Digital Game design have been announced.

The campus addresses the immediate need for an exclusive Design Research centre in the country, by fostering the creative design spirit and sighting new opportunities and frontiers through NID’s design acumen nurtured over the five decades of intense teaching-learning process.

www.nid.edu

The National Institute of Design (NID) Ahmedabad set up in 1961, is a central educational institution, autonomous and funded by DIPP under the Ministry of Commerce & Industry, Government of India declared as an institution of National Importance by the Act of Indian Parliament. NID offers design education, training, research and consultancy in various disciplines of design. NID has in the following years set up its Post Graduate Campuses at Gandhinagar and Bangalore offering Masters in Design.

With the emerging IT and retail sectors in the early 2000, need was felt and opportunities seen for niche programs to be initiated. NID Bangalore campus was envisioned and was up set in 2007 offering three new master’s programs namely Interaction Design, Information Design and Design for Retail experience. This year two more new programs, Universal Design (Product) and
Modern design education was introduced in India in the early 1960s as a significant part of the nation-building programme undertaken by the Government of India. And, eminent American designers Charles and Ray Eames along with several other experts were invited from all over the world inviting suggestions that would help them build the India of their dreams.

With the intention of writing The India Report - a document that suggested intent as well as directions for design education pedagogy, training and research; Charles and Ray Eames travelled to all parts of the country, meeting and talking to writers, craftspeople, architects, scientists, industrialists, educators and philosophers. The report eventually laid the foundation of NID as a design institution in India, marking it not only as a product of design research but also highlighting the role of design in blending its age old practices and developing policies for the future.

We live in interesting times that are defined by exponential change and an increasingly competitive global economy. Today, design has evolved from being merely a vocation dealing with form and function to a new approach of developing business models. Cultures are connecting and converging and the need for sustainable thinking is apparent. As a result of our having studied living environments for thousands of years, a tremendous amount of traditional knowledge is available to us which can inspire
inspire contemporary solutions to our present problems. This is where Research plays a crucial role. Whether it is identifying market need, empathizing with cultures, understanding the context, analyzing the findings or synthesizing the end result; a multi-disciplinary approach like Design Research then becomes imperative not just to publish a paper but to support system thinking and encourage industries to invest in it.

With its focus on undertaking fundamental and applied research to create cutting edge knowledge in all areas of design especially those inculcating system level contextual thinking and user understanding, NID continues to be internationally acclaimed as one of the finest educational and research institutions in the country. Standing true to its mandate and keeping in mind the increasing need as well as potential demand for design research activities, NID R&D campus Bangalore is hosting INSIGHT 2015 - inviting students, academicians, professionals, industry personnel and researchers to garner thoughts and actions on design research as our youngest campus looks forward to sharing and collaborating with institutions and industries with zeal.

Today with the India Design Council set up and NID being declared as an Institution of National Importance under the Act of Indian Parliament, the path ahead is not only in making stronger foundations in design research, both academically as well as professionally but also establishing the meaningful value it brings to services of the future.

I heartily welcome all our guests and presenters to NID and wish them the very best at INSIGHT 2015.
Design research is an integral part of conceptualising and realising artifacts which are Useful, Usable and Enjoyable. While knowledge domains related to arts, science, technology and management have a structured established framework for research, design by virtue of its nature and purpose has been evolving its approaches contextually illustrated through works of designers and the design teachers.

INSIGHT 2015, a Design Research Symposium was conceived by NID, a stage for dialogues, conversations and discourses on the form and space of design research among design academic and professional practitioners and evangelists. This is in collaboration with British Council of India who have extended support to trigger this event. The objective of the symposium is sharing of knowledge and perceptions on design research culture, methodology, framework, practice, collaboration and its
dissemination. The symposium has drawn over 120 abstracts followed by 50 keenly articulated research papers in various tracks from across international design practitioners in academia and industry.

Putting this event together were efforts of many minds, hands and hearts. We sincerely acknowledge and thank for the support and encouragement given by Director NID, Prof. Pradyumna Vyas and Chairperson Education, Prof Vijai Singh Katiyar and Centre Head, NID Bangalore, Dr Bibhudduta Baral.

We thank the young spirited INSIGHT 2015 team: Suvrata Yadav, Ankit Mehta, Chithkala and Ankeet Kavaiya. We extend our gratitude to the paper evaluators, Dr S Ghosal, TVP Chowdry, Mamata Rao, Chakradhar S and Jagriti G. We take pleasure in thanking our collaborator British Council of India, Partner Sponsors: Sapient Nitro, Info Edge (India) Ltd., Impact Engineering Solutions and Flipkart.

And finally our dedicated administrative staff and colleagues for the operational and logistics support.

We wish all the paper presenters the very best and success, we wish and hope to make this a periodic event.
problems and or make sense of complex social and economic challenges there has been a significant growth in the importance and use of the research phase in generating informed outcomes. Research shows (NESTA 2008) that one of the largest growth areas within design consulting has been design research related activities. Academically, within the UK, the increasing emphasis on evidencing the impact of research outcomes is and will continue to drive the development and use of design research practices for both identifying new knowledge and validating results.

However, non-design-driven individuals and or organizations (academically and professionally) sometimes experience uncertainty and a lack of confidence when attempting to determine the appropriateness of design-driven outcomes due to a perceived imbalance between intuitive beliefs and evidenced results.

A valuable asset of design research is in its capacity to help balance ‘cognizant intuition’ with ‘empathically evidenced outcomes’. Professionally and academically it can assist in reducing uncertainty, unpacking complexity and increasing creative confidence in individuals and
teams through ‘informed creativity’. Tom Kelly defines ‘creative confidence’ as the ‘courage to act’ based upon a willingness to take on ‘tough challenges’ driven by a belief in furthering ideas built upon ‘creative stamina’ underpinned by empathically informed insights.

My curiosity is focused on how design research can help improve ‘idea quality’ by helping practitioners to re-think problems, find new ways of looking at issues, enhance their abilities to identify latent insights and ways to validate outcomes. I am interested in how practice can inform theory and how theory can inform practice in order to help to advance design. This passion has led to the development of the Design Business Innovation Research Lab that publishes and undertakes funded research projects with external organisations.

I will share insights into our work on blended design-driven innovation methods, critical empathic observation techniques and idea management processes. The talk will conclude by sharing case study examples of how ‘informed creativity’ has helped unlock innovation for Procter and Gamble over a seven year period and how improving idea management processes has improved ‘creative confidence’ in BSkyB innovation teams resulting in validated improvements in performance.
This paper will address the relationship between design research and design history, first in terms of understanding the historical context for the emergence of design research in the post-war period; its origins and methodologies; and secondly in terms of the potential for historians and designers to work together to develop new research approaches. Design history’s practices, including artefactual research and the analysis of design processes, materials and methods in their social, political and historical contexts, can contribute much to inter-disciplinary research endeavors in the humanities and the sciences. Design history can also provide a platform for public engagement with design research, through exhibitions and curation, given its close relationship with museums.

Focussing on a new research project at the RCA, my paper will propose ways of researching social and healthcare design through history and practice. The emergence of design methods (later design research) in post-war Britain was key to the expansion of public sector design policy. Our project examines how design was co-opted in the creation of the modern Welfare State, and how these historical conditions might impact upon social and health care designers, now and in the future. Through this example, the contribution of historical research to future design research, and vice versa, will be explored.
“GOOD DESIGN IS NOT (NECESSARILY) GOOD RESEARCH...AND VICE-VERSA”

This lecture starts by discussing the potential relationship between design and research. It is sometimes assumed that the act of design on its own constitutes research, in so much as the designing of a new artefact or system produces something original, and so this might be seen as a contribution to new knowledge. The obverse, that good research in the design field will result in good design, is also sometimes accepted in that the rigour of research is reflected in the rigour of the final design. Both of these assumptions need to be brought into the open to uncover where they may or may not have credibility.

Once this uncovering is achieved, the lecture will move onto a productive reading of design research, arguing that the iterative, contextual, and contingent nature of design might be an exemplary mode of research, and one that supplements and challenges the norms of linear, rational and ‘objective’ method on which scientific research is based.

Design-led research starts by asking better questions and then proceeds in an open manner without assuming the answers, arriving at sometimes unexpected ends. The lecture ends with the argument that this designerly form of research is needed in the context of the restless futures that we all face.
There is growing complexity in the nature of problems and the ways in which they are to be addressed. Designers are making increasing use of learning from across different disciplines, contexts, and methodologies—virtues of interdisciplinary and collaborative approach to design have been gaining ground. Design education therefore is attempting pedagogies that build on experience in practice and ideas of interdisciplinary design thinking. The approach of design research is to support critical exchange between practice and design theory.

With globalisation, especially in the realm of the knowledge economy and emerging technologies, innovation has become a priority for the industry and society. Emerging scenarios necessitate designers to act with enhanced speed, accuracy and responsibility. They need reliable frameworks and approaches to carry out research. They seek new ideas in design methods and for validating design solutions. Design research has thus emerged as a key enabler of systematic innovation.

The two-day international conference, INSIGHT 2015, organised by the National Institute of Design, under senior faculty
colleagues, Nijoo Dubey and V Ravishankar, is an attempt to bring together eminent design educators, practitioners and researchers to deliberate on paradigms and promises of design research. The aim is to encapsulate the vision of the global design research fraternity and pave the way for meaningful dialogue and collaborations for the soon-to-be-launched Doctoral Programme of NID.

I felicitate the participants to INSIGHT 2015 and earnestly hope that the deliberations here will bring in new outlook for design research.
Research in design education, pedagogy, curriculum, formulation of student exercises in skill/studio/project based courses, new program design, domain specific area of interest Communication design, Industrial design, Interaction & Information design, Service design, Human factors Architecture, Fashion and others.
While there are many theoretical approaches to managing emergencies, very little has been done practically. Emergency Response comprises of Emergency Services like Police, Fire and Medical. There is a need for better integration of these services to not only reduce response time, but for improved preparedness of general public as well. Some efforts have already happened in this domain. There are a number of emergency helplines available. But awareness of these is low to none, and people rarely use them.

There remain a number of verticals that need to be resolved. A number of issues identified have to do with policy changes and basic etiquettes of people, however a lot of potential lies for design as well. Emergency Preparedness requires proper training, and a comprehensive tool that provides all the relevant information in an easily accessible structured manner, can go a long way in making real difference.

As a Graphic Design student, we are constantly looking at information systems, and how people consume information.
Identifying the various information touch-points, we can design how this information is communicated and delivered very effectively. The primary goals of a venture like this is to create awareness, generate interest, disseminate information, change perceptions, and above all develop reflexes in people so that they are mentally prepared to handle emergencies.
Istanbul is one of the leading centres of jewellery production in the world. In history, the capital of three Empires, Istanbul has been a prominent centre of excellence in jewellery making. The Turkish jewellery sector has developed globally within the past two decades and has gained power as the second global supplier after Italy. The major jewellery production takes place in Istanbul, within the district of the Grand Bazaar and in the cluster of workshops around the complex known as “Hans”. The Grand Bazaar and the Hans around it, with a network based model of clustering have endured since 1461. The Grand Bazaar has been the centre of original and cutting edge hand crafting since the Ottoman Empire, and it owes its identity historically to the metalsmithing masters from different parts of Anatolia who gathered in and around the complex and established their own workshops. Based on micro scale firms, the structure of production in the Grand Bazaar represents the traditional model of a creative crafts cluster. The jewellery production in the Grand Bazaar also relies on high quality craftsmanship and original methods of production. Since it depends on the raw material as a trade asset, the jewellery industry has a particular character of production process and a particular milieu of production. While it functions within a network of entrepreneurialship-mastership-design, it relies, as a whole on the existence of one master, known as “sadekâr”. This production network, which is based on the mastership of different producers, cannot be standardized. The transmission of knowledge in this system is based on a model of the transmission of tacit knowledge gained through experience, and it presents a valuable source in terms of the Inventory
of “Living Human Treasures” in the framework of Intangible Cultural Heritage. The cross-disciplinary research project conducted by the authors of this paper approaches to the Grand Bazaar both from the perspective of the preservation of the tradition and the cultural heritage of craftsmanship, and the evaluation of the products in terms of their creativity and originality as a source for innovative design in a global competition. The project aims at revealing foresight on issues such as; How will this 500 years old traditional creative cluster endure the technological shift in fabrication?... How can this tacit knowledge nurture the research for new languages in contemporary design? The paper aims at introducing the process, methods and the findings of the qualitative research project carried out since May 2013 and funded by the Scientific and Technological Research Council of Turkey, and open up discussions on the interrelations of crafts and design driven innovation.
“DESIGN RESEARCH THROUGH PEDAGOGICAL APPROACH TO ZERO WASTE IN APPAREL”

The issue of fabric consumption and textile wastage in the Indian apparel industry and the lacuna in sustainable practices in this area is a matter of wide-ranging implications. Even when these amounts are minimal, they are more than just a physical manifestation of our segmented development chain and pattern-cutting method. In fact they comprise a “hidden history” of industrial processes that mine, divert, extract, shovel, pump and dispose billions of kilos of natural resources in order to produce and deliver fabric that is destined to fall on the cutting floor.

Conventional design approaches result in a considerable amount of fabric is often wasted in the process in the design and make of a cut and sewn garment. The responsibility for this wastage is with the manufacturing process which is constrained by the design and the pattern. New concepts in waste reduction in recent years involve a number of design-for-sustainability concepts around which cutting-waste emerge. While such ideas are helping to slow down the flow of waste in the fashion industry, emergent designs can build further on these advances by developing altogether new ways of conceiving clothing structure and construction.

In such a situation, it becomes the combined responsibility of the academia as well as the industry to instill innovative thinking process regarding the need and possible outcomes in the pursuit of waste reduction in design curriculum. All specialist education including design education necessitates that the content and pedagogy should enable identification of intrinsically valuable concerns for contemporary society. The Fashion Design programme includes a combination of innovation and knowledge-skills
competency to traverse the ideation-to-realization process. In particular, the cluster of subjects such as draping, pattern development and garment construction (sewing) are core to the tangible realization of the design concept. Pattern development as a primary tool in fashion design education emerges as integral to zero-waste design with the potential of generating new opportunities for apparel design to engage with manufacturing. It inculcates the ability not only to transform the way apparel is made but also the thinking process itself. Since zero-waste is part of a larger picture of sustainability, this approach to fashion design creates new opportunities for fashion design education and the fashion industry.

This paper examines the feasibility and desirability of zero-waste approach within the curricular requirements of design education. It discusses design research from a pedagogical approach to pattern making to encourage students to explore the body-garment relationship from a different perspective using examples of classroom exercises where the curricular requirement in pattern making has been mapped to the fabric wastage in process of ideation-to-realization. This forms a pedagogical model to demonstrate the translation and application of reflective aspects design thinking through tangible representation embedded in patternmaking to generate sustainable linkages and solutions. It facilitates creative solutions within the classroom, generated by the interaction between design and the approach to design tasks through the minimum-waste to zero-wastage approach to patternmaking.
“EVOLUTION OF STRATEGIC DESIGN MANAGEMENT CURRICULUM AT NATIONAL INSTITUTE OF DESIGN, INDIA”

Studies in Design Management posit a challenge on one hand and an opportunity or need on the other. It is a challenge mainly because of the changing role and identity of design studies and design relevance in the present context. Design Management struggles to have a distinct identity and role to play. Initially, Design Management was considered to be in competition with the Master’s in Business Administration (MBA) programme; the former has become an enabler for MBA education. Nonetheless, at the National Institute of Design (NID) in India, the Strategic Design Management (SDM) programme has been able to maintain its leadership position imparting Design Management education under the Design Thinking paradigm, in India.

The SDM programme has been flexible enough to continuously change itself, adopting the nuances of the field and bringing its contemporary relevance. Today it has also become important to demystify the roles and possibilities that professionally trained design managers offer the industry and other stakeholders.

This paper examines the trail in terms of how the SDM programme evolved at NID. It also suggests the broad perspectives for building focus on such new programmes by looking at other case studies in India.
“CREATE THE WASTE: WICKED PROBLEMS AS INCUBATORS FOR INTERDISCIPLINARY CURRICULA”

In this paper we want to discuss Design Education cases from Berlins biggest University of Applied Sciences with 5 departments, 70 study programmes and nearly 13,000 Students. The Department of Design and Culture hosts about 1,300 students in the fields of Communication Design, Fashion Design, Game Design, Industrial Design, Museology, Conservation and Clothing Technology in diverse Bachelor and Master programmes.

Although situated on a multidisciplinary campus the faculty struggles to establish sustainable interdisciplinary courses, as the programmes focus mainly on one discipline and have no free space for non-disciplinary issues. So collaborative and interactive teaching and learning often depends on the enthusiasm of academic staff and their personal efforts against the odds of administrational and structural questions.

The Department of Design and Culture pursues as one main objective of its organizational development strategy the strengthening of interdisciplinary cooperation. Due to this the Department started an ongoing series of courses that aim to bring lecturers and students of different disciplines together in a creative setting and to evaluate ways how to establish interdisciplinary practice.

The wicked problem "waste" was identified as an ideal issue for an interdisciplinary course design and was tested in a 2-semester project open to all students of the Department. Methods of co-teaching, mixed group task practical work, expert lectures and discussions, excursions and the planning of an exhibition and symposium on the subject "create the waste” were some of the outcomes of the course. The project was led by two professors and
supported by an educational developer, a project manager and two tutors.

Wicked problem is a phrase used in social planning to describe a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize.
The substantial weighting of the dissertation within the final year of an undergraduate degree can prove challenging for many art and design students, forcing them to engage in logocentric modes of research and production, contrary to their mainstream visual practices and methodologies (Wood, 1999). However, the large body of research conducted via the Writing PAD project (http://www.writing-pad.ac.uk) documents a growing shift away from the traditional Coldstream inherited dichotomy between studio and theory. Some art and design degrees are rejecting stand-alone written components, in favour of merging visual strategies and techniques with writing practice to create "hybrid forms of expressing knowledge and understanding.”
unit is its delivery by studio tutors, in the design studio, rather than a separate cultural studies department.

A recent (unpublished) pedagogic evaluation of the ITC unit interviewed DGC students about the relationship between their writing practice and their design practice. Gardner’s theory of multiple intelligences (1983) framed the study. This paper takes the position that polarising the relationship between linguistic (textual) and bodily-kinaesthetic (visual) forms of intelligence (Gardner, 1983), itself becomes a barrier to student’s epistemological development. The well-rehearsed art school rhetoric of I’m a visual person not a writer’s becomes a self-fulfilling prophecy, effectively disabling the potential to learn through writing. The research explored student perceptions and experiences of design writing. Findings raised notions of anxiety, identity, artifact, articulation, process and value.

Building on this analysis, this paper will discuss design praxis through many lenses:

a. Design of the curriculum
b. Design of the teaching delivery
c. Design of the report question
d. Design of the research
e. Design of the writing
f. Design of the form
g. Design of the dissemination

Through sharing student reports, alongside student and tutor reflections on the unit, we hope to invite discussion about what happens when design students write.
“PARTICIPATIVE DESIGN: ENABLING DESIGN STUDENTS TO CREATE A CORPORATE DESIGN TOGETHER WITH DISABLED PEOPLE”

“Be able” is a spin-off-project of the Kunsthochschule Berlin (Weißensee), where product designers work together with handicapped people to create different objects for daily use. The objects are produced in small numbers and distributed by the team. The communication design students of the “HTW Berlin” had the task to develop a corporate design with the disabled people for the label “be able”. The essential questions were how to integrate the handicapped in the design process. How can they become a vivid and essential part of the project “Additional questions were raised: How do students who had no experience with corporate design processes approach this challenge”. In which way does the co-creation process influence the idea and form finding of the design students? And how does the class’s concept influence the motivation and learning success of the students? The novelty of the project for the students is that they themselves are not only the creators but also the enablers. In this paper a co-creative design process is proposed, describing a participative branding process with handicapped people.
The authors correlate the work of Sinek (2011) with the design maturity model (Gardien et al, 2013) to explore the complexity of design capabilities, design approaches and design outcomes identified at Philips. They use this framework to map and analyse a suite of taught postgraduate design programmes to explore their value against this global professional context. Mapping illustrates both areas of fit and exposes gaps and opportunities for design educators in providing provision for design thinkers/leaders and practitioners of the future. The business innovation model and the concept of design maturity from an industry context is transposed to inform a design management education model.
“CREATING THE CONTENT: DESIGN AND DEVELOPMENT OF MULTIMEDIA PROTOTYPE RESOURCE ON MOBILE PHONES TO SUPPORT THE TEACHING OF PRACTICE BASED COURSES IN NIGERIAN HIGHER EDUCATION USING CONSTRUCTIVE DESIGN METHODOLOGY”

This study investigates the challenges teachers face while demonstrating practice based skills to large classes particularly in underdeveloped nations of the world, where they are most times constrained by a paucity of human and infrastructural support (i.e. poor government policy initiatives exacerbated by corruption, dwindling teacher population caused by the brain drain syndrome, dearth in equipment and infrastructure, and most particularly access to the internet). The study focuses on the production processes while using video as content on mobile phones for higher education teachers and students in Nigeria who teach/learn practice-based skills. Argument: Teaching practice-based courses in Nigeria can become more instructive if localised instructional tools are created to support the teachers demonstration in and out of the class, studio and laboratory by empowering them to be able to produce their own instructional tools locally, easily and as convenient as possible. This is because developing nations like Nigeria need some interim remediation to support their teaching of practice-based courses, as their infrastructural assets are relatively underdeveloped, thus impeding their operations and access to globalised shared tools.

Using plastographic printmaking as a case study, the concept of the “ting” in constructive design of prototype design was deployed, especially as it influences the production of small videos and their inherent challenges: small screen sizes, codecs and composition. Recent surveys
in a Nigerian higher institution of learning reveal that ownership of mobile phones by both teachers and their students is about 110%. This informed why the study picked mobile phones as the vehicle for content.
“DESIGN THINKING IN BUSINESS AND MANAGEMENT CURRICULUM NEED AND PRACTICES”

Business and Management curriculum across various management and business schools has been made dynamic, contemporary and intellectually rich by incorporating and absorbing knowledge and skills from various relevant academic streams. Management stream has grown into a major academic river by drawing rich and relevant knowledge and concepts from other streams through its tributaries. Academic streams like Economics, Psychology, Accounts and Finance, Operations research, Statistics etc. have made significant contributions to the growth of management thinking and concepts. Till now the major contributions have been from those streams which are based mostly on linear and logical thinking, traditionally attributed to the left of the brain activity. As such even the management programs are also seen as mostly a linear and logical thinking based.

As design perspective and design thinking have gained popularity and acceptance, design courses are becoming vogue. Those who are exceptionally well with creativity and right side of the brain activity, have got great avenues to cultivate their thinking. Design thinking is a clear composite and discrete thinking as opposed to the linear and logical thinking. While it may be possible to program and simulate the linear and logical thinking of human brain by a computer programing, same is not possible at least in near future in case of design thinking. Design thinking that way can provide solutions which may be “out of the box” and may not be obtained by computer simulations. The thinking that design thinking can provide business innovations and solutions is gaining ground.

This is a conceptual paper which analyses the need and trends in incorporating design thinking in business and manage-
ment programs. Design thinking may inculcate creative thinking in business and management students leading to wonderful solutions for business and management problems.
Inspiration for the problem solving exercises in jewellery design among many other subjects. It should be noted that the understanding of nature comes to the mind slowly with careful analysis and discipline through contemplation, philosophizing, remembering and reasoning. Learning to see and understand nature comes only after a careful and enthusiastic search for her minute and apparently insignificant productions. Studies thus made when translated in terms of design principles, concepts and mathematics suggests endless ideas and unfolding of natural laws. What nature seems to offer us is a large mass of liveliness that contains living processes and mechanisms, forms and structures, pictures and patterns that is subjected to a forever changing process on the Mother Earth. Therefore, the simple things that are available in nature, can give us new experience and insight. Identify patterns of nature, seeking for forms and shapes of nature, minute details, art & design, physical structures, mechanisms, materials and properties, colour, etc can be based on the formulation of student exercises. Nature's solution

"FORMULATION OF STUDENT EXERCISES BASED ON NATURE: CASE STUDIES TAKEN FROM JEWELLERY DESIGN EXERCISES"

The development of design research has led to the establishment of design as a coherent discipline of study in all its many fields. The aims and objectives of design research have always been to study about the artistic and intuitive processes related to design. There exists a designerly way of thinking and communicating that is both different from scientific and scholarly ways of thinking and communicating, and as powerful as scientific and scholarly methods of enquiry when applied to its own kinds of problems. Formulation of student exercises based on creative techniques and problem solving methods is an important part of academic practice.

Nature becomes the greatest source of inspiration for the problem solving exercises in jewellery design among many other subjects. It should be noted that the understanding of nature comes to the mind slowly with careful analysis and discipline through contemplation, philosophizing, remembering and reasoning. Learning to see and understand nature comes only after a careful and enthusiastic search for her minute and apparently insignificant productions. Studies thus made when translated in terms of design principles, concepts and mathematics suggests endless ideas and unfolding of natural laws. What nature seems to offer us is a large mass of liveliness that contains living processes and mechanisms, forms and structures, pictures and patterns that is subjected to a forever changing process on the Mother Earth. Therefore, the simple things that are available in nature, can give us new experience and insight. Identify patterns of nature, seeking for forms and shapes of nature, minute details, art & design, physical structures, mechanisms, materials and properties, colour, etc can be based on the formulation of student exercises. Nature's solution
helps to form genuine character and individuality to its products of design. In
the context of jewellery design and fabrication, the term can refer to inspira-
tion, materials, processes, design methodology as well as aesthetics. All of our senses
can be satisfied by the organic world such as visually stimulating forms and textures,
tactile surfaces, unique sounds, arresting smells, and delicious flavors. Therefore
nature becomes an infinite and constant source that can be used to fuel design
projects. Fascinated by the boundless variety of textures, sculptural forms, and
constructional elements, the designer needs to spend considerable time
handling, examining and then drawing the elements of nature to develop a more
intimate relationship with the forms and gain a better understanding of how they
look, feel and move.
“ENVISIONING A FUTURE DESIGN EDUCATION IN VULNERABLE EMERGING ECONOMIES”

“Since most design professions involve shaping goods and services within large industrial economies, this political-economic context is one key to the realities of design education today and tomorrow” (Friedman)

Prof. Ken Friedman wrote the above statement in his paper “Models of Design: Envisioning a Future Design Education”. While the reality is that most design professions and design schools operate within large economies, this paper looks at designers and design schools, which operate in small emerging economies. This paper uses Prof. Friedman’s article as a starting point for a discussion on design education, but shifts the focus away from places where design is traditionally taught, and practised, to places where makers are still operating primarily in pre-industrial modes. While the need for design education is obvious in large emerging economies such as in Brazil or India, the need may seem less obvious in very small economies, where there is no critical mass of designers or even public appreciation for design. Is there a need for design education in small island developing states like those found in the Caribbean and the Pacific, or in many of the economies of Africa? Are there any unrecognized opportunities for designers and design educators to play a role in the development of these countries? Are there any benefits to promoting design education in a pre-industrial context? Is there any benefit to stimulating design in places with little or no design or manufacturing culture? How can design education and design research support the development these types of societies?
“FAILURE OF DESIGN CHANGE (MEANINGFUL ROLES FOR ART & DESIGN)”

Can we change our views on education for sustainable design to meet the greatest challenge of the 21st century? The problems surrounding global debate on the future of the planet are complicated, that’s for sure, can art and design play a meaningful role in the future, let’s hope so, but in terms of education for sustainable development (ESD) surely it needs to.

Some artists and designers have the skill for making new connections, pulling together strands from different fields and integrating them into new ways of looking at the world. These men and women should be more in demand by global strategy departments, governments and producers, who prize the ability to tackle complex problems through synthesis and expert assumptions. Whilst the media often presents a stream of negative stories relating to unsustainable trends, it is good to remember that change throws up opportunities as well as challenges. If we shed the blinkers for a moment and see the world differently there are many positive shifts. These include the mainstreaming of design in business and the public sector, better understanding by designers of the problems facing the developing world and design companies taking on the initiatives of socially inclusive projects.

This paper discusses how students of higher education within the creative arts and the educators of those students have to hone their ideas and creativity and focus on:

a. Constructive engagement, which uses design as a social catalyst and brings divergent cultures towards engagement.

b. Cool transparency, which employs openness and co-design techniques.

c. Rapid proto-type ideas, which can be created quickly and are easy failures (failures which are not costly and can be speedily corrected).
d. Organise and co-create, that is, engage with networks through smart use of technologies, nurture meaningful dialogues and finally, share assets across networks and knowledge that has use for all, even at a higher level.

The recent economic recession combined with a rise in media coverage relating to eco issues has intensified public awareness of the pitfalls of consumer culture. Increasing numbers of people are beginning to make informed decisions about the necessity of their purchases. Designers who decide to work within a set of strict moral and ethical boundaries are in a great position to attract a more mainstream audience than would previously have been feasible. Is this what is needed, is this what is wanted, is this what we want to believe? Increased interest by growing numbers of consumers, combined with a more prominent position of ethically-designed goods, could lead to a movement away from mass-marketed, disposable goods, and a return to an appreciation of high quality goods that are long-lasting, useful, beautiful and socially responsible. So is the future up for grabs, will the trick be to spend less time thinking about what we do now, and more time on what is changing out there in the world and responding to it with invention. As Charles Eames famously stated, "Design depends largely on constraints."
The development of ornamental vocabulary in architectural form is largely related to the methods of form-finding and construction. Technology plays an important role from the conception to the execution of ornamentation along with the form. The paper discusses the resurgence of ornament as an important outcome of the recent changes in the way design thinking happens as well as the way representation of design takes place. Technological advancements such as digital media used in design as well as manufacturing has brought about this change in the design process.

The paper outlines the important shifts in design process and summarizes the digital design process as an integrated model for design, where ornamentation synergistic with structural and utilitarian aspects is once again an important aspect of design.
“THE ROLE OF DESIGN RESEARCH IN FRAMING PUBLIC SERVICE DESIGN”

The nature and context of public service design in India has been slightly dysfunctional and skewed from all perspectives. Time and again, there have been observations and comments made on the need to look at major systemic level interventions not just at an execution level but also from the approach that is being followed till now.

The need to call for a design led, human centred approach and a holistic understanding of the system stems from the fact that most public systems and services have failed to cater to the real needs of the people and run successfully and independently. This domain is rather unexplored and recently there has been a welcoming surge of events within the public sector that have made citizens feel a part of the process of decision making.

In this paper, learnings from design led methods and applying them to real time problems and contexts are shared, keeping information design at the centre. Through the course of working on two projects—one purely academic, that explored the skewed relationship between citizens and the local police and further worked on bridging this gap through design interventions, and the other, a professional project that looked at building a toolkit aimed towards policy makers. The scope of design research and design research methodologies were explored and validated, while keeping a citizen/user centric approach in mind as well as identifying and involving various stakeholders as much as possible. The learnings from these in terms of how valid are the approaches, are they too ambitious and what must change and how better can stakeholders be included in the process are showcased.

The approach followed through the two projects was very different and dealt with a multi-stakeholder, highly dynamic
audience leading to approaches that try and push for a design led, visual and interactive way of dealing with complex information and information systems.

The role of design research within the domain of public service design can determine a lot— from aiding public policy to producing real time solutions based on ground realities— the scope of design research allows for providing a holistic understanding of the problem and its corresponding solution(s). Information design and design thinking have just begun to play a huge role in the context of design for social and civic impact.
“ENHANCING SPATIAL PERCEPTION IN COMMUNICATION DESIGN EDUCATION BASED ON SPACE, TIME AND PLACE”

The fundamental human intelligence concerned with the knowledge of spatial information has to be introduced in educational systems as the younger generations’ acquiring, using, transmitting and interacting with spatial data has changed from local levels to the interfaces of mobile phone, navigation systems and map services (Downs, 2006; Hirtle 2011). One expertise area which will benefit more from others is the discipline of communication design (CD), which has extended its scope beyond creating services and products for 2D media in this century. Spatial perception and environmental data have been important for this discipline for the design of the virtual and physical settings in many ways, ranging from the artificial universes created for game design (Bates 2004, Betts 2008) to the dynamic public spaces enhanced by interactive surfaces and tangible objects for displaying and disseminating information, which contribute to the technological infrastructure of society (Fox, Kemp, 2009; Bullivant 2006, 2007; Sparancino, 2002; Esin, Ozcan, 2010). This study searched for the ways to integrate this knowledge within the existing CD educational structure and match the objectives of the discipline to improve the problem solving abilities of students.

Spatially integrative knowledge systems provided the basic concepts of “space and place” and “space and time” that reflected relevance with the objectives of our research for design education. In the former concept, place, being referred as a social context (Janelle and Hodge, 2000) was important from the perspective of CD as it denoted the communicative medium of space. As for the latter concept, due to the data embedded in space being perceived as similar to data embedded in time, the focus turns into
relativity, which promote the understanding of physical space as a mechanism that depends on both spatial and temporal factors (Hornsby and Yuan, 2008; Lin and Batty, 2009). This aspect can be well adapted to the discipline of CD as the aspect of time is an important design element of the discipline transforms the designed product into an interactive medium.

This approach was devised by a case study that focused on the design and the application of a spatial interaction course in 2009-2011 in Communication Design undergraduate program of Yildiz Technical University. The course aimed to develop solutions for 2 different design briefs: (a) conceptual design development of an interactive exhibition that focuses on the social aspects of space, and (b) physically built interactive exhibiting mechanism designs. The analysis of 84 design works reflected the effective learning and increased creativity in problem solving skills of CD students, while the student end-term surveys showed the necessity in integrating this knowledge within the CD educational curriculum. This design research based on the approach of projecting 2 dimensional interaction experience into physical space was beneficial for the curriculum as well as reflected the potential to be continued with renewed briefs aiming future technologies.
“EVERY DESIGN TELLS A STORY”

Design involves feelings and storytelling helps build meaning and emotion in design. Metaphors, analogies and stories have become powerful tools to bring concepts to life. Designers often create objects not as a set of logical proposition, but as a pattern of experiences. They link apparently unconnected elements to create new designs. The richness of the visual form, a designer creates, depends, to a certain extent, upon the nature of his/her visual surroundings. Designers use visual material and memories from their own lives as a source of inspiration during design conceptualization. These experiences are by definition stored in the unconscious and become manifested through the ideas they generate. Visual experiences draw from the features of the visible world. The visual impression, rather than the actual object, becomes localised to form the visual experience. Lived experiences as a result of direct perception appear to be a critical factor in the generation of (design) ideas. The idea of storytelling becomes a theoretical instrument, a tool for helping designers discover new possibilities and opportunities within the creative process.
The act of designing was considered to be a largely cognitive activity happening within the minds of individual designers. As design changes from an intuitive discipline to a discipline that increasingly demands collaboration between different disciplines, there is a growing interest in understanding the collaborative design process. Designers are now expected to verbalize and share their thought process with individuals from other disciplines. The collaborative design activity occurs through the interaction between people and the objects in the shared space. Researchers have acknowledged that shared workspaces are key resources to mediate collaborative design activity. The design activity between collaborators is often mediated with the shared use of white-boards, chalkboards, large sheets of paper or shared computer screens.

This study focuses on understanding the collaborative design process of transdisciplinary design teams engaged in the design development process. Four design groups from InnovationSpace, a senior-level transdisciplinary design studio were studied. Each team comprised of students from Industrial Design, Graphic Design, Engineering and Business. Video recordings of eight design session were recorded to study the collaborative process mediated through white boards and large white sheets. Interaction analysis, a method developed by the Institute for Research and Learning and Xerox Palo Alto Research Center was used analyze video recordings of design sessions.

The purpose of this study is to
a. Describe and understand the collaborative design activity mediated through shared spaces
b. Determine the usefulness of video ethnography in observing and under-
standing collaborative activity

c. Provide insights into the different steps of a collaborative design activity.

The analysis of group design session suggested that participants assumed different roles within the group. Each role had a specific place within the group dynamic. Shared white boards were used to present, edit, add and refine ideas. The collaborative process was dynamic between participants yet followed a repetitive sequential pattern. The end goal of every collaborative design session was to reach group consensus and set future individual and group goals.
Research led design practiced by design studios, design driven industry, importance of research phase in the design process for informed outcomes, design research as a professional practice.
Fabric is a basic necessity of a human being. It has been produced and evolved as per the requirement of human comfort, situations and purposes. To satisfy these needs of consumers, textile industry works day in and day out. This industry is comprised of two sectors namely handloom and powerloom. To be further explicit, craft sector, a division of textile industry plays an important role in providing employment and income to many artisans and other people related to this field.

A good design work is always substantiated with good research; on the same note for craft related studies a background research about the craft sector and the organizations involved in it is essential. As many craft documents have empirical research on the history of Indian handloom sector, this paper aims to fulfill this objectives by concisely mapping the handloom industry of India from Vedic Age to the present century, along with a brief discussion about the reasons for the downfall of this industry. The study also explores Indian handloom sector describing the organizations involved with their roles and responsibilities for the artisans in the present era. As for today, all of us are looking for sustainable livelihoods and products for saving our mother Earth, the study will help to develop an understanding for the entire stakeholders about the cluster of an Indian handloom sector, its roles and responsibilities and the organizations which are working along it for the development of the craft be it government or non government. The data will help to create better products keeping in view the constructive and unconstructive methods and approaches of the Indian handloom sector.

The study is an anthology of data accumulated from different researches and reports published by private and government.
organizations in recent years, for all the stakeholders, students and academicians who can employ this data to create better products.

The secondary result signifies the causes for downfall of the Indian handloom sector and the policies and approaches of the Government as well as Non-Government organizations / agencies implemented for the upliftment of the handloom sector. The data finally concludes with the crux of suggestions which can guide the stakeholders to overcome the above mentioned constructive and unconstructive methods of the Indian handloom sector and create a successful product.
“RESEARCH: A WAY TO VERBALIZE THE PROBLEM”

In the recently-blossoming area of design for social impact, designers still struggle to find their place and take the full measure of the powerful agent of change they can be. Reasons for this include a lack of awareness from professionals on the universal application of design; another is the lack of knowledge about how one should identify the problem that needs to be solved without falling into their fool’s paradise. The later is sometimes not even the designer’s task, but it may come from a client or the boss. Though who can guarantee its relevance? How can one ensure that the problem one wants to solve is effectively a real-life issue, and not a misinterpretation, false assumption or prejudice? Hence design research appears mandatory in an attempt to define a proper and reliable starting point to a given project.

Hence, this paper emphasizes the importance of integrating the designer at the earliest stage of any project. It is also an attempt to identify reliable ways of deciphering a context, leading to the verbalization of the right problem: one which is consistent and which resolution would be truly needed by the affected community. Putting words on such problem is a great way to circle it: verbalization allows one to understand it and break it into smaller and often more accessible ones, and eventually solve it properly. In doing so, collaborating with an active and respected stakeholder is one of the several ways to ensure the worthiness and efficiency of the research.

In this paper, a methodology of doing this is presented for the domain of sanitation. As a case study, a project in collaboration with Sulabh International, pioneer in the subject, is presented. More than just an entry ticket for the conducted research, such partnership is meant to turn into mentorship, where the designer gets insights as well as feedbacks and support from the community he is willing to
uplift. In that way, the designer rest assured that he is working in towards the right direction. Through interviews of people affected by the problem and likely to become consumers of an upcoming solution, and along with a broad field study completed by a strong secondary research, the aim is to conduct an empathic endeavor leading to an user-centered design.
“DESIGN RESEARCH METHODS FOR DIGITAL SPACE”

Design research is an important phase of the design process. Despite the similarity in design phases and processes across disciplines and domains, the specifics of design research methods for digital space are a little different due to the following reasons:

a. Intangible nature of the digital medium
b. Varied modality of use across different digital device platforms like desktop, laptop, tablet, mobile, kiosks, etc.

c. Corporate requirements of learnability, discoverability, etc.

d. Business and requirements like scalability, brand consistency, incoming trends like responsive web design, metro layouts, flat design, skeuomorphism, etc.

e. Legal requirements of accessibility, etc.

f. Technical requirement of feasibility, ease of execution and ease of updating

While finding a weapon of choice from design research methods for the design or redesign of digital products and services depends largely on the budget and timelines (whether it’s a product, services or consultancy firm executing the project), there are additional filters mentioned below which come into play:

a. Business sector and domain (i.e. banking, retail, education, etc)

b. User categories (end user, corporate, internal, etc)

c. Digital platforms (web, mobile, social, enterprise applications, gaming, etc)

d. And design phase (discovery, requirement gathering, user testing, etc)

This paper aims at taking into account three cases studies of digital product design from education sector and two case studies regarding redesign of digital assets from banking sector to analyze the methods applied. Methods used across case studies are both phenomenological and positivist in nature. Some examples of research methods which will be discussed are ethnography, third party observations, depth interviews, stakeholder analysis,
contextual inquiries, heuristic evaluation, expert review, accessibility testing, usability testing, eye tracking, benchmarking, competitor analysis.
This paper aims at evaluating the employee engagement in a corporate scenario. It also analyzes the employee happiness quotient qualitatively. We look forward to researching and creating a consolidated data about the emotive of employees in an organization along with the everyday office chores, and arriving towards strategic suggestions, aiming to form a framework of guidelines which will add value to the organizational culture. Employee engagement in any organization helps in creating the overall culture. Organizations need to be aware of Employee Engagement factors which will in turn help them in employee retention, happiness and sense of belonging.

The probable results from the research aimed at improvement of the current scenario as well as finding out the challenges and the positive aspects which could be emulated for better environment in the corporate culture. The biggest challenge with this research was that Cognizant being a big organization, the target group was placed in different locations. Hence the methodologies and their combinations utilized were designed to suit this scenario. A Combination of qualitative and quantitative research methodologies was used.

Qualitative methodology involved designing a questionnaire with open ended questions which led to image analysis, five sensicular analysis, qualitative insights and close ended questions for the quantitative study. The insights derived from preliminary research, gave pointers for the deeper dive. This further research consisted of a target group evolved out of the preliminary study. This secondary research involved personal qualitative interviews of a niche target group.

This niche target group research gave insights towards the pain points as well as
the good practices inculcated within the group. These good practices were highlighted and used as an example for other groups. The insights derived from the research were then converted into practical strategic interventions with the help of stakeholders which, when used, will predictively improve organizational culture. This paper seeks to document these processes, insights and the strategic interventions derived through the research.
"WHERE USERS ARE DESIGNERS AND RESEARCHERS: WOMEN COLLABORATE IN MENSTRUAL PRODUCT DESIGN"

People from rural communities have keen insights and are valuable partners in research and development. They recognize that their contribution is important. This was well illustrated in a collaborative research study recently conducted in rural South Rajasthan. Fifteen women from village communities participated in a cross over trial spread over eight months; this corresponds to between eight to ten menstrual cycles. During this period they used, compared, indicated preferences and recorded their experiences as they used two menstrual management products.

The two products used in the study were the Time Piece, available in the local market and the Uger Pad, a new design. The Time Piece made of artificial material “polyester” was a rectangular fabric used to manage menstruation in the study area. The Uger Pad was of cotton fabric, styled to mimic the commonly available branded disposable sanitary napkins with wings. The collaborators were divided into two groups, each group tried one product for 4 months and then switched to the next product. During the trial period, records were kept and groups met each month to share experiences.

The collaboration brought out many findings. The first set of findings were related to performance of the product - blood absorbing capacity, whether the product caused leaks on outer clothing, how comfortable it was to wear and how many hours it could be worn before a change was required and other aspects. There were other levels of understanding. We realized that overall acceptance, adherence and longevity of any reusable menstrual product is directly governed by many factors, these include:
a. Infrastructure, latrines, spaces to change, availability of water and cleansing agents such as soap, spaces to hang and dry
b. Attitude of community toward menstruation, gender issues, aspirations and priorities
c. Access, availability, affordability of products
d. Availability of sunlight and other weather conditions
e. Maintenance - how a product is maintained by an individual user

During the research process, users diligently recorded how much soap and water was used at each cycle, they kept track of how long the products took to dry, they kept notes of where they hung and stored their products. We were able to see and record how products fared after each maintenance cycle when the collaborators brought in used items for inspection. They allowed us to photograph their homes, places where they wash and hang and also take pictures of used menstrual products after each cycle.

The contribution of collaborators from the village communities must be recognised and acknowledged. Had it not been for the trust placed in us by these women, our research would have been superficial. What cannot be forgotten is that the subject of menstruation is still shrouded in shame and secrecy in rural contexts - collaborators had broken their own silences by participating in the research process along with us.
Since economy and marketing are shifting from goods to a service dominant logic, customer experiences in retail stores have become a valuable differentiation strategy. The current literature on retail environments and emotions lacks knowledge about how to induce these experiences and how to capture the mediating role of emotions on consumer responses in retail environments. The purpose of this paper is to contribute to this literature by investigating the applicability of two verbal and one visual report emotion measurement instrument for measuring emotions in customer experiences in retail stores.

**MEASURING EMOTIONS IN RETAIL STORES**

**CUSTOMER EXPERIENCES IN ENVIRONMENTS**
Design is the process of creating a solution that meets user/business needs and good design is all about good decisions. So, the real question is how do you make good design decisions? There are many ways to arrive at a decision following heuristics; following intuitions; following design experiences; following user/business needs and the list goes on. Think of the famous Henry Ford quote: “If I had asked my customers what they wanted, they would have said, a faster horse.” Also, it so happened while executing one of the research techniques that user’s didn’t exactly do what they said would do. As a designer, Henry Ford took only the direction from the user needs and through research, designed a simple solution that addressed the goal of getting people from here to there more quickly. Hence, research driven design states the case too strongly.

As a personalized Functional Medicine focuses on underlying causes and prevention of serious chronic disease rather than the symptoms, research identifies the root cause of the problem or psychological needs rather than focusing on only the problem and the needs. Focus of research is to identify the “why’s” of the problem rather than the “what’s” of the problem. Research not only helps validate user/business needs but also helps validate design decisions.

Research techniques are always contextual. Not every technique applies to every scenario and it is not always practical to execute every possible research technique on all projects considering the time frame, cost & various other factors. And when it comes to the choice of research technique(s), there should be careful evaluation based on the value of the outcome & its impact.

This paper discusses in detail about the
research/analysis driven methodology, various research methods followed/observed along with the outcomes of each, how research was fed into design in creating classic user experience solutions.
INNOVATIONS IN DESIGN RESEARCH METHODS

Innovative tools & Techniques, future of design research, smart research, research & the web.
CO-CREATING VALUE NETWORK FOR RENEWABLE ENERGY SYSTEMS IN INDIA

The development of renewable energy systems (RES) requires both long-term commitment and close collaboration of diverse stakeholders. International collaboration poses many challenges in particular for small and medium enterprises (SMEs), as they lack the resources for intensive international work. Especially, systemic solutions such as RES challenge SMEs due to their complexity. Therefore, there is a critical need to find effective co-creation tools and processes for supporting the international collaboration of SMEs.

This paper presents a case study on the use of participatory design methods for co-creating RES systems in Finnish-Indian collaboration. The paper focuses on the early phases of RES development, which highlights the importance of constructing a relevant and critical value network for developing RES in India.

The study describes the participatory design process applied in international collaboration and analyzes the participatory methods based on their role in the process. The case study indicates that the participatory methods create mutual understanding about the scope of development and facilitate the co-creation process. Additionally, they offer SMEs a holistic approach for identifying potential value networks for RES development. The results propose the key phases of early co-creation of RES. The co-creation of value network builds an iterative process, in which the exploration of co-creation possibilities alternate with narrowing the focus.
“METHODOLOGICAL PATHWAYS. INNOVATIVE PRINCIPLES AND INSTRUMENTS FOR THE INCLUSIVE PRODUCT”

Knowledge, skills and method constitute the fundamental basis for design education that is effective in the current competitive international scenario, where differences are ever slighter and specificity of locations must become innovative within a constant process of creativity and invention. The design education process, as well as the discipline of design, must also constantly be enriched with the indispensable multidisciplinary character of the industrial product and the expanded number of end users, who are ever more sensitive and demanding in regards to inclusive products.

This contribution illustrates a proposed new inclusive and integrated methodology designed to initiate new design and experimental itineraries, excluding schemes, rules, tools and applicative logic that at times make the industrial design discipline all too rigid. An inclusive design methodology defined by critical and analytical recognition of classic industrial product design methods hypothesized between 1962 and 1981; from the selection of contemporary design methods based on User Center Design and inclusive design experience.

This is a methodical tool capable of transferring logical and systematical criteria through scientific references with the creation, management and implementation of complex systems, via inclusive and integrative design principles, enabling all users to take advantage of comfortable and pleasant use.
Modern life with all its demands is full of stress. Though Stress in small doses can improve performance but when it is way of life it has negative impact on the health. Stress causes tension in muscles, which in turn affects circulation and flow of nerve impulses. Common disorders of the nervous system such as insomnia, migraines, fatigue, depression, etc are all related to stress. Reflexology is being looked at as alternative healing practice for stress. Reflexology is a therapeutic method of relieving pain by stimulating predefined pressure points on the feet and hands. This controlled pressure alleviates the source of the discomfort.

The aim of reflexology is to improve blood supply and the nerve supply. It works on the principle that there are reflex points on the hands and feet corresponding to every organ, gland and part of the body. By applying pressure at these points, the body responds by relaxing, rebalancing, healing and improving blood circulation.

Feet are prime target for deposits because of the abundance of nerve endings present here. Applying focused pressure to the reflex points located in the foot sends calming message from peripheral nerves in these extremities to the central nervous system, which in turn signals body to adjust tension level.

With the above facts in mind the research was undertaken to develop an innovative reflexology Footgear that would help release stress by applying pressure at the reflex points on the feet corresponding to stress. To undertake the project the study was conducted on the understanding reflexology - the working principle, the contact areas and pressure desired for effectiveness of the technique; existent tools for reflexology in the market and the methods available for application of the pressure which could be potentially used for development of the prototype for
reflexology footgear. The developed footgear has platform-heel with nodes positioned at the reflex points corresponding to stress points in feet.
“USER CENTRIC & TECHNOLOGY CENTRIC DESIGN RESEARCH: A KEY TO SUCCESSFUL PRODUCT DEVELOPMENT IN THE AREA OF FOOTWEAR DESIGN FOR TODDLERS”

Product design can be approached in the user centric and the technology centric approach among other well-known research product design methods including ethnographic research approach. Only user centric designs may not be successful even if the users are made a part of it. In case of technology centric designs, the absence of user interface may make it ideally unsuitable for human task or preference. Only ethnographic approach may not provide all the required data in case of a product like footwear. All these design approaches are interestingly scientific and gives freedom to explore and experiment, with the different methods adopted to collect relevant information and synthesize the same. Therefore, the design methodology can be designed to meet the specific requirement in a particular product design context.

The paper discusses the uniquely designed research methodology adopted for the research that was undertaken with the aim to systematically design and develop footwear for Indian toddlers with normal feet development. Toddler’s footwear is a highly technical product as it houses a very vulnerable part of the body. The choice of the footwear at this time is also very important as the future of the gait formation and the foot health of the toddler is dependent on the type of footwear worn during the early years of walking. Hence, the design methodology adopts the user centric design approach as well as technology centric design approach, and some aspects of ethnographic research to be able to meet the aesthetic preference of the consumer and also the constructional and the architectural requirements of the footwear. In order to understand the
consumer preferences in this segment where the decision makers are primarily the parents, while the subjects are unable to express themselves in terms of comfort or preferences, it was pertinent to observe and interview the various stake holders involved with toddler’s footwear like parents, play school teachers, care givers, footwear retailers, footwear manufacturers and footwear experts to understand the user needs, requirements and preferences. Methodology was also designed to study the technical aspects of the footwear e.g. how it affects the gait of toddlers and the feet development, the breathability, flexibility and abrasion resistance and other functional requirements of the material. The aesthetics preference of the product including the colors and the graphics preference of the toddlers were also a part of the research methodology which included participant and non-participant observation, workshops and playful interaction with the toddlers in different settings. The methodology used was able to provide relevant and validated data to successfully design and develop toddler’s footwear adopting a User Centric Design approach, Technology Centric Design approach and ethnographic approach. Additionally the prototypes, the re-designs and the final product designs were tested through usability test by scientific test methods as well as physical trials thereby confirming the accurateness of the hard and soft aspects of the product, including the design preference of toddler’s for footwear.
MULTIDISCIPLINARY RESEARCH IN DESIGN

Research in fields of humanities, sciences, technology supporting design solutions, cross-disciplinary teamwork in design research.
“MODIFIED FISHBONE ANALYSIS METHOD”

This paper explores the new approach towards the possibilities in the Multidisciplinary Design Research field. Paper identifies modified Quality field method to use in this field. Knowledge of real-world problems can rarely be captured and understood through the lens of a single discipline. But “Multidisciplinary design research” highlights the distinct fields with its concerns, concepts, measures, and methods associated with the Project and It will give a more profound problem understanding and higher quality of solutions.

Fish-bone Analysis method
This is basically a Quality assurance/Quality Control (QA/QC) method. In this method, Fish-bone diagram is used to illustrate the analysis. So, the solution is in the graphics format that can be conveyed easily. Fishbone Diagram also called - Cause-and-Effect Diagram, Ishikawa Diagram. The fishbone diagram identifies possible causes for an effect or problem and leads towards root-cause.

Fishbone Diagram Procedure:

a. Decide problem statement (effect). Write it at the center line with arrow.
b. Brainstorm and write the major categories of causes to the problem as branches from main arrow.
c. Brainstorm all the possible causes of the problem. Ask: “Why does this happen?” and write reply as a branch from the appropriate category.
d. Again ask “why does this happen?” about each cause. Write sub-cause branching off the causes. Continue to ask “Why?” and generate deeper levels of causes.

Now I am applying this to the Multidisciplinary Design Research field with some modification as given below.

a. Decide a Project Title or Problem Statement.
b. On the place of cause I write different
fields related to a project or problem.
c. On place of Sub-cause branch-Key elements related to each field.
d. If required further sub branches can also be created.

For executing this,
e. First decide Purpose or Title of the project/problem.
f. Brainstorm and decide all the fields related to it.
g. Consider all and divide it into major and minor categories fields.
h. For the major fields, have one expert of the field who will decide key elements of the project related to his field.
i. Again these fields will have major and minor categories but further procedure will be dealt with major key elements.
j. This field expert will observe and decide how product can be improved with quality, functionality, cost etc.
k. While changing the one key element, it will affect other elements at some extent, now we will decide accordingly that up to which extent we should change the first element.
l. After completing such diagrams, we can compare and decide that which element property should be changed up to which extent with minimum side effects to the other elements.
m. He will also observe and apply the change in its field when elements of other fields are changed by interacting with other field experts.

Accordingly they will decide which elements should be changed and up to which extent.

Using this modified method will help to consider all the fields at the same time and on the same diagram. Thus it will easily lead us towards the key issue which can be improved.
Childhood is a blessed and brief time and play is such an integral part of childhood, that it seems only natural that all children be allowed to play to their heart’s content. Cerebral palsy is a condition, where the motor sensory control centers in the cerebrum can get damaged during pregnancy, childbirth or after childbirth, thus causing spasticity of muscles and secondary orthopedic difficulties. Children with cerebral palsy have also been found to respond positively to recreation and leisure activities depending upon the type of activity, degree of disability, environmental factors and the age group.

This study focused on the research and development of user-centric indigenous games for children with cerebral palsy between the age group of 10 to 13 years. It was a case-study based approach of two children studying in a voluntary organization, based in Chennai with the sample being a representative of children who had a specific type of cerebral palsy, with a defined set of capabilities in a particular community. Children were observed for a period of one week, in their classroom settings as a non-participant observer, followed by interactions with their mothers. The data was categorized and segregated into different domains of development, from which cues were drawn to understand the preferences, interests and difficulties of each child.

The requisites of a game for each child was worked out, after which concepts for games were brainstormed, considering the child’s abilities, needs and interests, with a market study of existing games simultaneously. The prototypes were tried out with children to analyze what each child liked playing best. The concepts were evaluated by teachers, parents, therapists and experts in special and early childhood after which the finalized concepts were developed,
developed, considering the design elements and aesthetic preferences of children. The developed games were evaluated by trying them out with the children and their effectiveness and suitability were assessed qualitatively.

Some of the major findings of the study revealed that, at school, the focus is necessarily on therapy and skill development, with limited opportunities for play as an activity. At home, parents spend most of their time, in getting their child through their daily activities, where play seems to lose importance. It was observed that children with cerebral palsy started using limbs or motor skills that they do not generally use for other activities, when they were involved in playing.

While developing toys for children with special needs, it is important to develop activities appropriate to the child’s chronological age, but simplified keeping the child’s mental age and abilities. Also, toys for special needs should allow flexibility in modifying them according to user preferences and interests, if not abilities. It is essential to understand what level the child is in each domain, systematically understand the child’s needs and interests and set goals accordingly.
“CHITRAKATHA : MAKING OF MULTIDISCIPLINARY STORY TELLING FESTIVAL FROM INDIA”

In India animation and comics came as a tsunami like waves with the rise of outsourcing global industry which surely created a huge hype about animation/ graphic narrative in and from India but unlike our already matured film industry both regional and national, Indian graphic storytelling largely remain infantile or under shallow influence of either Hollywood or Japanese Manga and Anime! So the challenge was to find an outlet or a platform to share our alternative stories with the other stakeholders to sustain, preserve and move on. The immediate plan came to our mind is to host a festival of graphic storytelling from the backdrop of historical city of Ahmedabad and National Institute of Design where I teach animation film design to Indian students and also currently head the department. After initial assurance from few fellow friends and stakeholders, in 2007 with a very small team & budget I launched a biennial student animation festival named Chitrakatha (in Indian word means Picture Stories) which I managed to gather many a different kind of storytellers, from cartoonists, comic book artists, writers, folk singers, scroll painters, musicians, dancers along with many master animators and designers from India and beyond. After a long tiring chase to gather fund, convince people, communicating across I managed three edition this festival of graphic storytelling from India, perhaps the only authentic festival of storytelling. Every edition I host it with a specific theme. In 2007, the theme was “everything original”, 2009, theme revolved around heritage city of Ahmedabad and in 2011, theme was “Back to Basic.” Through Chitrakatha I endeavour to bring together storytellers of all (odd) kinds. 2013 the 4th edition of this festival with the theme of “Ancinet Civillizations”, I realised that it’s time for me to take this forward as a living and contentious
example of cross-disciplinary research in applied form. Chitrakatha truly brought the various design discipline to come together at least once in two years and made a mark with various experts, masters, performers and educators to share and debate the myth busting myths and tales. I always welcome with open arms the young and the wise, the matured and the pros, the backbenchers and the toppers, unsung and the celebrated ones to come and share their stories - to celebrate the cause of good animation film design education or simply the nitty-gritty and pros and cons of graphic storytelling from all across the globe.

Chitrakatha to me is a confluence of thought provoking activities initiated by creative minds from the field of animation and storytelling. Now I seek further support from many private-public bodies that will nurture this and take it further for the benefit of this subcontinent's rich narratives past, present and future. The challenge is sustainability; self-motivation is the key. Design education is the spine!
“DESIGN AND RESEARCH: ETHICAL ASPECTS”

This paper is located at the intersection of design education and practice, social sciences, research and design research in India. The paper covers a broad terrain to investigate the nature of this interaction and draws forth its raison d'être from the perspective of the pedagogy and approach to design education as expressed through the curriculum and learning teaching methodology at NID. It begins by examining the issues and concerns pertaining to the ethics of research in general. It contextualizes this in design education through the author’s experiences as a teacher in a design institute (NID) by extrapolating on several examples. Taking the particular examples of craft documentation and design projects at NID, it explores the complexity of this dialectical dynamics which more at times finds resolution in a symbiotic relationship between the two strains of design research and that carried out in the social sciences and at others, leads to a relationship of conflict. Through the examination of the examples, the paper culls out certain observations on the nature of design education and practice itself.

Further, it underscores the specific problem faced by design researchers in India given that there is little writing or articulation of research or the ethics of it in the terrain of design. A corpus of writing and theoretical perspectives that articulates the voice of designers, on the ethical aspects of their work is a crying need which merits a dialogue between design education and practice and between other fields such as the social sciences.
Systems thinking & systems approach is used in many disciplines of social sciences as it helps in developing an overall understanding of complex multi-faceted problems. System dynamics is an aspect of systems approach and is used as a method for understanding the dynamic behavior of complex systems. It is a methodology and computerized simulation modeling technique for framing, understanding and discussing issues and problems and for suggesting changes in the decision-making rules so as to improve the performance.

System dynamics has its genesis in control systems and had been initially used in automation. Subsequently, it has been used by a number of researchers in other areas such as supply chain, human resource, transportation, etc. It can also be used as an effective tool in trans-disciplinary research (Gallati & Wiesmann, 2011) and design research. Through this paper an effort has been made to use system dynamics to understand the implications of demographic changes on sustainability, with specific reference to clothing, and study patterns and magnitude for developing policy frameworks to handle the problems associated with growing consumerism in India and propose design solutions.

Mix methods approach with a combination of exploratory method, ethnographic study and survey has been used to develop an integrated model for sustainable development. System dynamics modeling has been used to capture the interactions and causal relationships of clothing consumption, disposal of urban households in the catchment areas and the impact of population growth, demographic changes in a growing economy have been modeled over a
10-year period. Design research has been incorporated to develop a sustainable framework that leads to value creation by providing one full additional life cycle to clothing. The systems thinking approach facilitated development of the conceptual model to simulate the behaviour using systems dynamics tool over future periods, which could have been otherwise studied only post-facto.
CONTEMPORARY MODELS OF DESIGN RESEARCH

Interpretations of design research in various design domains, unique customized approaches vs generic models, visual representation of design research.
“A MULTIDISCIPLINARY DESIGN APPROACH TO ENHANCE THE USE AND THE ENJOYMENT OF MUSEUMS, CULTURAL AND NATURAL HERITAGE”

The Cultural and Natural Heritage is a relevant value that must be taken into account, mainly if we consider its positive potentialities for the Sustainable Development. Even though these potentialities are obvious, new relevant design opportunities are possible in the fields of tourism valorisation, for example: new solutions for the sustainable fruition of cities and parks, new services for the educative tourism, new experimental design approaches, etc.

The paper shows the results obtained from a research study on the theme of touristic valorisation of Cultural and Natural Heritage, with an application in the emerging Countries. It combines the Design for All (DfA) approach for the analysis of end-users and for the design of touristic fruition solutions; and the Disability & Case Management (D&CM) approach for the evaluation of end-users’ needs and for the realization of inclusive networks and work plans.

The paper shows the results obtained from theoretical and experimental research on the issue of touristic valorisation of Museums, Cultural and Natural Heritage. It combines together, and in a synergic way, two very innovative and actual meta-projectual disciplines: Design for All (DfA) for the analysis of end-users and for the design of inclusive touristic solutions; and Disability & Case Management (D&CM) for the evaluation of end-users’ needs and for the realization of networks and work plans in the way of social inclusion.

The paper aims to demonstrate the possibilities of both approaches to the emerging world of sustainable tourism. More precisely, it follows two stages:
a. The first stage scientifically describes the DfA and D&CM approaches, highlighting their potentialities, applicative specificity and strengths – both on the design research point of view and on the industrial ones – for the proposition of tangible and intangible solutions aimed to the touristic fruition and valorisation of Museums, Cultural and Natural Sites.  
b. The second stage experimentally shows the results obtained from the adoption of such new combined approach on an emblematic case study that took place in Italy. It critically analyses the obtained results and proposes some generalised Guidelines for further applications in the field of Heritage promotion.

The research’s results highlight real applicative potentialities of described approaches, demonstrating how they might bring a real benefit to the enhancement of a user-centered and need-based fruition of Museums, Cultural and Natural Heritage.
Communication design as a discipline has established itself as being highly important to drive the social change we require towards more sustainable ways of living in the 21st Century. Taking into account the contemporary growth of social innovation initiatives, this paper argues the need for reflection on the role of communication design in this emerging area. The discipline lacks studies on this, particularly to address what are the appropriate communication design research methods.

The purpose of this paper is to analyse the suitability of existing frameworks for communication design research, which can be considered generic, through the lens of what social innovation for sustainability is and what it requires. The paper presents a new approach to communication design research in this area; it acknowledges the positive characteristics found in social innovation initiatives and explores how these can be used to inform the process of research. Some of these characteristics include the complex and networked interaction between participants, their active engagement, the importance of experience and the sustainable living qualities it fosters. The paper shares a practice-led project conducted through this approach as well as early findings.
“DESIGN RESEARCH : AN INTERPLAY WITH WORLD SUCCESSFUL ECONOMIC MODELS : THE JOBSISM”

It’s relevant to observe today, more than ever, that design research issues impacts the economic world through innovative outputs. When the question of design research as a synthesis leading to design intent is highlighted, it’s significant to understand in academic and professional way what already constitutes successful design research investigations in a link to economic successful models, as success validates irremediably for different stakeholders some design research issues.

Driven by this thought, one can observe through research on design history that the main economic productive models deal with design research issues: Frederick W. Taylor as an engineer shows to the world that implementing new designed tools and processes leads to a new economic model. Later Henry Ford, through a new design applied to engineering tools, plant processes and products, generates a successful new productive model that becomes the Fordism.

Years later, worldwide companies affected by the seventies oil chock discovers that Toyota is not suffering thanks to a specific productive model driven by a new design tools and processes. Tāichi Ohno model becomes then Toyotism.

In a similar way today, when the world is going through the worst economic crisis since the great depression, it’s possible to observe that one company is not harmed by the crisis at all. More than that, this firm called Apple, performs it’s best financial performance, standing by market capitalization at the top of worldwide companies. Then, since designers, students, managers and academics (Verganti 2009) refer to this company, it appears through this thought, significant to observe on scientific basis, what could be considered as a main fourth economic model, under design research.
Methodology:
To investigate this issue in order to draw Apple design research philosophy, we made a qualitative approach focused upon narrative and storytelling methodology investigation. (Barthes 1966) To avoid bias and journalistic confusing secondary data, we choose to focus on a Steve Jobs authorized biography. More than an interview, biography or authorized biography is a significant data as the author expresses and assumes his point of view with a deep reflexion. (Denzin 1991)

Research findings:
Our investigation makes it clear that Design research at Apple is a prior to the establishment of the company, which means that design research is embedded in his DNA. From this point, design philosophy leadership will appear under four principles:
1. Simplicity: By approaching Asian Buddhism philosophy on his link to the Zen, Steve Jobs attested that Zen has been a deep influence making then specific link to the aesthetic research philosophy developed within design process company.

2. Perfection: To attain the simplicity principle, perfectionism is erected as a kind of religion outstanding any other considerations, among them all business constraints. Perfection drives process design research in any artefact coming out from the company hardware, software, brochures, logo, advertising, packaging, events organisation etc.

3. Focus: The ability to focus deeply both personally and collectively is considered as an important design research principle.

4. Intuition: Improved by his interaction with Indian culture during his youth trips, Steve Jobs developed strong thought on intuition and set it as a design research principle in design team management. In other characteristics, Apple model emphasized professional designers as a strategic resource, getting more importance and leadership than engineering design. On this basis, engineering process is turned towards a design research artistic perspective. Conclusion Considering the huge success fitting Apple in financial and no financial performance even in crisis time, it’s possible to advance the idea that “Jobsism” deserves to be seen as a main productive model as in the past it was for the Taylorism, Fordism and Toyotism. Design research performance appears as a main principle shaping the value of inspiring a new economic model.
“BIG AND SMALL: DATA VISUALIZATION FOR A RAPIDLY CHANGING INDUSTRY”

The paper is a snapshot of industry practices in big data visualization. The paper is purely based on learning of User experience groups that the author has worked with in the field of big data visualization. This paper tries to compile the highlights of techniques that UXD teams applied to find their ways in the fast growing, and rapidly changing environment of predictive analytics and data visualization. This paper highlights the importance of user centered design in highly technical environments. It illustrates the typical behavior of information when visualized with analytics as the core objective.

A confluence of technical, competitive and accessibility shifts in the data industry is changing traditional ways of looking at the data and its representation, causing institutions to sharpen their focus on maximizing their customer intelligence through data insights. By concurrently driving monetization and reducing costs, the predictive analytics channel is in a unique position to help institutions achieve profitability and consumer reach.

Data visualization is arguably the most promising of formats with the proliferation democratized big data. Visualization by providing the right stimulus to varied areas of brain, triggering and helping knowledge comprehension has enabled this industry a tool to rely on.