

Creating the Unknowable: Designing the Future in Education

M P Ranjan

National Institute of Design
Paldi, Ahmedabad, INDIA
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Abstract

Design has changed rapidly in recent years. So have its agenda and manifesto for education. Dealing with layers of complexity in a mandate to surge beyond the production of products and systems to include the economic, ecological, and the spiritual. This new form of design is not as sharply defined in its deliverables by the once accepted parameters of aesthetics and function of the products that it produced for the marketplace. Today it has literally jumped out of its flimsy skin to locate itself in an impossible space between a rich context and the user groups and their environment that it hopes to serve. Our attention thus shifts from the artifact to the interface and further to the effect that it has on the future itself.

These concerns led to the experimental development of teaching design processes and design thinking through a modified course that has evolved over many years. The complexities at hand are daunting in a developing economy. Most forms of problem solving are placed in the hands of the specialists in all walks of life, a legacy of the entrenched scientific management tradition. The need therefore for a broad based approach to design education was perceived by the group of teachers as a critical need. The Design Methods course went through a series of transformations over a ten-year period to be re-christened as Design Concepts and Concerns in an attempt to match the real world complexity with the delivery of this course. Having made the journey over this extended period of time it is perhaps time to reflect and to try and articulate the lessons that have been gleaned, a sort of research through design.

That Design as a process of informed synthesis became the hallmark of this course and the assignments that were invented and developed drew heavily on situated learning from the real world followed by the articulation of models, diagrams and scenario visualisations that could match the complexity of the real world situations in a manner that could be comprehended by the individual and the group. It is the belief of the author that the power of design lies in visualising the future, the unknowable, through the process of open-ended context driven investigations that are layered with the heightened visualisation abilities in design education situations. The ability to feel, to see, to discover, to think, to build and model, communicate and to evaluate form the core of design learning and this course includes all these stages in a structured set of learning situations that builds deep understanding and champions.

This research reflection and consequent paper will look back over the evolution of this course and share cases and findings on the validity of the assignments that have been developed to bring team learning and visualisation of systems complexity to the heart of the design process while being in contact with the real world. This would therefore be in line with the conference title, Design systems Evolution.

Keywords

Design, Design Methods, Design Visualisation, Design Ideology, Design Pedagogy, Design Education, Design Synthesis, Design Process, Design Concepts & Concerns, Design Foundation, Basic Design Education, Design Philosophy, Design in India.

Background

The National Institute of Design was set up in 1961 through a vision report written by the legendary Charles and Ray Eames in 1958 at the request of the Government of India. The early years of the Institute was spent in setting up its facilities at Ahmedabad and in training its faculty in a number of disciplines with the help of international design consultants drawn from many fields. In the sixties the Institute started programmes in Architecture, Visual Communications, Industrial Design and Textile Design at the post-graduate level and many of these students joined the faculty as its first Indian teachers. Its undergraduate programme was started in 1970 with the setting up of the Foundation Programme for the School Leavers Professional Education Programme in Design. The one and half year Foundation was built up of programmes and curriculum drawn from the Bauhaus and Hfg Ulm besides inputs derived from the work of Graphic Design schools in Switzerland and France as well as from schools of thought from Finland, UK and the USA, each influenced by the particular expert consultants who had visited NID from those countries. Over the first ten years over 100 visiting designers, architects, artists and technologists interacted with the NID faculty interns and the specific influences of each one may be difficult to decipher without a greatly detailed investigation of each of these programmes and their outcomes. The NID Documentation 1964 to 1969 includes a full list of these consultants and the areas of their contribution at NID. This paper looks at the development of one particular course called Design Methods or Design Process.

The Design Process course was being offered in the Product Design stream and it was found useful for inclusion in the Foundation programme. This course was called by various titles namely: Design Methods, Design Methodology or Design Process, depending on who was teaching the course at that time. This paper touches upon the developments of this particular course at NID from its early roots in the Hfg Ulm programme and from the heritage of basic design at the Bauhaus that were adopted at NID just as it was absorbed by many design schools around the world. The transformations that were carried out in the early decades of NIDs' experimentation with design education included numerous innovations introduced by the NID faculty which were introduced due to the pressures of keeping the programme relevant to the Indian context. The impact was felt mainly in the area of Problem Solving Processes in design (design action) and not as much in the abstract assignments that dealt with form, structure, history and aesthetics (design theory). The Product Design programmes were modeled after the Hfg Ulm curriculum, which was formulated by Hans Gugelot, faculty from the Hfg Ulm who visited NID and subsequently implemented by NID faculty Prof. H K Vyas who were deputed to the Hfg Ulm for intensive training just before the first educational programme was offered at NID. The other major stream of Visual Communication Design was strongly influenced by inputs by Armin Hofmann from the Allgemeine Gewerbeschule in Basle, Switzerland. In the seventies the teachers for the NID foundation programme that included Design Process courses were drawn from the Industrial Design, Visual Communication and Textile Design faculties and the course introduced design theory and included a mini-project to be done by each student. Through these projects the students were expected to internalize various methodologies introduced in the course. This format continued for many years with a few teachers being involved in teaching the theory whilst the rest of the faculty kept some distance from the theory teaching activities, all being steeped in a strongly practice oriented work environment.

Basic Design & Design Methods

In the mid-seventies the Foundation Programme saw a spurt of creative developments in curriculum and many faculty reviews leading to changes in the programme. From a scientific focus that had its roots in Hfg Ulm our programme took on an environmental focus with the introduction of several new courses such as Environmental Perception and Rural Exposure for Foundation students. The Design Process course too metamorphosed to have an environmental bias in its approach to identifying design tasks and the air was thick with thoughts and ideological rhetoric about social good and the value orientation of design for development in India. The decade of the seventies culminated with the holding of the first ever

UNIDO-ICSID conference on design for Development, which resulted in the release of several white papers on design, and the now famous Ahmedabad Declaration on Design for Development. Victor Papanek's visit to NID and his book "Design for the Real World" was hotly debated on campus as was Stafford Beers' "Platform for Change" and there was a visible difference in the quality and content of projects undertaken by NID students immediately thereafter, particularly in the Design Process class and in the Diploma Projects done at NID. This brought in awareness for looking at local indigenous opportunities for design in India and to the introduction of new courses such as the Crafts documentation course in the Textile discipline, which was later, followed in Product Design and Furniture Design. At the Foundation level the Rural Exposure took root as a core input for design students at NID. While there was much talk about Social Communication in the Graphic Design streams most professional projects continued to be corporate driven with a large number of identity design projects and exhibition design projects being undertaken by the Visual Communications faculty with active student involvement. The climate for Industrial Design was however very bleak due to the very protected nature of the Indian economy till the late eighties when the winds of liberalization impacted Indian economic policy. During this period the faculty continued to do active work in design for development while working with Government and Non Government agencies in the crafts, rural and the small-scale industry sectors as well as the small but effective textile & garment exports sectors. New opportunities were discovered for the use of design skills in India and these in turn influenced the course of design education in many ways. While there are no publications that adequately cover the experiments of this era the only record that is available at NID are the detailed discussions of the faculty in their bi-annual Faculty Forum meetings that are held before the beginning of each semester starting from the winter of 1976. My personal notes of these discussions are a rich source of information about these deliberations spanning over 26 years. Such internal discussions had a strong impact on the directions taken in education at many levels and it certainly influenced the direction taken by my courses, particularly the course called Design Process that is the subject of this paper.

I started teaching the Design Methods course in the classical format in the early eighties along with a number of teaching colleagues and we continued to carry out incremental changes as new experiences were assimilated and with critiques and feedback from other colleagues at NID. Key resources used in those days were drawn from the works of Prof Bruce Archer of the RCA, Prof John Chris Jones through his book "Design Methods and the works of Prof Christopher Alexander, all of which deeply influenced the directions and content of the course at NID in this period. In the early nineties came the digital debate which rages on till this day. Proponents of both analogue and the digital range themselves on either side on the design education's future directions, particularly at the Foundation programme level. With this came the consciousness of the user-centric methodologies that began to have a direct impact on our design processes into the late nineties and beyond. Participation in the invited Apple Design projects in 1995 and '96 brought home the need to understand usability and the role of the Interface in enhancing the effect of design on products and systems to be used by human users. At this time the Indian economy showed signs of opening up to real market competition for the first time since Independence and the anticipated need for design became real in a few sectors such as consumer products and the garment exports sectors, to name a couple of critical sectors where the use of design by industry grew exponentially in the late nineties. It was through these major transformations of the Indian economy that we must see the changes that took place within this formative course at NID and eventually all disciplines at NID accepted the need for such inputs into the design curriculum and the course was included as a core subject for all the Post Graduate programmes offered at NID. It was apparent to the course teachers that the classical course in Design Methods would need to be quite drastically revised if it were to meet the needs that were becoming apparent through the insights that were gleaned from internal discussions and new concerns that were being perceived through our industry interface and through management literature on global trends and strategies being adopted by international players to face the severe competition and rapid global change. The nineties saw rapid changes in industrial and economic liberalisation in India and I was fortunate to be heading NID's consulting division from 1981 to 1991 and therefore directly in touch with Indian industry on a daily basis through the four hundred major projects that were managed by my office in those days. The insights

from this experience too contributed to the shift in perceptions on pedagogic content and methods in my classes at NID. Although it has a bearing on the shaping of the Design Methods course the space available for this paper does not permit further elaboration of these influences.

Paradigm Shift: Design Concepts & Concerns

From all the influencing forces acting on the design education programmes at NID it was apparent that there was a need for a paradigm shift in the content and treatment of the Design Methods course at NID. The first change was the renaming of the course in 1990-91 to “Design Concepts and Concerns” since it was clear to me that design was not just about market success and profits but also about social good and ecological sustainability which few other disciplines were adopting as their principle mandate. While in the seventies the focus of the Design Methods course could be called “Classical and Scientific Focus” the explorations in the eighties led to the inclusion of the “Environmental Focus” with specific reference to this course at NID and to the Foundation Programme as a whole. It was in the nineties that we consciously introduced a “User, Environment and Systems Focus” that has gained in strength as our convictions grew out of the classroom experiences and in the growing body of literature on social equity and systems design from a variety of disciplines. By 1995 the course had evolved from being a project dominated one to a more lecture and assignment driven model. The typical lectures and assignments sequence involved the following structure.

Lecture 1: Historical Overview of Design Methods Theory: Concepts and readings from Archer, Jones and Alexander were discussed in this module and students were encouraged to read the original texts and write short essays. Also included in the reading list were the journals Design Issues and Design Studies that were available at the NID Library. This was followed by a couple of individual assignments, a crash design project on a chosen theme and a “diary log” on watching the self while undertaking the crash assignment.

Lecture 2: Understanding the Problem Structure and Space: This was followed up by a group assignment at brainstorming on a chosen theme to understand complexity, structure & constituents through divergent explorations by the group which threw up many associated terms that would be categorized, restructured and modeled leading to a group presentation.

Lecture 3 & 4: Understanding Information: Research and User Studies: This module dealt with information strategies and user studies and the students were required to access both published data and field data from direct user contact on the chosen theme or subject as part of their follow up assignment. Information was considered to be very important to design and more time was therefore allocated to teaching this aspect.

Lecture 5: Understanding Analysis: Describe, Define & Model: A variety of analytical tools borrowed from a host of disciplines were introduced to the students and the assignment that followed dealt with the creation of critical descriptions, open-ended definitions and the exploration of the structure, function of the problem space through opportunity maps and evocative models.

Lecture 6: Understanding Synthesis & Design Visualisation: Cognition & Design Synthesis, Creativity & Design Visualisation were introduced and the assignments included individual brainstorming and representation of a chosen subject and the group assignment was used to look at tools and visualization models used by a variety of design professions using the Profile of the Designer Model as a framework. This sometimes created opportunity for more than one lecture since the group presentations of the illustrated models gave the teachers several opportunities to share insights and the learning was fresh and dynamic for all participants, including the teachers, since the students came back from the field with many new insights from their contact with professional designers in the field.

Lecture 7: Introduction to the Major Design Project was followed by each student taking on an individual assignment, which had to be explored through the various stages of Problem Perception, Opportunity Mapping & Articulation, Detailed Investigation, Exploration, Development of Design Concepts and Documentation. Here a group of teacher volunteers were involved in acting as guide to each student and each teacher handled up to six or eight students out of the average batch size of about 35 to 40 students in those days.

This structured description was culled from a presentation OHP sheet that was prepared for a faculty seminar to discuss teaching methods at NID in August 1995. The course at that stage represented the then understanding of design as a structured and information rich activity with the use of many specific tools, each at an appropriate stage in the design process. It looked logical and everyone accepted it at face value. However the course teachers were by this time beginning to doubt this format since all the projects being handled by the foundation students had to be simple problems of products or communications and it failed to deal with the real complexities that we were experiencing in our professional and research work at the Institute. Later writings of Prof John Chris Jones too contributed to our rethink and the teachers contemplated a number of changes but few could be implemented in the rigid framework that was adopted for this course. The course was conducted over a period of six weeks initially and later reduced to five weeks for the foundation students. The Post Graduate programme students were however offered this course in a two-week module that did not include the major design project, which was to be handled in the particular disciplines after the theory lectures, and assignments were offered by the core teaching team.

In 1998 the teaching team decided to revamp the course and introduce scenario visualization as part of the design synthesis module of this course. We needed to innovate an assignment that could bring clarity to the students and which could instill confidence and build capability to experience and depict situations and events in a scenario format that could be used for design visualization. All through the nineties I was also teaching a course called "Systems Thinking & Design" to the final year students in the Furniture design discipline where a number of insights were developed in the area of information structuring modeling and we decided to introduce some of these concepts at the foundation level as well. The assignments that were developed for the seniors we felt could be very potent to bring home the tools for handling complexity at the foundation level as well. So , on one Saturday afternoon after the lecture on Visualisation & design we asked the batch of 1998 to visit the Calico Museum of Textiles, one of the finest museums for Indian Textiles in the world, and to show us their experience in a scenario visualisation on a specified paper and size, on the next working day, which was the Monday immediately after the weekend. In less than 48 hours they had all prepared very detailed illustrations using a variety of styles and treatments to depict their visit to the Calico Museum, which was a charged experience for many of them since it was also their first visit to the great museum. The drawings prepared spontaneously by the students in the limited time given to them was mind blowing in their detail and expression. A variety of styles were seen and many traditional Indian painting styles had been used in the execution of these illustrations. They were rich in colour and many of them had the same motifs and icons that stood for each major exhibit at the Calico Museum. On Monday morning we had a feast of 40 different interpretations of the Calico Museum visit and in these highly motivated drawings we knew that as teachers we had a major break-through in our experiment at scenario visualisation in design education. While the rest of the assignments went through minor evolutionary changes we were able to shift our emphasis from product to process in the teaching iterations that followed this break-through.

In 2001 we made another major shift from the usual path of locating subjects that our students could research during the early assignments dealing with problem structuring and modeling. Due to repeated bouts of rioting that had hit our city that year we could not risk sending students outside the campus as had been the practice in previous years. I have written at length about this particular experience in a paper titled "The Avalanche Effect: Institutional frameworks and design as a development resource in India". Here we introduced for the first time an analysis of macro-economic parameters of our rapidly changing economy and got our students to model the Indian economy so that a layman could make

sense of the various sectors where design opportunities existed. The models that were prepared were insightful and exciting. One of the macro-economic models of the Indian economy showed 230 sectors as an interactive wheel of three concentric discs. Services and products were at the hub with a rotating second disc with six meta-resources that are required for all sectors namely Education, Finance, Administration, Communication, Export Trade and Equipment & Tools. At the next outer disc which represented the outer rim of the wheel they included 12 major categories and in the outer most circle they had discovered 230 sectors in which they could see immediate possibility for design action. Another group working with the same set of parameters came up with a map of a city as their metaphor for the economic sectors. Their streets branched out from a central turn-about into three major directions, primary producers, material processors and services, of which the services was the biggest block. Here too they had identified over 230 individual sectors using their own logic and the map was called the roadmap for the Ministry of Design, which incidentally can now be given to the Government of India which has just this month announced their intention to formulate a National Design Policy for India, not a day too late! The third group too got to the magic figure of approximately 230 sectors through an altogether different route. They chose to look at the Indian economy through a venn diagram of three overlapping circles of Society, Ecology and Economy around which they were able to interpret a variety of sectors and activities. The fourth model emulated a spiders web and this too accounted for all sectors and the fifth group too used Society, Ecology and Commerce to explain their version of the Indian economy. This year the class was divided into seven groups and each was asked to invent new institutes or organizations that could take design to the various sectors in an effective manner and this was defined as their major design assignment, to be carried out as a team. Individual design project was no longer seen as an appropriate channel to help these young students understand and build their ability to cope with the complexity that accompanies every design project. The students were given reports prepared by the teachers in the previous years of their experience at institution building since we had been involved in the setting up of at least three different sector focused design institutes in India namely the National Institute of Fashion Technology, New Delhi (Accessory Department 1992), Indian Institute of Crafts & Design, Jaipur (1995) and the Bamboo & Cane Development Institute, Agartala (2001). Each group selected one sector and in all seven conceptual models for new institutes were developed and represented by the students working in teams. The work of all the teams was presented to the NID community and to the invited public at an event organized by the students called "Concept Mela" where all the models and frameworks developed for each sectoral institute was presented visually and these were explained and argued with the visitors from the senior years and many faculty and outside experts participated in this one day event. Such public presentations had a great impact on the depth of understanding and conviction developed by the student groups and it was made a part of all courses offered after that date. In between these two assignments the other regular assignments of information, analysis and visualisation were offered as micro tasks that could help build the groups capacity to carry out the tasks in the major assignment.

Design Concepts & Concerns: A general model – Lessons from our experience

The course as it stands today has moved forward within the NID curriculum and has found acceptance from all disciplines at NID and it is now offered at the undergraduate level in the foundation programme as a five week course in two parts, and at the Post-graduate level as a two week course. The Undergraduate module has a three week major group project segment that is offered after these students return from their Environmental Exposure module in some selected rural area. The two week preparatory module is offered before they venture into the field and this provides the gestation time for the young students to assimilate some of the macro-economic concepts that are introduced in this course and a way of thinking about design as an act of synthesis and design as a systems level activity. The images associated with these courses are too numerous to be included in this presentation but these have been posted on my web archive which is listed in the references below. The Design Concepts and Concerns course in its evolved form has now been through over ten iterations at both the Foundation Programme level as well as at the Postgraduate level that we can perhaps try and draw out the general lessons that have been gleaned from each assignment and from the course as a whole.

Some of the lead and filler assignments that were not described earlier are detailed below so that the course as it is currently offered can be discussed while keeping all the parts in context to the whole. The filler are a sort of assignment bank that can be used with particular batches depending on the time available during a particular course and these are critical for rounding off the learning experience of a batch of students and the teachers need to be in constant vigil to see if the students are able to internalize the concepts and some groups exhibit the need for some supplementary inputs when these filler assignments come in very handy. The time taken for the major assignments can vary quite considerably from group to group and from batch to batch due to various reasons such as complexity of chosen theme, access to information, familiarity and confidence level of the students group, prior exposure of the students to areas of general knowledge and many such contingencies. Further each time the task is carried out different contextual forces come into play such as the occurrence of local festivals or other major events at the Institute that draw upon the time and attention of the students and in this course it has been a tradition at NID that students take it very seriously and spend a good deal of time after normal class hours to achieve significantly better results in all the assignments as there is an element of competition between the groups who are expected to present their work at the end of each assignment. It has also been my practice to record all the student activities throughout the course using a digital camera and at the end of the course all students are given one CD ROM with as many as 3000 pictures that were captured during the two week period as a contemporaneous documentation which was first suggested to us by Prof. Bruce Archer during his visit to NID in the late eighties. These pictures are a powerful source of recall of all the events and developments during the course and I would treat this as one of the components of our design pedagogy strategy since the use of the visual image is at the heart of our teaching strategy.

The course as it stands today is described below in a more general format so that it could be replicated by those interested in applying our learning to their own situations, each in their own unique contexts and the outcome we are sure will be richly different and therefore relevant to the local context wherever it is applied. Each set of assignments is preceded by a lecture and discussion with the students both to introduce concepts as well as to assess their level of understanding of issues and perspectives that will have a bearing on the understanding of design in that particular context. These lectures are made contextually relevant by the inclusion of contemporary web based sites and daily issues from the daily newspapers and from current issues of business magazines which are brought into the class. The lectures use a blackboard to build a word map or scatter diagram of key-words being introduced during each session and previously prepared models are digitally projected from the computer that is available in each class. We also insist that the projection system have broadband internet access so that news sites and selected websites can be discussed live in the class. This usually leads up to the first individual assignment which is an email response from each student to the lecture and discussion session to be written in their own words as a brief submission which is sent to all the teachers. This is a very useful device to know and observe individual intellectual growth during the course that is dominated by group assignments and for evaluating the work of individual students.

Assignment 1: Self-Disclosure: Reflection about the self and looking back into ones life activities and experiences to find and locate ones preferences and belief systems including likes and dislikes and ones taboos and epistemic roots when confronted with reflexive situations in the process of design. Students are expected to draw a map of themselves on a sheet of presentation paper (A3 size) along with key-words and images that would disclose themselves to the rest of the class. This is also a journey of self discovery in many cases and it is carried out with a great deal of commitment. These sheets are all displayed for several days on the softboards which are ever present in a design classroom at NID and it represents the first of many composite images that the student is asked to prepare during this course. About half a day is given for this task after the introductory lecture on the origins of design and our current understanding of design. No reading list is now given since the key-words generated during the lecture are to be used for research in the library and on the internet search sites to locate interesting new resources each time. This material becomes a point of reference all through the course, particularly during the intense group processes of the assignments that are to follow.

Assignment 2: Understanding the Known: Group Plumbing and Modeling: A selected subject or theme is given to the group which is expected to be investigated by the group of six to eight students in the form of a brainstorming session leading to the articulation of what the group knows about that particular subject or theme. This is a form of mapping the known and discovering the contours of the unknown with reference to the particular batch of students. The students are generally surprised at the extent of their collective knowledge and when the task is carried out by students from a variety of backgrounds as often is the case with a mixed batch of postgraduate students the group learning is enhanced quite considerably. This exercise helps simulate the mapping of the areas of ignorance of the group as a whole and the teachers help in allaying any insecurities that may come up in this process by suggesting ways to make this kind of search as a way of life for design and by suggesting ways of getting the missing information quickly and efficiently by making continuous lifelong self learning a way forward. Students categorise the words discovered and build a model that depicts the discovered structure and these are made memorable by the use of an appropriate metaphor to hold all the presentation in a coherent manner. At the end of this assignments the students are very clear about the contours of the subject that was explored and they are also aware of areas of ignorance that need further study or consultation. They usually come out with a new respect for group work and a new found respect for their fellow journeymen in class.

Assignment 3: Understanding Business Processes: Building and delivering business models are now an integral part of our understanding of design in India. We therefore innovated this assignment in order to give design students who are usually far removed from business processes in most cases in their school or college experience from which they come to NID. Groups of students are asked to look at and study the work of local street food vendors and to conduct observations and interviews with numerous such service providers that are ubiquitous in the typical Indian city environment in order to understand their business processes and to map the same in the form of a presentation to the rest of the class. The local “Chai-wallah, the omlette-wallah, and the fast-food vendor on the streets of Ahmedabad become subjects of their study of micro-enterprises which have all the business processes and strategies of a multi-national, albeit at a much smaller scale, a much more comprehensible scale of operation. Students build a visual model of their observations and findings along with a smattering of business terminology to explain the cash flows and business strategies adopted by each of these micro-enterprises and leads to a better understanding of business processes as an area of study. The presentations are used by the teachers to instruct and inform the students of the relevance of such studies and the possibility of scaling up this study to medium and large businesses in principle. This is perhaps a painless way to learn about business and the understanding exhibited by our students is quite remarkable.

Assignment 4: Understanding the Context: This assignment deals with taking the Group Plumbing task forward through the detailed investigation of the known and the unknown through collecting and organizing information available in the real world that is accessible. Students learn that information in hand is important and that information and expertise can reside in the most unexpected people, the users themselves. Students are encouraged to work in their respective groups and to go out of the campus to meet experts and consultants and to visit libraries as suggested by their information strategy group meeting. This has a number of iterative sessions through which the students develop a rich set of resource persons and a much better understanding of the subject that they had set out to study in the first place. They develop a keen set of insights about the subject and on the trends that affect the field that they have set out to study. This direct observation from the field is layered with insights from published sources and the final collective understanding is mapped out in the form of a structured representation couched in a chosen metaphor that would make the image map instantly memorable and contextually relevant. The information gathered is shared with all the class at a formal presentation which is additionally supported and supplemented by digital photographs and video recordings from the field situation that are significant for the groups presentation. The understanding of the subject is usually very deep and the group usually exhibit an ability to identify numerous design opportunities that are latent in the situations that were studied by the group.

Assignment 5: Learning to Visualise Scenarios: Usually an individual assignment dealing with exposure of the group or batch of students to a known place, event or activity location which is sufficiently rich in detail and can be a motivating experience for the student. Students are expected to visit and observe with intensity a chosen place, event or activity at location and then draw the whole experience as a scenario or a single story-telling image using any known technique or treatment. This assignment in visualising the known can be later used to help students to find similar expressions in articulating the unknown, which is the design of the future object, place or event as the case may be. Design students are usually quite adept at building image maps and the results of such observations are full of interesting insights. Students who are weak at drawing are told that they can build their scenarios from magazine clippings but as far as possible they are advised to try and build drawing or model making as possible avenues for making an expressive image of the situation that they have studied. This exercise helps throw up many examples of images for one situation and it drives home the reflexive nature of design as an activity and the life changing nature of our interactions with what we wish to change in the first place.

Assignment 6: Applying Scenario Visualisation to the Unknown: This brings us to the title of this paper, the heart of design as we now think of it. When I got Wolfgang Jonas's book "Mind the Gap" in hand with its subtitle on knowing and not-knowing in design the title of this paper popped into my mind. Design is indeed about visualising the future and the future is profoundly unknowable otherwise poppers would fly. However design is also about shaping the future and in the shaping we change the world in small or big ways, in useful or disastrous ways. This assignment as implemented in class usually has one of two forms. The first is the natural follow up from the group task when each student is asked to take up one design opportunity that they see in the area that they have previously investigated in the group and to build a visual image that can capture the possible solution and the process that the individual would use to explore the problem space. Rather than final solutions the students are encouraged to share their dreams in flowing expressive images which could be supported by word images for clarity or emphasis. The second form of this assignment is advised when the research done in groups is not adequate for such extrapolation or the time available is too short. Here we ask the student to dream up their future career path and visualize it for the benefit of the class, usually a time horizon of about 20 years is given, say Scenario 2020 in your life. Both these have been tried out with a fair degree of success and it is clear at the end if the student has indeed developed an ability to manipulate images to depict future possibilities in an expressive and creative manner. In 2003 with the postgraduate students we had selected the theme of Khadi as an economic model for urban and rural employment generation through design. The final presentations and the process models that were used to understand Khadi in the contemporary sense along with the final scenarios developed by individual students were exhibited for the city of Ahmedabad at the Kochrab Ashram which was set up by Gandhi immediately after his arrival from South Africa. The 2001 foundation batch on the other hand showed seven institutional frameworks that could transform the design use landscape of India in areas as critical as employment, education, environment, entrepreneurship of start-ups without capital, safe and clean transport, children & toys and effective software interfaces all of which were assigned on the basis of interest and personal commitment to ensure motivated participation which was realized in the final presentations. This year with the postgraduate groups we offered the topic of globalisation, sustainability and employment generation and through this course the following sectors were studied and design possibilities were explored by the groups. Group explorations followed by presentations led to the development of conceptual models and representations of the attributes of each sector and these were presented and discussed with the whole class.

Students from the Communications Design streams covered the following sectors as part of their investigations for brainstorming, structuring, modelling, researching and visualisation assignments in the process of learning Design Thinking and Action. They included Graphic Design, Film & Video, Animation, New Media, Software & User Interface, and Information & Digital Design disciplines (and Toy Design).

Group 1: Broadcast TV - New TV Channel for Youth
Group 2: Mobile Telephony sector - Youth
Group 3: IPR and Digital Piracy of Music
Group 4: E-commerce and the Internet
Group 5: Phenomenon of Retail Malls
Group 6: Impact on Primary Education sector

Students from the Industrial Design streams (and Toy design discipline) at NID, Ahmedabad included Product Design, Furniture and Interior Design, Ceramic Design, Apparel Design and Merchandising, and Toy Design disciplines. They were assigned the following areas for their exploration and presentation.

Group 1: Indian Crafts and Culture
Group 2: Banking and Finance Sector
Group 3: Eco Transportation Sector
Group 4: Public Facilities and Services
Group 5: Tourism and Heritage sector

Students from Textile design and Lifestyle Accessories formed this group and they explored the following areas.

Group 1: Indian Garment export sector
Group 2: Indian SME sector for Export of Fashion Accessories.
Group 3: Indian Hospitality sector.

The results of these explorations are a rich matrix of experiences that build convictions and abilities towards design at the strategic level and this course is offered to anyone who is interested in "Creating the Unknowable: through explorations in the realm of design and in new forms of education that can indeed be a beacon for industry and governments to follow if the explorations by the young minds within design schools can and must provide leadership into the unknown, into the future, a better future if we are able to build participation through such visible processes. This could be a new and viable challenge for education and we are trying to do this for India at our school. This course provides the teachers and the students the opportunity to deal with contextually relevant subjects in real time and a window into the future from the school of design and this new design may well be adopted by the numerous technical and management schools as their own avenue for action as has been done by the KaosPilot in Denmark, a management school dealing with design of new businesses.

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References:

1. Charles and Ray Eames, The India Report, Government of India, New Delhi, 1958, reprint, National Institute of Design, Ahmedabad, 1997
2. Richard Buckminster Fuller, Ideas and Integrities: A spontaneous autobiographical disclosure, Prentice Hall, Englewood Cliffs, 1963
3. Thomas Maldonado, Gui Bonsiepe, Renate Kietzmann et al., eds, "Ulm (1 to 21): Journal of the Hochschule fur Gestaltung", Hochschule fur Gestaltung, Ulm, 1958 to 1968
4. Hans M. Wingler, The Bauhaus: Weimer, Dessau, Berlin, Chicago, The MIT Press, Cambridge, Mass., 1969
5. Victor Papanek, Design for the Real World, Thames & Hudson Ltd., London, 1972
6. Stafford Beer, Platform for Change, John Wiley & Sons, London, 1975
7. M P Ranjan (Editor), Syllabus and Information Bulletin: National Institute of Design, NID Ahmedabad 1981
8. Morton Hunt, "The Universe Within: A New Science Explores The Human Mind", Corgi Books, London 1984

9. R. Buckminster Fuller, "Critical Path", Hutchinson Publishing Group, London, 1983
10. M P Ranjan, Nilam Iyer & Ghanshyam Pandya, Bamboo and Cane Crafts of Northeast India, Development Commissioner of Handicrafts, New Delhi, 1986
11. Herbert Lindinger, Hochschule für Gestaltung - Ulm, Die Moral der Gegenstände, Berlin, 1987
12. Kirti Trivedi ed., Readings from Ulm, Industrial Design Centre, Bombay, 1989
13. M P Ranjan, Jatin Bhatt et al, Accessory Design Curriculum, National Institute of Fashion Technology, New Delhi 1991
14. J A Panchal and M P Ranjan, "Institute of Crafts: Feasibility Report and Proposal for the Rajasthan Small Industries Corporation", National Institute of Design, Ahmedabad 1994
15. M P Ranjan, "Design Education at the Turn of the Century: Its Futures and Options", a paper presented at 'Design Odyssey 2010' design symposium, Industrial Design Centre, Bombay 1994
16. Otl Aicher, Analogous and Digital, Ernst & Sohn, Berlin, 1994
17. Richard Buchanan and Victor Margolin, "Discovering Design: Explorations in Design Studies", The University of Chicago Press, Chicago, 1995
18. M P Ranjan, Jatin Bhatt et al, Curriculum, Indian Institute of Crafts & Design, Jaipur 1995
19. National Institute of Design, "35 years of Design Service: Highlights – A greeting card cum poster", NID, Ahmedabad, 1998
20. M P Ranjan, "The Levels of Design Intervention in a Complex Global Scenario", Paper prepared for presentation at the Graphica 98 - II International Congress of Graphics Engineering in Arts and Design and the 13th National Symposium on Descriptive Geometry and Technical Design, Feira de Santana, Bahia, Brazil, September 1998.
21. S Balaram, Thinking Design, National Institute of Design, Ahmedabad, 1998
22. Gui Bonsiepe, Interface: An approach to Design, Jan van Eyck Akademie, Maastricht, 1999
23. M P Ranjan, "Design Before Technology: The Emerging Imperative", Paper presented at the Asia Pacific Design Conference '99 in Osaka, Japan Design Foundation and Japan External Trade Organisation, Osaka, 1999
24. M P Ranjan, "From the Land to the People: Bamboo as a sustainable human development resource", A development initiative of the UNDP and Government of India, National Institute of Design, Ahmedabad, 1999
25. M P Ranjan, "Rethinking Bamboo in 2000 AD", a GTZ-INBAR conference paper reprint, National Institute of Design, Ahmedabad, 2000
26. M P Ranjan, "Cactus Flowers Bloom in the Desert", paper presented at the National Design Summit, Bangalore, 2001
27. John Chris Jones, "The Internet and Everyone", Ellipses, London, 2000 and website <http://www.softopia.demon.co.uk>
28. M P Ranjan, Yrjo Weiherheimo, Yanta H Lam, Haruhiko Ito & G Upadhyaya, "Bamboo Boards and Beyond: Bamboo as the sustainable, eco-friendly industrial material of the future", (CD-ROM) UNDP-APCTT, New Delhi and National Institute of Design, Ahmedabad, 2001
29. M P Ranjan, Bamboo and Cane Development Institute, Feasibility report for the proposed National Institute to be set up by the Development Commissioner of Handicrafts, Government of India, National Institute of Design, Ahmedabad, 2001
30. Brian Czech, "Shovelling Fuel for a Runaway Train", University of California Press, Berkeley, 2000
31. Tom Kelly with Jonathan Littman, "The Art of Innovation: Lessons in creativity from IDEO, America's leading design firm", Doubleday, New York 2001
32. Charles Wheelan, "Naked Economics: Undressing the Dismal Science", W W Norton & Company, New York, 2002
33. M P Ranjan, "The Avalanche Effect: Institutional frameworks and design as a development resource in India", paper written in 2002 for the proposed India issue of Design Issues Journal but subsequently posted on PhD-Design discussion list in 2004, National Institute of Design, 2004
34. Uffe Elbaek, "Kaospilot A-Z: International School of New Business Design and Social Innovation", KaosCommunication, Aarhus, 2003

35. Wolfgang Jonas and Jan Meyer-Veden, "Mind the gap! on knowing and not-knowing in design", H.M Hauschild GmbH, Bremen, 2004
36. Brenda Laurel (Editor), "Design Research: Methods & Perspectives", MIT Press, Cambridge, 2003
37. M P Ranjan, "Beyond Grassroots: Bamboo as a Sustainable Resource", (CD-ROM), Bamboo & Cane Development Institute Agartala and NID Ahmedabad, 2003
38. Rashmi Korjan, Curriculum Design for BCDI, Bamboo & Cane Development Institute Agartala and NID Ahmedabad, 2004
39. M P Ranjan, "Bamboo and Rural Prosperity: Leveraging the Seedlings of Wealth", Paper presented at the World Bamboo Congress 2004, New Delhi, 2004
40. George Soros, "Open Society: Reforming Global Capitalism", Viva Books Private Ltd, New Delhi, 2004
41. C K Prahalad, "The Fortune at the Bottom of the Pyramid: Eradicating Poverty through Profits, Wharton School Publishing, 2005
42. M P Ranjan, "Prof. M P Ranjan: Archive of Papers", Web archive of papers, presentations and pictures, <http://homepage.mac.com/ranjanmp/Personal4.html>, M P Ranjan, Ahmedbad 2004