Design for All

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         Jamia Millia Islamia University

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Other Regular features

Message from Dean and Professor Incharge

Professor Hina Zia

Department of Design and Innovation is located within the Faculty of Architecture and Ekistics, Jamia Millia Islamia

There are certain events in one's lifetime – which can be considered as epochs. A century ago, setting up a prestigious institution such as Jamia was an epoch of rare magnitude. We now add a new chapter to it - The Department of Design and Innovation. The backbone of any emerging economy rests on its performance in the manufacturing and service industries. When the industrial complex innovates, it moves ahead – and so does a nation. Design is a harbinger of innovation. Design leads to new thinking, it brings an advantage; an edge; an improvement that transforms people's lives towards betterment. And thus, we all move forward, as a society. At the same time, innovation and development, should not done at the cost of destroying the cultural and natural ecosystems. We must maintain a delicate balance between these two values. In this path, our nation will require a great number of professionals, who would have an astute understanding of her people, and shall innovate – keeping in their minds the aspirations, and pain points of the people. The

Department of Design and Innovation is envisioned to pursue excellence in design thinking and practices, and produce world-class design professionals - who can address real-world problems in an innovative and holistic manner.

GUEST EDITOR

Dr. Deepshikha *is an Assistant Professor at the Department of Design and Innovation, Jamia Millia Islamia, New Delhi. She completed Bachelor of Design (Textiles) from National Institute of Fashion Technology, Chennai (2012), Master of Design from IIITDM Jabalpur (2016) and Doctorate in Design from Indian Institute of Technology, Guwahati (2019). She is passionate about Design Education and her interests include Experience Design, Culture and Design, Design Research, Graphic Design, Industrial Design, Sustainable Design, Textile Prints and Weaves, Crafts and Trend Research. She has published papers in various international conferences and received many awards and scholarships at National and International level. Deepshikha believes in coherent research and originality of individual expression that enriches knowledge for multi-disciplinary congruence.*

Research in Fashion in India: A promising trend

Deepshikha

Abstract

The paper introduces different domains within the fashion industry, namely – Fashion Apparels, Textile, Accessories, Fashion communication (Graphics, Photography, Styling and Journalism), Fashion History, Fashion marketing, Fashion Technology and Production, Trends and Forecasting studies, Crafts, Visual Merchandising, Management, Marketing, Innovation in fashion industry – Smart/ Technical Textiles, AR VR in Retail and Production, Sustainability, Ethical issues and Certifications. Primary, secondary and tertiary research forms an important part for undergraduate and post graduate research along with a design deliverable. Evaluation of designs may or not be studied in great detail at this level as much as in doctoral research. Social media narratives and storytelling with oral research methods are widely used for fashion journalism. Research in fashion photography revolves around understanding user behavior, interaction with environment and object, interpretation of cultural media and artefacts utilized for presenting images as illustrative element to communicate concepts and ideas for evaluation. Ethnography and ethno-methodology based qualitative and quantitative research is widely used for studying craft traditions. Doctoral research includes quantitative and qualitative methods, interview, observation, ethnographic models, text analysis, visual analysis, object analysis, critical analysis, collection and presentation. The paper presents a glimpse of 12 thesis studied from a premier

fashion institution of India – the objectives, methodology, user studies, experimentation, findings, contribution and manner of reporting the theses. The paper summarizes into key areas in which prospective fashion, textile and accessory designers may pursue research.

Keywords: *Fashion, Textiles, Accessories, Research, Methodology*

Introduction

Various sub domains exist within the fashion academia, namely – apparel, textiles, leather, footwear, jewellery, communication journalism, photography, styling, social media marketing, marketing and retail, management, merchandising, production, and so on. Designers and students from this domain often acquire essential knowledge in these domains and join the industry or start a new label sooner or later. Many work as craft enthusiasts, join advertising, switch between work profiles or domains many a times. Few of these students or professionals aspire to head towards doctoral research and join academia as researchers, practitioners or educators. Research is important in Fashion domain as well as it helps to quantify design, creativity, preferences, trends and promotional activities that have been happening over the decades, enquire, document, experiment and analyze creators' and customers' thought processes and outcome. Objectives of this paper are – (i) To study doctoral theses from fashion academia and present its summary; (ii) Propose a research map for prospective researchers in the same domain. The work primarily focusses on Indian fashion academia, industry and research as little has been gathered about the Indian fashion research in comparison to institutions outside of India.

Methodology followed for the article

12 theses were studies and summarised as reported in section 3 under the following content analysis approach - objectives, methodology, user studies, experimentation, findings, contribution and manner of reporting the theses. Theoretical framework derived by author for prospective researchers in fashion academia has been discussed further.
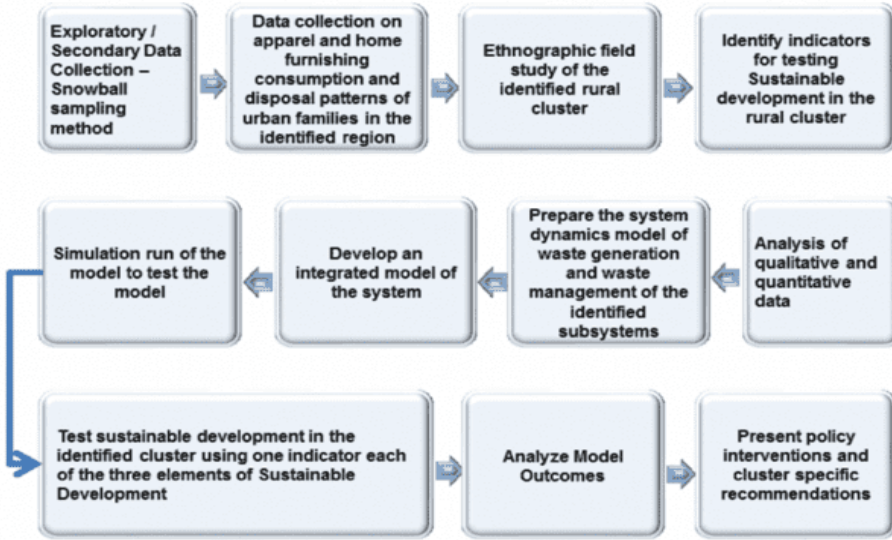
Summary of 12 theses study

The summary has been listed in Table 1.

Table 1. Summary 12 theses studied

SN	Content	Summary
	Author 1	
1	Research Title	Influence of social media in promoting sportswear brands and consumer decision making [2]
2	Research area	Social media marketing for sportswear
3	Objectives	To explore influence of social media for communication; to enquire influence of social media on decision making of consumers; to study the influence of promotion mix on decision making of consumers
4	Methodology	Research Onion by Saunders et al., 2003 was followed [1]. An exploratory research design based on analytical approach was employed. Quantitative analysis of hypotheses testing was used – i. Graphical method ii. Simple percentage method iii. Chi-square iv. Factor analysis v. T-Test vi. Regression analysis.
5	User studies	Pilot study with 61 respondents and a final study with 400

		respondents
6	Experimentation	None
7	Findings	Use of social media and sportswear is not gender specific. Young age group 15-29 is very active on social media of sportswear brands and sports. Most of the respondents were in the age group 3-8 lpa. Facebook and Youtube are most popularly used by the respondents. Nike and Adidas are most favored brands as per social media. Respondents look for information 1-5 times per month spending average of 2000INR every 1-2 months. Social media has influence on consumer decision making and promotion mix of sportswear brand. Need recognition is influenced most by promotion mix.
8	Contribution of research	Finding significant impact of social media on promotion mix – Advertising, Sales promotion, Public relations and direct selling; and Consumer decision making – Need recognition, Information search, Alternative evaluation, Purchase decision and post purchase behavior.
9	Sequence of thesis report	Introduction; Literature review; Research Design; Data Analysis and Interpretation; Findings and Recommendation; Future Scope; References
	Author 2	
1	Research Title	To standardize body measurements for urban women of Uttar Pradesh [3]
2	Research area	Anthropometry for women apparel design
3	Objectives	To study preferences and clothing patterns of women 35-45 years of age in Uttar Pradesh; To study size chart of women apparel for the domestic Indian market; TO collect body measurements of urban women 35-45 years of age; to derive standardized measurements for urban women of UP

		between 35-45 age group
4	Methodology	Locale of study – Lucknow, Kanpur, Allahabad. Questionnaires for garment industry. Tools and techniques for taking body measurements; Validation of body measurement charts quantitatively – Chi square test, ANOVA, Multiple comparisons table, KMO and Bartlett's Test, Principal Component Analysis, Extraction Method, Rotation Method.
5	User studies	Pilot study with 75 female respondents in Lucknow and further with 200 female respondents in Lucknow. 2600 final sample size. 14 garment industries in Delhi, Bangalore and Mumbai approached for existing body measurements for domestic market. Qualitative and quantitative.
6	Experimentation	Body measurement for 2600 female from Uttar Pradesh
7	Findings	Information on readymade garments, fitting problems, purchase patterns, frequency and expenditure of shopping were found; problems with readymade apparel; comparison of apparel size measurements for different brands; Standardization of body measurement charts for 35-45 years women in Up
8	Contribution of research	Body size nomenclature for 35-45 age group female apparel wearers of Uttar Pradesh
9	Sequence of thesis report	Introduction; Literature review; Methodology; Result and Discussion; Conclusion; Implication and Further research; References
	Author 3	
1	Research Title	Study of recycling of post-consumer textile waste in a selected area of North India and framing a model for sustainable development [4]

2	Research area	Recycling post-consumer textile waste – sustainable development
3	Objectives	Examine the usage of 4 R's in apparel and furnishing sector; To analyse post-consumer textile recycling in the identified cluster; To identify indicators for sustainable development in the identified cluster; To use systems theory to develop integrated model of waste generation and waste management of post-consumer textiles; to analyse model outcome and present interventions
4	Methodology	Research design
5	User studies	Case studies, Field studies, questionnaire with 171 respondents and expert interviews
6	Experimentation	None
7	Findings	Mathematical model of recycling to map consumption and post disposal cycle and developed an overall framework, there exists an employment opportunity, solid waste management, existing market for durries, product diversification
8	Contribution of	Recommendations & Policy Interventions for post-consumer

	research	textile waste consumption
9	Sequence of thesis report	Introduction; Literature review; Research Methodology; System study of recycling system; Consumption and disposal pattern of textiles in Urban region; Recycling of textiles in Manglor Cluster, Uttarakhand; System dynamics modeling for sustainable development; Findings and recommendation; References
	Author 4	
1	Research Title	Study of Tangaliya craft of Saurashtra - A model for sustainable development through design intervention [5]
2	Research area	Textile craft and sustainable development
3	Objectives	To study history, technique and design of Tangaliya craft in detail; compare various centers of Tangaliya craft production, study livelihood of craft practitioners and revitalization of craft; develop and evaluate integrated model for design intervention
4	Methodology	Qualitative and quantitative
5	User studies	Artisan case studies from 3 different centres, Craft practices and livelihood, Development of new products for urban market, Study with design students, professionals for response to designed products, exhibition of products at retail chain, Synthesis and analysis of data towards development of a sustainable model
6	Experimentation	None
7	Findings	Original documentation of the craft and design intervention model
8	Contribution of research	Original study on history, technique and design of Tangaliya craft in detail; new products developed through design intervention

9	Sequence of thesis report	Introduction; Literature review; Research Methodology; Result and Discussion; Summary and Conclusion
	Author 5	
1	Research Title	Pattern Development for Menswear using Block Method [6]
2	Research area	Menswear pattern making
3	Objectives	Developing basic menswear sloper using block method using method followed for womenswear Defining fit parameters for menswear Test patterns developed on the fit parameters study (block and sloper often used interchangeably, is a basic pattern used as building block for developing other patterns for garment construction)
4	Methodology	Literature study, 2 user studies with industry professionals and academicians; development of menswear pattern, sloper and test fitting; evaluation of garments; development of final menswear sloper and evaluation with sample population. Qualitative and quantitative.
5	User studies	Study with designers, pattern makers and industry technicians to understand practices followed in industry; Study with academicians to understand academic practices using a questionnaire
6	Experimentation	Evaluation of sloper developed with sample population
7	Findings	Identified approach to designing menswear contemporarily in the industry; menswear sloper generated on the basis of womenswear patterns; established effectiveness of pattern developed by user evaluation
8	Contribution of research	Sloper designed for menswear on the basis of womenswear blocks and evaluated

9	Sequence of thesis report	Introduction ; Literature review; Research Methodology; Primary Research; Methodology for sloper development; Block development; Fit evaluation; Experiment; Result and Conclusion; Limitations and further research
	Author 6	
1	Research Title	Costuming in Hindi Films (1950 – 2010) [7]
2	Research area	Costume in Films
3	Objectives	To study evolution of costuming in Indian Hindi films from 1950 to 2010; To evaluate the role of designers in character portrayal in Indian Hindi films from 1950 to 2010; To analyse the strategies used by the design facilitators while costuming for their films; To assess the influence of films on fashion in India and preferences of the viewers in the decade 2001-2010
4	Methodology	Interview for pilot study; Archival Studies and Visual Analysis for studying history and evolution; Case Studies for understanding role of designers in costuming; Interview Viewers' for fashion preferences. The research is based on hermeneutics, phenomenological methodologies, with content analysis, comparative case studies, archival studies and interviews used to answer key the questions and to address the research objectives.
5	User studies	Pilot study - field visit to understand the contemporary scenario for costume development; Study history and evolution of costume in Bollywood; Analyse the role of designers in costuming; assessment of influences of film on fashion preferences of viewers with 388 respondents
6	Experimentation	None
7	Findings	Costumes lead to appeal of a film, costumes help in describing a character, Costumes help in creating identity of a character, film costumes influence fashion preferences of

		viewers
8	Contribution of research	Substantial research has been done on costuming and Hollywood, the research tries to address the gap for Bollywood films from 1950-2010.
9	Sequence of thesis report	Introduction; Literature review; Methodology; Result and discussion; Summary and conclusion; Limitations; Scope for further study; References
	Author 7	
1	Research Title	Design And Development of Toddler's Footwear - A User Centric Approach [8]
2	Research area	Footwear Design
3	Objectives	To understand footwear related issues for toddlers between 9 months – 3 years of age; To understand problems faced by parents while buying footwear for toddlers; To study feet measurement of toddlers and compare it with existing measurements of products in domestic market; To identify suitable materials and finishes for toddlers' footwear; To understand aesthetic preferences of toddlers for footwear design
4	Methodology	Identification of user needs, construction parameters for footwear, identification of materials based on functionality, aesthetic design, prototype development, evaluation of prototypes. User centric design process for design and evaluation.
5	User studies	500 toddlers' foot measurements were taken, 8 expert interviews, 6 interviews with industry manufacturers, interviews with 3 orthopedic doctors and 2 physiotherapists, interviews with 4 playschool teachers, interviews with 10 retail vendors, questionnaire-based evaluation of prototype with 25 toddlers (questionnaire

		filled by parents on behalf of toddlers)
6	Experimentation	Prototype design and evaluation
7	Findings	Problems in toddlers' footwear; problems with the sizing system for toddlers' footwear; effect of wrong sized footwear studied through gait analysis; identifying constructional requirements of the toddlers' footwear; identifying the aesthetic preferences of Indian toddlers for designing of footwear upper
8	Contribution of research	Systematic approach to designing footwear for toddlers
9	Sequence of thesis report	Introduction; Literature review; Methodology; Study on problems associated with toddlers' footwear in India; Study on selection of materials for designing; Identification of aesthetic requirements of toddlers' footwear; Conclusion; References
	Author 8	
1	Research Title	Determinants of fashion trends for Salwar, Kamiz, Dupatta (SKD): A Delhi/ NCR perspective [9]
2	Research area	Apparel trend research
3	Objectives	To study progression of trends in SKD across 20th Century; To derive fashion cycles for SKD 2006-11; To determine women clusters on the basis of orientation, psychological profile and social influence
4	Methodology	Qualitative Delphi method and quantitative (Factor analysis, ANOVA, Cluster analysis). Exploratory and conclusive research design descriptive in nature. Content analysis for 144 documents analysed.
5	User studies	Study 1 was Structured interviews with experts, designers, stylists and managers. Study 2 was respondent's awareness

		and adoption of the recognized trends and map their diffusion into the social framework in Delhi-NCR.
6	Experimentation	Second study to understand trends among women in Delhi NCR a questionnaire-based study with 500 respondents
7	Findings	Observation of six years of fashion curves in SKD showed one directional trend; Gradual Fashion Change; Fashion Need Identification; Fashion Involvement; Fashion Innovativeness; Interpersonal Communication; Awareness and reaction to changing trends; Preference for design elements, alternatives, mix and match; Purchase expenditure and trends
8	Contribution of research	First hand Indian trend study on Indian apparel for women that sets trend for other fashion apparel segments and accessories to be covered
9	Sequence of thesis report	Introduction; Trends and Indian context; Trend theories and models; Research design and methodology; Analysis and findings; Conclusion and recommendations; References
	Author 9	
1	Research Title	Contemporary articulation and sustainability of painted textile tradition of South India - A case study on Kalamkari/ Vraatapani [10]
2	Research area	Textile crafts
3	Objectives	To study the contemporary status of Kalamkari with respect to the changing patterns, styles, techniques and forms; To evaluate the sustenance of the craft with respect to its practice; To study the progression of Kalamkari as a medium of textile fashion; To initiate design intervention with a focus towards current market preferences and test the impact on sale-ability

4	Methodology	Triangulation, Ethnomethodology, Ethnography, Exploratory research. Preliminary Study; Case studies of the artists; Case studies of organizations involved in welfare of the craft and their role in sustaining the craft skills; Study of progression of Kalamkari as a medium of textile fashion; Explorations on new fabric base; Study of the garment industry: on the acceptability of explorations; Study of the sample subjects: on the acceptability of the explorations among the fashion conscious youth; Critical review by expert panel; Conceptualization and development of a fashion collection; Opinion poll for testing relevance and acceptability
5	User studies	Study of the garment industry: on the acceptability of explorations; Study of the sample subjects: on the acceptability of the explorations among the fashion-conscious youth; Critical review by expert panel
6	Experimentation	Exploration, Experimentation and Design intervention as interpreted on the basis of the research data compiled; Collect feedback on the acceptance of the contemporary fashion orientation of the craft; Quantitative and Qualitative analysis of the feedback collected through questionnaires
7	Findings	Study of the changing craft profile; Prevailing sustenance links for furthering its practice; Accent and progression of Kalamkari towards a medium of textile fashion; Orienting towards wider markets
8	Contribution of research	Ethno-methodological fieldwork; Design intervention with acceptance study
9	Sequence of thesis report	Introduction; Literature review; Methodology; Contemporary status of Kalamkari (Vraatapani); Sustenance of Kalamkari; Progression as a medium of textile fashion; Design intervention; Conclusion; Limitations; Recommendations; References
	Author 10	

1	Research Title	An integrative analysis on values and lifestyle (VALS) of Indian youth in metro cities and its impact on their clothing colour preference, colour -emotion and colour-image association [11]
2	Research area	Color research
3	Objectives	To study and identify the values and lifestyle based psychographic segmentation of youth in metro cities (Bangalore, Chennai, Delhi, Hyderabad, Kolkata, Mumbai) of India; To analyze and differentiate the clothing colour preference based on identified psychographic segments of youth in metro cities of India; To study and analyze the clothing colour emotion of youth in metro cities of India between the identified psychographic segments; To understand various image associations with the preferred clothing colours of Indian youth in metro cities on the basis of identified psychographic segments; To develop a taxonomy table and model associating identified psychographic segment with regards to the colour preference, colour emotion and colour image association
4	Methodology	Qualitative and quantitative. Pilot study; Development of Colour Card; Development of Psychographic questionnaire based on VALS items; Development of standard instruction guideline for viewing the colour card in study; User study with 400 participants; Development of taxonomy table and model or wheel
5	User studies	Pilot study 216 participants; Final User study with 400 participants
6	Experimentation	User study with 400 respondents from 6 metro cities - psychographic segmentation of youth in Indian metro cities; Colour preferences as per psychographic segment and gender; colour emotion association; colour image association; Analysis of the impact of psychographic

		segments on colour preference
7	Findings	There exists significant difference of clothing colour emotion association among the 5 psychographic segments of youth in metro cities of India, which not only varies segment-wise but also varies between genders in each segment. There exists significant difference of colour image association among the 5 psychographic segments. which not only varies segment-wise but also varies between genders in each segment.
8	Contribution of research	Original and firsthand study on values and lifestyle (VALS) with respect to color research among youth in India
9	Sequence of thesis report	Introduction; Literature review; Description of research work; Result and findings; Discussion and Taxonomy model development; References
	Author 11	
1	Research Title	Design Education for Chikankari Artisans: A Tool for Social Innovation [12]
2	Research area	Craft Research
3	Objectives	Create a resource of tacit knowledge for Chikankari; To formulate, impart and evaluate a design curriculum for selected highly skilled craftswomen; To reflect upon changes in the role of craftswomen in the value chain to map social innovation
4	Methodology	Qualitative.
5	User studies	27 craftswomen for craft study; personal interviews of 18 experts from craft, sociology, research, innovation and entrepreunership;
6	Experimentation	Curriculum design

7	Findings	Traditional Design Grammar of Chikankari: across 20th century; Empathy with Chikankari Embroiderers: Challenges, Insights and Opportunities; Creation and Implementation of Prototype for Design Education of Chikankari Craftswomen; Measuring the Impact of Design Education on high-skilled Craftswomen
8	Contribution of research	Ethnographic study of Chikankari craft and design education of skilled craftswomen
9	Sequence of thesis report	Introduction; Literature review; Research design – methods and procedures; Result and discussion; Summary and conclusion; References
	Author 12	
1	Research Title	Impact of store attributes on consumer buying behaviour in Indian Luxury apparel fashion segment [13]
2	Research area	Luxury apparel buying behavior
3	Objectives	To identify important store attributes which effect the consumer preferences in the luxury market in India; To identify distinct consumer segments based on the preferences of store attributes in the luxury market; To evaluate the preferences of various store attribute combinations by the luxury consumers on the basis of the utility value; To discriminate and predict the luxury consumers on the basis of affordable and premium luxury market segments; To identify the relative weightage of various store attribute affecting the purchase intention of luxury consumers and ascertaining the individual importance of the same; To examine the dependency of store attribute preferences of luxury consumers on various demographic factors like income, age, gender, etc; To test whether any significant differences exist between store attribute preferences of luxury consumers across the

4	Methodology	The research design for the study was partly exploratory & partly conclusive in nature. Qualitative and quantitative.
		various groups based on demographic profile.
5	User studies	Quantitative for enquiring consumer buying behaviour
6	Experimentation	Questions were designed to study store attributes and how they affect the approach and avoidance behaviour of respondents, the important factors that affect their purchase intention for luxury apparel, planning of shopping trips, etc.
7	Findings	As a part of the research, different profiles based on their relative preferences for various store attributes were found out. Also, preferred store attribute combinations, impact of store attributes on purchase intention of luxury consumers and further research on discriminating consumers into shoppers of affordable and premium luxury was carried out in the study. Detailed analysis of purchase behaviour with respect to consumer demographics was also undertaken.
8	Contribution of research	Assessment of impact of store attributes on consumer buying behaviour in Indian Luxury apparel fashion segment
9	Sequence of thesis report	Objectives of the study; Introduction to research; Literature study; Research; Methodology; Findings and Analysis; References

(Note: The header row "various groups based on demographic profile." appears at the top of the table continuing from the previous page)

Discussion

Figure 1 depicts various domains and sub-domains within Fashion which may be pursued for doctoral research and research by prospective fashion enthusiasts for a short term and long term period. The sub domains within Fashion include – Textiles (Prints, Weaves, Embroideries, Appliques, Surfaces, Dying, Textile science), Technology (AI, AR, VR, Wearables, Nanotechnology, Geotextiles), Leather Design (Footwear, Garments and accessories), Sustainability (Environmental impact, 3 R's, Value

chain, Organic clothing, Climate change), Communication (Journalism, Photography, Film, Advertising, Styling, UI, UX), Marketing (Retail, Online, Offline, Merchandising, Branding), Knitwear (Casual, Evening wear, Sportswear, Lingerie), Crafts (Weave, Print, Embroideries, surfaces), Production (Supply chain, Machinery, Factory management, Workplace ergonomics), Management, Culture (Anthropology, Ethnography, Criticism, Controversies, Context), Creativity and Cognition (Aesthetics, Psychology, Design process, Color research), Apparel (Men, women, Children, Uniform, Ethnic, Casual, Evening wear, Special needs, Anthropometry), Accessories (Bags, Belts, Shoes, Hats, Headgear, Masks, Jewellery), Footwear (Men, women, Children, Therapeutic, Casual, Sports, Evening, Special needs, Anthropometry, Gait Analysis), Couture (Pret, Ready to wear, Mass market), Trends (Forecasting), Intellectual Property Rights (Patent, Copyrights), History (Evolution, Theories), Innovation (Social, Economic, Environmental, Technological) and so on.
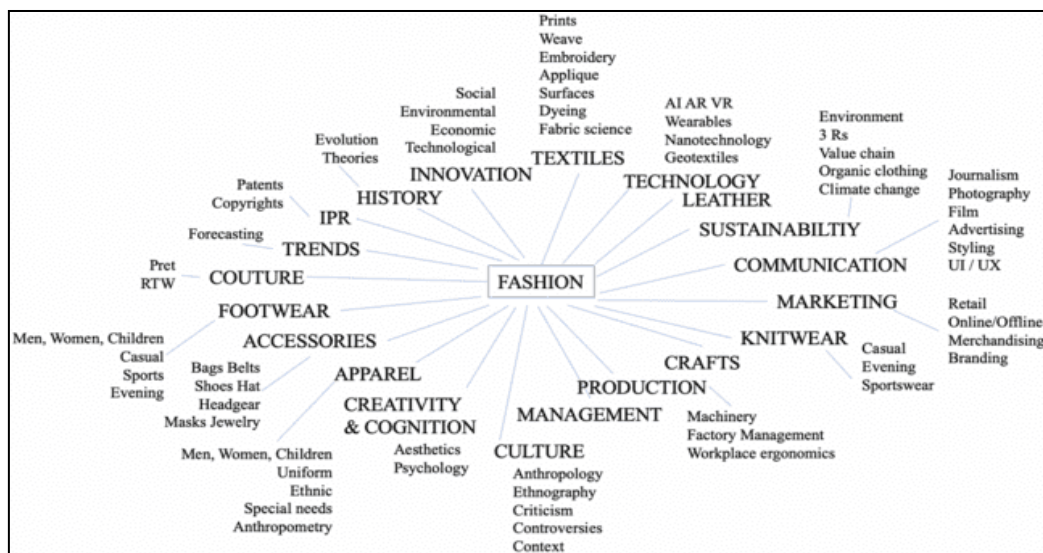
Figure 1: Research Map in the domain of Fashion

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Md. Furkan Malik

Furkan Malik completed Bachelor of Architecture from Ganga Institute of Architecture and Town Planning, Jhajjar, Haryana (2017),Master of Design from Jamia Millia Islamia, Jamia Nagar, Okhla, New Delhi(2023), He is passionate about design and he began by working for a prominent custom homebuilder, involving himself in all facets of home construction. It was through this experience he first realized his passion for the industry, and his desire to learn more. Under his leadership, the firm has completed a significant number of built projects including custom homes, additions and renovations. Now he is working as a product designer in a company IDAS.

Arch Vipul Singh

Vipul Singh is a renowned architect and an interior designer with a professional experience of over 25 years. He has graduated from Government College of Architecture Lucknow and SPA New Delhi. He heads a design consultancy called Design Accord, which worked on projects with organizations like CPWD, IIM, Delhi Gymkhana Club, Rashtrapati Bhawan, Apollo Tyres, ITC, etc. At DDI Jamia, he teaches Retail Design.

School furniture for better learning

Md Furkan, Vipul Singh

Abstract

The process of teaching and learning is changing in many learning centres today with an emphasis on a holistic approach to learning. Schools worldwide have changed their teaching methods and students can choose a suitable method of learning from the various sources and approaches available within the campus and outside the school. Some schools have even changed the environment of the classroom to place that inspires and aids in the development of the child; after all, that is where a major part of learning takes place. Furniture forms a considerable part of the classroom environment as well as the component with which students interact during most activities in class.

A student spends 5 - 6 hours in school every day, with most of the time being spent in the classroom. As he progresses from the primary to the middle school, he is at a growing stage where he undergoes physical, cognitive and emotional development. In the 'teaching and learning' methods that is evolving the time being spent in the classrooms, it is essential that classroom furniture evolves and aids in the process of learning as well as compatibles with the physical development of the student.

The schools in Delhi are of diverse nature because they are managed by different organizations and follow different curricula. Government schools and private schools function differently, have

different infrastructure and follow different methods of teaching and learning. Some of these Government schools are gradually inclining towards new methods of teaching and learning. But the furniture in these schools of Government or private has not evolved enough to aid in the learning process, physical development or the activities that take place in the class. School students are exposed to a world of technology where internet and cell- phones form essential parts of their learning. Even with the shift from 'teaching based' to 'learning based' approaches, it is difficult to maintain the attention span of students inside the classroom

Aim of the Research

The aim of the research is to find the various parameters or aspects that are essential for classroom furniture so that it can aid in better learning for students, considering the activities that take place in classrooms and the human factors associated with it. The objectives of the research are to understand:

1. *How the process of teaching and learning is changing in schools*

2. *Different types of schools following different systems*

3. *How children grow in their primary and middle school years and the variation in growth*

4. *The activities that take place inside a classroom and the role furniture plays in carrying out the same*

5. *The activities/physical movements that the furniture allows the student/teacher to do; the limitations*

6. *The human factors I ergonomics associated with furniture for classrooms*

7. *How classroom furniture has changed with respect to new methods of learning*

Methodology

In order to meet the objectives of the research and be able to come up with the parameters/characteristics that would guide the design, the following methodology have been used (Figure 1):
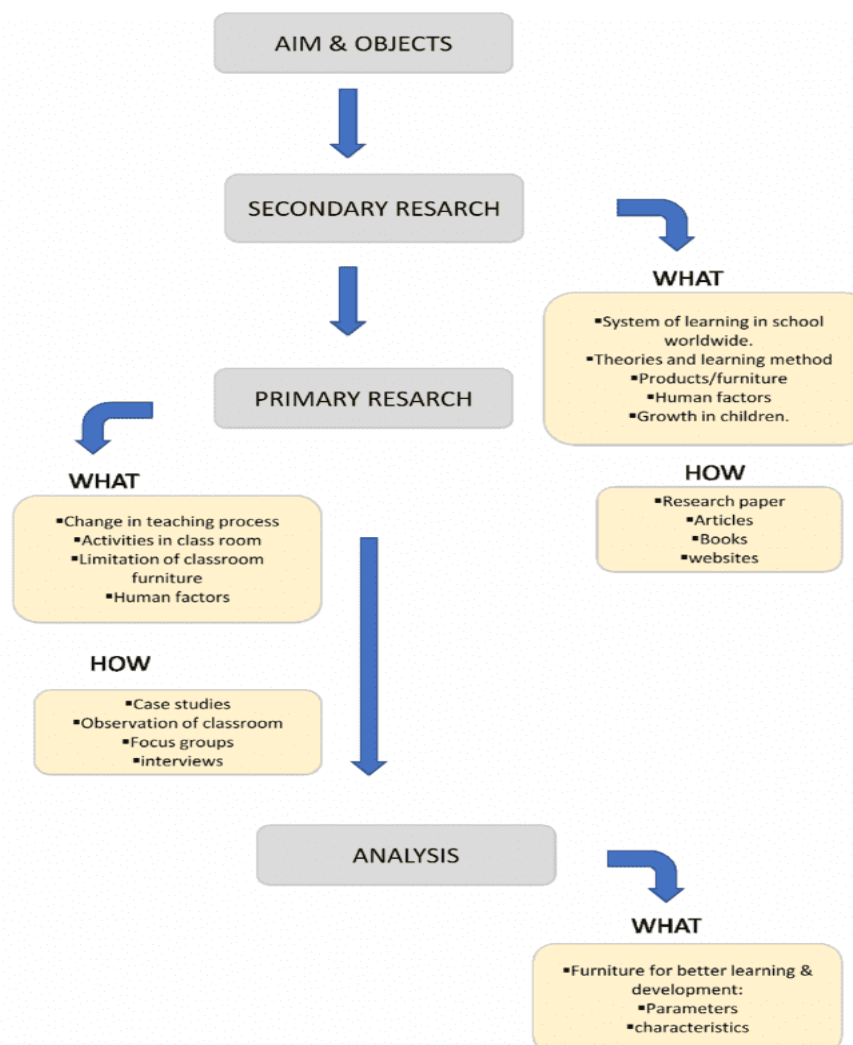
Figure 1: Methodology

School furniture – part of learning environment

What role does furniture play in classroom learning? The classroom is a place where a student spends a considerable amount of time learning; the furniture being an inevitable part of that environment. With the methods of learning gradually changing, it is necessary that the environment also changes. Some education societies and schools worldwide are changing the learning environment where the classroom discards the 'conventional look' and is adaptive to new methods of learning. In this project, the Intent is to explore what role the furniture can play while schools are trying to adopt new techniques of teaching. An example where an organization has attempted to change the way students learn in classrooms is the Vittra 'Telefonplan' School in Stockholm, Sweden. The Swedish free school organization 'Vittra' generally strives to develop innovative teaching and interaction methods for educational purposes, incorporating digital media and digitally- based teaching and learning methods. Going beyond the conventional classroom-based teaching, their concept of teaching is organized around teach groups which are structured according to achievement level and which follow the school's specific educational principles. The principles Centre on ideas such as 'the cave', 'the campfire', 'the show-off', 'the watering hole' and 'the laboratory'

Ergonomics

The average sixth grade student in Delhi spends 6 hours a day in school. He attends 8 classes of 35 minutes duration each out of which 1 class is a curricular subject. So, he is inside the classroom for 245 minutes, doing all the required activities around the furniture, constantly interacting with it. So, what are the best

ways to interact with furniture in classrooms for the healthy physical development of the child? For the last century, work chairs in schools, factories and offices have been designed for sitting upright, with the hip, knees and ankles all at right angles. Until recently, it was widely believed that people sat with a 90-degree bending of the hip joint while preserving lordosis (concavity) of the back. The erect posture looks very nice, but it is impossible to sit this way for long and there is no scientific basis for it. (A) sitting posture that approaches the natural resting position is a more suitable position and allows the spine to carry the body weight in a more comfortable way. This is "Balanced Seating" in position (B). A seat that tilts forward encourages this natural posture. Please refer Figure 2-3.
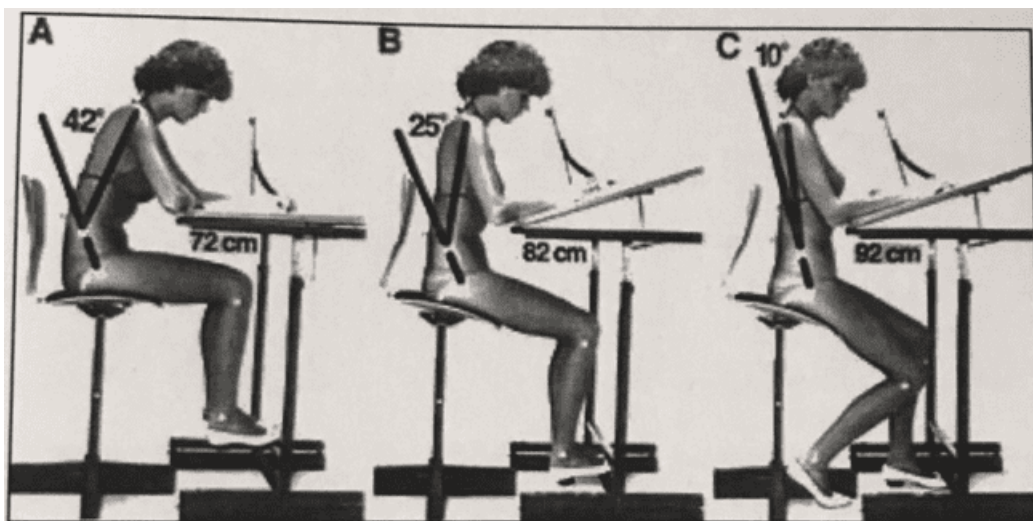
Figure 2: Ergonomics

The final position 'C' with feet lowered simulating higher seat and work surface, is exactly the same as the natural resting position where the muscles are relaxed and the body is in a perfect posture for "Balanced Seating", the most suitable position for long periods of sitting. The slope and heights of tables, keyboards and monitors are particularly important for the upper back, neck,

viewing distance, and viewing angle. Active sitting provides a protective lumbar curve in the lower back. Expends considerable energy and can therefore not to be maintained for long, unless one is trained to do so. Passive sitting is much less tiring because it expends little energy. The big danger is though, is that it quickly puts a load on the discs, which practically happens in every situation due to the lack of real lumbar support or the non-use of such a support when it is there (slumping/sliding bottom forward).

Correct height of furniture is Important.
 Edge Of desk at level With you buttocks Front edge of chair 2-4 cm above knee

Reading/writing position
Use frol1h&tf o(the seat Both feet on tl8 floor Desktop sloping

Resting position
Move bad<wards on the seat
Use the lumbar support Feet on footrest
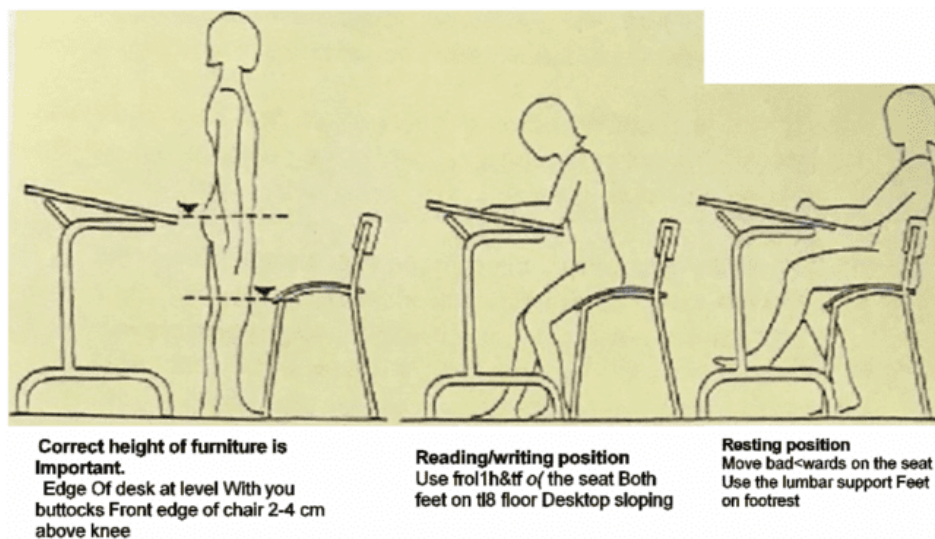
Figure 3: Ergonomics

According to Smith System, a leading manufacturer of school furniture, who give a lot of emphasis on research related to ergonomics, have identified the following factors for seating in classrooms -

1. **Right size**: *Classroom seating should support healthy posture from a young age, especially since young bodies are developing rapidly. It should also decrease fidgeting.*

2. **Right fit I Adjustable**: *It's not enough to provide a buffet of chairs, desks and tables and let students randomly*

choose. It's essential to ensure that chairs and desks are properly scaled to fit the size of the individual student. A chair should fit the person who sits in it, and a desk should fit to his or her height.

3. **Seating that moves**: *The most notable advancement in classroom seating is seating that moves. Designers and engineers now understand how various degrees of movement, rather than rigidity, of the chair itself can promote learning*

4. **Function:** *While ergonomics is essential, classroom seating must fit functionality. In other words, it has to complement the curriculum. Because 21st Century learning often takes place in groups numbering from two to six students, classroom furniture must be flexible enough to be configurable into groups.*

Case studies - Schools in Delhi

Case studies were conducted in the following schools in Delhi to understand the change in the teaching learning processes and how they have responded to new methods of learning. Visit to the schools of so gave on insight on various factors like ergonomics. Materials, storage etc.

Figure 4-6: Kendriya vidyalaya, Vikaspuri

Insights (Figure 4-6): *The furniture is heavily exposed to wear and tear because of the double shift system. The damage makes the furniture unsafe, often causing damage to the school uniforms. Furniture sizes in middle school are unsuitable for the age group. Scribbling and damaging is much more compared lo single shift schools.*

Insights (Figure 7-8): *The fixed furniture discourages participation of students as it is difficult to move around. The heavy and uncomfortable furniture makes the students fidgety sometimes. Storage of bags and book not catered to. ●Teachers often want to reconfigure the arrangement into horse shoes or a circular one. But the furniture does not allow for rearrangement that suits the functioning of the class.*

Figure 7-8: B.R INTERNATIONAL PUBLIC SCHOOL, LAXMI PARK
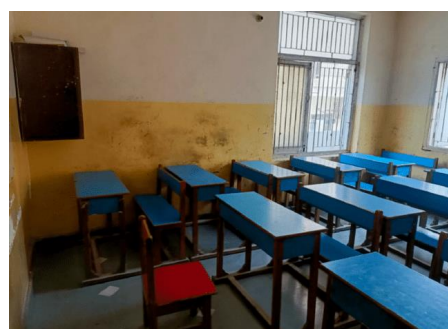
Figure 9-10: Insights

Insights from interviews, focus group discussions and observations are (Figure 9-10): *There is a gap between the new methods that the school has adopted and the furniture that they still use. Classes are dynamic in nature where students constantly interact the furniture does not complement that. Student of middle schools often attend classes in senior classrooms due to the lower number of Information and Communication Technology classrooms: furniture not suitable for their height and body. No classroom is equipped with furniture that is meant for a group with variation in growth rates and body sizes. Moving around in the classes is difficult; the ledge connecting the bench and desk is hindrance in movement. Methods of teaching is changing but the furniture arrangement is traditional. This is contradicting the idea of interaction, participation, collaboration and peer learning. Difficulty in sitting for 40 minutes class duration and sometimes they were attending double class periods; factor like back support, posture while writing and space between bench and desk is problem.*

Popular Designs of School Furniture and existing design analysis

Figure 11: Peter Opsvik's school desk; Figure 12-13: Node by Steelcase
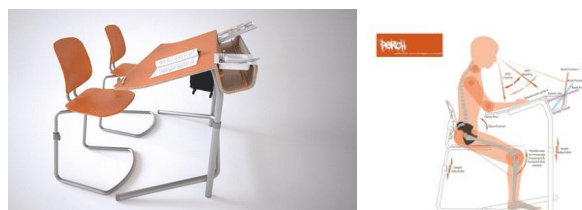
Figure 14: Perch Desk By Simon Dennehy

	Collaborative	Adjustable	Movement	Comfort	Adaptive
	Difficult to move around and reconfigure	No, same size	Joined bench and desk hinders in movement	Non adjustable distance	Suits traditional lecture mode of teacher
	Chairs can be moved, collaboration possible	no	Does not hinder movement	Separate seat and table ,no comfort	To an extended lecture mode arrangement
	Seat and desk joined	No	Hinder movement	No , narrow seat	No
	Seat and desk joined	No	Hinder movement	No, narrow seat	No
	Yes. can be moved easily and turned	Table can be turned	Does not hinder in movement	Yes. backrest profile	Yes, to various teaching ways
	Yes, single seater desk and choir	No	Does not Hinder in movement	Yes	Yes, to various teaching ways
	No seat and desk joined	No	Hinder in movement	Non-adjustable distance between seat and desk	No. suits traditional way of teaching

	Material	Maintenance Difficult To	Storage	Cleaning	Stackability
	Wooden frame laminated top	Difficult to mend broken edges	Under desk. Used to throw rubbish	FIXED seat and desk. Difficulty in cleaning class	Cannot be stacked
	Mild steel frame, mdf top	Replaceable ports	No book rock, no storage for bogs	Classroom cannot be easily cleaned	Cannot be stacked
	Mild steel frame wooden top	Broken Lipping, edges	Under desk. Difficult to clean, closed	Fixed seat and desk, difficulty in cleaning class	Cannot be stacked
	Mild steel frame ,laminated top	Difficult mend broken edges	No storage for book and bag	Fixed seat and desk ,difficulty in cleaning classes	Cannot be stacked
	Laminate bent wood seat, stainless steel frame	Easily replaceable ports	Bog con be hung from choir	Easy to clean classroom	Chairs and tables separately stackable
	Mild steel frame, pvc sheet laminate table top	Easy replaceable ports	Book storage under table	Easy lo clean classroom	Stackable choirs and tables
	Stainless steel frame, pp seat, bent laminate wooden table	Easily replaceable ports	Book rock and bog storage under seal	Difficult lo clean classroom	Not stackable

DESIGN BREIF

To design furniture for classroom that aids schools in adopting new learning methods. DESIGN SPECIFICATION: A Single Seater Desk and Chair, Desk 600mm X 450mm. Separate desk and seat. Storage for bag 350mm x300mm size(Stackable).

DESIGN CONCEPTS

Figure 15: Chairs are fixed to the table through a track. Which help the chair slide in the table. Bag storage is underneath the table. Different configurations are possible.

Figure 16: A foldable table for collaborating and a chair that has its backrest converting to a workspace for individual work
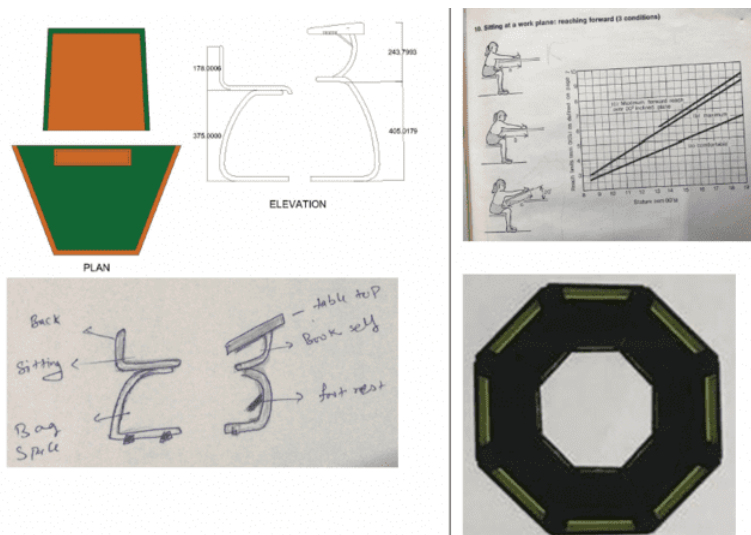
Figure 17: Shape of the table top help in reconfiguring in various way
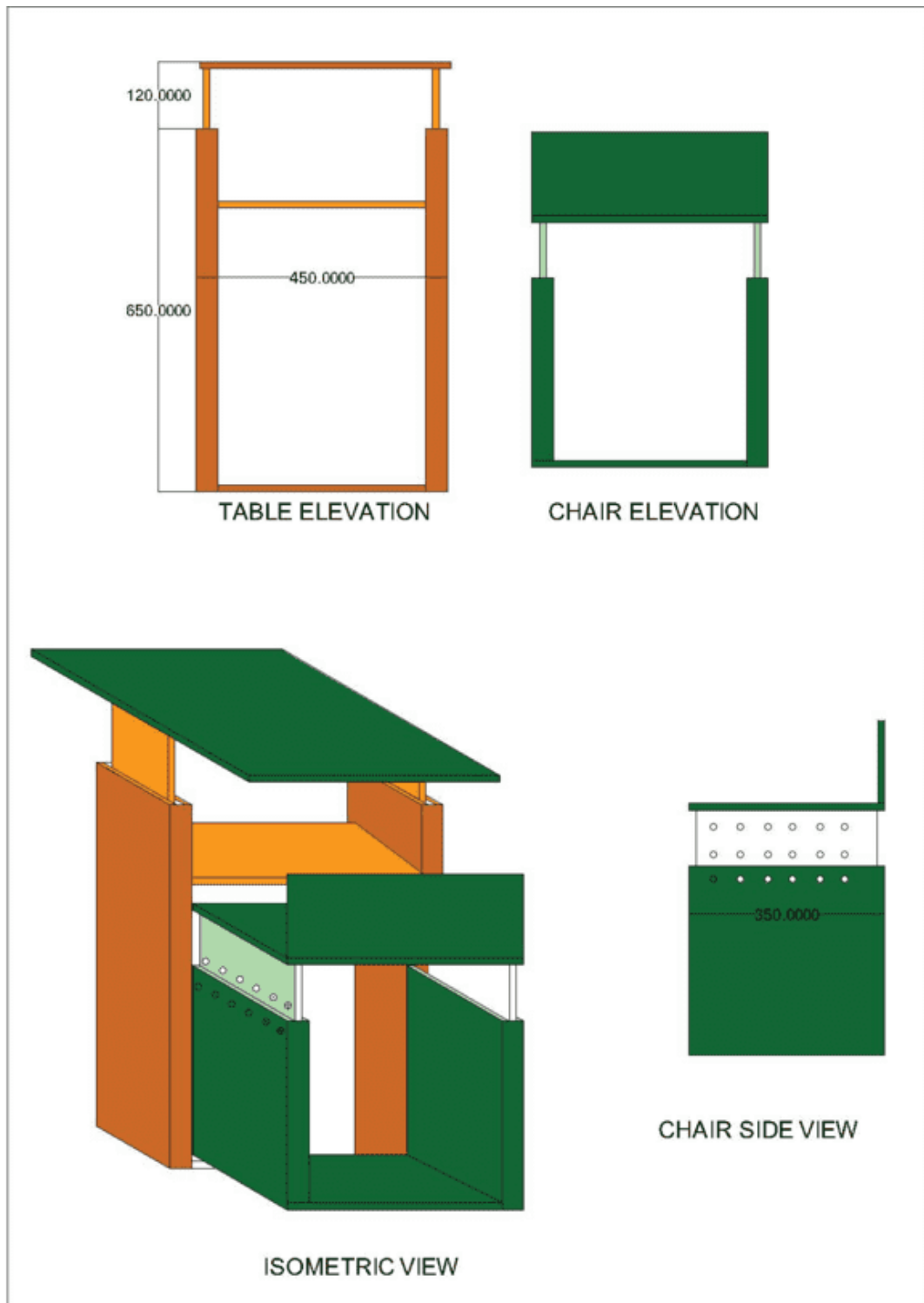
Figure 18: A telescope student table is to provide a comfortable and clear view of the telescope's eyepiece for students of all heights. By adjusting the height of the table, students can achieve the optimal viewing angle without having to strain or contort their bodies. This can help prevent discomfort

FINAL CONCEPT

The Co-Learning Reconfigurable Single-Seater Series, designed specifically for middle and senior schools to facilitate a collaborative environment that modern classrooms demand. This innovative furniture series addresses the need for versatile classroom furniture that can adapt to different learning styles. The design of this furniture series emphasizes the importance of creating a reconfigurable space that can be easily transformed to meet the changing needs of students and teachers. By providing a flexible and adaptable environment, the Co-Learning Reconfigurable Single-Seater Series helps promote a collaborative learning experience that enhances creativity and engagement. With this series, students can easily rearrange their workspace to suit their individual needs, while teachers can quickly transform the classroom layout to support a variety of teaching and learning activities. The single-seater design also helps students focus and minimizes distractions during independent work. Overall, the Co-Learning Reconfigurable Single-Seater Series is a versatile and adaptable furniture solution that supports a modern collaborative learning environment in middle and senior schools.
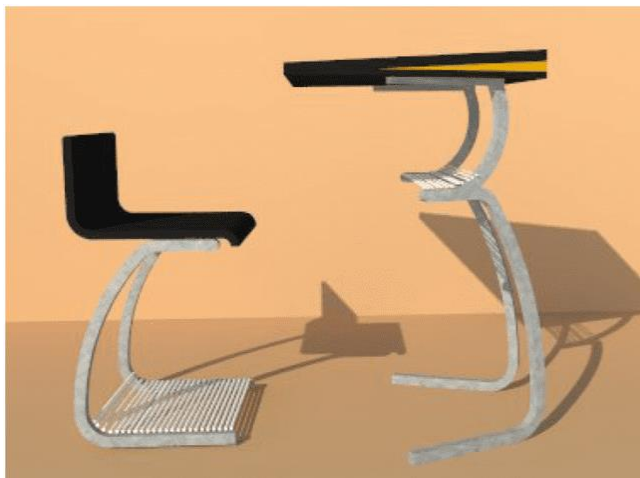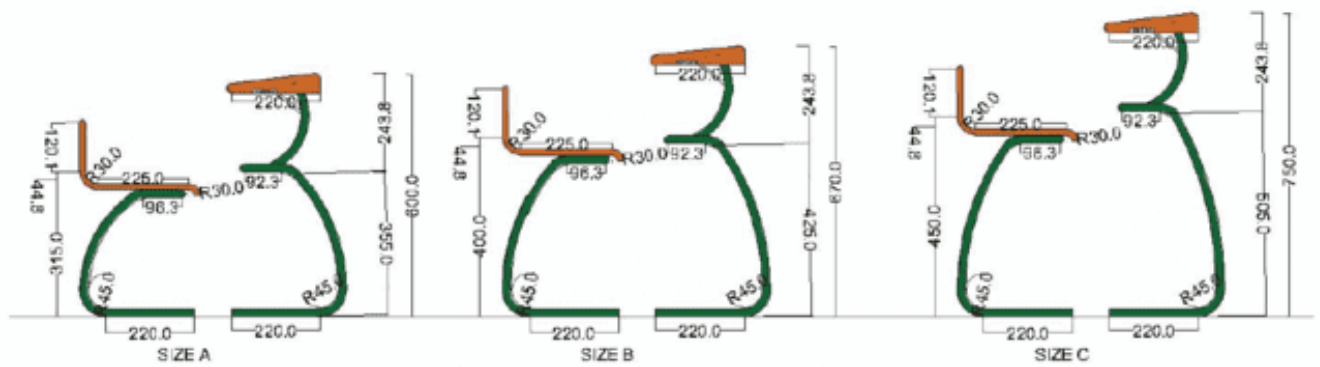

Figure 19: Final Design

NO LAST BENCHERS

A 7th standard classes configuration for 30-35 student :6 row

CLASSROOM CONFIGURATIONS: The foundation of the project was the need for the classroom to change in term of its configuration and ability to adapt to various learning and teaching way. The following classroom configuration is possible with the design in a classroom size of 8mx10m accommodating 36 students (Figure 20).
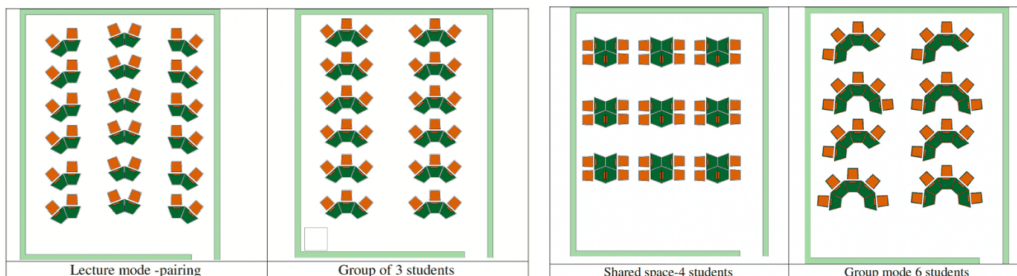

Figure 20: Classroom Configurations

MATERIALS

- *Rubber wood table top*

- *Injection molded polypropylene backrest and seat*

- *Rectangular MS section*

- *Catcher to lock the top tilt*

- *Rubber glides*

- *10 mm road for bag and book storage*

Figure 21: Materials and Class scenario

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Arch Kamran Khan

Kamran completed his Bachelor of Architecture from Jamia Millia Islamia, New Delhi (2019), Master of Design from Department of Design and Innovation, Jamia Millia Islamia, New Delhi (2023). He is so much into design that he aligned his skills to the field, including sketching, Sculpting and Computer Aided Styling. He has secured 80th AIR in CEED 2023 examination, won Kalam Memorial Design competition held at the JMI university. Kamran sees design as an emotion, and have always worked for the forms to provoke the same.

Naveen Rampal

With a master's in Industrial Design from IIT-Delhi, Naveen Rampal is an eminent educator and consultant. He has developed many innovative & eco products in his career. He is teaching at SPA Delhi and IIT Delhi as a Visiting Faculty and has over a decade of experience as a designer for major national and international organisations.

Redesign of ROYAL ENFIELD CLASSIC 350

Kamran Khan, Naveen Rampal

Abstract

Royal Enfield Classic 350 first manufactured in England is an iconic bike with approximately 100 years of brand legacy. There has always been a necessity of redesigning a product which is so impactful and timeless. Time changes that result in changes fashion, resulting in the demand for redesign of any possible product which is this much old. Moreover, there have been constant controversies about this timeless piece of the brand, about its weight, ergonomics etc. This project will cover all the possible solution of the problems and advancement in design according to the user needs and styling trends for future.

Introduction

Royal Enfield is a legendary motorcycle brand that has been in existence for over a century. The Royal Enfield 350 classic is one of its most iconic models, famous for its retro design and sturdy build. It is a bike that pays homage to the golden age of motorcycling while offering modern day features and performance. Its retro modern looks give one a nostalgic feel with the essential technological advancements.

After getting relaunched in 2008 the bike made a good place in the hearts of the motorcycling enthusiast and somehow everybody liked it in terms of design, its audibility, and its

performance. The bike comes with a single cylinder 349.5 cc air cooled single valve engine delivering a power of around 20 HP and the maximum torque of 27 Nm. At the time of launch Royal Enfield used to make the bike on the single cradle frame and over a period of time, they upgraded it to double downtube frame to meet the challenges associated with performance-oriented goals and technological needs. It is made upon the double downtube frame which is an upgrade from the previous versions of Royal Enfield.

In Indian Market Royal Enfield holds up 8.19 % of market share, which is a huge figure for any company which offers all bikes over 350 cc in a country where mostly people go for the cheaper and economical bikes. Royal Enfield does have 12 models in its portfolio as of now and is planning to add a new model to the product line to add more presence in catering all sections. Royal Enfield is now spread in over 6 countries. Royal Enfield classic 350 rivals like Jawa 300, Bajaj Dominar 400, Benallie Imperial 400 does not stand a chance due to the looks, its thumping loud sound, and feeling of the bike. Feel of the bike is referred to as the overall feedback one gets after riding the motorcycle. The riding triangle of Classic 350 is such that it gives a rider a feeling of self-confidence and majesty. Let us discuss about the types of motorcycles .There are many riders' groups that go the toughest motor able roads with the classic 350 and find it doing quite well. These Riders group are generally formed online and they plan to join each other for a ride, discuss about the motorbike issues, discuss aftermarket mods, discuss the art of motorcycling, the way cruising has started. Earlier people in the North America used to meet up at the point at dawn time and they used to travel the hilly roads at low speeds, and called it cruising. Later, the term

takes a proper place and settled in the world of bikes as cruiser motorcycle, the ones which are meant for the long rides.

Objective

The objective of this project is to understand the current problems with the design and redesigning the next new generation Royal Enfield classic 350. The redesign will be done under the design philosophy of Royal Enfield. Through this report we will also be able to understand the design philosophy of brand and the limitations and challenges a designer has to keep in mind during the redesign of any product. The design will not be up to an extent to which the motorbike loses its essence.

Mission statement

Through this design we are focusing on the solution to the problems encountered by the users of this motorbike and the possible future design solution for the year 2030. The aim of this study is to make bike more attractive and appealing and developing the sense of what it means to people now.

Research questions:

Q.1 Why does Classic 350 have foot pegs too out of the bodyline?

Q.2 Why does the Royal Enfield classic 350 weight too much? Can this be reduced?

Q.3 Why does the fuel tank of Classic 350 does not have any knee recession in it?

Data Collection Methods:

1. Secondary Research (the data will be mined from the internet and other published sources)

2. Primary Research (the data will be collected from the Royal Enfield classic 350 owners itself).

Sampling: 100 Royal Enfield classic 350 owners

History of classic 350

The Royal Enfield Classic 350 holds a significant place in the history of motorcycles, combining timeless design with a rich heritage. Its story dates back to the early 1950s when Royal Enfield introduced the Bullet in India. The Bullet became an instant icon and established Royal Enfield as a leading motorcycle manufacturer in the country. In 2009, Royal Enfield launched the Classic 350, a modern interpretation of their classic motorcycles from the 1950s. The Classic 350 paid homage to the retro styling and mechanical simplicity of its predecessors while incorporating modern technology and reliability. The Classic 350 retained the iconic design elements that made Royal Enfield motorcycles famous, such as the teardrop-shaped fuel tank, vintage-style side panels, and chrome-plated components. Its thumping sound and the distinctive throb of the single-cylinder engine became synonymous with the Royal Enfield brand. Over the years, the Classic 350 garnered a massive following among motorcycle enthusiasts, both in India and around the world. Its appeal lay in its ability to evoke nostalgia while delivering a comfortable and engaging riding experience. The Classic 350 became a favorite among riders seeking a blend of classic aesthetics and dependable performance. Royal Enfield continually updated the Classic 350 to meet evolving market demands and regulatory requirements. It underwent several mechanical and cosmetic revisions while staying true to its roots. The Classic 350 became a canvas for customization, with numerous aftermarket options available to

personalize the motorcycle to individual tastes. Today, the Royal Enfield Classic 350 stands as a symbol of the brand's enduring legacy and the timeless charm of classic motorcycles. It embodies the spirit of adventure, freedom, and camaraderie that motorcycling enthusiasts hold dear. With its rich history and loyal fan base, the Classic 350 remains an icon in the motorcycle world, continuing to captivate riders with its timeless design and authentic riding experience.

The Riding triangle

The riding triangle, also known as the ergonomics triangle or rider triangle, refers to the relationship between three key components on a motorcycle: the handlebars, the seat, and the foot pegs. These three elements determine the rider's riding position and comfort while riding a motorcycle. The riding triangle plays a crucial role in determining the overall riding experience, control, and stability of the motorcycle.

Handlebars: The handlebars are an essential component of a motorcycle that the rider uses to steer the bike. They are typically mounted on the front fork and can come in various shapes and styles, such as clip-on, drag bars, ape hangers, or cruiser-style bars. The handlebars should be positioned in a way that allows the rider to reach them comfortably without straining their arms or shoulders. The angle and height of the handlebars affect the rider's posture and control over the motorcycle.

Seat: The seat of a motorcycle provides support and comfort to the rider. It should be designed to accommodate the rider's body size and shape. A well-designed seat helps distribute the rider's weight evenly, reducing fatigue during long rides. The seat height and shape can also affect the rider's reach to the handlebars and

foot pegs. Some motorcycles have adjustable seats that allow riders to customize the riding position to their preference.

Foot Pegs: The foot pegs are the footrests on a motorcycle where the rider places their feet while riding. They are usually mounted on brackets attached to the frame of the motorcycle. The position and height of the foot pegs influence the rider's leg position and comfort. Properly positioned foot pegs allow the rider to maintain balance, control the motorcycle, and shift body weight during turns and maneuvers. The relationship between the handlebars, seat, and foot pegs determines the riding triangle. Different types of motorcycles have varying riding triangle configurations to suit different riding styles and purposes.

Cruiser Bikes: Cruiser motorcycles have a more relaxed riding posture. The handlebars are generally positioned higher than the seat, allowing the rider to sit in an upright or slightly leaned-back position. The foot pegs are positioned forward, promoting a laid-back riding style with the legs stretched out. This configuration provides a comfortable and relaxed riding experience, ideal for long-distance cruising.

It's important to note that individual riders may have different preferences for their riding triangle, depending on factors such as body size, riding style, and personal comfort. Adjustments to the handlebars, seat, and foot pegs can be made through aftermarket modifications or by selecting a motorcycle model that better suits the desired riding position.

Classic 350 design elements

The Royal Enfield classic 350 is a timeless piece of the brand which reflects the Royal Enfield bike's philosophy very well. The

bike has some distinguishable features and creates its own identity and philosophy such as (Figure 1):

Two small DRLs at 10-2 position just above the headlamps

- Triangular shaped instrument cluster

Triangular side panels

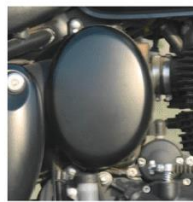- The teardrop fuel tank

Oval shaped battery covers panels

Figure 1: Classic 350 design elements

Primary Research

100 respondents were asked the following questions: What made you purchase this bike? How would you rate the looks of the bike as of now on a scale of 1-10? How would you rate the comfort level of the bike on a scale of 1-10? Don't you think that R.E Classic 350 fuel tank is too wide thus creating a chance of imbalance in case of sudden braking? Does weight of the R.E Classic 350 bothers you? Do you think weight of the R.E Classic 350 should be reduced? Do you think R.E Classic 350 footrest is way too outward in comparison to its rivals like Honda Highness,

Bajaj Dominor 400, and Benallie Imperiale 400. Does foot rest of the R.E Classic 350 bothers you while towing it manually when it gets a break down, due to any issue? Do you think R.E classic 350 should come in more muscular and aggressive look?

Insights: Sound, stability, look/aesthetics made users purchase the bike. 75% rated the look and comfort above 7 on a scale of 1-10 (1=low, 10=high). About the fuel tank design 60% had never thought about it, 30% had given a thought to redesign of tank. 60% said that weight doesn't bother them while 24% said weight bothers them. 62% said that weight should not be reduced while 30% said that it could be reduced. 40% agreed that R.E Classic 350 footrest is way too outward in comparison to its rivals like Honda Highness, Bajaj Dominor 400, and Benallie Imperiale 400 while 30% had not thought about it and 30% disagreed. 45% agreed that the foot rest of the R.E Classic 350 bothers you while towing it manually when it gets a break down, due to any issue. 18% disagreed. 50% said that R.E classic 350 should come in more muscular and aggressive look, 30% disagreed and 21 were not sure about it. Few interviews have been depicted in Figure 2.

Personality assessment from primary study Existing User : - After conducting the interviews and speaking to the owners of the Classic 350, two types of users have been identified prominently as depicted in Figure 3.

1.Shahbaz Salam (HDD Machine Owner)

"bought this bike when I started my business. I use this bike because of my profession. I am a HDD machine owner, I need to instruct labor and manage them as well. The bike has an image of leadership associated with itself. I personally like this bike because of its looks. It looks complete. I see many other motorcycles as incomplete in volume and fragile, maybe due to extensive metal being used in it".

2. Ar. Faraz Farooz (Prof. Aligarh Muslim University)

"I bought this bike when in 2012 and along with my friend I have to almost every motor able road in India. The bike is not comfortable to me maybe because of my height and weight, or maybe because the distance I cover in one go is around 150 kms. Well the bike was never meant to be a practical mode of transport, but eventually people do. The overall design of the motorbike seemed to be balanced, and the overall feel of the bike is very good. I personally ride it because I saw my grandfather riding this bike".

3.Inam Khan Yousufzai

(Student B.com, Aligarh Muslim University)

"My mother promised to buy me a bike and when I got selected in the university she does. I have always seen Royal Enfield classic as an iconic bike and it is the one which seems to me very influential. I always dreamt of having a powerful family bike and now I own one. Whenever I drive it I get a majestic vibe, as if I am the chosen one. The bike is very appealing and is a little bit heavy as a result of which I avoid taking sharp turns and leaning over the road corners".
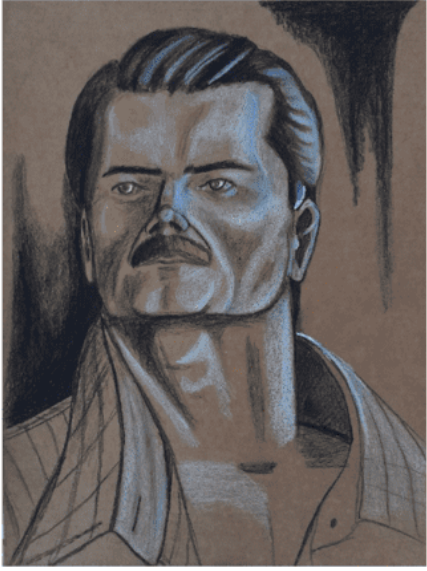
Figure 2: User Interviews
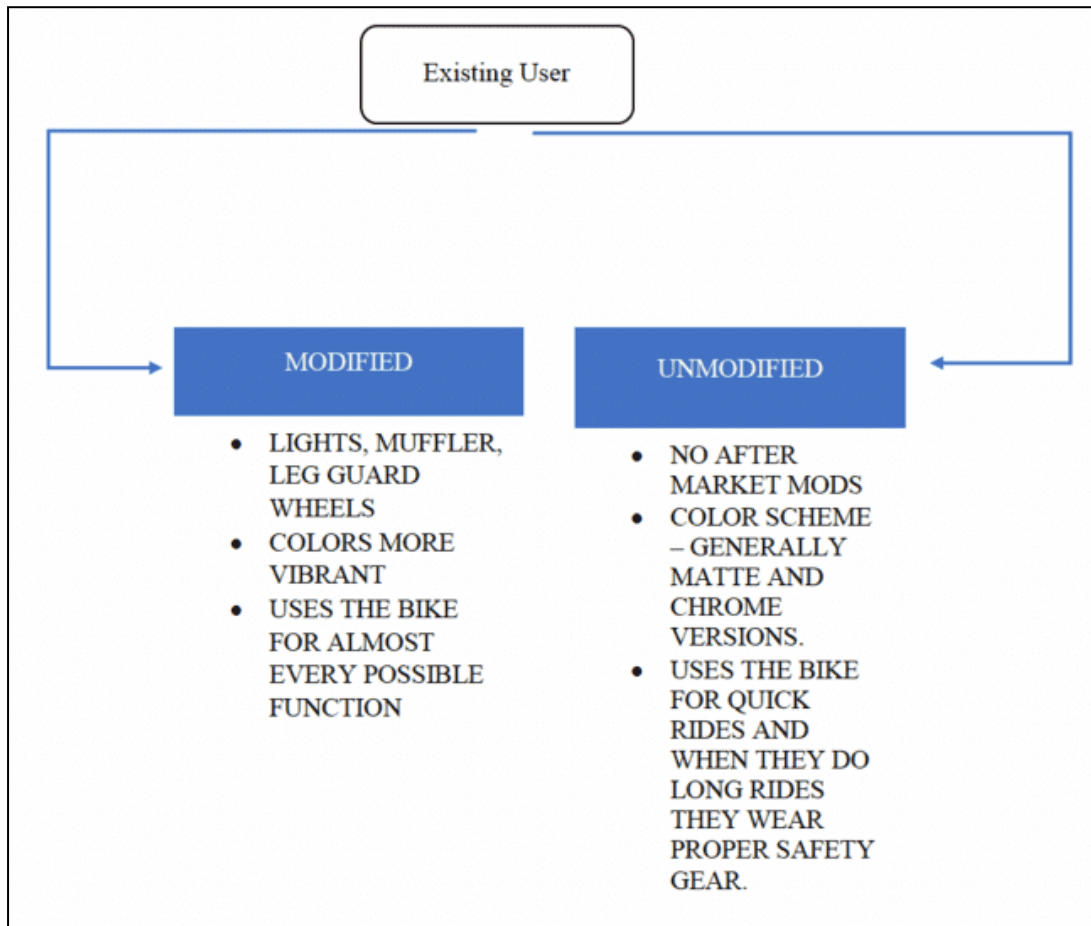
Figure 3: User personalities

Styling

Often used as an interchangeable term with "design", styling is in fact just one component of the design process. Typically, styling is developed through sketches, renderings and illustrations then realised in 3D form using automotive styling clay, specialized industrial modeling foams such as Sibatool, Renshape or Epiwood, or in increasingly limited cases plaster or body filler. As the most subjective part of the design process, the various members of the development team must depend heavily on the judgment, skill and experience of the appointed designer to create an appropriate look. Balancing the design form in all planes is very important, or else the designer loses the product in terms of its credibility.

Earlier clay was the only option for automotive designers to visualize the outcome but now a day there have come many option like 3d sculpting, 3d modelling, CAS modelling with which one can prejudge the design and enhance for the better production and pre visualization. **Current design trends**: *1. Effortless 2. Time efficient 3. Economic 4. Aesthetics.* Since we know bike was never made as a practical mode of transport, but now since people are using it we must consider the factors behind the same.

User persona and Concept sketches have been depicted below (Figures 4-5).

User persona

Name - Jialo san

Age-34 yrs

Weight- 85 kgs

Height – 5'10"

Qualification- M.Tech

Occupation- Software Engineer,

Accenture Noida. (Back-End development)

I am a tourer since I was in my bachelor's. Motorcycling to me is fun which is impeccable in almost every aspect. I always use protective gear while riding on long routes. I have drove over lakh of kilometers on the classic 350 and want to explore the rest of the India with this bike. I like the stability, the thump in its sound and the retro modern looks of the bike. I drive almost 30kms on a daily basis and find this motorcycle quite convincing for me. I get all the attention and respect a biker should get.

Figure 3: User persona
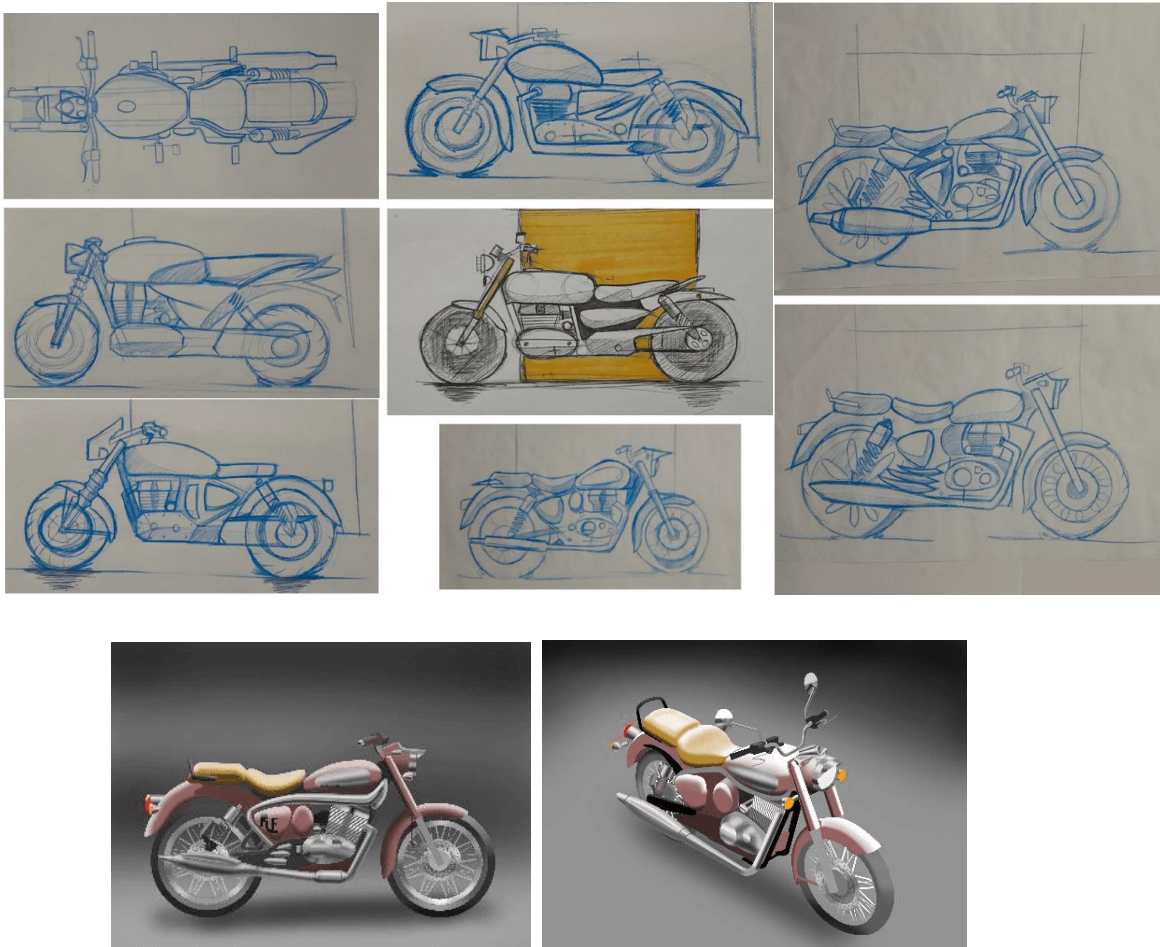
Figure 5: Concept sketches and renders

Conclusion

Time is changing so the fashion of every product, resulting in the new design trends. Royal Enfield classic is the bike with such an aesthetic treatment that people try to relate themselves in the bike's form and attributes. Some people have nostalgia related to this bike, some find its looks convincing to the roles they play in society with 2022 reborn transition classic is evolving through the time in terms of its design and features. The problems identified in the initial phase of the research are proven to be some of the prominent features of the bike. Hence the ideation is done by keeping all the parameters almost same as before except for the aesthetic treatment.

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Kshitij Kumar

With Master's in Design from Jamia Millia Islamia New Delhi, and Bachelors in Fashion Communication from NIFT New Delhi, Kshiti Kumar has over four years of experience as freelance graphic designer, - specializing in brand building and social media communication. While freelancing, he has been associated with Hindustan Machine Tools (HMT), contributing significantly to its revival of the watch division. He is currently working as an assistant professor, at Advertising, Graphics and Web Design, SOAD at Galgotias University.

Kshitij believes in a power of a good story. He believes that design is an excellent way through which, we tell our experiences, codified in aesthetics and beauty. His earlier research explored the intriguing concept of transforming users from mere consumers into active participants in the design process, effectively democratizing the entire design experience.

Besides designing, he nurtures a profound passion for film-making, music composition, horology, and creative writing.

Shubhomoy Halder

Subhomoy is an architect and an industrial designer by profession. He has done his architectural education from Nagpur university and Masters in industrial design from SPA, New Delhi. His passion about design has led him to work for brands like Philips, Merino industries. His field of work has been furniture design, smart restroom hardwares and lighting design. Parallel to his professional carrier he has been associated with design education and has taught and mentored students from various prestigious institutes. He has been associated with JMI as a visiting faculty for design and development. Subhomoy has also coauthored and presented papers in some international conferences. Apart from his work life he has a great passion for music and has performed in various events. He believes in continuous learning with empathy, upgrading oneself and be humble.

REVITALIZING BRANDS THROUGH CO-DESIGN: A Case Study of HMT Enthusiasts groups

Kshitij Kumar, Shubhomoy Halder

Abstract

Co-design, also known as collaborative design, is a process where designers work together with end-users, stakeholders, and other experts – to create innovative, and sustainable solutions to complex problems. It is an inclusive and participatory approach that values the diversity of perspectives and experiences that each participant brings to the table. This project explores the potential of co-design and co-creation within online communities and focus/topical groups. The case study of various collaborations with HMT enthusiasts, after its formal closure – highlights the power of co-design to create unique, meaningful products that foster a sense of community and belonging among participants. It also provides some direction for the revitalization of the HMT brand. The research examines factors that contribute to the success of co-design projects, including factors like online groups, customer engagement and participation, and mass customization. The research also looks at various co-design frameworks, and ideals of co-design, as well as how they have impacted the users, not only in terms of creating solutions that were more coherent to their daily lives, but also providing an opportunity to voice and own an equal partnership- with the solution givers. Through literature review and case study analysis, the project highlights the importance of co-design – in creating social relationships between users and brands, which is beneficial for both (and all

related stakeholders), in the longer term. By collaborating with consumers and communities, brands can tap into new sources of creativity and expertise, leading to the creation of value for both the brand and its consumers.

Keywords: *Co-design, Online communities, Focus Groups, Mass Customization, Customer Engagement.*

Introduction

Hindustan Machine Tools (HMT) was once a prominent public sector brand in India. The brand kick started a new industrial phase in India, where it began to make manufacturing tools for our manufacturing, agro, and dairy industries. To direct consumers, the brand was, however more popular for tractors, and high-quality wristwatches. Through watches, HMT became a household name - a glowing symbol of quality, precision, and innovation. However, after the liberalization of the Indian markets, the brand struggled to maintain its position in the market. It began to lose its turf (as a no. 1 watch manufacturing brand in India) from new competitors entering the market, including a newly formed PPP brand between Tata Sons, and TIDCO – Titan.

As these global watch manufacturers began to flood the Indian market with innovative, newer designs – which had a perceivable better quality, HMT struggled to keep up with the competition, and this in turn led to its rapid downturn.

Despite several attempts to revive the watch division in the 2000s, HMT's watch manufacturing division eventually closed down in 2016. The closure of the iconic brand was a sad moment for many Indians who grew up wearing HMT watches. It seemed

as if the HMT watches were destined to be forgotten, from the memories of the Indian masses.

Because of their popularity, several hmt fan groups had formed, on various social media platforms. In these groups, members would discuss their purchases, their watch collection, aspects of different designs that were prevalent in the HMT catalog, and movements used in various models etc. When the news (of the shutdown of HMT watch division) came up, a group of HMT enthusiasts came together to collaborate with the brand on a series of group projects, HMT White Pilot, and a new concept – a 39 mm dress watch named - Airavata.

Through the process of (*what we recognize as*) co-design, the group members were able to bring new life to the brand they loved so much. They were able to take their ideas and turn them into tangible projects that they were proud to wear and show off to others. As a result, they created value not only for themselves but for the HMT wristwatches as well. While the watch division was closed formally, HMT recollected all their left-over stocks, and structured the business that focused on small steps, and smaller (but recurring) profits. HMT started to retail its watches through its website, which are still bought by collectors, and HMT enthusiasts.

The success of these collaborations is a testament to the power of co-design within such online communities, or focus groups. By working together with the brand, these enthusiasts were able to tap into their collective knowledge and creativity to create something truly unique. The result was a series of wristwatches that were not only beautiful but also 'unique'. - An element that was not present in their previous catalogue.

The impact of these collaborations also went beyond just the products themselves. They also helped to foster a sense of community and connection among the group members. The process of co-creation, led to re-connect with their passion in a meaningful manner, and sharing their (passion for the brand HMT); and their love of the watches - with others. And through this shared experience, they were able to form personal, lasting friendships and build a sense of belonging that extended far beyond their collective love of HMT watches.

As I delved deeper into the research on co-design and co-creation, I began to see how this approach can be used to revitalize struggling brands like HMT. By tapping into the knowledge, creativity, and passion of online communities and focus groups, companies can create products that are not only tailored to the specific needs and desires of their customers - but also are imbued with a sense of 'shared ownership and pride'. Such acts not only could bring a revitalization in their businesses, but also build a long-term loyalty to their user base – which increases over a period of time.

In this project, we shall explore the concept of co-design within online communities and focus/topical groups. The project shall examine the various factors that contribute to the success of co-design projects, including the role of social media groups, the importance of customer engagement and participation in the design process, and the benefits of mass customization through such groups. The research would also sum up, and highlight various aspects of participatory design or co-design, and how such an endeavour leads to empathetic and sustainable solutions. Through a combination of literature review and case study

analysis, we shall highlight the importance of co-design, which not only creates value for the users but for brands as well.

What is Co-Design?

Co-design, also known as collaborative design, is a process where designers work together with end-users, stakeholders, and other experts to create innovative, yet sustainable solutions to everyday complex problems. It is an inclusive and participatory approach - that values the diversity of perspectives and experiences - that each participant brings to the collective table.

Co-design is important for several reasons. Firstly, it ensures that the end-users and stakeholders are actively involved in the design process, resulting in solutions that are more genuine, more relevant and more useful for their stakeholders. By co-designing solutions with those who will actually be using them - designers can gain deeper insights into the needs and desires of their target audience, and create products and services (solutions) that meet their needs, solutions that are sustainable.

Second, co-design promotes collaboration and teamwork among designers and other experts. By working together and sharing knowledge and expertise, social values in the form of empathy, loyalty, and trust, are created among their stakeholders.

Third, co-design encourages innovation and experimentation. By involving multiple perspectives and ideas, designers can explore new and unconventional solutions that may not have been possible within the traditional design paradigm. Co-design also allows for rapid prototyping and testing, which enables designers to quickly iterate and improve their solutions based on feedback from end users.

Co-design promotes equity and inclusivity in design. By involving diverse groups of people, co-design ensures that the needs and desires of all stakeholders are taken into account, including those who may have been traditionally marginalized or excluded from the design process. This can lead to more socially responsible and sustainable outcomes.

Overall, co-design is a powerful approach to designing solutions that are relevant, effective, and equitable. It allows designers to work collaboratively with end-users and stakeholders, promote innovation and experimentation, and ensure that the needs and desires of all groups are taken into account.

Difference between Co-Design and Participatory Design

Participatory design focuses on involving end-users and other stakeholders in the design process from the beginning. It is a bottom-up approach that values the knowledge and expertise of the people who shall use the solutions that are being designed. Participatory design aims to empower end-users and other stakeholders by giving them a voice in the design process and creating solutions that are tailored to their specific needs.

Co-design, on the other hand, is a broader term that encompasses participatory design as well as other collaborative design methods. Co-design involves designers working together with end-users, stakeholders, and other experts to create innovative solutions.

While there is some overlap between participatory design and co-design, participatory design is more focused on empowering end-users and other stakeholders, while co-design is more focused on collaboration and innovation. Both approaches are valuable and

can lead to successful outcomes, depending on the specific needs of the project and the goals of the designers. The key is to choose the approach that best suits the needs of the project and the people involved, and to ensure that all participants are involved and empowered throughout the design process.

HMT Watches: The Rise and Fall of Timekeepers of India

In the year 1961, a historic partnership between HMT (Hindustan Machine Tools) and the Citizen Watch Company of Japan, led to the birth of India's very first wristwatch manufacturing unit in the bustling city of Bangalore. This city was the epicentre of manufacturing and research, and now – it is considered as "India's Silicon Valley".

HMT was a government-owned unit and manufactured heavy machinery for the (then) upcoming industries. Under the leadership of Nehru, HMT got the mandate to design wristwatches for the common man, but they lacked the expertise required for watch manufacturing. The collaboration with Citizen thus was crucial for this new line of business.

Once initiated, watchmaking turned out to be so successful - that the company had to expand its production facilities, setting up new plants in other parts of the country - to meet the rising demand of the nation. It was also helped by the prevailing economic stance of India at that time, which favoured local production of goods and discouraged imports, almost closing off the country to foreign watch brands due to prohibitive import taxes.

The watches that HMT made were not just timepieces; they were symbols of India's potential and a testament to our ability to

create world-class products. The hand-wound mechanical watches, automatic watches, and quartz watches that followed were all a reflection of the innovation and dedication that HMT embodied. The movements made in India under the Citizen Group's license were almost indistinguishable from their Japanese counterparts.

Initial productions were limited to simple hand-wound mechanical watches, which was gradually followed by automatic and quartz watches. The movements were mostly made in India- under the license of the Citizen group, and were very similar to their Japanese equivalents.

The demand for HMT watches from the 1960s to the 1980s was huge - leading to long waiting lists. By 1991, HMT had produced almost seven million watches, more than all its domestic rivals combined. It was a moment of pride for every Indian who believed in our country's potential.

While it had the entire Indian market to itself, HMT eventually gained a rival when Indian business conglomerate Tata Group, established its own watch brand in 1984. Named Titan, the brand's focus was modern, fashionable quartz watches that were more in keeping with consumer tastes.

At the same time, the Indian economy slowly opened up to international brands as import restrictions moderated. And because of savvy marketing, Indian consumers desired newer watch brands.

Such brands offered timepieces at various price points, giving Indian consumers the choice they had been denied for so long. Suddenly HMT's timepieces were not desirable anymore. They looked outdated and old-fashioned compared to the competition.

The sense of prestige and pride that went with wearing an HMT watch was sadly, lost.

Despite efforts by the government to rescue the company, HMT's market share plummeted to less than 5 percent by the early 2000s. Inefficiency, bureaucracy, and labor disputes coupled with resistance to change and reluctance to adopt new technology, all contributed to the company's downfall. The once-proud HMT was bleeding money and was on the brink of collapse.

The government of India finally shut down HMT's watch business in May 2016, the company had been enduring almost continual annual losses since the early 2000s, amounting to around US$1.9 million in 2004 and rising to around US$3.6 million in 2013.

The news of the shutdown of HMT's watch business had been circulating in the media months before the final closure by writing 'The end of an era', 'the loss of a cherished brand', and the demise of 'a part of India's heritage'. Hope of a revival faded when the last of its employees were laid off in May 2016. The closure of HMT's watch business was a tragic end to a glorious journey. The factories that were once bustling with the production of watches was repurposed for other more essential or profitable products.

Summary of literature studied

Design is no longer confined to the traditional roles of the designer, executing a project for the stakeholders. The 'top-down' approach of design has been replaced by user-design. While reading the papers, it was observed that participatory design seems like an evolutionary way forward in the design paradigm. So, design has become a collaborative process that involves a

diverse group of stakeholders (involving both the designers and their users.

While exploring the concept of co-creation in design, we see that co-creation involves a shift from designing for users - to designing with users. It is suggested that by involving a diverse group of stakeholders, co-creation can lead to more innovative, sustainable, and meaningful solutions (for the users).

The concept of Co-creation is an extension of empathic design. It is observed, that in the current design process, empathy has become a superficial and trivialized quality, and it should go beyond understanding the user's emotions. A more holistic approach is proposed to empathic design that -involves understanding the user's context, environment, and social interactions. During participatory design exercise, designers get to have an intimate experience with their users – which lead to solutions that are more meaningful to their users.

Participation, should not just be about involving users in the design process; but it should be a more democratic and collaborative approach to design. Designers should understand the complex relationships and power dynamics involved - in involving stakeholders, who although are 'outsiders' (when seen in terms of a design process). A framework for configuring participation is proposed, which involves understanding the goals, context, and characteristics of the design project, as well as the capabilities and expectations of the participants.

By involving users in the design process, and by giving them a chance for equal participation (in the design process), it is observed that this act empowers marginalized communities – and

gives them authority in the decisions that affect their (users) lives.

It is also important, to see and explores the role of mental models in design collaborations. It is argued that mental models, or the shared understanding of the design problem amongst stakeholders, can influence the effectiveness of the design collaboration. By understanding and managing mental models, designers can improve collaboration and create a better value, defined not only as an 'economic value', but could also address social issues for all stakeholders.

The role of online communities in the design process is also looked at. Online communities are valuable tools for designers to engage with users, gather feedback, and co-create solutions, which are more acceptable to such users (in this case, online group members). It is argued that customer co-design, within online communities, can overcome the challenges of mass customization, such as high cost, long lead times, and high complexity. A focused group has like-minded individuals, and their desires, and thus mental models are the same. A co-creation, done in this manner, increases the chances of such solutions to be more acceptable, to those members –since they had a say in the design process. In such a way, it builds a positive loop - and creates more loyalty toward the brand (by group members).

To understand some of the broader aspects of customer involvement in the design process, research is explored towards, the trend of customer co-design in the fashion industry. The paper contains case studies in which the authors argue, that customer co-design can provide a competitive advantage for fashion

companies - by allowing them to create personalized products that meet the specific needs and preferences of customers.

Overall, these papers highlight the importance of co-creation, online communities, customer co-design, empathic design, and value co-creation in the design process. The focus on collaboration, participation, and understanding the needs of users and stakeholders is critical for creating effective and socially responsible designs. Online communities can be a valuable tool for designers to engage with users and co-create solutions. Customer co-design can overcome the challenges of mass customization and provide a competitive advantage for companies. Designers need to adopt new tactics for design participation that involve engaging with users in a more democratic and collaborative way. The frameworks and case studies provided in these papers can be a useful guide for designers looking to incorporate online communities and customer co-design into their design process.

Development of a Wrist Watch by Online Fan Groups: A Participatory and Co-Design Approach

Within the HMT enthusiasts groups, it was observed that the members didn't view their watches as 'products', but rather as 'artefacts' – that were essentially an establishment of their own personalities. They bonded with the products on a deeper level, and are passionate about various micro-details about their watches. One member reported that they have a collection of around 100 watches, which is focusing on one model – HMT Janata. During one of the interactions, they gave a detailed presentation of various iterations of Janata, talking about the changes or evolution of the typeface, written elements that were added or removed, the dial finish, colon, and changes in the – to

also which models were made in which factory, in which batch and so on. It was observed that many members had such a plethora of information that each member would know about specific details, all according to their liking.

The members belong to diverse demography and backgrounds. From old watch repairmen to High court Judges, from IT professionals to architects, business owners, doctors etc. On a first glance analysis, one would finds that most of the members are men, and are restricted to the geography of India. However, because of the advent of social media – there includes some members, who are of non-Indian lineage. They are interested in the brand HMT because the watches were not only affordable, (in a world of luxury watches, HMT mechanicals are still under 100$), but also like time capsules, retaining the retro designs of the 60s and 70s. One can also see, a growing no. of women members as well, mainly because a typical example of an HMT case falls within 33- 36mm (from both sides of the bezel), and thus an HMT men's watch can also be worn by women.

Each member, on average, has more than five watches in their collection, and in some cases - the range can get to a couple of hundred. The collection, when seen as a whole – can be seen as an educative tool to learn the evolution of product design in HMT. Some members have collected certain pieces that are not in production since the 80s. Some, through their favourable and personal connections had an access to HMT, where they were able to collect a few experimental and trial dials. There are several marketplaces within these groups, where members, apart from sharing information, and photographs, also buy, sell or trade their time-pieces.

Through such watch groups, which exist on various social media platforms – there is an existing ecosystem, where HMT exist as a 'cultural phenomenon'.

Since the closure of HMT Watch division, these members have actively tried to increase the brand base, through their respective groups. Most of them are part of two or more groups, and have cross-platform profiles. Through these cross-interactions, a newer audience is found and consolidated in the groups – increasing the number of members, increasing their curiosities and eventually – converting them as consumers of HMT watches.

Projects like White pilot or Airavata, were amongst the first of their kind, where the stakeholders i.e., the group members from the WUS HMT forum, had a direct say in the design and development of a watch concept. The group members constituted a large number of professionals, from diverse backgrounds, spread all over India. But because of their collective knowledge, they were able to design and develop watches that were meant only for them, but also for HMT.

HMT was struggling to sell over their inventory – to large masses. Due to its depleting profits, HMT was not able to innovate its product range. Prior to the age of social media, or WUS platforms – HMT had no direct connection with their consumers. The designs were created in isolation. Also, because of its unique character (incepted when the company was formed), HMT was not investing enough in research and development –thus sticking to the design language of the 60s.

Here, for the first time – an opportunity was given to outsiders, who were not able to create a product –which looked on par with their design, it also added several numeral features that made

these designs click even with newer masses. Because of the success of the LE White Pilot, HMT produced a regular edition of White Pilot which were immensely successful in the general market, amongst normal users as well (who were not part of any watch collections groups, or frequent buyers of watches). Even collectors began to advertise white pilot to their loved ones, and became advocate of it – because this was essentially, their collective intellectual property (IP), their own design.

Projects like Airavata set the stage for upcoming collaborations within HMT and watch groups. Apart from forums, various members (from the same WUS), spread out and began to form new groups, on various social media platforms. Facebook became a popular option for these members because they could form exclusive, closed groups. They were able to share their photographs, and their content directly on these groups. Unlike WUS, Facebook groups were easily discoverable, they managed the content well, and the content was searchable. Therefore a large number of new members would often search about HMT and would connect with these groups, thus expanding the group – and in turn, increasing the base.

Post-2018 – Rise of new collaborations with Facebook groups.

After the closure of the watch division, a new division was created that absorbed all the remaining resources – which included machinery, commercial buildings and factory lands, and leftover stocks and spares. While everything was sold, to pay off the losses, under the request of these social media groups – HMT held over to their stocks and spares. The new division was known as HMT CSD (Common Service Division). CSD later reabsorbed other

divisions (like tractors) and was rechristened as HMT ABD (Auxiliary Business Division). ABD started a website, dedicated to online retail of leftover stocks that were collected from all the factories that were spread nationwide. ABD also started a museum, in Bangalore – where it houses all the watches that they have produced till their closure, as well as their tractors, and various tools and machines.

As the stock hit the website, members from these groups would immediately buy out them – to either add them to their collection, or gift them to their friends and family, or trade them within their own group. Knowing the potential of these platforms, HMT kept a close relationship with their admins, often informing them about the new release before stocking them on the website. The admins would inform their members about the release beforehand, making it easier for members to buy these watches before stock-out. This again created a loop of positive re-enforcement, as anyone who wanted to buy HMT watches would have to be a part of any HMT group – not only because the groups helped them to buy, but also to know more about the HMT watches, and their rich legacy towards the Indian manufacturing sector.

The admins of these groups also wanted to replicate 'Airavata' for their group members. So occasionally, the admins would ask their group members, for possible ideas for any project – which they could pitch across to HMT.

Projects of such kind started in 2017. Although these projects cannot be considered co-creations (as this project defines) they had elements, which were proposed by an outside stakeholder group, to the management of the HMT. Some examples of such projects were – HMT Janata HWC edition, where the dial had the

group logo of a prominent Facebook group – HMT Watch Collectors, administered by late. Prashant Pandey. The watch also had lumed hands (a feature absent from typical Janata watches). Likewise, the same group commissioned group projects for their group members, where watches would be released to group members, before to general masses, on their retail website. Such releases would also come with badging of their respective social media groups. The group logo was etched on the case back of these group watches, and thus – they held more value to their group members.

Such group projects also became an excellent ground for HMT – to test their new projects. Since the closure, HMT didn't have enough resources to manufacture the watch in-house. For new concepts, HMT was dependent upon third-party manufacturers, who would create small batches of watches according to their (HMT's requirements). These small batches would then be released as limited edition watches, group projects, or small editions. Based on the performance and response of the designs – HMT would later release the design to open public, via their website.

From badged watches (putting the logo on dials or case backs), the members soon were developing concepts around existing IP within HMT's past catalog. For instance, a 2019 release of HMT Janata Gold, came into existence. What was interesting to see in this design was that the watch cases were gold-plated, with different indices and typography – similar to what was existing within the HMT design family. It was also observed that such designs held more popular support amongst not only their group members but also other groups within the ecosystem of Facebook. Similarly, a wide range of Kohinors was released by HMT – first in

2019-2020, and in 2022, and 2023 – where new colors were incorporated in the Kohinoor range.

What was interesting about this series, was that these colors had earlier been released by HMT, for Japanese markets in the early 2000s. So, by that definition – the concept was not novel for HMT, and they could not understand and make them again. Also, one could observe larger trends in the design of wristwatches, where a lot of brands, including Swiss luxury brands – have started to incorporate color in their popular model series. So, apart from White, Black, and Gold, consumers were also sporting colors like blue, maroon, green, and salmon shades.

The birth of New IPs

The next logical step, towards Co-Design – was the development of new design concepts that were not available within HMT's previous catalogue. While several times, such requests were made to HMT, there were several limitations to the process. Firstly, due to extremely limited manufacturing capabilities, HMT did not have the capacity to create novel concepts. The Auxiliary Business Division's main responsibility was the sales of the left-over stocks, and maintaining the left-over businesses that HMT had closed down. So to create new concepts, HMT still had to use their existing stock in some capacity, in order to a.) Lower the overall manufacturing process, and avoid its related overhead, b.) Utilize spares, and left-over stocks, and c.) Create concepts that look within the existing HMT design ecosystem.

For admins, there were equal set of problems as well. Unlike previously, where through written texts, people were able to imagine the concepts, for creating newer concepts – they felt that some sources must be acquired, for creating clear renders of such

concepts. The renders or sketches would communicate the design to both the members as well as HMT authority. Moreover, the design should be editable, so members can vote and change or remove details. And the same design, once finalized – should be transferable to HMT for production.

After knowing the limitations of both of these stakeholders, certain individuals (including the author), would create renders and sketches, which would translate the written details, and inspiration photographs, into a watch render that could be discussed, voted upon, and then sent over to the manufacturer for production.

These individuals were guided, by the collective knowledge the group possessed, as well as the limitations HMT had – in creating prototypes for new cases, or dials.

For example – HMT Gandabherunda, is the first IP made after the closure of HMT. Gandabherunda is a mythical bird, popular in Kannada traditions, and is the state's emblem. Since HMT was started in Bengaluru (in Karnataka), it was fitting that the watch gave tribute to its brand's cultural roots. The concept was easier to execute, as it involved a new dial design. This iteration was essentially an HMT Janata, with a topical dial – conceived by an outsider. At this stage, for the design process, one saw a division of the platforms. While social media groups were still used to get an opinion on the new design, to vote for some of the features, and to announce or bring the required MOQ to their design concepts. For rationalizing and rapid prototyping, certain individuals were collected by the admins and were connected within a messaging group (like WhatsApp). These individuals were included, based on their personal relationships with the

admin, how similar their mind sets are, how much they are open to critique, and what assets they can bring to the project. In an unofficial capacity, these individuals would act as project managers, content creators, and designers. People who had some skills in rendering, design thinking, and prototyping – were also involved – to create suitable renders for their group projects. In some manner, HMT outsourced research and development of newer ideas, and newer concepts to stakeholders, who had a deep and keen interest in developing products, and owning them.

Since Gandabherunda, several concepts have been proposed to HMT, and based on their current manufacturing skills, as well as that they are bringing a minimum quorum – these projects are under-development. HMT is also trying to position itself back into the watch manufacturing business and is currently investing in building its business set-up, and manufacturing abilities. The new projects range from the assembly of old parts to creating a concept that has been out of production for decades, to new dials, and new colors of their famous product line. HMT has now started to accept some proposals, which include changes in their case, hands, or utilizing movements that are not in their current catalog. Such product lines, if produced – would be amongst the first projects which would be introducing radical design language in the HMT Catalogue, but at the same time – respecting the roots and heritage of the brand.

For the current research, three projects have been selected – which are under the process of manufacturing and release. These projects include – HMT Kohinoor Quartz (a re-assembly of old components to create a new product), HMT Jagannath (a new dial design concept to create a devotional watch), and HMT Commando (A new, bigger pie-pan case similar to Airavata, at 39/40 mm).

Primary Study

The research was conducted using a qualitative case study approach, with data collected through online surveys, and written interviews. For the interview, the projects were selected whose proposals were conceptualized within the first quarter of 2023, during the duration of the study. The participating members were selected based on their interest in HMT wristwatches, their contribution to designing the co-design proposals, and their willingness to participate in the process. For manufacturing and design guidelines, a reputed third part was consulted, which also manufactures watches under its micro-brand.

The data was collected in the following phases:

Phase 1: Survey - A survey was conducted to understand the participants' awareness and knowledge of co-design, their interest in HMT wristwatches, and their willingness to participate in the research.

Phase 2: Concept Selection and Proposal - The participants were asked to propose their design concepts for the wristwatch, based on their preferences, needs, and expectations. During the research, the participants had to share their views on the concept, how they felt while designing the proposals, how much value they were assigned to the task, and in what terms they were defining the 'value'. The participants also shared their conversations – documented on the group chats. The purpose of such an exercise was how the members were interacting with each other, how much they were able to critique the ideas or acknowledge the inputs of other members, and such qualitative aspects. The group

was encouraged to discuss and debate their proposals before submitting them to the manufacturer.

Phase 3: Evaluation - The concept created by this focus group was evaluated by the wider audience, present on the social media platforms. The evaluation was done on the basis of whether the concept would find enough backing, a finer critique or approval of the design and its elements, and other aspects. In essence, the wristwatch concept was evaluated by the online fan group, to assess its aesthetic appeal, functionality, and marketability.

The evaluation also considered the value created – for both the members of the online group and the manufacturer through the participatory and co-design approaches

Once the proposal was finalized, they were sent to the manufacturer (HMT), for final approval and development of the wrist watch, incorporating to develop the design of the wristwatch, incorporating their chosen traits and features. The manufacturer will provide technical guidance and expertise throughout the design process.

Let's discuss some finer aspects of the project, in terms of the principles and Ideas of Co-Design, which were applied in the above-stated process.

Based on the literature review, the following methodology was utilized for the

Concept Selection and Proposal:

- *The members, within the WhatsApp group design, were asked to create concepts. Here there was no limit to the topic or the central idea for the concepts.*

- *After collection, the concepts were shortlisted, considering the relevance and promise of those projects, and their alignment to manufacturing constraints.*

- *The concepts were showcased to a larger social media group to gather their feedback and opinions. Also to get members to overall – approve the project's theme.*

- *After the first showcase, the broad opinions of the group member were looked at. The author encouraged discussions and debates among the members to refine and improve the shortlisted concepts. Based on broader feedback, the concepts were streamlined. One clear iteration came into being after being favoured by most of the members.*

- *Based on the feedback, the finalized concept was showcased to the group for approval. Here the names of the members were also recorded, to get the final numbers. The author committed to the design of the dials and various aspects, to be sent for final approval from the manufacturer.*

- *Participants worked together, to create a detailed proposal for the selected concept, including sketches, specifications, and rationale. The same was sent to the manufacturer, for final production.*

To ensure that the principles of participatory design and co-design were followed, the following steps were taken, during interaction

- *Open and transparent communication among the members was encouraged, and it was ensured that everyone's input was valued and considered. A collaborative environment was fostered, where besides wristwatches, members would also*

discuss their other hobbies or passion, or their day-to-day life experiences.

- *The author continuously sought feedback and suggestions from the members to improve the renders and it was ensured that the renders met participants' needs and expectations.*

- *Each contribution was acknowledged and recognized throughout the co-design process.*

- *While developing the concept, the manufacturer was given a fair idea of the design, so that accordingly – they can clarify certain technical details and the feasibility of the project.*

Overall, this methodology facilitated (or aimed to facilitate) a collaborative and participatory design process that involved participants in every step of the wristwatch co-design project, from concept development to the final proposal. By following the principles of co-design and participatory design, it was anticipated that the entire process would build – a valuable and meaningful experience - for both the members and the manufacturer, resulting in a successful design concept.

For brainstorming, a strategy was followed, to come up with themes and concepts for design. The author helped in the process, by designing and developing concept sketches.

- ***Brainstorming (Figure 1):*** *The first step involved participants generating ideas for themes for the wristwatches. This was done through detailed discussion, where each member would discuss their ideas, and how they are relevant in the present context. The concepts were usually re-introductions of old, out-of-production, rare*

models - with certain customizations. Or they were certain features in the related watch market, and how those features and design trends can be brought into their new, developing concept.

- *Categorization: Once a sufficient number of ideas have been generated, they could be categorized into different themes, such as military, space exploration, divinity, cultural and regional motifs, etc.*

- *Prioritization: After categorizing the ideas, the members were asked to prioritize the themes based on their preferences.*

- *Design Researcher Intervention: At this stage, the author extended their help by suggesting prevalent design trends and providing design inputs that would complement the members' ideas.*

- *Sketching: Based on the prioritized themes, members asked the author to sketch designs of the watch face. The sketches would be uploaded to the WhatsApp group for feedback and improvement.*

- *Finalization: After several rounds of feedback and improvement, the final design could be selected and submitted to the manufacturer.*

Overall, the author played a role in guiding the participants in the design process, providing design inputs, and assisting with the technical aspects of dial renderings. By working collaboratively, the group created wristwatch concepts that are unique, functional, and aesthetically compatible to HMT's design DNA.
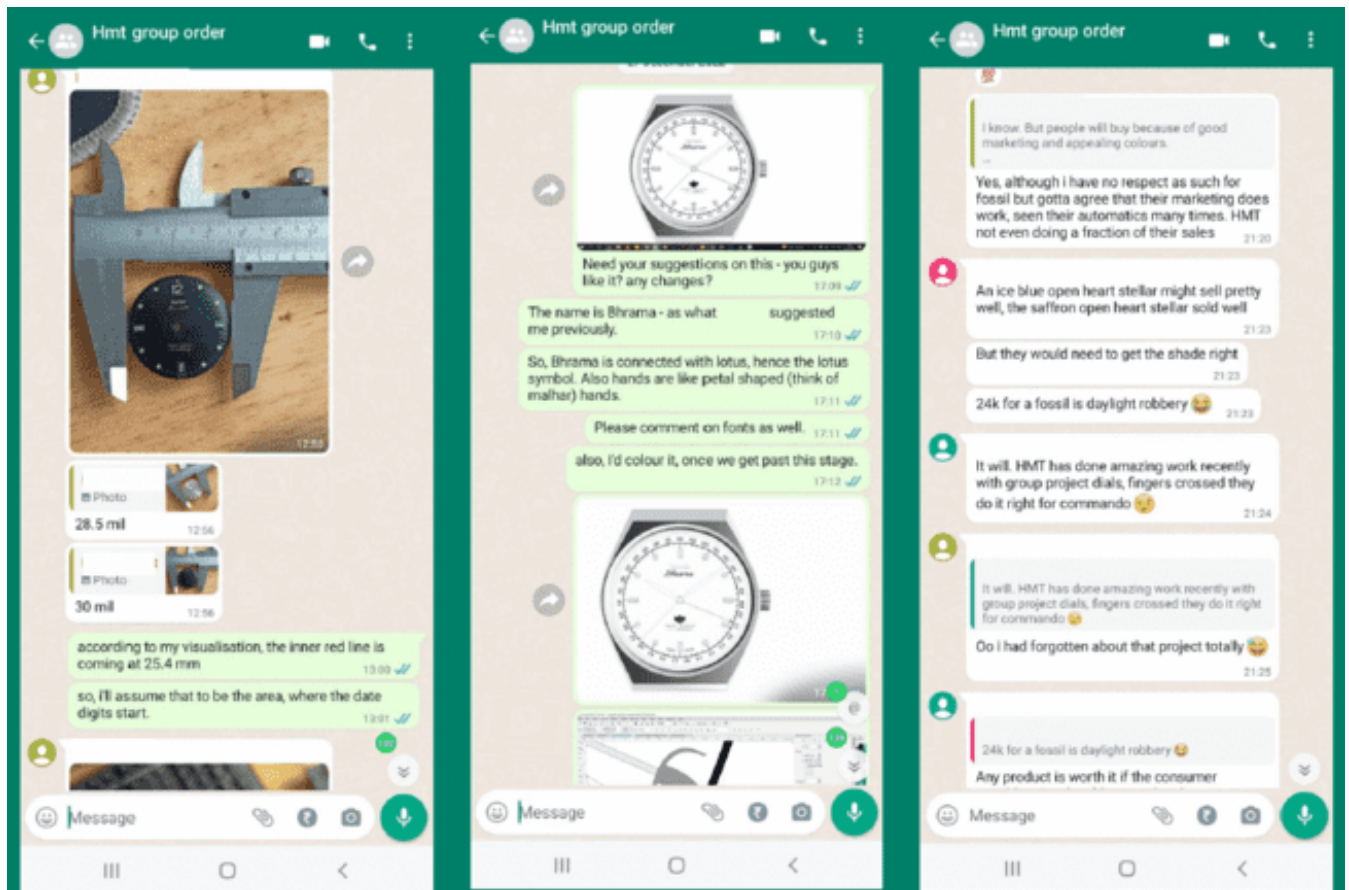
Figure 1: Screenshots of a Whatsapp group detailing how participants interact with each other, and how they contribute in the construction of a design proposal.

Figure 2: Concepts under production, created using co-design approach

Analysis

During the period of research, a total number of five projects were directly overseen by the researcher. In terms of design intervention, the project included from re-assembly of old components, to creating new cases and dials – so the

interventions were according to the requirement of the projects. Out of five, two projects were halted and eventually turned down by the HMT management – due to technical – internal issues.

During the project, the researcher joined these groups to help and oversee the process. In situations, where tools were required to visualize the ideas, the researcher helped the participants with creating sketches, where not only the concepts were clearly seen by the participants, but details were also established – e.g. the typography of the print, overall size, and ratio of each component, how certain components would look with different surface treatment, and such. The participants would mostly accept those details, the discussion would happen majorly on the broader aspects of design.

Many of the participants have been a part of earlier commissioned projects and therefore had extensive knowledge about guiding the conversations. Aspects like manufacturing feasibility, bringing the required MOQ, insider information on HMT management, and such details were shared by these members. Newer participants (who were joining these groups for the first time), would bring new market trends, features and design details, and new insights. Overall the discussion would be guided between these two points – uniqueness and feasibility, what elements HMT can commit, and what it may reject.

Despite a difference in experience levels, the communication between each participant was cordial and respectful to each other. Each relevant solution would be greeted with great enthusiasm, and the environment to brainstorm was good. On doing further analysis, it was found that participants have known each other, from them being members of the same social media group to

some members running and managing these groups, to a few who had a relationship, outside social media. Because of their previous experience, the members would know everyone's capabilities, and how they can bring relevant contributions to the endeavor. In Mental models in design teams: a valid approach to performance in design collaboration?, the authors described that a team (participants in this case) should have a shared mental model, especially if team members have different ideas about the task at hand or if they come from diverse backgrounds. This contributes to better coordination and communication within the team, resulting in better team processes.

The process, during the design, can be understood by the concept of 'abduction'. An iterative process, one creates an object ("what") by utilizing a given desired outcome ("result") and a given working principle ("how"). Or, it can be seen as one commences with a desired outcome ("result") and develops both an object ("what") and a working principle ("how"). So, in some projects – it was decided unanimously what shall be the final product (e.g – a watch with four hands), versus a theme (military watch) and how it can be further shaped.

This method is associated, deeply with design thinking, and the concept of framing. Framing involves the iterative process of developing frames (combinations of a result and a working principle) and generating potential solutions, while creatively transitioning between "result," "how," and "what" during the design process.

Here, the problems and possible solutions were explored, developed, and evaluated simultaneously in an iterative process.

From 'Co-Design as a Process of Joint Inquiry and Imagination', the author discussed John Dewey's views on the relationship between practices, experiences, and knowledge, and how these ideas are relevant to the field of co-design. The author then discusses Dewey's emphasis on communication, cooperation, and change, and the belief that - people can bring about positive change by working together. Dewey viewed knowledge as instrumental, concerned with exploring alternative futures, promoting communication and cooperation, and organizing positive change.

The open communication between participants, as observed in the research, provided an ideal platform, where knowledge transfer would freely happen. This was in a way, can be described as 'collective brainstorming', where members were jointly exploring, discussing, and defining a problem and collectively explored, developed, and evaluated possible solutions. The inquiry brought people further together so they can experiment and learn, and bring about solution that is mutually beneficial to all stakeholders –HMT included. Thus it can be argued that co-design has ethical qualities (based on Dewey's pragmatist philosophy.

For Dewey, moral experiences were his starting point, and the empowerment of people to cope with moral questions was his primary goal. Daily life, with both its minor issues and its major questions, is inherently ethical, and deliberation is a social process.

So people engage in a co-design process. They engage in ethics, and the ethics manifest when participants express and share their personal experiences, empathize with others, discuss current or problematic situations, envision possible or desirable situations,

develop and evaluate possible solutions, and make decisions and bring about change. Co-design can be understood as an instance of moral inquiry, a reflective response to a problematic situation.

One possible benefit that comes from such a joint inquiry is that participants get associated with the brand HMT. They hold themselves in equal partnership with HMT, associating their vision with brand's longevity and legacy. Today, when large corporations spend large budgets on customer engagement and building brand association with their consumers - through the channels of advertising and public relations, here we see a unique approach, where experienced stakeholders, who have a prior connection with the brand, come together and through joint inquiry, envision a new future of the brands – one project (wrist watch) at a time. Psychological ownership, as explained in The two sides of empowering consumers to co-design innovations states that - how brands, particularly those who wishes to establish an engaged consumer base, prior to their launch can leverage co-design. It is argues that it is ultimately advantageous to the brand itself, as co-designing empowers consumers, and elicits a positive attitude towards the brand.

For someone in HMT's shoes, which is struggling to come back again in the market, these participants, (who earlier were active consumers), become passionate advocates and PR professionals (effective evangelizes) – without instituting any budget for such exercises. Not only they are more willing to advocate for the brand, but also they believe that it (HMT) is worth more than other offerings, from their competitors.

For instance, it was observed that –the inception of Kohinoor quartz brought a newfound interest and demand for retro quartz

watches – something which was a dead stock for HMT since the 90s. Over a period of time, HMT also launched their Sangam series – which featured checked print and square case – a design trend popular in the 80s. These watches featured on popular content-sharing platforms, and thus got more responses, and possibly were bought.

Conclusion

The Mordor's Intelligence Report 2022, valued the global watch market at USD $ 92.7 billion, with a CAGR of 5.02% during 2022 and 2027. For the Indian market, a CAGR of 20.32% is forecasted for the same – within 2022-2027. The watches produced during the period would be mostly smart watches and luxury watches.

Amongst the many features of luxury, one prominent feature is the ability to customize certain features, in order to make them more personal. Luxury goods are co-related with self-esteem and image and are often seen as an extension of their user's personality.

In today's world, people have become more empowered. They want to have a say in the things they buy, use, and consume. This shift in consumer behavior can be given an effective space, through the concept of co-design - where companies collaborate with their customers to design products that are tailor-made to their preferences. This concept is not only limited to physical products but can also be applied to digital solutions and services.

Many product companies, especially accessory brands do tend to take such attributes of luxury brands within themselves. While doing the secondary study, it was observed that many premium brands, do offer certain customization in their selected offerings,

where customers can create some combinations (from the selected features), and utilize them to create a more personal product. The phenomenon has been captured under 'mass customization'.

The research in the context of designing group projects –co-design initiatives with mass customization essentially meaning the production of mass customized goods. It is powerful tools that can help businesses meet the unique needs and preferences of their customers. By leveraging such a tool – the participants designed watches that were tailored to the preferences of their respective group members, conceiving products that were truly unique and personal.

The feeling of 'personal connection' stems from the collective proprietorship of the product. Since the group members designed the concepts (within constraints), and these designs are recognized widely amongst different HMT groups – it brings psychological ownership to such participants, bonding them closely with the product, and with the brand.

HMT in the past, had co-created several co-design projects with their social media community, which brought them some success. The story of Airavat is one, where (during the process) it made people aware of its closing, and in response, the WUS members collected enough numbers – to voice that for HMT, there is some chance that it could survive as a niche brand. The community initiative didn't stop at group projects only. The members became passionate spokespersons of the brand, marketing it to everyone else. They (the fan groups) expanded the diminishing space of HMT, through their blogs, video content, and social media posts. They also enabled HMT to work with their remaining stocks, to

create an apparatus (in the form of a website), so that the brand could effectively sell online, and gave several new ideas, and customers – through such group projects. This success story is just one example of how co-design in online communities can lead to the creation of value.

One of the key factors that made the co-design efforts of these HMT enthusiasts successful was the use of online communities. These groups came together through social media platforms, creating a virtual space where they could collaborate and exchange ideas. Online communities, in this case - become a collaborative space for co-design - as they provided a platform for individuals to come together, regardless of geographic location or time zone, and work towards a common goal.

The research argues that in certain scenarios, customers can be involved in the design process, where companies could tap into the collective creativity and knowledge of the group members - resulting in the creation of solutions that are tailored to their preferences. This approach not only creates value for the customers but also helps companies create products and services that are in line with the changing needs of their customers.

Overall, the concept of co-design in online communities or focus groups, is a powerful tool that companies can access - to engage their customers in the design process. By creating a collaborative and empathetic environment, companies can create solutions that are not only beneficial for the brand but also for the customers. Through the research, it is observed that co-design can become a popular approach for companies looking to create value. With the right approach and mindset, companies can harness the power of

co-design - to create successful products that meet the innermost, tacit needs of their customers.

As HMT moves forward in its journey to revive its brand, co-design will play a crucial role. By involving customers and communities in the design process, HMT created products that truly met the needs of its customers, and such initiatives would re-establish HMT as a respectable brand in the market. The power of co-design is evident in this case. With the help of its community, HMT has the potential to create a bright future for itself.

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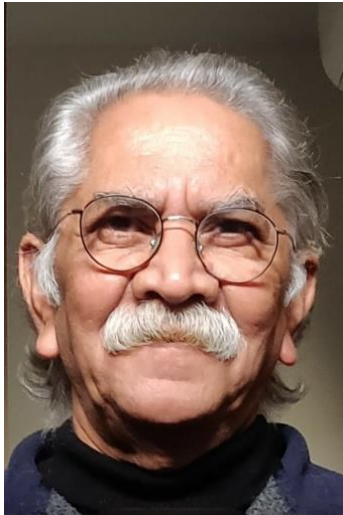
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AI Digital Product to Improve English Communication

Jatin Davis, Jatin Bhatt

Abstract

This study aims at using the power of AI to address a need. One such need is English communication. A survey was shared to understand the areas in English language where people lack and where they feel the need to improve. This insight was used to create the feature set for the digital product. Recent development in AI and release of large language models (LLM) have shown that these models can be used to teach. As they have been trained on huge amount of text data, these models are good at natural language conversations and can be used to improve English communication. Open AI, the company behind chatGpt has released APIS which can be used to power our products and build our own digital product. After brainstorming session the ideas surfaced , moved into designing the interface and create iterations. To bring this product to life so that people can use in, i used different technologies and tools to design and build it. This was followed by buying a domain name and putting the product on the internet. The domain name 'fluentman.com' was chosen for this.

Product link - **https://fluentman.com/**

Keywords - *Artificial intelligence, English communication, Natural language, Design.*

Introduction

Language is important for communication. Good command over a language helps us to communicate and convey our ideas to others in a better way. Fluency in writing and speaking the English language is admired in India. English is also important in our professional careers and social circle. Job Interviewers also test our language skills and candidates with better English language command are given preference in India. Good communication skills are important to move up in our professional life. English is a language predominantly used in the corporate world in India. Fluency in English can portray a person as cool, smart, and educated. On the other hand, a smart, intelligent person who isn't proficient in English can be perceived as uneducated. Command over English governs our social circle in India. A person lacking fluency in the English language will find it hard to adapt and enter a social circle that predominantly converses in English. Since communication is a vast topic, I intend to focus on verbal English communication that includes speaking and vocabulary as these are important subsets of verbal english that play an important role in our day-to-day communication. For this, I will design and build a digital product to improve speaking and vocabulary. In 2023, the world saw a massive emergence of AI tools in various industries. These AI tools have the potential to change the way businesses operate, from automating repetitive tasks to providing insights that were previously impossible to uncover. One of the most buzzed-about AI tools in the market is ChatGPT, developed by OpenAI. ChatGPT is an AI-powered Chatbot that utilizes the GPT-3.5 architecture to generate natural language responses to user input. It is capable of engaging in natural conversations with users and can provide information, support, or entertainment.

ChatGPT has been hailed as a breakthrough in natural language conversations with users and can provide information, support, or entertainment. ChatGPT has been hailed as a breakthrough in natural language processing, and its potential applications are virtually limitless. One of the most exciting features of ChatGPT is its ability to learn from previous conversations. This means that the more users interact with the chatbot, the more intelligent and personalized its responses become. ChatGPT can also be trained to recognize different languages, dialects, and accents, making it an ideal tool for companies with a global presence. This means that AI can be used for learning languages. Since AI is significantly good at natural language and is a large language model it can be used for improving english communication.

Literature review

The three components of fluency, accuracy, and pronunciation are essential for the development of oral communication skills. Fluency allows students to speak spontaneously and eloquently without hesitation, while accuracy ensures that their speech is grammatically correct and coherent. Pronunciation is also crucial as it helps listeners understand what the speaker is saying.Al-Tamimi, Nasser Omer M., and Rais Ahmed Attamimi. "Effectiveness of cooperative learning in enhancing speaking skills and attitudes towards learning English." International Journal of Linguistics 6, no. 4 (2014): 27.

English in Thailand is taught as a foreign language, and exposure to the English language is somewhat limited. As such, English instruction is located in an area where English is not a primary language. Moreover, the majority of English teachers are Thai in all levels of education—and are largely unqualified as teachers

(Yunibandhu, 2004).Khamkhien, A., 2010. Teaching English Speaking and English Speaking Tests in the Thai Context: A Reflection from Thai Perspective. English language teaching, 3(1), pp.184-190.

EFL students face significant challenges due to their limited use of the English language, as they may only use it for specific purposes or occasions. This can result in greater difficulties in learning English compared to ESL students who use the language on a daily basis. To overcome these challenges, some EFL students may choose to study abroad as a learning strategy. Hibatullah, O.F., 2019. The Challenges of international EFL students to learn English in a non-English speaking country. Journal of Foreign Language Teaching & Learning, 4(2), pp.88-105

The process of learning vocabulary involves four stages: discrimination, understanding meaning, remembering, and consolidation/extension of meaning. Discrimination involves distinguishing sounds and letters, while understanding meaning involves grasping the concept of the word. Remembering new words is crucial, and consolidation and extension of meaning occur over time as words become fully integrated into a learner's personal stock of words. Achieving lexical command is a slow process, with pronunciation and spelling acquired first, followed by control over morphological forms and syntactic links, and full semantic knowledge acquired last. Identifying difficulties in vocabulary is crucial for successful teaching. Factors that make some words more difficult to learn include pronunciation, spelling, length and complexity, grammar, meaning, range, connotation, and idiomaticity. Difficulties with pronunciation or spelling can contribute to a word's difficulty, as can irregularities in English spelling. Grammar and meaning can also pose challenges, as can

words with multiple overlapping meanings or idiomatic expressions. Shorter, high-frequency words with a wider range of contexts tend to be perceived as easier to learn. Rohmatillah, R., 2014. A STUDY ON STUDENTS'DIFFICULTIES IN LEARNING VOCABULARY. English Education: jurnal tadris bahasa Inggris, 6(1), pp.75-93. 9

Students face several difficulties in learning and using English vocabulary. These difficulties include: Short-term memory: Students have difficulty remembering words due to their lack of practice and failure to associate words with real-life objects. Lack of knowledge of words: Students rely on bilingual dictionaries and often do not understand the different meanings of words in different contexts. They may only remember a few meanings of a word, which negatively impacts their academic performance. Spelling errors and pronunciation problems: Students often make spelling mistakes because they do not break words down into parts, and may have trouble pronouncing words they have not encountered before. They may also be unaware that the alphabetic letters do not always provide an exact sound. Inability to encounter lengthy words: Students frequently encounter lengthy words in English vocabulary but may lack appropriate techniques to learn them. Inability to use words correctly: Students may have difficulty using English words correctly, as they are learning a second language and may have trouble expressing their intended meanings. Lack of regular practice of vocabulary: Students may remember words but do not practice them daily, which is necessary to improve second language learning. Shah, S.H.R., Abbasi, I.A. and Ali, A., 2022. Difficulties in Learning English Vocabulary Faced by College Students of

Pakistan. Pakistan Languages and Humanities Review, 6(2), pp.422-431.

Competitive Research

Applications focusing on improving vocabulary and language.

Duolingo (Figure 1) - Duolingo is a language learning application that offers users the ability to learn a new language in an interactive and engaging way. The app is available on both iOS and Android platforms and offers over 30 languages to choose from. The app uses a combination of reading, writing, listening and speaking exercises to help users learn new vocabulary, grammar, and sentence structure.
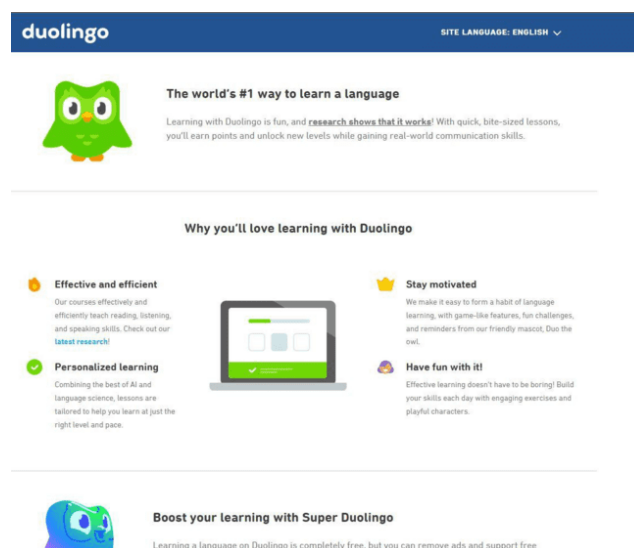
Figure 1: Duolingo

Josh Skill Application - Josh Talks English Speaking app helps overcome the fear of speaking in English with real students as practice partners to practice English without hesitation with students from anywhere in India Improving English conversation skills by English Speaking with practice partners Interactive video

lessons by English teacher help you practice English speaking, reading, listening, grammar, writing to improve your vocabulary and pronunciation of the English language.

Research Methodology

- *Research Objective*

- *Identify Target demographics.*

- *Conduct Research.*

- *Gather insights and determine action items.*

Research Objective –

1. To understand people's thought processes about vocabulary and language skills.

2. To understand if there is an actual need for the product.

3. To understand if the problem which I am trying to solve with a digital product has potential and if it will provide value to the users.

Target Demographic - The target demographic is 18 to 26 years old. The product aims to cater to college students and working professionals. This product will be used for aiding in language-related tasks.

Analysis and Findings of Questionnaire based User Study

People do need assistance in English communication as found out in user study. Many people do not use English as their first language. This explains why people struggle in English communication. They have less exposure in English speaking and this results in less time devoted to English communication. They

constantly switch between their native language and English depending on the need. Since English is used only at work, this means that their English usage is limited. English communication can be broken down into subsets. To improve overall in English, one has to focus on all these subsets equally. These subsets include vocabulary, pronunciation, fluency etc. This will overall improve the English communication. One of the major areas which people want to improve include vocabulary. This is followed by English speaking fluency. Both, these areas depend on the exposure we have in English. The more we speak and practice the better we become. Using English on daily basis is necessary for constant development. Figure 2 depicts persona of users.

- Age : 18 - 26 years
- Belonging to rural india
- Completed schooling in rural areas.
- Shifting to a city for better job opportunities or education.
- They are either joining a company as a fresher in a city or taking admission in a college located in a metropolitan city.
- English has never been their first language.
- They use their native language most of the time in their hometown.
- They can read and write English.
- They aren't confident in english speaking and english communication.

Figure 2: User Persona

Design and Build

After going through the research phase i came to conclusion that exposure in English is needed for improving English communication. The best way to achieve that was creating a AI powered assistant (Figure 3-4).

Figure 3-4: AI powered assistant

According my understanding exposure to English is the key to improving English communication. So the idea taken was a conversational assistant for the product. I tried to focus on ideas which were buildable and possible with my skills. I used various technologies to build the product. From initial design to development. The application was made responsive so that it could be used on various screen sizes. Openai api was connected and used for powering the application. Domain name was selected which represented the application and was used for deploying it. Figure 5 App Design.

Product goal

- *To improve English communication by focusing on*

- *Vocabulary*

● *Fluency*

● *Pronunciation*

Product Features

● *AI search.*

● *Video tutorials.*

● *Community Feed.*

● *Word of the day with examples.*

● *pronunciation search.*

● *Voice based conversational AI chatbot.*
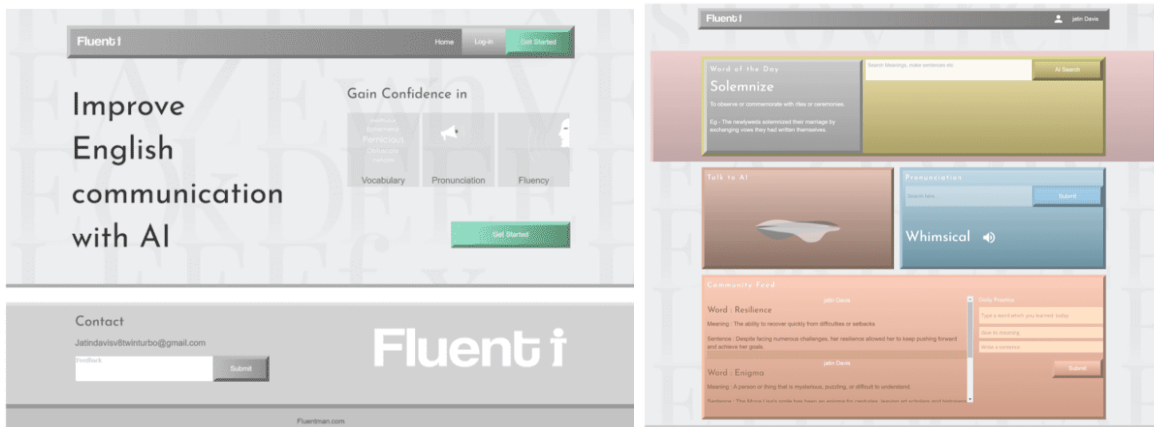
Figure 5: Application Design - https://fluentman.com/

Conclusion

In conclusion, I was able to design and develop a digital product which was powered by Artificial intelligence. However, some features were difficult to implement and were not buildable considering my skills, resources and time available.

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Letter from the Chairman's Desk

By Sunil Bhatia
PhD

What is innovation? It is a step forward from the current state. The effect of innovation will benefit society and prove the reason for progress or people who benefit from such innovation applied in betterment or for destruction will realize after a few years of its innovation. I remember an instance when Bill Clinton was the president of America and the internet was introduced to him. He said it was a great innovation but from the point of administration we wished to safeguard the interest of the common people and its control cannot be ignored at any cost. First thing before approaching those who are lobbying for the introduction of enactment of laws regarding internet technologies let us explain that if someone misuses the technology what are the ways we can prove guilty and punish? It is our great concern for the welfare of society not at the cost of keeping our citizens unsafe because of new technology. The law was kept for three long years pending and once it satisfied the lawmakers then he signed the bill.

Despite such great precautions, notorious people used the internet facility to execute the act of attack on the Twin Towers in America by bombing. They used static emails and codes of planning were communicated through using photographs. The best part was no one blamed technology but the failure of

intelligence and administration. There was a widespread argument that a knife was designed to lower the hard work of cutting but if some insane person uses it as a weapon for murdering is not technology failure but application failure. I am in favour of innovation but safety precautions introduced can lower the chances of misuse. The law of keeping a knife of not more than 6 inches is one step for lowering the damage by the attacker but if someone is hit in such a sensitive place of the body the reason for instant death can not be controlled.

The day of the Industrial Revolution changed the lifestyle of common people and major changes are witnessed in human life after this revolution. The progress is quantum jump and innovations have come to the forefront in human life and changed the culture of humans around the world. Another side it proved a major accidental death in human history. It is yearly more than any major war or natural calamity. People ignore this parameter and keep progressing, forgetting the industrial accidents.

It is in human nature to leave some mark for future generations about their existence and look for that material that has a longer life than human life and easily cannot be erased. It is an inbuilt mechanism in humans and it can be traced from the days of primitive times. What made the primitive people record and document what they found in nature and in modern times it is known as rock or cave art. Another factor is humans look for better ways that should be convenient and widespread items for recording the incidents and that was the reason painting moved from different crushed colour stones used for painting to natural flowers and plants colour. They initially used natural products in depicting the figure but moved forward in water oil or in modern times acrylic paints. Another human nature is to resist any

changes. When shifted from rock painting to innovative ideas of colour painting it would be possible it faced great resistance from rock painters. Similarly, the innovation factor further allowed the next level of photography, at that time various painters resisted by saying that photography was art. But it stayed and the museum accepted it as an art form. Technology moved further and digital art gradually replaced photography and it encountered the same criticism that photographers did for canvas painters. Digital establishes its form and makes its place in the museum. The latest innovation is Artificial intelligence which is threatening all forms of recording records and I advise there is no point criticizing the new innovative form rather train yourself and be expert in this form of art of documentation and do not waste energy in criticising .

Innovation for the welfare of common people is increasing for commercial gain. These innovations improve the lifestyle of peace-loving citizens. On the other side the elite class in the name of proving security encourages mass destruction and long-range military weapons. These two lobbies conflict, one prefers peace and others are under compulsion to go into war because heavy stocks and heavy investment forced them to experiment in war. They create an artificial environment and present it as if there is no other option left but to go for a full-fledged war with the enemy. There is another angle of innovation where every nation wants to be first in the innovation of advanced weapons and wishes to get rid of a pile of inferior technology weapons forced to be sold to other nations or destroyed. Destroying is not a wise and feasible step because there is no return on investment.

I am thankful to Prof Deepshikha for accepting our invitation of Guest Editor in a short period. I know it was a difficult challenge

but she did her job with utmost sincerity and the outcome is in the special issue.

We are achieving another milestone of entering nineteen years of publication since 2006. Teenage age is most crucial for raising a young person and needs special attention from the superior not to be distracted from its goal and vigilance should that much where should not feel suffocated. It is entering in 2024 after the last of teenage years of our publication. I am thankful to our esteemed readers who made this story a success story. I am thankful to our contributors as authors and Guest Editors who expressed their faith in us. I was in India sitting in a remote place but our international communities of design expressed their faith in us and supported us without desire in return. In the initial years, I was naïve, immature, and full of energy for the publication of Design for All and as I look back I realize there was no reason people should help me. I tried to move forward by maintaining discipline and that proved my assets to make this publication a success story. Some element of unknown force in our success story needs special mention that helped us at the time of unforeseen crises in guiding and taking out from that crucial time. It is a free publication but contributors invested their time and energy uninterrupted without missing a month of the publication since 2006

I wish our esteemed readers a *Marry Christmas and a Happy prosperous New Year 2024*

Lambert Academic publication for celebration of the 150th special issue by publishing a book by compiling editorials "Design For All, Drivers of Design" was translated into eight different languages from ENGLISH to French, German, Italian, Russian, Dutch, and

Portuguese. Kindly click the following link for the book. "Morebooks", one of the largest online bookstores. Here's the link to it:

https://www.morebooks.de/store/gb/book/design-forall/isbn/978-613-9-83306-1

Enjoy reading, be happy, and work for the betterment of society.

With Regards

Dr. Sunil Bhatia

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Forthcoming Issues

January 2024 Vol-19 No-1

Dr FarnazNickpour

Dr FarnazNickpouris an inclusive and human-centred design researcher and educator. Sheis a Reader in Inclusive Design and Human-Centred Innovation and director of The InclusionariesLab at The University of Liverpool. Farnaz has a track record of excellence in design research, teaching and pedagogy, with 40+ peer-reviewed publications and awards.Sheis the External Examiner to the joint MA/MSc Global Innovation Design (GID) programme at the Royal College of Art and Imperial College London, and University of Brighton BSc and BA Design programmes. Sheis a reviewer for the Journal of Engineering

Design, Journal of Design Research, Strategic Design Research Journal, and Building and Environment Journal; Scientific committee of Design for Inclusion (AHFE) Conference; Fellow of the Royal Society of Arts (FRSA); Fellow of Higher Education Academy (FHEA); Member of Institute of Engineering Designers (MIED); and Professional member of British Industrial Design Association (ProBIDA).

Farnaz'sresearch explores critical and contemporary dimensions of design for inclusion and human-centred innovation acrosshealthcare and mobilitysectors, with a core focus on advancing four strategicresearchthemes.

February 2024 Vol-19 No-2
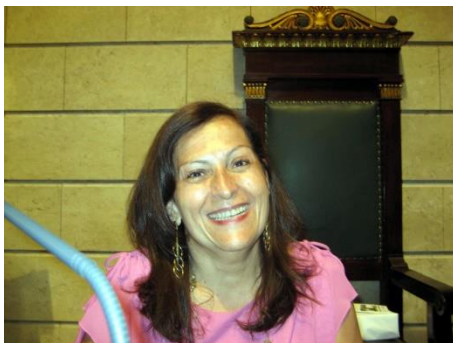
Regina Cohen, PhD. *– Associated researcher, expertise in accessibility, Architect and Town Planner with disability*

G3ict/Smart Cities for All Country Representative for Brazil
CPABE (Certified Professional in Accessible Built Environments)
International Accessibility Consultant

Regina Cohen worked on the Project "Inclusive and Accessible Sidewalks" in São Paulo/BR, promoted by G3ict, University of Washington and the support of Microsoft.

In 2022/2023 Regina worked as Consultant on the Accessibility Projects of Trains Terminals in Rio de Janeiro State, Brazil.

Graduated in Architecture and Urbanism at Federal University of Rio de Janeiro (UFRJ 1981) and has a master's degree in Urbanism at UFRJ (2000) as well as a PhD Degree in Psycho-sociology of Communities and Social Ecology at UFRJ (2006). She became specialist in Art History and Architecture in Brazil at PUC RJ (1992), experienced with the Architecture and Urbanism field, with emphasis in Architecture and Urbanism.

Post-Doctoral Degree in Architecture (2008-2013) - (scholarship from FAPERJ - PROARQ/FAU/UFRJ) focused on the Accessibility of Persons with Disability to Museums.

Regina Cohen is an associate researcher on accessibility. She coordinated the Research, Teaching and Project Center on Accessibility and Universal Design at Federal University of Rio de Janeiro (Pro-access group, UFRJ – 2000 - 2020). Has been a Visiting Assistant Professor on the Disability Studies Center of Syracuse University in 2014 (FULBRIGHT/CAPES), (Sep - Dec. 2014); Member of Municipal Council of Persons with Disabilities in Rio de Janeiro (COMDEF RIO).

March 2024 Vol-19 No-3

Prof Dr.Ketna Mehta

She is Founder Trustee & Editor (One World), Nina Foundation, a 22 years young NGO for rehabilitation of people with spinal cord injuries in India. She is an Author of two books; 'Nano Thoughts on Management' & 'Narratives of Courage, Lives of Spinal cord injury survivors in India'.

As editor, 36 issues of 'One World - Voice of people with spinal cord injury' has published since 2001 (www.nina foundation.org)

She is a thought leader on social and inclusive development of persons with disabilities, transformational change and leadership. She was invited to contribute a chapter in the popular book 'Chicken Soup For the Indian Spiritual Soul' !India's very first literary festival by the highest circulated newspaper group The Times of India on 'Disability is a state of Mind.' Her action oriented, innovative and bold opinions on disability has been published in over 100 research papers, articles, book chapters, columns, blogs and interviews in the media. She has been invited as a Guest Editor for Success& Ability's first and only thematic issue on Spinal Cord Injury in 2012, two issues of 'DesignForAll'

international publication focusing on 'Improving Quality of life of people with spinal cord injuries' & 'FutureSpeak SCI Rehabilitation' in 2021 & 2019.

She has been a Regional Consultant for WHO's first Research Report IPSCI (International Perspective on Spinal Cord Injury'. For the very first Rehab Exhibition, Nina Foundation was invited as the NGO Partner where a demo workshop of how Scoop Stretchers during the Golden Hour prevents a devastating spinal cord injury. Several Public Forums on spinal cord injury have been curated by her for spreading awareness.Since 25th June 2009 Nina Foundation has initiated a spinal cord injury awareness day. Their grassroots free SCI OPD &multi disciplinary camps have successfully gifted equipments, medicines, hope and solutions for living a life of dignity. In April 2017 was invited by UC Berkeley, California as a faculty jury to evaluate international live student projects on Universal ReDesign from various countries. She was invited as an Expert Speaker for CIVIL20 (G20) by Rising Flame for 'Women with Disabilities' Panel on 17th June 2023, American Consulate, Mumbai. Nina Foundation is also a PAB Member for SPINE20 (G20) as Speaker & Observer 10-11 Aug 2023.

Ketna is a spinal cord injury survivor since 27 years and lives in Mumbai India.

April 2024 Vol-19 No-4

Dr.ShatarupaThakurta Roy has studied Fine Arts in VisvaBharati

University Santiniketan and did her doctoral research in Visual Culturefrom the Department of Design, Indian Institute of Technology Guwahati.

She is currently working in the Discipline of Fine Arts, Department ofHumanities and Social Sciences as an Associate Professor engaged inteaching and research in the area of Art and design. She is a painter andprintmaker with many national and international exhibitions to her credit.

June 2024 Vol-19 No-6

Per-OlofHedvall*works as Director of Certec, Department of Design Sciences, Lund University, Sweden. His research deals with accessibility, participation, and universal design, with a particular*

interest in the interplay between people and technology. Working closely with the disability movement, he focuses on people's lived perspectives and how human and artefactual aspects of products, services, and environments can be designed to support people in fulfilling their needs, wishes, and dreams. Hedvall has a background in computer engineering and has a particular interest in people's empowerment and opportunities for participation in their lives.

Per-OlofHedvall often bases his work on Cultural-Historical Activity Theory. In 2009, Hedvall defended his doctoral dissertation in Rehabilitation Engineering and Design, "The Activity Diamond – Modelling an Enhanced Accessibility", where he developed a model for planned, lived, and long-term aspects of accessibility, as a prerequisite for participation.

New Books

Sunil Bhatia

Design for All
Drivers of Design

Expression of gratitude to unknown, unsung, unacknowledged, unnoticed and selfless millions of heroes who have contributed immensely in making our society worth living, their design of comb, kite, fireworks, glass, mirror even thread concept have revolutionized the thought process of human minds and prepared blueprint of future. Modern people may take for granted but its beyond imagination the hardships and how these innovative ideas could strike their minds. Discovery of fire was possible because of its presence in nature but management of fire through manmade designs was a significant attempt of thinking beyond survival and no

doubt this contributed in establishing our supremacy over other living beings. Somewhere in journey of progress we lost the legacy of ancestors in shaping minds of future generations and completely ignored their philosophy and established a society that was beyond their imagination. I picked up such drivers that have contributed in our progress and continue guiding but we failed to recognize its role and functions. Even tears, confusion in designing products was marvelous attempt and design of ladder and many more helped in sustainable, inclusive growth.

www.lap-publishing.com

it is available on www.morebooks.de one of the largest online bookstores. Here's the link to it: https://www.morebooks.de/store/gb/book/design-for-all/isbn/978-613-9-83306-1

The Ultimate Resource for Aging in Place With Dignity and Grace!
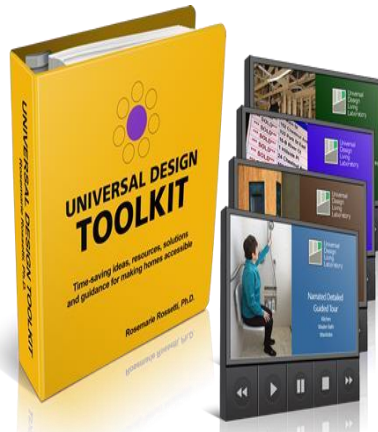
Are you looking for housing options that are safer and more accommodating for independently aging in place? Do you want to enjoy comfort, accessibility, safety and peace of mind – despite your disabilities, limitations and health challenges? The help you need is available in the Universal Design Toolkit: Time-saving ideas, resources, solutions, and guidance for making homes accessible.

This is the ultimate resource for individuals and professionals who want to save time, money and energy when designing, building, remodeling or downsizing a home. The Universal Design Toolkit will help you take the steps to design homes for your clients or yourself while eliminating the costly trial and error challenges you'd inevitably encounter if faced with this learning curve on your own.

Rosemarie Rossetti, Ph.D., teamed with her husband Mark Leder in creating this unique Toolkit. They bring ten years of research, design and building expertise by serving as the general contractors for their home, the Universal Design Living Laboratory– which is the highest rated universal design home in North America.

Within the Toolkit's 200 richly illustrated pages, you'll find: Insights that distinguish *essential* products, services and resources from the *unnecessary*.

Proven, realistic tips for finding the right home.

Home features you need to look for. Nothing is assumed or left out.

Handy home checklists and assessments.

Interview questions to help you hire industry professionals with knowledge and experience. Photographs that provide a frame of reference to inspire, clarify and illuminate features andbenefits.

Valuable resources to save you time, money and energy.

Helpful sources of funding.

Space planning dimensions for access using assistive devices such as wheelchairs andwalkers.

And so much more!

If you want useful, dependable advice and easy to implement ideas from respected experts who know the ropes, you'll love Rossetti and Leder's perspective. As a speaker, author and consultant who uses a wheelchair, Rossetti has helped hundreds of people design their ideal homes. Now her comprehensive Toolkit is available to help and support you! Get the Universal Design Toolkit now to start your project!

Disability, Rights Monitoring and Social Change:
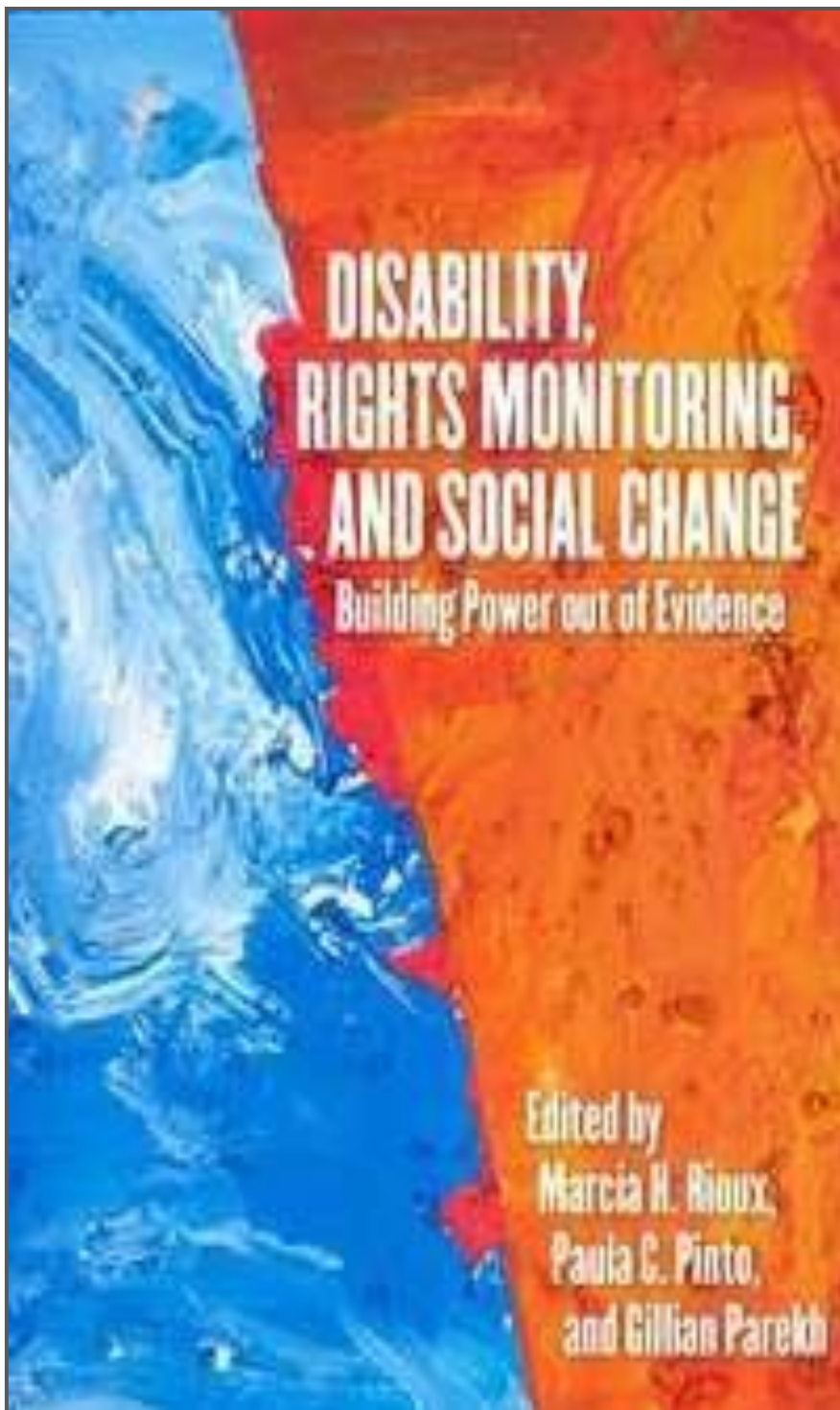
New Update: ELIVIO BONOLLO (2015/16) PRODUCT DESIGN: A COURSE IN FIRST PRINCIPLES
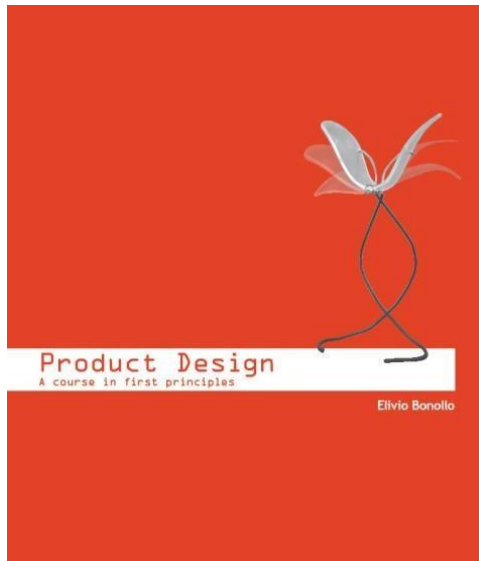
Available as a paperback (320 pages), in black and white and full colour versions (book reviewed in Design and Technology Education: An International Journal 17.3, and on amazon.com).

The 2018, eBook edition is available in mobi (Kindle) and ePub (iBook) file versions on the amazonand other worldwide networks; includingon the following websites:

ePubversion:www.booktopia.com.au

https://www.booktopia.com.au/ebooks/product-design-elivio-bonollo/prod9781784562946.htmlmobi (Kindle versions):www.amazon.in

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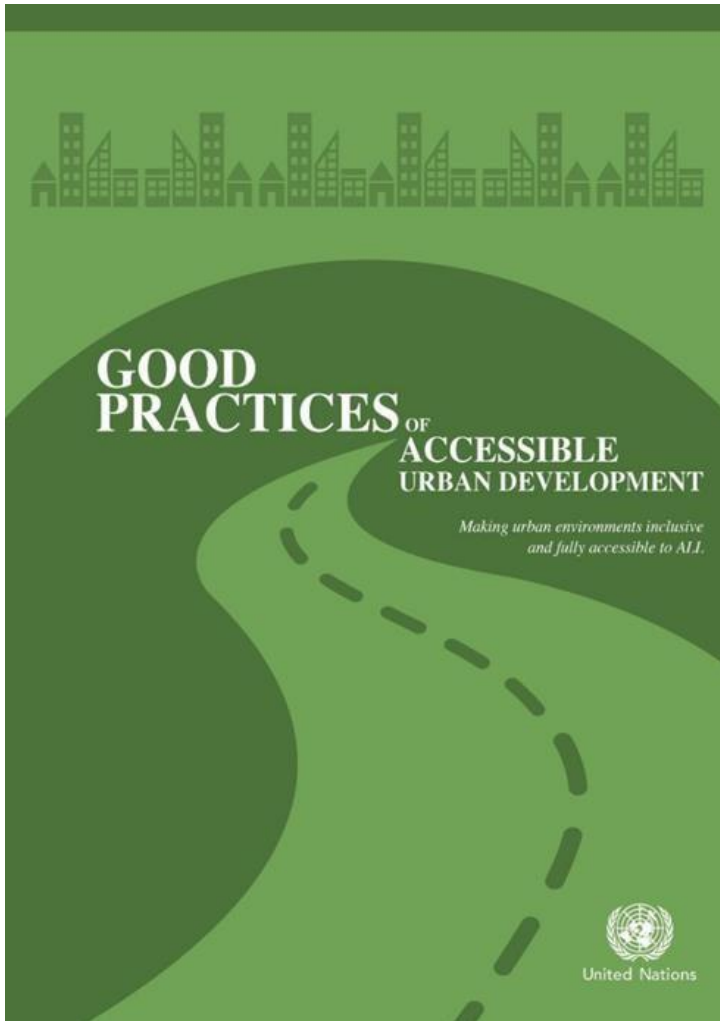
In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: "Good practices of accessible urban development".

The publication provides case studies of innovative practices and policies in housing and built environments, as well as transportation, public spaces and public services, including information and communication technology (ICT) based services.

The publication concludes with strategies and innovations for promoting accessible urban development. The advance unedited text is available at:http://www.un.org/disabilities/documents/desa/good _practices_urban_dev.pdf

Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, _A Primer on the Design and Science of Complex Systems_.

This project is funded by the UK Engineering and Physical Sciences Research Council (EP/K008196/1).

The book is available at URL: http://complexityprimer.eng.cam.ac.uk

Changing Paradigms: Designing for a Sustainable Future

Editors:
Peter Stebbing
Ursula Tischner

CUMULUS THINK TANK
Publication No 1 of the Think
Tank Series from the Cumulus
International Association of
Universities and Colleges of
Art, Design and Media

cumulus

CLAY

Changing
Paradigms:
Designing for a
Sustainable
Future

New iBook / ebook:
HOW TO DO ECODESIGN

ECODESIGN HANDBOOK

HOW TO DO ECODESIGN

PRACTICAL GUIDE FOR ECODESIGN –
INCLUDING TOOLBOX

ISSUED BY THE
GERMAN FEDERAL ENVIRONMENT AGENCY

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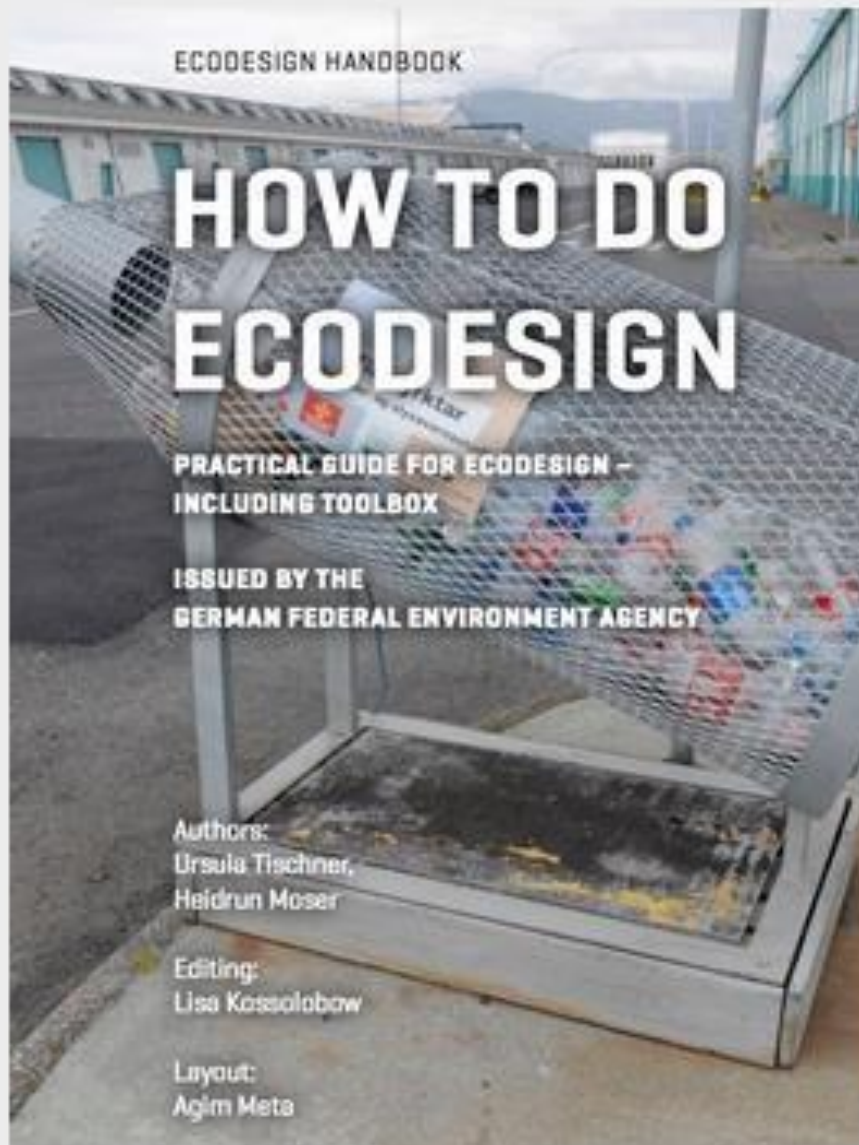
Practical Guide for Ecodesign – Including a
Toolbox
Author: Ursula Tischner

TRANSFORMATIONS
7 Roles to Drive
Change by Design

Joyce Yee / Emma Jefferies / Kamil Michlewski
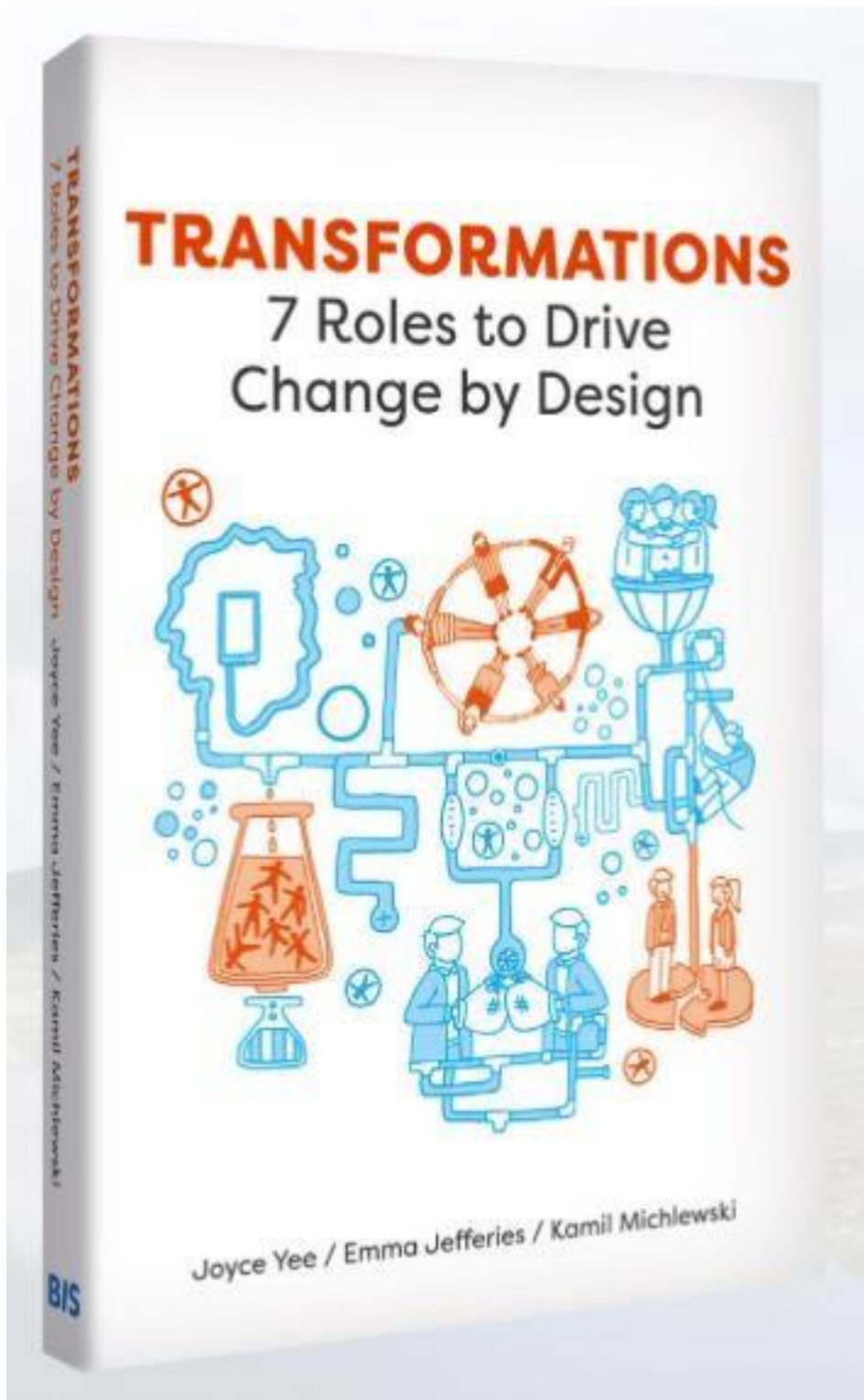
Arnar Árnason and Sigurjón Baldur Hafsteinsson

DEATH AND GOVERNMENTALITY

Neo-liberalism, grief and the nation form
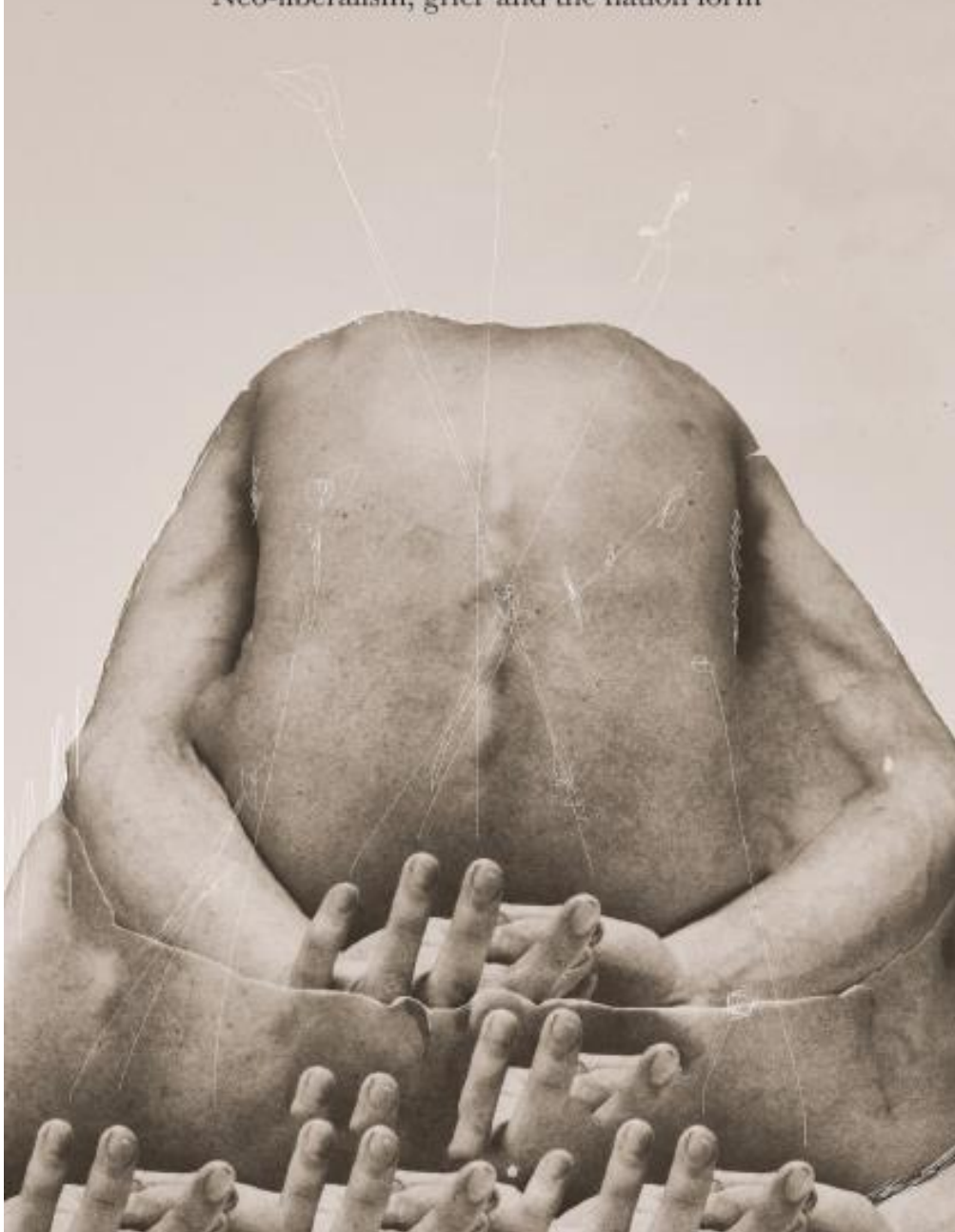
Universal Design: The HUMBLES Method for User-Centred Business
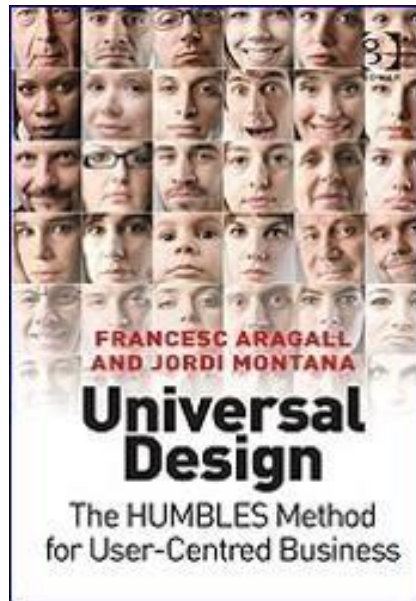
"Universal Design: The HUMBLES Method for User-Centred Business", written by FrancescAragall and Jordi Montaña and published by Gower, provides an innovative method to support businesses wishing to increase the number of satisfied users and clients and enhance their reputation by adapting their products and services to the diversity of their actual and potential customers, taking into account their needs, wishes and expectations.

The HUMBLES method (© Aragall) consists of a progressive, seven-phase approach for implementing Design for All within a business. By incorporating the user's point of view, it enables companies to evaluate their business strategies in order to improve provide an improved, more customer-oriented experience, and there by gain a competitive advantage in the marketplace. As well as a comprehensive guide to the method, the book provides case studies of multinational business which have successfully incorporated Design for All into their working practices.

According to Sandro Rossell, President of FC Barcelona, who in company with other leading business professionals endorsed the publication, it is "required reading for those who wish to understand how universal design is the only way to connect a brand to the widest possible public, increasing client loyalty and enhancing company prestige". To purchase the book, visit either the Design for All Foundation website

Nina Foundation's latest E Book has been Published on following online platforms. Now you have more options to download and read
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Narratives of Courage
Lives of rural spinal cord injury survivors in India

Published by
Nina FOUNDATION
An NGO for rehabilitation of friends with Spinal Injury

Dr. Ketna L. Mehta

MEANINGFUL, SUSTAINABLE, HUMANITY CENTERED

DESIGN FOR A BETTER WORLD

DON NORMAN

Author of *The Design of Everyday Things*

News

1

'When we design for disability, we are actually designing for us all': how to champion disability in your social enterprise

Social Business Coffee Breaks: Disability advocates from across the UK's impact sector share their thoughts on how social enterprise leaders can make their businesses more inclusive and accessible for disabled employees and consumers.

Challenging perceptions of disability, increasing dialogue about disability, and taking action to make social enterprises more accessible for disabled people. These were the key takeaways from this week's webinar on 'How to champion disability in your social enterprise', hosted by Tim West, founding editor of Pioneers Post.

The second webinar in the new SE100 Social Business Coffee Breaks series, run by Pioneers Post in partnership with NatWest Social & Community Capital, heard from a panel of inspirational disability advocates about their own experiences as campaigners and social entrepreneurs, and their advice on how other social enterprises could take positive action.

The speakers included Dr Lucy Reynolds, chair of Disability North and founder of We Are All Disabled, a Community Interest Company that aims to challenge and change perceptions of disability through events, training, and consultancy. Lucy was joined by her colleague Julia James, life coach and also a director of We Are All Disabled. Also speaking on the webinar were Dr Kush Kanodia, a social entrepreneur, disability rights advocate and Paralympic Games torchbearer, and Salma Perveen, associate with The Diversity Forum, a collective set up and funded by Connect Fund in 2018 to drive inclusive social investment in the UK.

The one constant in these mid-morning webinars is the coffee. Not just any coffee, but coffee produced specifically by a social enterprise. Keeping with the theme of this month's webinar, Tim drank coffee brewed by Team Domenica, a charity and Specialist Further Education College set up in 2016 by Rosa Monckton MBE, whose daughter Domenica has Down's syndrome. Based in Brighton & Hove, and across Sussex, the organisation provides young people with learning disabilities access to training programmes and employment opportunities in their roastery and across their cafes.

Two representatives from Team Domenica, coffee manager Joel Goss and head of fundraising Greg van Heeswijk, also joined the beginning of the discussion. Greg van Heeswijk said that the national average of people with learning disabilities finding paid work, according to NHS Digital, is 5.1%, but for Team Domenica's programmes, it's 81%. "It's something that really works," he added.

Also joining the webinar was Megan Virrels, special adviser at NatWest Social & Community Capital, who said that the timing of the webinar was particularly apt as it took place so close to 3 December, the International Day of Persons with Disabilities.

She also said that the subject was "close to my heart" as her husband is now disabled after he developed chronic fatigue, and earlier this year was made redundant from his job. "So championing the talents and experiences of people with disabilities is something that's very important to me," she added.

Challenging perceptions

Changing how people perceive disability is at the core of making institutions more inclusive for disabled people, emphasised the speakers in the webinar. Dr Lucy Reynolds, who has cerebral palsy, initially started 'We Are All Disabled' as a blog, aiming to encourage people to "embrace disability and think about the positives that disabled people can bring".

Her colleague, Julia James, acknowledged that though the title of the blog is "quite a controversial statement", there is a deeper meaning to it. "What we're recognising is that we all potentially

have something that may limit our ability to participate and that might be lots of different things," she said. She added that the phrase "helps people to get comfortable with being uncomfortable".

Dr Kush Kanodia, who was diagnosed with multiple epiphyseal dysplasia as a child, and had to get hip replacement surgery that "knocked out a year of [his] life" as an adult, urged people to think about disability through the lens of the social model of disability, instead of the medical model. He said: "The medical model of disability essentially states that it's our impairment that disables us. The social model of disability, which the disability rights movement focuses on and which I believe is the key tool for the emancipation of disabled people, actually states that it's barriers in society that disables us and negative attitudes."

He added: "What I realised was I can't just keep replacing joints in my body. It's not me who needs to be fixed. I'm perfect the way I am. But we need to make some structural changes in society."

Kanodia also expounded on Reynolds' and James' point about disability being something that we should all relate to. He said:

"Following on from the wonderful name 'We Are All Disabled', I wanted to just say that we will all experience disability in some shape or form in the future, and this will either be through our own personal experiences, or through our friends and family. Over 80% of disabilities are acquired during one's working age and there is a correlation between disability and getting older. So when we design for disability, we are actually designing for us all."

Creating honest dialogue

Another takeaway that all the speakers highlighted was the power of conversation. In order to transform how disability is perceived, we have to first speak about it, instead of shy away from it, Reynolds emphasised. She said: "Listen to disabled people in order to have conversations that can make things happen."

She added that, due to her difficulties with speech, when in public people "would rather ignore [her] and pretend [she] wasn't there", which was "a real shame". Instead of people assuming that she didn't want to be addressed to avoid any awkwardness, she urged: "Please ask, because I wouldn't mind."

Elaborating on this, James said: "People are terrified of saying or doing the wrong thing." Using herself as an example, she said: "When Lucy and I first started working together, I would sometimes, rather embarrassingly, pretend that I'd understood her when I hadn't. But she caught me out every time. She'd often ask a quick question, and I'd have to admit and say 'Actually, no, I didn't get that.'"

"I think that one of the one of the really positive things we found with COVID was that it really seemed to have helped open up

those sorts of conversations," she added.

Reflecting on James' example, The Diversity Forum's Salma Perveen said there is a "kind of vulnerability", "safety" and "honesty" needed in such dialogue. "Having meaningful conversations with people with lived experience of disabled disability and also with disabled social entrepreneurs" is the way to "create change", she said.

The most important thing is that everyone recognises that individual agency in creating change. You don't have to change the whole system overnight

Taking action

The final piece of advice offered by the speakers was to transform perceptions and dialogue into action, no matter how small-scale it was. Perveen said: "I just think the most important thing is that everyone recognises that individual agency in creating change. You don't have to change the whole system overnight. You can build your way up to doing something."

Kanodia argued that businesses actually stand to increase demand for their products and services by making them more accessible to disabled people. He said: "I think sometimes we look at disability as just the cost and I think that's really wrong. The purple pound highlights the purchasing power of disabled people. We estimate there is a population of 1.85 billion disabled people globally. That's a population larger than China that controls $13 trillion of disposable income."

He added: "If you look at the biggest organisations in the world, the big tech companies, they implement universal design principles, why will you create products and services that are only accessible for 80% of society? It doesn't make any sense. Create something that's accessible and inclusive for all and then it's a more sustainable product lifecycle."
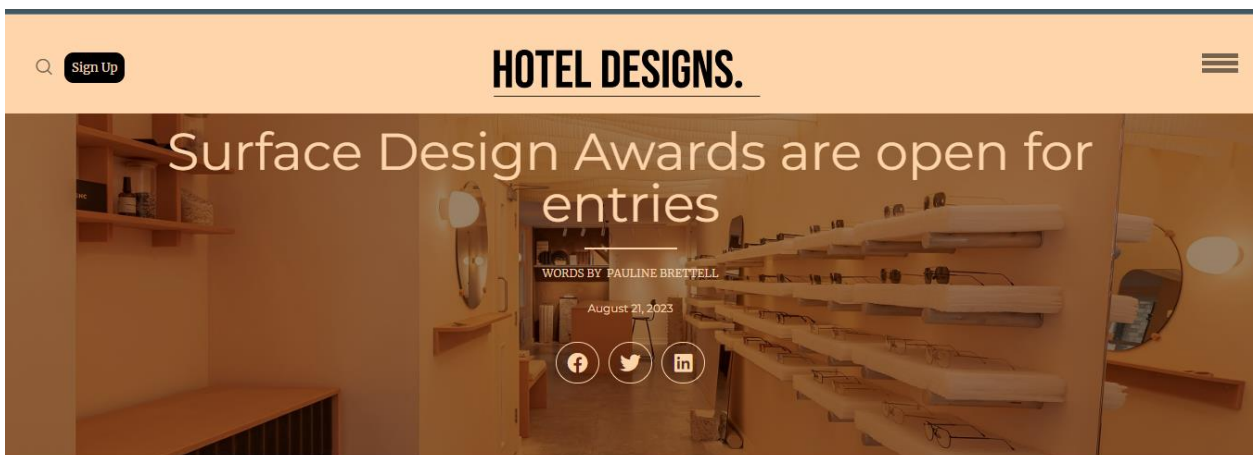
Adding to the list of actions social enterprise leaders can take to champion disability in their businesses, Perveen said that employers should undergo "the Disability Confident scheme", incorporate the consultancy advice of organisations like We Are Disabled CIC into their "Equality, Diversity and Inclusion (EDI)" plan and "commit to doing training or an audit".

"It's really important to not just kind of speak about [disability inclusion] and say 'This is a nice thing' but to actually work as an organisation to create meaningful change," she said.

(Courtesy: University of Cambridge)

Programme and Events

Oslo Design Fair
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21 - 23 January 2024

divetour.eu

DIVETOUR
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Ableist Cities Symposium

Diversity & Lived Experience in the City: Politics, Policy, and Practice

About   Program   Registrations

Monday 4 December 2023
9:30am to 5:00pm

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Kenneth Myer Building, The University of Melbourne
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