From Me to Us

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ABSTRACT
Design is reaching the corporate and public center-stage. But are we ready? Lagging in quantity and hence debatable on quality, perhaps it is timely now to revisit our design education in the context of the realities and complexities of the information age.

Rather than narrowly focused specialist designers we need to create holistic designers who will apply and disseminate design thinking to solve problems and will design total experiences for networked products, services and systems. They would apply design methods equally effectively to physical, digital as well as combination products thereof as suits the context.

We need to create collaborative mindsets rather than individualist ones, with the humility to appreciate that successful design today is about multidisciplinary participation and also that a design is not done until validated by those in whose hands, minds and homes it goes.

And we need to create in our future designers the responsibility to design for inclusion as well as to discover through independent thinking, problems that need solving that design can solve rather than design for the top ten percent alone.

And while our colleges must educate and corporations must train, we must close the gap between academic education and corporate training through industry led teaching as an essential and significant supplement to our education.

This paper will share some of these approaches that have been successfully attempted and practiced, by incorporating them as part of a post-graduate design course.

A design education that teaches to keep focus on users and their context, to design not for a single product but for the complex interconnected mesh of products and services that surround us today and teaches also to remain rooted in making lives better, is the need for tomorrow's India.

Author Keywords
context; user; holistic; collaborative; industry; inclusive

INTRODUCTION
Design as a profession has been going through sea changes. We are at one crossroad in the history of design, where products are assuming complex dynamic behaviors that require new skills and approaches to their design. There may never have been a time when design was more important and the specific skills of the designer more essential. And yet, with far too few exceptions, design as it is currently taught and practiced is better suited for how things have been in the past, rather than meeting the demands for what is coming in the future (1). Basic foundation design courses developed by the Bauhaus that made good sense earlier, today the same method is an anachronism (2).

Information overload is today's standard operating condition (3). As social and economic environments around us grow ever more complex, we need a better toolset for responding to the sudden twists and turns. The key to creating successful products and services is a flexibility to adapt to unexpected changes: flexible design processes, flexible development processes and flexible decision making processes to adapt to new competitive and market realities.

Design is gaining visibility in the world of business too (4). The heart of business is the art of problem solving (3). Globalization, containerization and digitization are the reasons for a shift in the ways businesses engage with their customers (4). We live in a flat world where new ideas and products could come from anywhere (5). To cut through the complexity of a world that is both shrinking (in terms of the global village) and expanding (with respect to technological capability), businesses must take advantage of the power of design to realize true competitive advantage (4). Forrester Research finds that 'implementing a focus on customers' experience increases their willingness to pay by 14.4 percent, reduces their reluctance to switch brands by 15.8 percent, and boosts their likelihood to recommend your product by 16.6 percent' (6).

However, arriving on corporate and public center stage is one side of the equation. Fulfilling the demand it generates is another. India's current annual consumption of design services is estimated at Rs.3,400 crore. This is expected to

grow to Rs.12,300 crore in the next five years. India currently trains around 1,000 design professionals every year against a requirement of 7000 to 8000 (7).

India is designing today not just for itself but also for the world. A common theme we heard from people managing global design teams is the need to develop local skills. Some of these stories were about training new talent in markets where the idea of UX is still new. Some of this education happens within companies as they expand, for example adding UX to the training for developers. But there are also new design schools springing up around the world (8).

As we prepare to face these new opportunities therefore, we must recognize that today our designers are required more than ever to become holistic professionals. This means they must be comfortable with physical and digital design, analytic and creative aspects of design, design for low and high literacy, design for a network of products and services rather than a single product and must view design as a collaborative rather than an individualistic activity.

It is perhaps time for us to assess how well we equip the design professionals we are creating today, to rise up to the challenges of this new world order of the design profession. We do need a new imagination for design education in India that can inform the next 50 years or more (9).

BACKGROUND

Several years of the author's work in industry along with the experiences of hiring led to a growing dissatisfaction in the quality of available talent. This gap between the required and available skills costs the industry considerably. This cost is typically projected in terms of the time investment in training new candidates to get them 'project ready' vis a vis the low returns projected from the length of their association with the company as is typical in industry today.

Secondly, informal enquiries from recently graduated designers expressed their unfamiliarity, discomfort and feeling of being ill equipped to handle the requirements of their new jobs which put them at a disadvantage as they began their professional work.

Thirdly, both designers and engineers were often unfamiliar with what to expect from each other, based on the skills that each brought to the project and therefore what would be an effective way to collaborate. Collaboration that effectively integrates design with engineering can bring out the best in a product. Its absence likewise, leads to high rework costs and dissatisfaction about product quality.

Fourthly, there seemed an absence of the effective teaching of user testing techniques, which have long been known and proven to be powerful techniques to enhance product success.

And finally, a need was felt to create an approach for teaching design that took it beyond the 'design as craft' view that appears to still dominate many design curricula today.

Today vast and varied bodies of knowledge have assimilated into pragmatic and contemporary approaches that view design as a human centered activity combining its creative and analytical aspects. Curricula today must therefore include these methods and techniques that are available and applicable to any kind of design activity. They must support also that it is better to be right than to be original (10).

A DESIGN TEACHING APPROACH FOR TODAY'S INDIA

Based on the above perceived needs, an approach was defined to teach user experience design. A curriculum plan was then devised to incorporate all the requirements and gaps observed and experienced. The ultimate endeavor was to help shape a design professional who is a confident and independent thinker, a team player, a global designer, reasonably ready for industry, one who understands the balance of research, analysis, creative exploration and validation and who is characterized by an open mind towards inclusive design.

The contact time of the course evolved into one month over an elapsed time of 2 semesters. This model gives students the ability to learn, practice and most importantly reflect and iterate on their projects as they evolve it. The course is divided into 3 parts, where parts 1 and 2 are devoted to teaching of the user-focused methodology while part 3 is devoted to industry practice, thus making it a complete learning.

Sixteen methodically planned educational components loosely grouped into the following five broad areas are as below and also shown in Figure 1:

a. Course organization

b. Being holistic and open

c. Methodology

d. Work dynamics

e. Design communication

Each of the sixteen essential educational components are listed and elaborated below. Expectations as well as challenges in the execution and delivery of each are also elaborated:

a. Course organization

1. Division of course content into methodology versus industry orientation as 2/3 to 1/3

The gap between graduating designers' notion of industry and its reality is a disadvantage for the newbie and a loss for the industry. The above division has been strategically defined and architected into the course to

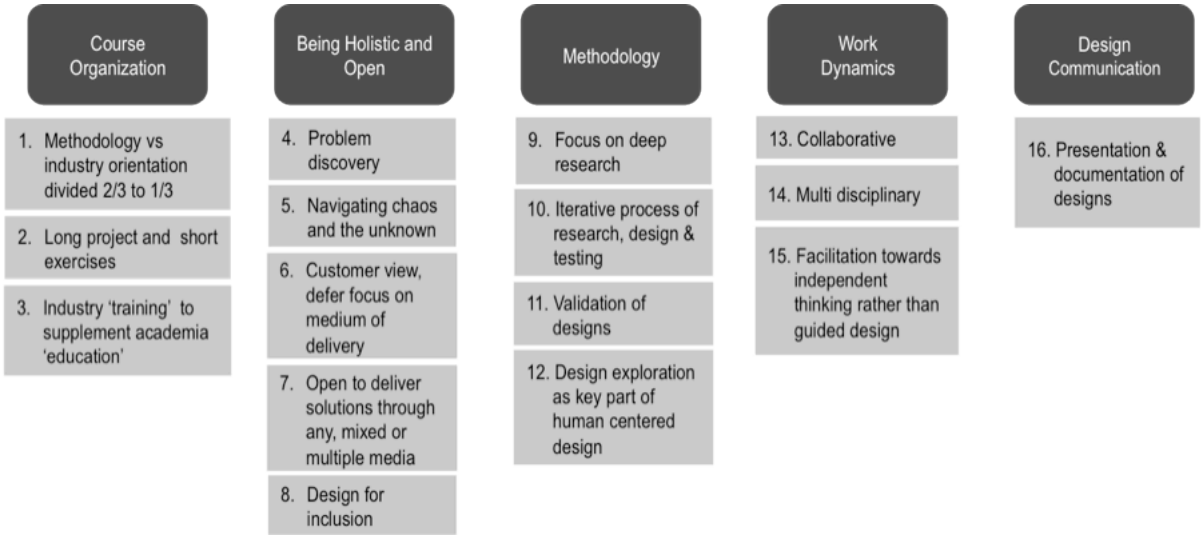

Figure 1: Educational components for design teaching

ensure that students get the systematic approach of education while also getting exposure to the randomness and crisis management modes that are often a part of the realities of industry.

Expectation
While their education must provide them exposure to the complete human centered design methodology irrespective of whether it is practiced in its entirety in industry, it is also critical that it exposes them to the tradeoffs, prioritizations and the business basis of industry situations.

Challenge
It takes a constant conscious effort to keep the holistic methodology intact in their minds and in their learning while simultaneously enlightening them about the real world.

2. Long Project as well as Short Exercises
Students execute on one project through the entire duration of the course and in tandem with it. They also perform exercises during the learning of each individual section that are relevant to as well as reinforce the learning of that section.

Expectation
Learning is convincing, satisfying, and long lasting if it is experiential. It is also known to be the best way to gain confidence. One long project helps students stay aligned and get the most out of all aspects of the methodology as they execute to it.

Challenge
Learning each educational component of an overall methodology, performing exercises to reinforce learning component of each individual section as well as executing on a project alongside requires significant time as well as effort commitment on the part of both teacher as well as students, beyond the projected hours of the course.

3. Industry based 'training' to supplement academia based 'education'
Several case studies of projects from industry are covered, not just of the design process and the final design outcome but laying particular emphasis on the industry based constraints, business requirements that were the basis of a design engagement, tradeoffs that had to be managed and the team related dynamics that typically come to bear in industry. Interactions with industry experts are included as possible.

Expectation
Through role-plays and exercises of typical industry circumstances, students experience and prepare for real situations and learn approaches to navigate them.

Challenge
Preserving a graceful balance of 'education' and 'training' orientations is challenging. It is important to maintain due respect to 'education' as students' rightful need in an educational institute while at the same time recognize the challenges of fast paced industry in times of rapid turnover and get students prepared to also be 'project ready'.

b. Being holistic and open

4. Problem discovery
Students are required to identify an area or problem of their passion and interest to which they can apply design skills and thinking to solve. Discovery means opening up to new opportunities, and getting inspired to create new ideas (11). Discovery builds a solid foundation for ideas and increases chances of success of the final outcome.

Expectation
A focus on discovering problems makes learners aware of people, situations, contexts and behaviors. Working on a problem in their area of interest helps learners tune into the kinds of problems that design could solve and also explore possible entrepreneurial interests. Exploring new areas provides a key learning: generating confidence that they are uncovering and pursuing the design problem that serves a clear user need. They would then be able to articulate it with conviction.

Challenge
It takes reflection, deliberation and several tries to ultimately zero in on the right problem to work on, which students thereafter feel the confidence to pursue. It requires a persistent effort and patience on the part of the instructor to support and help bring out students' thoughts rather than direct them.

5. Navigating chaos and the unknown
Through the journey of problem discovery, learners often encounter dead ends and blind alleys in a vast and unknown area. This approach introduces chaos into the design process.

Expectation
Confrontation with ambiguity as planned thus and the ability to progressively reduce it must be an essential learning for a designer.

Challenge

Needs instilling faith in students through a difficult and physically exhausting period of the project that clarity is imminent.

6. Customer view, deferred focus on delivery medium
Students are encouraged to focus on the needs of the user and their context from an overall perspective so they can elicit what is the best way to deliver to the users' expressed and latent needs. See Figure 2.

Expectation
Students must let the choice of medium evolve as an outcome of their research and analysis rather than pre select one that force fits a user and their requirements into something that may not be right.

Challenge
Conscious effort is needed to shift students thinking away from the typical 'let's create an app' mode that is also common in industry today. The shift must be towards understanding users' contextual needs alongside needs of the business, towards a robust solution.

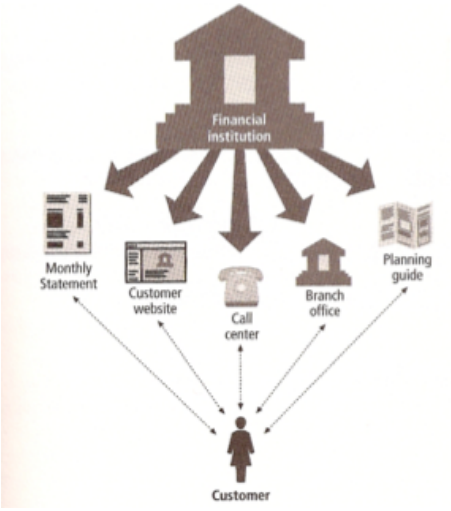

Figure 2: View of 'the experience is the product' and 'stop designing 'products'' from Merholz et al (4)

7. Openness to deliver solution through any medium, mixed or multiple media
There are many media and platforms to deliver designs today. Certain aspects of a solution maybe best delivered through a particular medium or media and choosing the right one or the combination of right ones in order to deliver an overall experience must be part of the decision process for a designer of today.

Expectation
Students must study, reflect and answer what form of the solution best addresses users' and business needs. Rather than an approach of 'let's design a website' or 'let's design an app' they must derive solutions that maybe delivered through a combination of media such as a booklet plus an app plus a hoarding for example as befits the context of the user and usage.

Challenge
It is complex for students to think holistically as well as to apply their design insights simultaneously through different media in order to come up with the design of an overall experience rather than of a single product. The duration of the course also constrains the ability to practice this approach in its entirety.

8. Design for inclusion
Designers must be solvers of problems that make peoples' lives better from physical, psychological and social perspectives. And they must include humans from varied sectors and sections of society. Design has become the most powerful tool by which man shapes his tools, environment, society and himself and this demands high social and moral responsibility from the designer. Design can and must become a way in which young people can participate in changing society (2). With the mobile revolution,

technology for example has permeated lives of large numbers of users from unexpected user segments such as low literacy, as they adapt to ill-fitting designs of products not designed for them.

Expectation
Designers of today must prepare to impact future designs positively so the technology integrated lives of all types of users, particularly low literacy users who exist in large numbers in India are empowered beyond mere increase in its complexity.

Challenge
Since students often have minimal exposure to working with the needs of the bottom of pyramid (BOP) users, they need to be encouraged to think of projects outside of their comfort zone that impacts this segment. Students are required to reflect and conclude whether design for BOP is a valuable, responsible and viable business proposition.

c. Methodology

9. Focus on deep research
Various research tools are available in the user research toolbox. Learners are expected to conduct deep user research employing these tools as suits the context of the project and to keep at it until they uncover clarity on the contextual need of the product. Around 25% of the project is devoted to deep research. This emphasis is recognized as critical to product success today. In 2006 alone, Business Week published over 15 articles and posts about the power of ethnography (4).

Also expected is study of the large body of scholarly research that exists, to apply to the design of user contexts.

Expectation
Through hands on approaches to deep user research, a quest for uncovering core user needs is learned. Learners understand and elicit the right problem that needs to be solved, that design can solve. This process also reveals a key ingredient for a designer: inspiration for design.

Challenge
Deep research is effort intensive, difficult and overwhelming. Cultivating an attitude for investigative study, the hard work it entails, the staying power to negotiate the unknowns and to uncover the deep user needs are all great challenges to instill in today's instant gratification oriented generation.

10. Iterative Process of Research, Design and Testing
This is a process of learning to fail early so you better your chances of success. The earlier you fail, the less it costs while the closer you get to product launch, more expensive it gets to fail. Innovation fails about 96 percent of the time (12).

Expectation
In discovering early through the iterative process whether and what aspects of the design work and discarding ones that do not ensures that learners come out with a stronger design and have greater confidence in it.

Challenge
Committing to both user research as well as user centered testing methods alongside design and overall project execution requires learning a new set of skills.

11. Validation of designs
Today's designer is faced with designing for anybody from anywhere. Early and ongoing validation by users is therefore good business. Even small companies are less likely to be exclusively local, especially for digital products, which can be accessed anywhere (8). The user inclusive process entails evaluation and progressive refinement of design decisions through the design process, using user types derived from prior research.

Expectation
This is both an illuminating as well as an imperative learning for a designer of today. It is also a powerful and established technique that ensures confidence in the final design.

Challenge
Teaching students tools and techniques to elicit behavioral feedback of users beyond just preferences to the appearance of a design requires learning different skills. These are listening skills, observing skills as well as learning how to extrapolate findings into benchmarks and predictors of design success. They often need tapping into previously untapped areas of their skill base.

12. Design exploration as key part of human centered design
This is one of the essential skills that a designer inherently brings to the table.

Expectation
Exploring alternative design concepts and thinking out of the box is typically the key differentiator between a designer's solution and that of non-designers.

Challenge
Deliberate effort is needed to ensure exploration of design concepts. Often the natural tendency is to keep taking the one design concept along a set path as it is researched and iteratively tested.

d. Work dynamics

13. Collaborative
Design has evolved today from a focus on products to the holistic design of systems and services. User behaviors and contexts form a part of this, in addition to product

functions. It therefore no longer suffices for design to be considered as the purview of an individual designer.

In our educational system and in our culture we reward and our biases are towards the cult of the individual, which is a superficial sham. When the myth of the individual genius is peeled back, what is inevitably found behind the façade is a group, a team, a community on which that individual's performance is founded. Collective problem solving is not a significant part of our education. Virtually all rewards and examinations are about individual problem solving (1). Teamwork has only grown more important today – we live in a complex world that requires multiple competencies and hard work to succeed. However no individual possesses either the skills or the stamina to handle every aspect of a task. Hence teamwork is crucial (5).

Expectation
Collaboration is key to design success today. The design projects are executed in teams in order to experience team dynamics as well as in keeping with this need.

Challenge
Students experience typical challenges of teamwork, which is a great learning experience. Division of responsibility among team members is mandated though maybe difficult.

14. Multi-disciplinary
This happens naturally by virtue of the class profile and team compositions of postgraduate students who come in with varied bachelor degrees.

Expectation
Along with the need for collaboration, multiple perspectives and priorities are essential to design holistic systems today. Through a heterogeneous group, you inherently extend the range of experience that you can draw on (1).

Challenge
Multidisciplinary perspectives though happen naturally, learners sometimes need to be reminded to step out of their past backgrounds and work experiences and refocus their thinking into being human centered and into designing experiences.

15. Facilitation towards independent thinking rather than guided design
Rather than help learners with decision-making, the approach here is to facilitate them to make informed design decisions independently and confidently and to be accountable for their own decisions, after due consideration of its various aspects.

Expectation
Postgraduate designers may often lead design efforts when they enter the professional world today. Students must therefore learn to be design leaders, make decisions with confidence and drive design with conviction. This happens when independent decision-making and being responsible for design decisions is encouraged.

Challenge
Pitfalls of inappropriate decisions may become apparent to the instructor and correcting learners' path may sometimes be easier. However in the spirit of facilitation and in the interest of learning to manage consequences of design decisions it is best to avoid guiding learners.

e. Design communication

16. Presentation and Documentation of Designs
The value of a design is as good as the ability to communicate it, both in person and in writing. This is considered an essential in the structuring of the course and a complete section is devoted to this topic. Presentation with conviction, brevity and impact by each member multiple times during the project is planned. A detailed report elaborating the process and rationale of their work is also expected.

Expectation
In presenting multiple times as well as in creating a detailed design document, students develop strong skills to clearly convey not just their design but also its evolution, rationale and benefits.

Challenge
While presentation skills are acquired over considerable time and experience, the challenge here is to equip students with the skills, tools and techniques by which they can derive confidence in their design and therefore be able to present with confidence.

The above program keeps evolving with rapidly evolving trends and knowledge. However its core has proven effective and it continues to remain a powerful and holistic program of learning.

LEARNING OUTCOMES
While it is difficult to designate the exact outcomes of such an undertaking, several positive qualitative outcomes have been experienced while presenting this steadily evolving course over the past 3 years. Most of this has been through informal feedback from learners and faculty at the institute.

- Success in job interviews

In the period since the start of the course, there has been complete placement in jobs in user experience design. Students reported that the content covered and the skills learned in the course have not just helped them face job interviews, but have also been adequate in confidently addressing all queries and situations posed to them.

- Confident performance in industry

Some students reported how learning during the course helped them not only to recognize industry situations for which they had been prepared in class but also to face and address them confidently with colleagues from other specializations.

• Present and communicate design effectively

Learners have described that they have been able to communicate not just their designs along with the rationale, but they have also been able to communicate its value, benefits and importance, which are crucial for acceptance of design in industry. They have therefore also been able to present a view of design beyond 'design as art' that is often a typical perception and therefore a disadvantage for designers in industry.

• Product acceptance by industry

Two projects that were an outcome of deep research and significant iterations among BOP users generated not just an impressive design outcome; they also gave insights on design of technology solutions for minimal literacy users. These projects were accepted by the industry for which they were designed with the intent to take forward as actual products into the market.

• Applicability of the methodology to any design project

Students mentioned that the wisdom and knowledge of the human centered design methodology helped them beyond the confines of this project or digital media based projects. Increasing numbers of products today exhibit dynamic behavior due to the increasing inclusion of embedded digital technology. Learners found themselves applying this methodology and the approach to other projects and assignments in other areas of design. This was also corroborated by faculty. In order to create successful products, it is as important to invest in the design of the design process as in the design of the product itself (1).

• Design competitions won

Students entered and won several design competitions in which they reported applying the methods learned in this course, using it to define their human centered design strategy and evolve their designs. Faculty has also credited it with the impetus for these successes.

• Significant mix of projects selected have been for BOP

It has been observed through the delivery of this course, that students have become increasingly interested and open to working on projects for varied user segments and learning to think beyond design for the top 10% alone. This has been a conscious part of the initiative and hence is considered a success for the long term.

• A complete and self contained learning

It has been affirmed by faculty that the content covered has provided a complete learning. They felt that the concerted and concentrated delivery format have had an important part in its success. They also felt that it has helped learners get a rich experience of user oriented design.

• Interest in research and higher learning

Particular exposure to the body of research and research methods has generated research interest in the field of human computer interaction and ergonomics of interface design among learners as observed by faculty.

The overall rounded exposure to methodology, practice, research, documentation, presentation and self-reliant project execution has also led to confidence and interest in entrepreneurship among some.

CONCLUSION

Design has historically needed to differentiate itself in order to demonstrate value. In the process, it has perhaps relegated itself to the role of an individualistic specialist. This is detrimental to its required role in a connected, networked, digital and global world of today that succeeds and benefits through wider views, cooperation and media agnostic solutions. With the visibility that design is getting in recent times comes the responsibility to shape our world effectively. Therefore a design education that teaches to keep focus on the user context, to innovate not on a single but all elements of the complex interconnected network of products and services that surround people today, to move from an individualist to a collaborative approach and to remain rooted in making lives better, is the need for tomorrow's India.

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