Creating Digital Learning Environment for Design in India – Experiences in Institutional Collaboration for Content Generation

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Abstract. The paper presents institutional experiences between three higher educational institutions of national excellence in India who were collaborating in the creation of a digital learning environment for Design in India undertaken under as a project under the Government of India funded project 'National Mission in Education - through Information Communication Technology' (NME-ICT).

Keywords: National Mission Project in Education · Design education · e-Learning · Higher educational institutions in India

1 Introduction

To face the challenges of the emergent knowledge economy, the Ministry of Human Resource Development (MHRD), Government of India, brought focus on the education sector into a national mission mode in early 2009. It formed an expert committee to formulate the broad framework for reforms necessary for the education sector and announced the 'National Mission Project in Education through Information Communication Technology' (NME-ICT). The objectives of this project were to be met by developing suitable pedagogical methods of various classes, intellectual calibers and research in e-learning and outline curriculum for the different knowledge in a systematic and unambiguous manner following well established pedagogical principles.

The committee laid out guidelines and invited leading Higher Education Institutions (HEI) to participate in development of courseware by proposing the following terms of reference:

1. It outlined the composition of the course design and development team and methodology to be followed.
2. Course content was to be delivered through a dedicated web portal specifically developed for this purpose.

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3. The inclusion of faculty members from partner institutions was strongly recommended.
4. Deliverables expected of the course team was articulated under the heads related to:
   - Curriculum Design activities.
   - Curriculum Development activities.

The learning out-comes was based on specifications and guidelines outlined in the Washington International Accord on Education.

This paper presents the outcome of one such project undertaken under the NME-ICT project. It focused on the domain of Design Education in India, the contents of which are available on an e-learning platform called D'source (http://www.dsource.in). Its relevance must be considered in the context of the current status of Design education in India and the importance of the need for such an online platform in design learning for prospective learners. It envisaged that it would add value to design education and contribute to the growing demands of the creative industry in India.

2 The Case for Creating Digital Learning Environment for Design Training in India

2.1 Design and the Creative Industry in India – Some Facts

The India Design Report 2011 published by the Confederation of Indian Industry (1), highlights an overview of the evolving nature of opportunities amongst various sectors of Indian Industry. The services extended by creative industries in India include visual communication design, product/industrial design, digital and multimedia design and needs of the vast social sector.

Leading Indian industrial houses meet their needs by sourcing in-house design talent, of design firms from abroad or from amongst these freelance design firms located in metro cities. There is increasing acceptance amongst Indian industry that investment in good design means good business. However the vast MSME sector in India still offers a vast potential for design intervention and needs design services to make them competitive.

The acceptance of Design as a contributor for industrial growth is reflected in the setting up of the India Design Council (IDC). The Government of India (GoI) has now put in place a National Design Policy document and a plan towards its implementation. Design Education forms an important focus in the National Design Policy. IDC has instituted the India Design Mark as a symbol of Good Design. Over the last few years there is seen an increasing trend in Indian manufacturers seeking recognitions for the India Design mark for their products.

2.2 Design Education and Professional Designers

Till early Nineties the National Institute of Design in Ahmedabad and the Industrial Design Centre, IIT Bombay in Mumbai were the only two leading Design schools in

India. In the three decades since then, there are nearly 30 Design Schools and over 100 commercial art colleges in India that offer different domains of specialization. The number of professional designers, around 8,000 in number, is still very small. This number is expected to grow exponentially in the next few years. It is probable that India will have over 200 design colleges by 2025 and over 1000 by 2030. Clearly making a case for supplementing training inputs through alternate channels such as ICT enabled synchronous and asynchronous modes of e-education.

To bridge the wide gap in knowledge dissemination in the design education domain, three of the leading institutions viz. National Institute of Design (NID) through its Bengaluru Centre; the Industrial Design Centre, IIT Bombay at Mumbai and the Department of Design, IIT Guwahati located at Guwahati in Assam came together to form a collaborative alliance and share its wide learning experience in Design Education. Geographically these institutions are located in South, West and North East region of the country. It was agreed that each Centre would act as the coordinating lead institute at each of these geographical locations and invite associate institutes to share their courseware in its efforts to generate content planned for the diversity of this ambitious pan-Indian coverage.

3 Planning the Design Content for the e-Learning Platform

The term 'Design', has over the past years, gathered many dimensions and definitions within the folds of its discourse. Considering that the nature of the profession has evolved to be multi-disciplinary and inclusive of a number of new fields of expertise, the plan for generation of content for on-line learning has necessarily to be broad based and divergent in terms of content. The need for an approach to introduce the concepts and approaches in 'Design Thinking' is articulated in the recently published Design Manifesto (2), which suggests that with inter-discipline convergence as the new paradigm, there is an urgent need for an introduction to the design thinking across various educational streams.

'...An interrogation and re-imagining of academic processes and structures, curriculum and pedagogy for enriching the existing design departments as well as the engineering, sciences, architecture, humanities and management streams within Centrally Funded Technical Institutions (CFTIs)'.

The aim and objectives of on-line education platform in design should therefore attempt to complement and enhance learning that these centers of learning offer and should at the same time meet the national objectives.

Drawing from the Design Manifesto, it was decided that the design content required highly porous boundaries between established disciplines and design, and the content should aim to position design thinking as a cognitive process central to all disciplines.

3.1 Statement of Objectives

The overall objective outlined amongst the collaborating partners was the creation and development of new learning environments related to Design that would provide

greater access and enhancement to acquisition of critical knowledge, skills, and abilities for economic and social development in our country.

These initiatives will be based on the use of information and communications technology in the development of digital online content for learning Design with distance e-Learning programs on Design.

The main activities under this heading would be to:

a. Create online content for design learning through documentation of lectures, design exercises, design explorations, problem solving activities, and design process and design projects.
b. Create systems for online learning through distance education using suitable medium of instruction and ensure that the distance learning and dissemination of knowledge could be thorough the Internet with access to many media formats – video, documents, etc.

The dissemination could also be through synchronous live transmission of lectures, case studies and briefings through satellite TV transmission mode.

The content creation would be a joint initiative taken by co-ordination amongst the three partner institutes who would draw out a plan of action for carrying out the project activities.

3.2 Social Networking for Higher Learning with Collaborative Learning Space for Design for Synchronous and Asynchronous Interaction

The benefits of collaborative learning that can be expected from the use of group work are widely known but rarely practiced. These are academic, social, and psychological in nature and include factors such as building self-esteem, reducing anxiety, encouraging understanding of diversity, fostering relationships, and stimulating critical thinking.

The Internet seems to provide an ideal environment for exploring new forms of collaborative learning. The project aimed to research, experiment and build an online collaborative environment for learning applications on the net applicable for design learning.

The main activities under this heading were to:

a. Create a social networking platform for design learning that should have the potentials to get students interested in creating and building an environment for exchange of information with respect to design learning.
b. Create a collaborative space for both Synchronous and well as Asynchronous design learning that could be used to create problem-solving topics with both the teacher to students, students to students and teachers to other teachers being able to interact collaboratively.

3.3 Digital Design Resource Database Including the Craft Sector

The main activities under this heading were to:

a. Create systems for the documentation of existing knowledge of design and crafts both in the formal as well as in the informal sector. The documentation was planned to be through video, photos, documentaries, interviews, case studies, sketches, digital mappings, etc.
b. Create access to digital design resource database that will make information available to more numbers of people located in different places as well as enabling the access of this information at different times. Termed as a "virtual" or "digital" design resource database, this will have the capacity to allow the user access to information in multiple formats and media, independent of their physical location or ownership. In an efficient way it could help in the transformation, the generation, the storage, the dissemination and the management of knowledge.

4 Methodology

Prof. Ravi Pooviah as the Principal Project Head outlined and submitted the project proposal to the NME-ICT. Prof. Ravi Mokashi Punekar as center coordinator from the Department of Design, IIT Guwahati and Prof. Bibudatta Baral as the center coordinator from the National Institute of Design, Bangalore center joined as participating members of the partner institutions. Budget outlay proposed included salaries for project and administrative staff to be engaged on the project; space requirements; Equipment including video, photography and computers required for setting up the e-kalpa labs for each center. In addition the running costs and institute overheads were also factored in.

It was agreed that the administrative center for managing the web portal and integrating the contents submitted by the three centers would be the responsibility of the Industrial Design Centre. A common template for submission of content including visual documentation was agreed upon. Creative freedom was built into the approach to the study, based on the nature of the course content and diversity of the subject to be covered. It was agreed that the content should have a pan-Indian coverage. This would help to cover subjects that typify the rich diversity that is India.

Each center was free to build its own team and engage resource people and subject experts to cover the diverse domain of design including product design/industrial design; basic design; visual communication and new media; human factors; design methods; design management etc. Studies in craft documentation would be field study based with emphasis of documentation of the community of craftsmen, their making process, study of design elements etc.

Each center coordinator will build a network with other professional institutions, designers/subject experts from the region and be responsible in planning, execution and delivery of content. All contents will be sent to the e-kalpa lab at the Industrial Design Centre where it will be suitably adapted for uploading on the website to be created and administered. The web site was named www.dsource.in.

5 Results

The collaboration between the three partnering institutes has resulted in a unique collection of pan-Indian Design learning content being made available on an open platform at the web portal www.dsource.in. Presented below are specimen screen shots of the portal (Fig. 1).

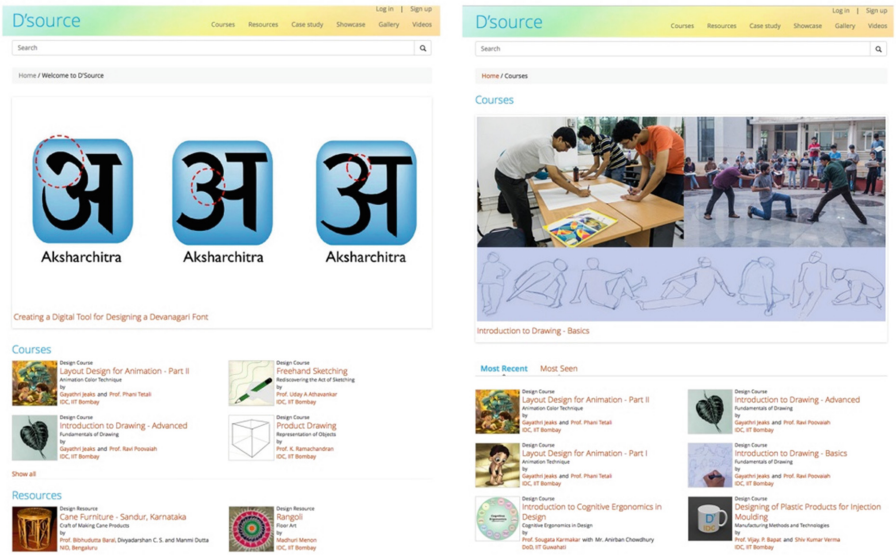

Fig. 1. Screen shots from the site www.dsource.in

Nearly 15 subject experts, 25 faculty members, 30 project staff, 50 Design graduate students, 85 ongoing students from the undergraduate and graduate program and nearly 150 craftsmen have contributed content available on this website.

The content generated with an 'India Centric' focus is reflected in all its rich diversity of content categorized under the heads:

Courses: 85 courses have been developed in the form of modules from the domains of Design fundamentals (12 Courses), Graphic/Communication design (15 Courses), Animation design (28) courses), Product design (13 courses), Interaction Design, (7 courses), Design related other subjects (10 courses).

Resources: 235 field based documentation of the living traditions of handicraft and handloom practices of India have been documented making it one of the rich online visual inventories available on the subject.

Case Study: 85 design projects and experiments in creative learning undertaken by design students and faculty have been documented highlighting the design methodology followed in creative problem identification and solution seeking. The viewer gets

an idea of the engagements and pre-occupations of design interventions that occupy the cross section of Indian designers and its relevance to the Indian society at large.

Showcase: 15 field based documentation of professional practice and entrepreneurship of Indian Designers work and their professional experiences in the field showcase the challenges and success of professional work offered to the creative industry in India.

Gallery: 600 different subjects, each containing 12 photographic images each with supporting descriptions has been generated through crowd sourcing. It captures the rich visual diversity of the land and the visual sensibilities of its people in every day life surroundings.

Videos: 45 video presentations capture impressions and inputs of various people and personalities, methods and process, tools and design assignments as live demonstrations are presented in this section.

The web portal was launched nearly 30 months ago. Nearly 45.0 gigabytes of content has been uploaded on this site. Analytics indicate that the site receives nearly 12000 page views per day, 300000 page views per month. It has 30 % return viewers. The website is visited by both national (68 %) and international (32 %) end users.

6 Institutional Collaborations for Content Generation – Some Insights and Conclusions

The success of the project is reflected in the increased awareness to Design reflected amongst prospective students who apply for admissions to the various design schools. Most of them have visited the site. A national level admission test is being administered amongst the design schools called (UCEED) for undergraduate admissions and (CEED) for graduate studies admissions. The number of applicants to these programs has significantly increased reflecting increased awareness amongst the applicants to the opportunities in pursuing Design profession as a career choice.

There is a steady flow of e-mail enquiries requesting for contact of the craft clusters for prospective business. These include exporters and inland retailers. This points to opportunities amongst crafts community for better returns to their craft.

Nearly 50 faculty members amongst the different design schools refer to the content on this site for teaching. The content is used for short training/awareness programs for industry professionals/executives. It is being showcased during national and international conferences and exhibitions.

The project outcome has received a very positive response from the MHRD who have now approved that this project should be further scaled up and the work continued during the second phase up to year ending 2017.

There is also need for critical review at this stage for identification of some course correction in the approach undertaken so far and future directions to be pursued. The medium of communication is all in the English language. This is both strength and a weakness. Firstly the reach is global and large international and national audiences who speak English have access to the content and benefit from it. But India is a land with nearly 23 official languages. Imagine if the medium of communication can be made

available in all the Indian languages, the impact and reach it can ascertain. It will be phenomenal and this needs to be done. Following conventions of a standard educational model the courses can now be regrouped and formed into domain specializations. Assignment sand a model of assessment needs to be aimed for. This will enable possibilities of offering recognition to new educational program through on-line courses. In the next phase there will be a need to aim for a balance between the subject content for each domain of specialization.

The broad contours of the present contents and their coverage is perhaps one of its kinds in the world that has been initiated and offered through a national mission intervention of a nation state.

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