreak.com/callforpapers.php>

Please visit our website at <http://www.barrierbreak.com/techshareindia.php> for updates, announcements, and more information on Techshare India 2008.

Thanks & Regards  
Pooja Nahata | Strategic Account Manager

BarrierBreak Technologies

India: +91 (22) 2686 0485/86

Cell: +91-98207 25102

USA : +;1 (781) 452 0677

Web: <http://www.barrierbreak.com>

2.



This initiative is inspired by the discussions on the online forum

Events:



We are endorsing:



**The next big opportunity for designers will be in emerging markets.**

**Uday Dandavate**

I consider the Design with India initiative a platform for experiencing unfamiliar cultures and diversity of perspectives, and a time to prepare us for the future of innovation. The design community in India is enthused by the interest the world has developed in them and wants to reciprocate by participating in the global practice of design. They are eager to collaborate, learn, and compete in the global marketplace that is increasingly recognizing the value of design. Recently the government of India announced a National Design Policy. The new policy, if executed correctly, will create opportunities for designers to take on leadership roles in different sectors of the Indian economy. As the interest in design grows, the capacity of the Indian design community will be fully utilized. The skills required for translating leading-edge technologies into design that improves the quality of life of the people of India will require partnerships with teams within and outside of India who have more experience in innovation. For India to transform itself through design and to improve its design competence to international standards, it is necessary for Indian designers to form long-term partnerships across multiple disciplines. The external partners can expect ample scope for business growth in India, and will discover opportunities to experiment and to

learn to design for unfamiliar markets—a capacity they must develop to succeed in any emerging market.

**Sam Pitroda to unfold his vision at the 7th CII-NID Design Summit**

**Sam Pitroda will share his vision of how designers can provide leadership in different sectors of the Indian economy, in the context of recently released National Design Policy.**



**Sam Pitroda, born in Titlagarh, Orissa, India, is an inventor, entrepreneur and policy maker. Currently chairman of India's National Knowledge Commission, he is also widely considered to have been responsible for India's communications revolution. He is the Chairman and CEO of World-Tel Limited, an International Telecommunication Union (ITU) initiative. He holds many key technology patents, has been involved in several startups, and lectures extensively around the world on the implications of communications and information technology.**

**The 21st Century has presented the design community with new challenges and opportunities for assuming leadership roles in a wide range of scenarios. The design with India conference is strategically being held in Bangalore, considered as a hub for technological innovation by many global companies.**

**Mark your calendars. The dates for the next design summit will be December 12th-13th, 2007 at Hotel Taj Westend, Bangalore.**

**If your organization is interested in associating with the event as a sponsor please contact [seema.gupta@ciionline.org](mailto:seema.gupta@ciionline.org).**

**Design Brings Meaning to Life  
Says Mehmood Khan**

Mehmood Khan has been a fellow traveler of Indian Design for a long time. Over thirty years ago Prof. Ravi Mathai established the Jawaja Project, a collaborative venture between the NID and the IIM focusing on achieving self-reliance through self-education, with the long term goal of building local leadership through a process of partnerships.

Design with India approached Mehmood to share his journey with the members of this forum. We are particularly fascinated by his focus on co-creating value by cultivating innovative communities both within the corporate world and in the dusty lanes of rural India. We recognize that designers are keen on discovering new niches that are latent or invisible to the eye today. We are interested in exploring new models of work that would help us play a personally meaningful and professionally rewarding role In a complex environment that appears conflicted between the rich and the poor, urban and the rural, the west and the east and the consumerist and socially responsible communities, Mehmood's life experience can open new opportunities for reflection and exploration.

### ***What is Design with India?***

*"Design with India" is a collaborative initiative inspired by the discussions on the online forum, DesignIndia. This forum will continue to organize online and offline discussions that will help expand the understanding of the creative communities around the world about the opportunities and challenges of partnering with the creative individuals and institutions from India.*

*Globalization is forcing designers to rethink their role in the context of developing world economies, especially in Asia. India's economic potential has long been attracting major international corporations. Recently, attention has shifted to include a greater focus on the immense spending power of India's rural sector. As global economic partnerships continue to expand and design becomes the driving force behind innovation, so too does the potential for businesses and designers to successfully partner with India. But at what cost?*

*Designers can take inspiration from the traditions and craftsmanship that are unique to India. They can look to India to understand design innovation from a deeper, more resource driven perspective. However, it is important to interpret India's identity and traditions from both a local and global perspective in order to simultaneously cultivate and preserve its rich and historic culture.*



### Point of View:



The 21st Century has presented the design community with new challenges and opportunities for assuming leadership roles in a wide range of scenarios. The design with India conference is strategically being held in Bangalore, considered as a hub for technological innovation by many global companies.

With Indian government declaring a National Design Policy, India seems to be embarked on a tidal wave of design intervention in every sector of the economy. It is therefore imperative for organizations that want to have a stake in India's growing participation in the global economy, and its plans for using design to support its own infrastructure building, to associate with the Design with India initiative and to attend the forthcoming 7th CII-NID Design summit in Bangalore.

Links



Organized by:



## 7th CII-NID Design Summit will inspire you with new ideas

4.

Dear TIEMS Members and Supporters,

Just to inform you that the Second Call for Papers for TIEMS 2008 in Prague, June 2008 is out on TIEMS web-site: [www.tiems.org](http://www.tiems.org)

The deadline for submitting a paper or poster proposal is 19th November 2007.

Please, visit the web-site for updated TIEMS information.

Note that the Agentura Carolina Ltd. will be our local organizer for TIEMS 2008, and will be responsible for further announcements, registrations, etc.; see TIEMS web-site for further information.

I hope to see many of you Prague in June 2008.

K. Harald Drager  
TIEMS President

5. Mentor Graphics to host User2User 2007 India Conference in Bangalore

*Mentor Graphics Corporation (Nasdaq: MENT), a world leader in electronic hardware and software design*

*solutions, today announced that it will be hosting its 3rd Annual User2User India conference on November 23, 2007 at Taj Residency, Bangalore*

**Mentor Graphics Corporation (Nasdaq: MENT), a world leader in electronic hardware and software design solutions, today announced that it will be hosting its 3rd Annual User2User India conference on November 23, 2007 at Taj Residency, Bangalore.**

**This year's conference will feature two keynote speakers. Rajat Gupta, managing director, BeCeem Communications India Ltd., will present the first keynote, "Innovating for Growth - Are we ready for Product Development?" Anil Gupta, managing director, ARM India, will present, "A Challenge to the U.S. Economy and its impact on Indian Economy."**

**Mentor Graphics User2User 2007 India conference is part of the annual Mentor Graphics International User Conferences. This highly interactive, in-depth technical conference focuses on the needs of the entire Mentor Graphics user community and draws attendees from around the world. This conference is designed to provide users of Mentor Graphics tools and solutions with an opportunity to network and interact with other engineers utilizing the same or similar products.**

**User2User 2007 India offers attendees the opportunity to interact directly with other Mentor users, technology experts, partners and solutions. It will feature 24 technical presentations, many by multinational users, Indian companies and government agencies including Freescale**

Semiconductor, Texas Instruments (India), STMicroelectronics, Wipro, Tata Elxsi, HCL Technologies, AMD, Infineon, Samsung, Nokia, Honeywell, CG-CoreEI, and Indian Institute of Technology, Madras.

The technology tracks in the forum will include test, functional verification, physical design and PCB system design. This year's conference will have a 'Best Paper Award' for each technical track, and all the technical papers selected for the conference will carry a special award.

"Mentor Graphics User2User conference provides an excellent opportunity to hear from our users as well as demonstrate the strategic value of our solutions to overcome industry challenges," said Raghu Panicker, sales director, Mentor Graphics Sales & Services Pvt. Ltd. "We've built a user group into a world-class conference forum where our users can share and realize the value our solutions bring in helping companies overcome their design challenges."

#### **About Mentor Graphics Corporation**

Mentor Graphics Corporation (Nasdaq: MENT) is a world leader in electronic hardware and software design solutions, providing products, consulting services and award-winning support for the world's most successful electronics and semiconductor companies. Established in 1981, the company reported revenues over the last 12 months of over \$825 million and employs approximately 4,300 people worldwide. Corporate headquarters are located at 8005 S.W. Boeckman Road, Wilsonville, Oregon

97070-7777. World Wide Web site:  
<http://www.mentor.com/>.

Mentor Graphics is a registered trademark of Mentor Graphics Corporation. All other company or product names are the registered trademarks or trademarks of their respective owners.

6.

#### THE 2008 DESIGN RESEARCH SOCIETY INTERNATIONAL CONFERENCE

will be held in Sheffield, UK on 16-19 July 2008.

In the tradition of our biennial conference series this will be a broad-ranging event open to all topics and disciplines relevant to designing. However we will have a conference theme which will inform the choice of keynote speakers and, we hope, stimulate debate:

**UNDISCIPLINED!** Rigour in emerging design disciplines and professions.

You can find out more at the conference website at  
</exchweb/bin/ redir.asp? URL=<http://drs2008.designinquiry.wikispaces.net/>><http://drs2008.designinquiry.wikispaces.net/>

Deadline for extended abstracts is 1 December 2007

If you are considering proposing a paper please join the conference announcement mail list at

</exchweb/bin/ redir.asp? URL=<http://www.jiscmail.ac.uk/lists/DRS-CONFERENCE-CONTRIBUTORS>.

<http://www.jiscmail.ac.uk/lists/DRS-CONFERENCE-CONTRIBUTORS.html>

7.

**Speaker: Ms. Patricia Sumner (Head Of International Office, CHELSEA COLLEGE OF ART & DESIGN)**

Patricia Sumner, Head of International Office at Chelsea College of Art and Design is a typical product of the UK's unique design education system. With nearly 4 decades of being at the centre of London's creative scene as a Graphic Designer and Educator, she has seen London grow from the spontaneity of the 60's to the growth of the sophisticated world creative capital it now is.

Patricia has been a visitor to India working with aspiring young designers seeking advice and guidance on University of the Arts, London's world class art, design and communication education. She is both a theorist and a practitioner.

**Topic: " Exchanging information about various opportunities available in the field of Art & Design. "**

**Venue : KYOORIUS EXCHANGE**

**5, Garment House, 37/43, Dr. Annie Besant Road, Worli, Mumbai - 400 018. Tel: 24904221/5**

**Time : 3.15pm - 4.30pm**

**{Please Register for this Workshop immediately, Limited Audience.}**

**Registration Fees:**

**For details and registration contact:**

**KE Members : Free of Cost**

**Niladri Chakravarty: +91 9324334003**

**Non-Members: Rs. 500**

**[niladrichakravarty@kyoorius.com](mailto:niladrichakravarty@kyoorius.com)**

**Kyoorius Exchange, 5 Garment House, 37/43, Dr Annie  
Besant Road, Worli, Mumbai 400 018. Tel : +91 22  
24904235**

**8.**

**Welcome to the Web Innovation Designer Contest 2007  
being jointly presented to you by National Institute of  
Design (NID), Microsoft Corporation and TFCI.**

**This exciting and thrilling Contest is being held under the  
aegis of the upcoming Web Innovation 2007 Conference &  
Expo - scheduled to be held in Bangalore from December  
18-19, 2007, click <http://www.webinnovation.in>**

**Web Innovation Designer Contest 2007 will offer the  
perfect platform for you to unleash your creative instincts  
and get immediate recognition. This Contest is exclusively  
created for those who are involved in disciplines such as  
Design & Development, Media & Advertising, ICT, Software  
Development et al. Your design outputs have an inherent  
capacity to make a profound impact on the new Web**

landscape and might earn you the kind of exposure that you have been looking out for all this while.

Right to enter the Contest is open to all types of Professionals as well as Students and with no participation fees being charged. Contestants will need to use Microsoft® SilverlightT 1.0 and Microsoft® Expression® Studio to aid them in their designated projects. Visit <http://www.webinnovation.in/contest/> to know more about this rewarding Contest and to download the Contest Form.

Remember, the last date for filing your nominations is December 10, 2007. So, RUSH your entries to avoid that last minute disappointment.

Questions?

Call Manoj on +91 80 4115 6662 write to [manoj@tfc.com](mailto:manoj@tfc.com)  
See you at Web Innovation Design Contest 2007 and wish you the very best.

President & CEO, TFCI

9.

CG Research Fellowship Programme (PhD) with IIT, Mumbai (Bombay).

Crompton Greaves Ltd has entered into Memorandum of Understanding with IIT Bombay to sponsor PhD programme in the areas of Electrical , Mechanical , Material Science & Industrial Design commencing January 2008 .

The broad subjects of the PhD Programme are as under:

Power Electronics as applied to Power Systems  
Substation and Distribution Automation Solutions  
Condition Monitoring & Diagnostics of Power Apparatus  
Communication Protocols, Wireless Communications  
Advanced Electrical Machines & Drives  
Power Quality Solutions  
Cryogenics and Cryo systems  
Analytical Solutions in Fluid Flow , Thermal ,  
Electrostatics , Electromagnetic, & Coupled Fields.  
Electrical Steel  
Powder Metallurgy and Electrical Contact Metallurgy ( as applied in Circuit Breakers)  
Electro Ceramics ,viz Zinc Oxide Varistors  
Industrial Design - Product Ergonomics & Aesthetics  
Energy efficient products and solutions as applied to electrical power generation, transmission, & distribution.

**Duration and Stipend :**

Every PhD programme under the CG Research Fellowship is for a period of 4 years and the student will be paid a stipend of Rs 18000 per month. The selection and administration of the Fellowship will be as per IITB rules and regulations.

After successful completion of the PhD programme , the students under the Fellowship may be considered for employment at CG .

Interested students may apply online to IIT Bombay at <http://www.iitb.ac.in/rsrchprgm.html>

All applicants should mention "CG Research Fellowship" on top of the Application Form & also on the envelope.

Last date for submission of Applications is 15th Nov 2007.

1.0 Value creation through Product Aesthetics

- Aim of Research

## **Application of Product aesthetics for better value perception**

### **Scope of Research**

**A methodology / strategy for application of Product aesthetics for better value perception**

### **Research Challenge**

**The better looks do matter in product value creation, there has no ready formula and makes it subjective. It is this subjectivity that makes it a challenging one & research for a method to reduce the subjectivity**

### **Deliverables**

**A systemic approach & a methodology to measure product aesthetics and hence its impact on enhancement of perceived product value**

## **2.0 Product Semantics & its application for Electrical products**

- **Aim of Research**

**Product Semantics & its application**

- **Scope of Research**

**Development of methodology / strategy for application of Product semantic for Electrical Products.**

- **Research Challenge**

**Product semantics is still an emerging field & a sound understanding of users lifestyle-aspirations-social-psychological issues & user environment to see product's meaning make it a multivariable study.**

- **Deliverables**

**A methodology / checklist / strategy for application of Product semantic for Electrical Products**

### **3.0 Product usability Index & its applications for Consumer Products**

- **Aim of Research**

**Methodologies for the measuring Product usability in order enhance the same for better user experience**

- **Scope of Research**

**Study of usability, lab setup, measurements, evaluation, reporting.**

- **Research Challenge**

**With multi cultural global user needs this is not only difficult but also is very essential for product successes. A clearer understanding & a method for measuring usability is the objective of the research.**

- **Deliverables**

**Methodology for usability evaluations & report .**

### **4.0 HMI / IF design for better usability**

- **Aim of Research**

**Methodologies for the application of HMI/IF Design to enhance Product usability**

- **Scope of Research**

**Study to have insights into the subject, evaluate the current methodologies & develop new methods– establish usability lab to test & validate the methods.**

- **Research Challenge**

**Human machine interfaces are increasing & a careless application may result in loss of life & property besides market share. A systematic application helps the machine to communicate better with its user. The research helps in arriving at Design strategies for the same Interaction design requires multi-disciplinary skills.**

- **Deliverables**

**Develop strategies for better usability w.r.t HMI & IF design of products**

**5.0 Product success Risk Management**

**Aim of Research**

**Systematic study of factors leading to product success & failure risks & its mitigation – hence come up with a product success factor**

**Scope of Research**

**A mathematical probabilistic model to analyze the complex factors in order to maximize the success factor is the objective of the research work**

**Research Challenge**

**Multi variable nature of the risk & its effective mitigation strategies from the research challenge**

**Deliverables**

**A mathematical probabilistic model to analyze the complex factors in order to maximize the success factor & hence develop/ suggest mitigation steps: a methodology of arriving at a success factor**

10.

**New Delhi: A supercomputer developed by the Tata Group's Pune-based Computational Research Laboratories (CRL), capable of a sustained speed of performing 117.9 trillion floating operations per second (teraflops) and a peak speed of 170.9 teraflops, has been rated as the fourth fastest by the internationally recognized 'Top500 Listing' project.**

**The 30th edition of the Top500 List was released on November 12 at the SC07, the international conference on high performance computing (HPC), networking, storage**

and analysis in Reno, Nevada, USA. Computer experts have been carrying out this exercise, based on the generally accepted LINPACK benchmark, since 1993 and the Top500 List is issued twice every year, once in June and then in November.

This is the first time that an Indian HPC system has made it to the Top 10 outdoing such countries as Japan, the U.K., France, etc. which are regarded as highly advanced in computer technology. The countries that have made it to the Top 10 are the U. S. – whose seven supercomputing facilities have made the grade – Germany, India and Sweden. This means that the system is the fastest in Asia as of date.

The Tata supercomputer is called EKA, the system uses 14240 Intel's high-speed (3 giga hertz) 'quad-core' Clovertown (Xeon 53xx) processors in nearly 1,800 computing nodes put together on a Hewlett-Packard Cluster Platform 3000 BL460c system. According to the official press release of the rating body, the integration of the system was done using "their own innovative routing technology". The routing is based on dual-rate Infiniband switches from Mellanox Corp. and Voltaire Corp.

### **Prime mover**

"The supercomputer built at the CRL facility," said the press release from the Tata Group, "marks a milestone in the Tata Group's effort at building an indigenous HPC solution. CRL built the supercomputer...using dense data centre layout and novel network routing and parallel processing library technologies developed by its scientists." It also added that the CRL team had been actively supported by scientists and engineers at the Tata Consultancy Services (TCS).

"The Tata Group has supported this development actively... I am sure this supercomputer and its successor systems will make a major contribution to India's ongoing scientific and technological initiatives," said Ratan Tata, the group chairman.

Interestingly, however, the release from the Tata Group fails to make any mention of the main architect and prime mover of the project, Dr. Narendra Karmarkar, an alumnus of IIT Bombay and formerly of the Tata Institute of Fundamental Research (TIFR), who quit last year following lack of adequate financial support (to the tune of Rs. 400 crore) for his supercomputing project from the institute and joined the Tata Group having found the backing of Ratan Tata and the management of the group (see *Business Line*, May 6, 2006).

The CRL was established in July 2006 by a group of “like-minded alumni of IIT Bombay,” as the CRL website states.

However, earlier this year, Karmarkar left the Tatas (along with his core team) when they fell apart following differences over the overall plan and the set of goals and objectives of the HPC project, which included that the first system should be given to the Indian government.

But there can be little doubt that the basic idea of the architecture that has been used in the system that has been included in Top 10 belongs to Dr. Karmarkar.

According to Dr. Karmarkar, only five percent of his ideas, which he had shared with the Tatas, have been made use of the current architecture. “With even this, if it can make it to the fourth place, the system can surely make it to No.1 when all my ideas are incorporated,” he says.

“The design and concept took nearly four years, much of it was developed during my days at the TIFR. I have a long and complex plan of how to go about putting all my ideas into an HPC system. But I also have a balanced set of objectives. I am looking for a backer who would not only provide the money but should share the vision and the entire objective,” he added.

In the Top500 List, nine Indian systems have been included (marking an 1.8 per cent share).

The other countries in the List include compared 10 of China, 11 of Taiwan, 20 of Japan, 31 of Germany, 17 of

France, 9 of Spain, 48 of the U.K. and 283 of the U.S. Interestingly only one Korean system has made the grade.

### **IISc's distinction**

The other Indian systems include an IBM eServer Blue Gene Solution of the Indian Institute of Science (IISc), with 18.7 teraflops sustained performance and 23 teraflops peak performance and ranked 58th, another HP Cluster of Tata-CRL with 1440 processors with 9.3 teraflops sustained performance and 15.4 teraflops peak performance and ranked 179th , and six IBM systems in various industrial enterprises, ranked 152nd, 158th, 336th, 339th, 340th and 371st respectively.

11.

Hello Delegate,

This is a Call for Participation in an INTERNATIONAL CONFERENCE OF NGOs(Non-Governmental Organizations) holding in London, United Kingdom, on 30th November to 10th December 2007, where as many as 200 participants from across the world including Health Practitioners, Professionals in

relevant fields, Lawyers, Psychologists, Women and Youth Development Groups, Government Officials, Donor Agencies and participating NGOs will meet to discuss issues pertaining to the Welfare of NGOs...and also to meet others like yourself; to learn, teach, inspire and being inspired.

This event will be exploring the potential of a practical approach that will unleash and nurture the human capacity to create, collaborate and change positively, the world at large.

What are the objectives of this meeting? The meeting will provide a medium where participating individuals and NGOs will convene to address and discuss ways of improving key Humanitarian issues and topics with much emphasis on Human Rights, Gender Equality, Peace and Security, Social and Economic Development, Youth and Children, Health Education, Ethics and Value and Environmental Protection. Participating NGOs will have direct access to grants by International Donor Agencies.

- Encouraging countries with a longer experience in implementing strategies.

The opening Lecture will be held by Dr.(Mrs.) Artemisia Franco who is the President of the Center for Human Rights Research and Development, Maputo - Mozambique. The program will include:

- \* Thought-provoking plenary
- \* In-depth breakout and dinner sessions for strategy-development
- \* Capacity and skills-building sessions; and
- \* Debates to stimulate discussion.

In addition to the main program, the meeting will also host book launches, artistic and cultural activities, exhibitions, plenty of space and opportunity for informal networking and alliance building. All plenary and selected breakout sessions will have interpretation into English, Spanish and French.

Who can participate? What happens if more than 200 participants apply? Anyone who is a member of an NGO, Professionals in related fields, Students Unions, Lecturers of Universities and Community based organizations, the Clergy as well as women and youth development groups can apply to participate.

If more than 200 people apply (as we anticipate), a global selection committee will select a representative 200 from among the applicants.

This committee will ensure that the participants at the meeting are truly international and represent a diverse range of interests, issues, and regions. The events will take place at Abba Queens Gate Hotel London.

I can't afford the cost - Can you help? Richard Dolls Foundation has set up an Access Fund to support the travel costs for all qualified participants. How do I apply, and when is the deadline? All Interested

Organizations should send an email to the Local Organizing Committee.

Participants MUST be a group of 1-3 persons to qualify for registration.

Contact Person: Rev. (Dr.) George Solomon

Email: richard\_dolls\_foundation@uymail.com

Regards,  
Local Organizing Committee  
Richard Dolls Foundation  
12.  
THE 2008 DESIGN RESEARCH SOCIETY  
INTERNATIONAL CONFERENCE

Sheffield, UK on 16-19 July 2008.

This is the last call for papers for the 2008 DRS conference:  
**UNDISCIPLINED!** Rigour in emerging design disciplines and  
professions

In the tradition of the DRS biennial conference series.  
**Undisciplined!** will be a broad-ranging event open to all  
topics and disciplines relevant to designing. Our conference  
theme will inform the choice of keynote speakers and we  
hope it will stimulate debate.

Learn more at the conference web site at URL:

<http://drs2008.designinquiry.wikispaces.net/>

The deadline for extended abstracts is 1 December 2007

For information updates, please join the conference  
announcement mail list at

<http://www.jiscmail.ac.uk/lists/DRS-CONFERENCE-CONTRIBUTORS.html>

### **Job Opening:**

1.

*O P Jindal Chair for Stainless Steel Product Innovation &  
Development at NID, India*

National Institute of Design, India invites applications or  
nominations for the O P Jindal Chair for Stainless Steel  
Product Innovation & Development from experienced and  
professionally qualified designers, educators, architects,  
and allied professionals from India/Overseas.  
O P Jindal Chair would act as catalysts for collaborative  
design research opportunities at NID supported by  
sponsoring industry /institution. The work carried out by  
the Chair usually focuses on the specific design  
development needs of the industry in particular and society  
at large

## **Eligibility**

Persons with at least 15 years of relevant experience having made a significant and tangible contribution and in the age group of 45-65 years in relevant sector in relation to Design Research, Product Development & Innovation . For details please visit NID website [www.nid.edu](http://www.nid.edu)

2.

Sansui Software has been changing the way that all kinds of printed materials are originated - from display ads and FSIs to marketing collateral and POS materials - letting publishers, printers and service providers improve customer services and at the same time slash operating costs.

PublishNow! OPEN is a major advance for web-based self-service publishing with a modular open architecture and a wide range of applications from newspaper advertising to retail marketing.

Forthcoming versions of this compelling application suite have nth degree customizable workflows, and flash based layout and editing tools.

**Required Senior Graphic Designer/Usability Engineer**  
We need a senior person to lead the design team, someone who can understand user requirements, create a design vision, present design concepts and strategy to the stakeholders in each application development team, then ideate and create a design strategy for each product, and build and lead a team of designers that will execute this vision.

### **Ideal Candidate Profile**

The ideal candidate is a graphic designer with over 8 years experience in graphic design, especially for the web. S/he would additionally require HCI/HFI training and must have demonstrable (via portfolio) skills in web based application design.

#### **Job Profile**

- Diagnose clients and users needs ?plan and conduct data gathering sessions
- Plan, design and conduct usability activities including user and task analysis, expert reviews, usability tests, competitive analyses, and standards.
- Identify insightful solutions to interface issues and design user interface structures independently

- Work with multiple project teams and manage multiple projects.
- Work closely with development teams
- Educate/train small group of fresh designers/usability engineers
- Assist in promoting and selling usability within organization and to outside clients
- Develop and cultivate an interest area in usability research
- Design/create visually appealing, highly usable, leading-edge, and intuitive web interfaces.
- Knowledge in human factors, look and feel, and design Proficiency with producing storyboards, wireframes and static HTML.
- Strong experience with design tools such as Photoshop, Fireworks, and Visio.
- Strong written and oral communication and presentation skills

#### Requirements

- Hands-on knowledge of a large range of usability processes. Proven ability to plan and conduct all usability activities.

- More than 8 years of experience designing different types of UI GUIs of Desktop Applications, and Web applications and familiarity with UI technologies is a must.
  - Must be able to design interfaces using various prototyping tools
  - Strong visual and communication design skills and a portfolio of work demonstrating the range of experience.
- Nice to have:

Familiarity with rich media tools such as Flash, Flex, Ajax Educational/ Qualification

A degree in graphic design, human computer interaction, human factors, industrial design or equivalent, combined experience preferred.

Contact Ranjan at sansuisoftware dot com or at nine eight two three two four three seven six eight(98234376), to take this further or to refer someone you know.

Sansui Software Pvt. Ltd.

3.

Versata (a subsidiary of Trilogy Inc.) is rapidly expanding in Bangalore, India, and are seeking Visual / Interaction designers for our HCI Practice.

You will be involved from concept to completion in designing new internet and intranet applications. This is a diverse position with many different design challenges. This position will include designing new and existing Internet applications that accurately reflect our client's goals, objectives and identities. The position also includes working with a distributed development network to ensure development of these properties, managing timelines and providing quality assurance for completed design work.

**Creative Skills**

§ A proven history (6+ years) of strong visual design and web development.

§ The ability to produce designs and prototypes on a tight timeline.

§ Experience creating interface specifications and defining user-based workflows.

**Concept / User Understanding / Usability Skills**

§ Experience with concept generation, needs analysis, and user-centric design.

§ An understanding of design principals and basic usability guidelines.

**Tool / Technology Skills**

§ Expertise with industry standard design tools (such as the Adobe suite of tools: Photoshop, Illustrator and Flash).

§ An understanding of basic web technologies such as HTML, JavaScript, and CSS.

**Project Management / Requirements Documentation Skills**

§ Must be able to work in a team setting, taking responsibility for basic project management tasks as it relates to design and development.

§ Experience defining & documenting project and design requirements; and working with remote teams to ensure work is completed.

§ Experience providing quality assurance on design and web development projects.

§ Ability to manage and mentor junior-grade design and development resources.

Interested candidates can send their profile to [ashwitha.naik@versata.com](mailto:ashwitha.naik@versata.com)

4.

Komli Media (<http://www.komli.com>) requires UI designers for creating a world class application in the online advertising space.

Detailed job description is at:

<http://www.komli.com/about/uid.php>

Komli Media is an early stage startup developing a range of exciting products for digital media.

PubMatic (<http://www.pubmatic.com>), a product of Komli, was selected by TechCrunch as a Top 40 Startup in the World. Nearly 750 startups from around the world applied for this honor, and PubMatic was lucky enough to be selected! This was announced at the TechCrunch40 conference in San Francisco, CA, a conference built to showcase these 40 top startups.

PubMatic in news:

<http://www.pubmatic.com/news/>

<http://www.pubmatic.com/publishers/success-stories.html>

We are venture backed by Draper Fisher Jurvetson, one of the leading names in venture capital. We maintain offices in Pune, Mumbai and Silicon Valley USA. Our management team is a set of executives with education at Harvard, Johns Hopkins, University of Pennsylvania, and IIT (India); and executive positions at Microsoft/MSN, McKinsey, SAP, and Symantec.

A little about our work culture - at Komli we are trying to build a great place to work and with your input can make it better. For example, Komli offers unlimited vacation (you know when you are ready to take a break, just get your work done). We also have a completely open door policy allowing anyone to interact with anyone in the company, and encourage suggestions from everyone to make us more productive, efficient, and fun. We expect every member of the team to help us go in new directions and do new things!

<http://www.flickr.com/photos/mukulneetika/sets/72157600216717817/detail/>

5.

I am looking for a consulting engineer for a small project of FEA analysis of a pressure vessel in plastics from a 3D CAD model Please contact on [mahesh\\_joglekar@yahoo.com](mailto:mahesh_joglekar@yahoo.com) Please indicate the analysis software you will use

6.

Proteans Software Solutions ([www.proteans.com](http://www.proteans.com)) one of the pioneer software product outsourcing and business application development company based in Bangalore.

Currently we have an immediate requirement of UI Professional who would be responsible for delivering world class products and will have a great career in Proteans.

**Profile Description – User Interface Engineer**

**Skills and Responsibilities:**

Will be working on Web and non-Web portal development .  
To assist the project management in estimating and planning the user experience effort.

To understand the user requirement for specific product domain with the help of various tools and methodologies ex. Contextual enquiry, Ethnography study, questionnaires and one to one interviews.

Applying user-centered design process to create high quality user experiences Setting product UI requirements based on business, user and brand needs Designing detailed user interaction models, workflows and user interfaces Creating prototypes and authoring detailed interaction specifications

**Qualification:**

Any Bachelor's or Master's degree, preferably in Engineering Masters in Computer Applications with Bachelor's degree in Mathematics or Computer Science . MBA degree or equivalent is a plus

**Mandatory Skills:**

- 1-2 years of experience in design of software products and applications.
- Knowledge of User research methods to understand user goals, tasks and taskflows.
  
- Ability to detail down interactions with his knowledge of Use cases, E-R and DFD diagrams.
- Ability to quick prototype with paper, power point, visio and other relevant design softwares.
- Good knowledge of graphic design principles and an impeccable aesthetic sense.
- Creativity.
- Excellent knowledge of user research and design methods
- Excellent communication skills.
- Familiarity AJAX and other Web 2.0 technologies

I'll be looking further to have discussions with you and would like to take things further. Please let me know if you need any more information about us.

Please feel to either mail me at [vaibhav.khare@proteans.com](mailto:vaibhav.khare@proteans.com)

or call me at +91 944 822 7288 to discuss more about the opportunity.

**Proteans Software Solutions**

ISO 9001:2000 Certified | Microsoft Gold Certified Partner |

Direct: +91-80-6618 6527 | Cell: +91 944 822 7288 |

TeleFax: 91-80-41217536 | Address: #30/3, Jakkasandra

1st block, Sarjapur main

Road, Bangalore-560034 |

[www.proteans.com](http://www.proteans.com)

Proteans is a leading Outsourced Product Development Company. We partner with ISVs and ASPs globally to help them architect, build, test, release and maintain software products

7.

MIH/ibibo Pvt Ltd is part of South African based multibillion- dollar global media conglomerate company called Nasper ( <http://www.naspers.com> ) . They have offices across the globe in US, China, Brazil, Russia, Netherlands, Thailand, Greece, Cyprus and India. In India they have different products under the umbrella called [www.ibibo.com](http://www.ibibo.com) . MIH/ibibo Pvt Ltd has a very good presence of 150 people in Gurgaon and Bangalore and has aggressive plans to grow bigger in India.

Attractions:

- MIH Web India is headed by its CEO (Ex-Google) and there are other senior people from Yahoo and Sify.
- Indian subsidiary of NASDAQ Listed MIH group, spread across continents
- High focus in Internet space
- Highly technical work
- Good technical leadership around
- Being a startup, offers tremendous growth opportunities
- BEST Salaries

Responsibilities

Design graphic interfaces and web pages for community products Create logos , icons and other visual symbols

Contribute to creating easier to use and more engaging user interfaces

Skills and Competencies

Mastery of graphic design packages such as Photoshop and of Flash Intimate understanding of Internet and mobile

applications, technologies and trends Avid user of online products Self-driven, innovative, motivated Comfortable working in flexible situations  
Qualifications and Experience  
Formal degree in graphic design with 2 – 5 years in designing of websites and web interfaces

Involvement in building and launching products, preferably in a consumer facing space

(More Jobs are available at our website [www.designforall.in](http://www.designforall.in))

For free Registration: write to  
[subscribe@designforall.in](mailto:subscribe@designforall.in)

**Write to us about change of e-mail address:**  
[address@designforall.in](mailto:address@designforall.in)

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

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Chief-Editor:

Dr .Sunil Kumar Bhatia Faculty Member,  
13, Lodhi Institutional Area, Lodhi Road,  
New Delhi-110003(INDIA)

Editor:

Shri L .K .Das

Prof& Head Industrial Design Center, Indian Institute of  
Technology (Delhi), India

Associate Editor:

Shri. Amitav Bhowmick Industrial Designer Small  
Industries Service Institute. Ministry of Small scale,  
Government Of India, Delhi (INDIA )

Editorial Board:

Mr. M.L .Dhawan

Mr. Pankaj Sharma

Mr. Pramod Chauhan

Special Correspondent:

Ms Nemisha Sharma

Mumbai, India

[Nemisha.17@hotmail.com](mailto:Nemisha.17@hotmail.com)

Contributors:

1. Ashley Vercoe <sup>1</sup>Industrial Design Student

Bryan Laffitte<sup>2</sup>, <sup>2</sup>Associate Professor of Industrial Design

**Dr.Sharon Joines<sup>3</sup>, PhD**

**<sup>3</sup>Assistant Professor of Industrial Design  
College of Design**

**North Carolina State University**

**<sup>3</sup>Assistant Professor of Industrial Design  
College of Design**

**North Carolina State University USA**

**2. Vishwas Morgure & Lalit Kumar Das**

**M. Des. Industrial Design, IIT Delhi 110016  
India**

**3. Kumud Jacob Lugun, M. Des. Industrial Design, IIT Delhi  
110016 , India**

**4. Asay Abebe Kassa, M. Des. Industrial Design, IIT Delhi  
110016 , India**

**5. Hamendra Singh ,M. Des. Industrial Design, IIT Delhi  
110016, India**

**6. Amruta.K.Ranade, M. Des. Industrial Design, IIT Delhi  
110016 India**

**7. Prof. Ricardo Gomes, Design Center for Global Needs  
San Francisco State University, USA**

**Address for Correspondence:**

**13, Lodhi Institutional Area,  
Lodhi Road, New Delhi-110 003 India.**

**Material appearing in this Newsletter may be freely  
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would be appreciated.**

**This Newsletter is published monthly, by Design for All  
Institute of India, 13 Lodhi Institutional Area , Lodhi Road,  
New**

**Delhi-110 003 (INDIA).**

**Tel: +91-11-27853470**

**E-Mail: [newsletter@designforall.in](mailto:newsletter@designforall.in)**

**Website:** [www.designforall.in](http://www.designforall.in)

**Cover Design:** Mr. Pudi Ravi ( [pudiravi@gmail.com](mailto:pudiravi@gmail.com) )