*News and Views -14*
*from a g rao*

**My thoughts**

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**Research and Phds in Design: Their role in faculty Recruitments**

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I was in IIT,Guwahati(Assam) some time back as a member of panel for faculty selections. IITG is in course of adopting a norm to invite only candidates with Phds for faculty positions!

*This has deep implications for 'design profession' which is rooted in Practice!*

Pioneering Institutes like IDC- School of Design and NIDs have no such norm as of now! I will share my thoughts on this topic!

Research in any Subject is important for its growth of Pedagogy as well as Practice. Industrial design rooted in Creativity and Synthesis, had little tradition of research. The research concern was more of Individual explorations *sometimes, of great depth.*

Credit goes to RCA ( Royal College of Arts in UK) to start a formal 'Research Centre in Design,' initiated by Dr. Bruce Archer. School of Design(Hochule für Gestaltung) Ulm at Germany had strong bearing in Research Thinking with its Rector 'Thomas Maldonado' and 'Gui Bonsiepe' as leading professors.. 'Readings from Ulm ' put together and brought out as an idc-publication by Prof .Kirti Trivedi, in 1989 at the time of seminar, 'Ulm and After…', held at IDC, had collated papers/articles by Ulm stalwarts.

IDC, started in1969 at IITBombay, *a technological University*, was influenced by the research environment in Science and Technology around, right from the beginning. My first research paper on 'Creativity and Problem Solving' was written in 1971 for a conference(which did not take place eventually!) in IITMadras.

I got a grant for a project, 'Bicycle for Rural Use' from DST (Department of Science and Technology) in 1977. I had three co-investigators: (late) Prof.B.S.Jagadish from Mechanical Engineering Department , Prof. S.Suryanarayan from Aeronautical Engineering Dept and Mr.M.S.Govinda Rajan, a development engineer from IDC . Both the professors from the engineering departments were well versed with research culture. We published couple of papers on Energy and dynamic stability of bicycle with the research done during the project. A rig to study Ergonomics was also developed in the project. Research brought out some features, which we adopted in the final design. We did come out with a prototype of a new design of 'Load Carrying Bicycle', with the intense efforts of Vinod Gupta who was a full time design associate engaged on the project.



Ergonomic rig developed for anthropometric studies in the project



Bicycle for load carrying as an output of project

*A separate article on the project will appear soon in this website*

After 3years, the 'Project' could not move further due to paucity of funds. As designers we were not geared up for long projects! A colleague from a science department who saw the quantum of work done in the project, said that it could have easily yielded a 'Phd'. But at that time Phds were not in vogue or an attraction to designers! Practicing designers like Charles Eames, Sugiura Kohei, Henry Dreyfus, Bonetto, Dieter Rams....were our Role models! They did not have Phds.

In early eighties, IDC under the leadership of prof.Nadkarni, organised a 'Seminar' on 'Design Education' at national level. Sugiura Kohei who had come to IDC as a UNDP Consultant was present. In one session, we had group discussions on different topics. One of them was 'Design Research'.
Prof. Sugiura Kohei raised an interesting question after listening to several people who emphasized the importance of 'Research in Design' like it happens in science and Engineering subjects. He said," *May be there can be another, totally different type of Research, similar to that of an archer*!"
We were all puzzled and were unable to figure out what he meant !
*Then he explained:*
*'An Archer learns to shoot by focusing on a target point. He starts seeing the 'red dot' in the middle of Target board, day after day, for hours… with total concentration. After some days or even months, he only sees the dot on the target and nothing else. Now when he shoots the arrow, it always hits the dot as the archer is seeing only the 'dot' and nothing else!'*

The process he was talking about was meditative discovery of 'Form and Space!'

*This raises a new possibility of exploring beyond the zone of verbal thought!*

In early eighties IDC brought out 'Abhikalpa' with intense efforts of Prof.Kirti Trivedi. He, Prof.Uday Athavankar and myself were in the editorial board. It had research papers and articles related to design. We got a platform to express the thinking behind pedagogical experiments taking place at IDC. Unfortunately it could not continue after 4 issues due to lack of financial support.

In the later years my colleague prof.Uday Athavankar, pursued research in design, in spite of very little formal support structures for design research available at that time. Some research studies done for year long, like a study in Bionics (study of crab joints) by Jayaprakash Mehta and 'study on basic design' by Anupritha Surve under my supervision could not culminate into publications. Only Special Projects in Mdes programme had  some research content and output of few projects  got published as papers/articles.

With time, Design Research took shape internationally with the advent of Research journals like 'Design Studies' in 1979 and Design Issues in 1984 and due to a demand for 'Phd' as a qualification for academic positions in Universities'.

 Eventually, IDC launched Phd programme with the efforts of my colleagues! My own involvement in phd programme of IDC, has been peripheral due to several reasons. I did guide couple of students partially.

In the earlier stages of Phds in Design, a question 'Is research/Phd required in Design?, was often debated. Now it has become a question of the past.

In a well-articulated paper ' Why do we need doctoral study in Design', - 2008, M.Davis has brought out valuable points regarding the topic.

Prior to this, stalwarts like Bruce Archer, Donald Schön and  Nigel Cross have been elucidating 'design research' in a significant way. In 2006, Nigel Cross consolidated his works in his path breaking book 'Designerly Ways of Thinking'. He even claimed a unique intellectual space for  Design as 'Design Intelligence'  to be part of general Education. He also brought out the 'need' for more research in Design education itself.

*There is an urgent necessity to understand
the role and need of design research for design profession on one
 hand and on the other hand,
role of professional practice and its traditional modes of teaching and
learning to nurture the unique ability of 'designerly way of thinking' !*

I will elaborate Issues which need to be 'concerns' for
'Design Research',
'Professional Practice' and
'Phds in Design'
reflecting on my long experience as a designer and design teacher in addition to drawing from expressed thinking of others.

## 1.0 Design today deals with 'Experiences' rather than confining itself with just physical objects or hardware!

An episode from Henry Dreyfus, a pioneering American Industrial designer mentioned, in his book 'Designing for People' is interesting to recall. Mr. Dreyfus had redesigned an 'alarm clock' making it lighter, inexpensive and more convenient to use. He happened to be in a shop when a customer, an old lady, came to buy an 'alarm clock'. *He was watching anonymously with great curiosity.* She was shown the conventional design, a metal clock and the new design in moulded plastic by the shop keeper. She simply weighed both the clocks in her hand one after another and rejected the new design, to his dismay. She saw quality in its weight. The sound of 'ringing alarm' was also associated with a metal bell. The improvements in design were of no consequence to her!

*Today product stakes have increased so much that companies cannot afford to introduce new designs without elaborate user- surveys. Analysis of large data needs research methods and skills.*

I also remember visiting a design firm in Chicago in 1992 which had an interesting story to tell! There was a 'Petrol Pump-Design Competition'. The firm did not present any new design proposal ! Instead it presented a computer based 'user research study' and got a million dollar assignment from the Petrol-company to their surprise. The design firm also got 3year contract for training the staff of Company. The petrol company got convinced that the product experience and inputs required were very different than what they initially thought! They realized that actual product design of the petrol pump was only a small component in the petrol

distribution service they offer! Ultimate product experience is rooted in the 'Overall management culture' of the Company. Often this needs a change if  companies want to introduce new products or product designs.

Design Research has a big role to play as conventional approaches are often inadequate. *'Need for Design to move from being object centered to system based i.e. from simplifying to Managing Complexity through 'tools and systems' becomes a necessity'.*

 As Meridith Davis(2008) asserts

*'This paradigm shift in the focus of the design process from objects to experiences demands new knowledge and methods to inform decision-making. It broadens the scope of investigation beyond people's immediate interactions with artifacts and includes the influence of design within larger and more complex social, cultural, physical, economic, and technological systems.'*

## 2.0  When User becomes the Designer

 Modern Design struggled to fit 'uniformly produced machine products' to large number of users with varying physical traits and behaviour. Over a period subjects like 'Ergonomics', 'Market studies' got embedded into design process.

Post modernism brought in a new wave of thinking. Recognition of 'Reader as interpreter of text' as compared to the author who decided 'meanings', had its effect on 'design'.

*Not only user interprets and modifies the products in use, but also becomes a designer depending on the 'context of use'.*

Today users make their own PPTs, assemble their own furniture, to fit their own interior design. Teachers use instructional material as per their design of 'teaching'. *A kinder garden teacher uses school furniture to teach Counting, creating a play or game with the class room furniture and space around adding a narrative of her/his own.. .* Often Customer satisfaction by

participation becomes key to the success of end products. In many areas, *role of professional design has moved to design of 'product platforms' on which user configures or creates rather than end product with predefined way of use.*

Today user is more informed and wants to have a say in use of product. This would demand multiple proficiency in areas of product design, visual communication, Interaction design, etc.., and team work.

*This increased complexity in design demands a 'research based approach' to design*

## 3.0 Concern for right Values

Domination of digital media is bringing variety of implications to the field of design today. Long back Vance Packard with his well-known books, 'Waste Makers' (1960 Pelican)and 'Hidden Persuaders'(Pelican) brought the dangers of control of people through advertising, and role of media in promoting business interests which override Public interests. Design as a 'dependent leg' of business concerns can become unwitting partner in this 'Matrix' of exploitation of Natural and Human resources! Design as a 'discipline' committed to holistic concerns to create a better Society has a vital role to play. This cannot happen in its conventional 'service role' for Industries dependent on 'Market Forces'.

> *Only 'Design Research and doctoral programmes' can give 'space' to engage design discipline with a deeper concern of wellbeing of people and planet. Nurturing right education, Preserving and repositioning of traditional Crafts and Cultural practices, Restructuring consumption patterns to promote 'Sustainability' and 'Healthy living', Reaching out to socially, economically and digitally marginalized sections of Society, etc., will become important concern for Design Research!*

### 4.0 Legitimate Positioning of 'design' in Governance

Claiming a Key role for 'Design' in 'Expert teams' engaged in Innovations in Technology, Social Organization and Governing policies is a necessity!

Design with its special abilities in Thinking( like 'Design Intelligence' suggested by Nigel Cross) is yet to be accepted in right perspective by other professions. Design Research needs to focus in generating knowledge base to establish 'Design Intelligence'!

Research on case studies where designers have played a key role as well as probing thinking processes of other professionals to identify 'design frame' in their thinking could lead to new positioning of 'Design'.

Design Research has to become collaborative enterprise with disciplines like Philosophy, Psychology and Cognitive Sciences which have been dealing with 'Creativity' and 'Aesthetics' to explore 'Design Intelligence'. *Inspirational Research done by Prof. Mihaly Csikzentmihalyi to conceive 'Free flow' could offer a gainful framework for Research on 'Design Intelligence'.*

### 5.0 Role as Meaningful employment generator

Design has become 'Global' in terms of users and makers. Inequalities in resources, economic development and engagement across the globe with increased digital networks and communications have created new patterns and profiles of employment. Challenge to engage people in meaningful occupations is increasing day by day, in the context of erupting political and social unrests.

Design with its multiple dimensions can play significant role at system and policy levels. Creative ways of looking Production and Services, integrating AI will be a new challenge! Areas like 'Social design' have sprung up which need articulation based on 'Design research'. Wicked problems would be another unresolved concern of Society. 'Design Research' would be an essential mode to address such concerns.

## 6.0 Recognition of 'Design Intelligence'

Design Intelligence(Designerly ways of knowing) as core 'subject of learning' in general education has been suggested by Nigel Cross. According to him *'understanding of designerly ways of knowing, can be pursued through design research'*.

*He identifies*
*people, processes and products*
*as sources of knowledge to become foundation stones for understanding designerly ways of knowing'.*

As he puts it

*'My own taxonomy of the field of design research would therefore fall into three main categories, based on people, process and products.*

- *design epistemology- study of designerly ways of knowing*

- *design praxeology- study of the  practices and processes of design*

- *design phenomenology –study of the form and configuration of artifacts.*

In this context, 'Cognitive Semiotics' would have enormous implication in understanding of Art, Science and Learning. Design rooted in these subjects and dwelling in new technologies like Virtual reality, Nano technology, Synthetic Biology, etc,… has a steering role to play in shaping Future of Mankind.

*Design research needs to shape 'Design intelligence' for such a role!*

Prof.Dorst has been a critique of direction of design research with his often referred paper(2008)  'Design Research: A revolution-waiting-to-happen', Design Studies, vol. 29, no. 1.  In his recent paper, '[Shaping the design Research Revolution]'  he brings out his efforts in development of a design research program in 'Frame Creation'.

## 7. Research as 'Neusearch'

Creative people from Art and Design backgrounds questioned 'adoption of research methods of Science way back in nineties especially in institutes like

RCA. (Frey ling 1993). May be we need to probe for a new paradigm for Design Research where New Search or (Neusearch) can play its legitimate role as research. Soon 'Artistic Imagination' and 'AI' may find new place in design research.  Project based research and Action research for Phds are already taking shape. More such systematic efforts are needed to establish a meaningful role for 'design research' and 'Phds' in design education and design practice.

*Meanwhile, Academic Institutes need to form a careful strategy for Faculty Selections which gives a balanced weightage to Professional abilities and Research abilities. A 'Serious workshop'  among concerned stake holders is in urgent demand for a meaningful future of "Design Education'.*

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