Universal design education in India; design challenge as design pedagogy

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Abstract. In last decade the Universal Design education is being experimented by educators all over the world and people tried different ways to teach the concept. Though it has become a worldwide movement today but it has demonstrated limited acceptance amongst architecture, planning and design schools in India. There are no specialized courses on universal design in the country, this is perhaps because the benefits of designing in a more inclusive way are not immediately apparent and also because there are many other pressing issues that require attention. The Center for Human Centric Research (CHCR) housed in School of Planning and Architecture Bhopal organizes an annual National Student Design Competition on Universal Design (NSDC-UD) together with a Hands-on Workshop and Exhibition, to explore creative ways to offer universal design to the students of diverse design disciplines in the country. The center has organized three such events since 2010, and the next is scheduled in 2014. The events provide an intense and experiential universal design understanding to the students. For educators they provide an opportunity to explore design competition as a pedagogical tool to meet educational objectives that the center is striving to include in academic curricula. The paper presents this annual academic event in brief and summarizes the lessons learnt for the contextual aptness of universal design teaching and learning.

Keywords. Design Pedagogy, Universal Design, Student Competition

Introduction

Universal Design was originally defined by Ron Mace [1] and since then the concept has been re-thought and re-defined by diverse writers around the world. Today, it is recognized that the goals of universal design must go beyond usability to address promotion of health and wellness and also the promotion of social participation for all citizens. ‘Universal design is concerned with more than just removal of barriers, it seeks to eliminate discrimination by design and support full participation for all members of society’ [2]. Unlike western countries where the concepts of accessibility and universal design originated, Indian disability is ingrained in poverty, rural life and social difference [3]. Furthermore in multicultural India rapid growth has taken place within the lifespan of only one or two generations. This has resulted in diverse challenging conditions. Also the different concepts related with design and disability (accessibility, assistive technology, universal design, etc.) have arrived almost together in India. For universal design to play an effective role, it needs to make itself relevant to diverse marginalized population in India, to be socially inclusive in Indian context [4]. Majority of the population lives in rural areas where built environment is either
unplanned or underdeveloped. The high density urban places are also challenging for elderly, people with disabilities and children. Today there is an utmost need to develop an optimum physical environment for everyone including people with functional limitations, backed by laws, using cost-effective indigenous solutions, using local materials and skills. Larger goals can be realized only if there are trained design professionals and researchers to develop innovative solutions to the problems. There is a tremendous need to have a holistic design education that addresses diversity and inclusiveness across the disciplines of Industrial Design, Architecture, Urban Design, Engineering, Transportation Planning, and Rural and Urban Planning [3].

Globally Universal Design has become a worldwide movement and Universal Design courses are found in universities all over the world [5],[6],[7]. These courses are offered as specialized courses as well as are infused into the regular design curriculum. They are taught as theory courses and are part of design studio exercises at various levels of undergraduate and postgraduate courses. There are various methods adopted for teaching as well: user involvement, evaluations, role plays, user centric studies and many more. With change in technology, today such courses are available online too. However, in India Universal Design Education finds little space in curriculum of design schools, as there is lesser awareness, weak government policies and lesser career opportunities to back universal design [4]. There are only a few efforts in universal design education and research, in architecture and design schools of India. In 2006, the Council of Architecture made it compulsory to include accessibility in the existing curriculum, yet most of the schools still not have a full course on accessibility not to mention Universal Design [8]. Centre for Human Centric Research (CHCR) at SPA-Bhopal is a multidisciplinary research centre that aims to bring awareness amongst budding architects and planners to respond to the needs of diverse human population otherwise marginalized in the past design practices, for collective socio-economic and socio-cultural development in the country. The center has organized user-centric studios, special lectures, workshops, exhibition on universal design and offers an elective on ‘Enabling Environments’. The current paper describes an annual academic event of CHCR ‘National Student Design Competition on Universal Design’. The center has organized three national competitions since 2010 and fourth one planned in October 2013. This academic event has a large impact and significant presence in academia and industry.
1. The design challenge: national student design competition on universal design (nsdc-ud)

As a subject in schools of architecture and design, accessibility and, by extension, Universal Design, are often far less glamorous than other technical subjects [4],[9] thus it gets difficult to motivate students to take it as a subject of study. This attitudinal barrier makes it difficult to implement Universal Design Education in sustainable and effective way in an otherwise elitist and fashionable profession. Many teachers of universal design around the world have had to put more effort into promoting the subject than those who teach more traditional aspects of architecture and design [5]. The School of Planning and Architecture (SPA), Bhopal, an autonomous institution of Ministry of Human Resource and Development, Government of India, is committed to produce socially responsible architects and planners and thus has embraced Universal Design as one of its priority research areas. Center for Human Centric Research in School of Planning and Architecture Bhopal organizes an annual event of National Student Design Competition on Universal Design together with a Hands-on Workshop to explore an alternative method for teaching universal design and to accomplish student motivation for the subject. The school also takes this universal design event as an opportunity to explore Student Design Competition as a pedagogical tool to meet educational objectives that the school is striving to include in academic curricula. The overall objectives of the annual competitions are to:

- Create awareness about ‘Universal Design’ amongst budding architects, planners and design professionals to support social sustenance
- Provide hands-on experience to understand practical application of Universal Design to design Inclusive built-environment for everyone including people with functional limitations
- Develop contextual design examples through intense Universal Design Education
- Learn about Universal Design education, teaching and practice

The students are encouraged to think beyond the traditional practice of designing for an able bodied standard user, and design for real life diverse users with and without functional limitations. Though the clients are involved at every stage to give feedback and final evaluation, the competitions has pure academic purposes and lessons learnt are shared amongst all stake holders. The annual event consists of three related components:

- Universal Design Competition for architecture and design students of the whole country
- Universal Design Competition Judgment with Hands-on Universal Design Workshop for all those students who participate in the Competition
- Public Exhibition of Universal Design Competition Entries for students, professionals and all other stake holders

The Competitions are launched about six months before the hands-on workshop and the posters inviting participation are sent to all architecture and design schools in India. The competitions are further advertised in many other different forums in
collaboration with National Organizations. The focus of the competitions is to understand diversity of human beings across age, sex, size, abilities and conditions, and to accommodate them as much as possible to create an environment in which no one is unfairly excluded. Teams consisting of maximum four students from undergraduate degree/diploma granting colleges in India are invited to participate from the disciplines of architecture, engineering, environmental design, industrial design, interior design, landscape architecture, urban design and urban and regional planning. Multidisciplinary teams are strongly encouraged to participate.

1.1. Universal Design Competition

The competitions are launched with flexibility to the students to take part in the competition either on their own, or to do it as studio exercise in their respective colleges with a faculty advisor. Posters are printed introducing the concept of universal design and with the competition brief. This is sent to all schools together with a web link with all resource material on Universal Design. Blogs and e-groups are prepared for virtual interaction during the competition, where Universal Design experts are available to answer all queries of the students. The resource material with list of books, articles, websites and other online material are sent to all schools, as well as, are available on the organizing institutes’ websites and the competition blog. This helps students to make this competition an informed attempt. The competition brief states the site conditions, byelaws, design program, submission requirements and the judging criteria. The registered teams are coded to maintain anonymity and remove bias in the evaluation stage. The evaluations are done in two stages, in first stage, expert team shortlists the design entries and at second stage, all shortlisted teams with their faculty mentors are invited to present for the final evaluation of the competition.

Figure 1. Participating Students NSDC-2012-Universal Design for Exploring World Heritage Sites in India
1.2. Hands-on Universal Design Workshop with Universal Design Competition Judgment

Three day Universal Design Hands-on Workshop is planned as culmination for every Universal Design Competition where all student teams and expert team meet for a larger interaction. The final evaluation of the competition is clubbed with this hands-on workshop. Participant students, faculty advisors and interested students from the home college make a highly motivated and informed audience for the workshop. Universal design experts and representative members of all stake holders are invited for the evaluation and hands-on workshop. The workshop consists of hands-on exercises conducted by universal design experts those use simulations, user involvements, environmental observations and group discussions to generate contextual understanding for Indian users. An open evaluation is held for the competition on the 2nd day of the workshop. The jury consists of academicians, researchers and practicing architects. Though entries are evaluated following the prescribed criteria, but it is not the product that is important for the judges but overall understanding and application of the concept.

Figure 2. Hands on Workshop of NSDC-2012-Student Teams Interacting with Stakeholders to attempt Universal Design for World Heritage Site ‘The Great Stupa’ at Sanchi in India

Figure 3. The Winning Design (SPA, Delhi) of NSDC-2012-Universal Design Intervention (Entree Ticket and Interactive umbrella) for World Heritage Site ‘The Humanyun’s Tomb’ at Delhi in India
1.3. Public Exhibition of Universal Design Competition Entries

All Universal Design competition entries are displayed as public exhibition for professionals and students during and after the workshops. This helps in further dissemination of the universal design concept. Film-shows, expert addresses, cultural programs and other informal events are organized by people with and without limitations together on a platform to further the ‘inclusion’ agenda and inspire the participants.

Till now the school has organized three competitions and received overwhelming participation from all over the country. The first NSDC was organized in 2010 with Universal Access as main focus with a model building development on a live site. The host institute received very good response for this competition with a grand welcome of the new idea of Universal Design. The second NSDC in 2011 experimented with a more accepted idea of Environmental Sustenance as main focus and Universal Design as an important component of value addition. The response to this was tremendous with five times more impact than the first NSDC (please refer figure-5). The third NSDC was organized in 2012 with an added challenge of designing in World Heritage Sites in India, in this the focus was Universal Design Principles [10] and Universal Design India Principles [11]. For this the students attempted design interventions in one of the twenty two the protected world heritage sites in India (cultural). World heritage sites gave an extra edge to the competition with an opportunity to showcase universal design sensibilities on a globally recognized forum. The next NSDC planned in 2013 would bring focus back on ‘special user groups’ with Universal Design for second largest Indian elderly population in the world. The intent is to sensitize designers and develop contextual solutions for inclusion of Indian elderly in existing urban and rural settings.

![Figure4. Public Exhibitions of the Design Entries during NSDC-2012 and NSDC-2010](image-url)
Table 1. Details of National Student Design Competitions on Universal Design (NSDC-UD)

<table>
<thead>
<tr>
<th>NSD C-Year</th>
<th>Main Theme/ Subtheme</th>
<th>Collaborators</th>
<th>Total No. of Registrations</th>
<th>Total No. of Participant Institutes</th>
<th>Total No. of Entries Received</th>
<th>Impact outside SPA Bhopal</th>
<th>Impact within SPA Bhopal</th>
<th>Total No. of Prize Winners</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSD C-I-2010</td>
<td>UD/DFA</td>
<td>National Centre for Orthopaedically Handicapped</td>
<td>75</td>
<td>49</td>
<td>27</td>
<td>300</td>
<td>83</td>
<td>2</td>
</tr>
<tr>
<td>NSD C-II-2011</td>
<td>Nature and Buildings/ UD</td>
<td>M.P. Government Ecotourism Board</td>
<td>261</td>
<td>63</td>
<td>64</td>
<td>1044</td>
<td>145</td>
<td>4</td>
</tr>
<tr>
<td>NSD C-III-2012</td>
<td>UD/ World Heritage Sites</td>
<td>Archaeological survey of India by ASI, DRONAH and UNESCO</td>
<td>171</td>
<td>48</td>
<td>56</td>
<td>684</td>
<td>128</td>
<td>6</td>
</tr>
<tr>
<td>NSD C-IV-2013</td>
<td>UD/ Cultural Interface in Pilgrimage Sites</td>
<td>Berkeley Prize, DRONAH and UNESCO</td>
<td>Upcoming</td>
<td></td>
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2. Conclusion

The National Student Design Competitions on Universal Design are incredible learning experiences for students, faculty members, center for human centric research and SPA-Bhopal (please refer Table 1). The exciting three days of the UD workshops transforms the school campus with positive energy of young minds in a way that no other academic course does. The annual event brings many disciplines together fading boundaries that help to break stigma about disability and special needs in design education. When combined with other subthemes in 2011 and 2012, it was not only taken up in accessibility/universal design class but also in design, sustainability and heritage conservation studios. Though there are countless achievements from the
events, lessons from Universal Design Learning Universal Design Teaching are listed below,

2.1. Universal Design Learning

Students go through the reading material and on-line links provided to them during the competitions to understand the universal design concept. They do extensive pre-design research and undertake case-studies to better know the challenges and needs of persons with disabilities. They explore universal design concept with their young, unbiased and Indian minds that reflect in their design solutions and this is a big learning in itself.

- The students interpret universal design as an expanded concept and link it with the values of good design.
- When universal access is presented as a challenge, they do not take it as a constraint but as an opportunity.
- They not only make functional designs but are also creative and innovative in their design solutions.
- They do not compromise with the form development in the name of accessibility, and make aesthetically appealing design solutions.
- Students make design solutions inspired by Indian traditions rather than adopting universal design as it is from west.
- With universal design challenge transformed into design expression, they get to explore a world that they have never experienced before.
- Students raise contextual and systemic socio-economic issues in their interactions and discussions, which show their concern and quest to explore universal design concept for real life application in India.

2.2. Universal Design Teaching

Accessibility in India is not a very sought after academic course. It is still absent in most of the universities and so is the universal design [12]. When present, it has to compete with other flashy courses of otherwise fashionable and elitist profession. NSDCs present an intense and enjoyable opportunity to introduce universal design to students of various design disciplines. In the design competitions universal design is presented to the future designers in a creative way, which is full of positive energy, and at the same time is informal, easy, challenging, interactive, fun and compatible with their design training in their respective schools. The aim of the competitions is not to achieve a specific design solution but rather generate an experience that would inspire their overall design thinking. Lessons learnt for universal design education are:

- In India, we are passing through a ‘developmental chaos’, and to fairly distribute the fruits of development it is essential to develop a design education that supports a sensitive approach to design that meets the needs of all intended users irrespective of age, ability, gender, class, caste, religion, poverty, urban/rural background.
- It is important to remove attitudinal barriers to promote universal design in India and it is best done in formative years of design education.
- Training for ‘universal design’ is better done as ‘designing for diversity’ in an academic course, where diversity is of value in itself and should be redefined in Indian context.
- Engagement of users in design at various levels is the best strategy for teaching universal design that rarely fails in any context.
- When universal design is taught together with other well established concepts in design education like sustainability or social needs, it becomes very popular.
- With a higher degree of challenge and opportunity for innovation, universal design concept has reached across the nation through NSDCs. It is accepted by design students even when it is not a part of their curriculum and they don’t not receive any academic credit for it.

**Discussion**

National Student Design competition (NSDC) on Universal Design proves to be a successful alternative method for teaching a new concept to the design students, which is not available as regular academic course in their respective institutions. The challenges set in the design competitions are extremely motivating for the students, and interaction with peers and experts generate a high positive energy and supportive environment that lead to the acceptance of the new concept of universal design without inhibition.

‘A design competition gives younger students a chance to "taste the dessert first" while they work their way through the demands of the curriculum’ [13]. Live sites in NSDC and opportunities to meet clients, users and all stakeholders present real life challenges, and lead discussions about the real life applications of the concept. For School of Planning and Architecture Bhopal, every competition becomes an enriching and insightful experience that has continuing effects, many students at SPA-Bhopal undertook universal design as seminar topics, universal design as part of their regular studios, and universal design concentration at undergraduate final year projects after the events. The school started a full time elective on ‘Enabling Environments’ at master’s level. The school also has published topical issue of SPANDREL (SPA Journal) on ‘Social Sustenance’ focusing design for social diversity and social equity [15].

‘The operation of a design competition stimulates the workplace in ways no course can, putting students up against the best other schools can offer, and making teamwork and organizational skill not just important, but critical. As you consider ways to improve your curriculum, consider sponsoring a design competition team – it's quite rewarding’ [13], [14].

The National Student Design Competitions (NSDC) on Universal Design have a nation-wide impact and past events proved milestones in universal design education in the country. Participation of multidisciplinary, multilevel student teams from multiple regions in the country lead to a contextual understanding and an enriched interaction about the subject. The National Student Design Competitions also proves to be a
successful pedagogical tool to teach Universal Design that SPA-Bhopal has embraced in its charter, and is determined to include in academic curricula of architecture education.

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References