

FROM PLACE TO SPACE

GRAVITATING DURING A CRISIS

Diveja Nadar, Sucharita Beniwal, Shubham Yadav

National Institute of Design, Ahmedabad, IN

diveja_n@nid.edu, sucharita_b@nid.edu, shubham_y@nid.edu

Abstract

The pandemic is not just a health crisis, it snowballed into an information and humanitarian crisis coupled with non-preparedness of everyone to deal with this situation. The situation demanded reinvention of design education. This paper is an attempt by students and faculty of material-centric design programs to reinvent their engagement with design in the face of challenges the pandemic raised. The diversity of the authors helps discuss the potentialities of varied viewpoints and responses to digital design education.

Design education shifted from studios and workshops to computer screens. The usual methods of design studios - getting hands dirty, live prototyping and testing, peer critiques and displays literally zoomed into the screen meets. Digital design education compelled us to focus more on digital abilities than material handling abilities, limiting the spectrum of skills designers use. This left the design educators in a sheer perplexity, making them question the "hands on" approach. A whole new plethora of online resources opened to students, helping them be as demiurgic as possible.

Relocating to homes as workspaces was not convenient to adapt to, hence we had to get used to remote collaborations. Due to the digitization of resources and methodologies, the "learning by doing" approach inclined towards, "learning by watching/listening". As the complete design process had to be shifted online, it became very difficult to empathize with users and get feedback on material related explorations.

Post-pandemic design education will follow some paradigm shifts in the way we perceive, process, and implement the design pedagogy. At this juncture, it looks like we might need to manifest and illustrate for ourselves a new world; socially, culturally, and economically, which probably draws gravity towards online learning.

Keywords

Online Design Education, Digitization, Design Pedagogy, Relocation of Workspace, Remote Collaborations, Feedback, Leveraging Online Tools, Paradigm Shift

Introduction

In November 2019, the first strains of a new disease had appeared in China, this defined our entire existence in a decisive manner and is now a lived experience. In March 2020, the WHO declared this disease to be in a pandemic spread. The novelty of the disease meant scant availability of research. The best decisions any nation could take, especially after the WHO declaration of a pandemic, was to protect its most vulnerable populations, the old and the young. To this end, all educational institutes were shut down. All forms of education hands-on or by rote were overnight scheduled to go online. The pandemic is not just a health crisis, it snowballed into information and humanitarian crisis coupled with non-preparedness of everyone to deal with this situation. The situation demanded a reinvention of design education.

Design pedagogy at the National Institute of Design (NID) has prided itself in emulating the Bauhaus and Ulm model drawing from the philosophy of learning by doing. This is especially relevant to the material based design education in programmes. Kumar Vyas, pioneer industrial design faculty at National Institute of Design, NID, always said design has upturned the adage (attributed to Shaw) those who can do cannot do - teach, to those who can do- teach. The importance of practical experience in workshops can not be reiterated enough in design. Besides learning the abstract concepts of composition and form, in assignments, one needs to translate them into making. Especially, for material based disciplines like textile where the responses and judgements about touch and feel of cloth are learnt as much through the sensory response as through abstract imagination.

Even with technological changes engagement with prototyping making and doing, has remained essential to the experience of understanding functionality and user response. From the inception of the programs to now, the students are encouraged to reflect on their cultural contexts as well as be involved in making for live projects to gain exposure to professional practice. Over time the digital has been being brought in as tools and used to aid speed and skills, in all design disciplines world over. However, material based disciplines of industrial design and textiles have retained the aspect of material exploration, hands-on prototype-making and user engagement for design testing. Even with the latest technologies being engaged with to aid and speed making of prototypes the disciplines have always encouraged diverse material exploration.

‘Tacit Knowledge as an essential component of the skills and qualitative decision-making processes of designers.’ (Whiteley 1993). The sudden turn of events which forced online teaching onto design practitioners and learners alike was an event that was expected to compromise the experience of design education. This paper is an attempt by students and faculty of material-centric design programs to reinvent their engagement with design in the face of challenges the pandemic raised. The diversity of the authors helps discuss the potentialities of varied viewpoints and responses to digital design education.

Case Study I- Design Project (System Design)

Objective and Relevance

System thinking is the process of understanding how systems work, how elements in a system are structured and interconnected and how they influence and interact with each other. As we are evolving rapidly and becoming more interconnected and interdependent, we are pushing ourselves into the territory of wicked problems, where our traditional problem-solving strategies will cease to work and often make the problem worse. The purpose of the project was to offer a design problem, which brings together aspects of people, ecology, technology and business within a specific ecosystem. And understand how the nature of the whole system is different from and more than, the sum of its unassembled collection of parts.

The objectives of the project were to understand the relationship between products, systems and services. To achieve a systems approach to product/ service development by evolving modularity in elements and to understand the behaviour of product systems as a whole.

Course Content and Methodology

The project dealt with understanding systems thinking as it applies to product/ service development. It started with learning the set criterion to understand existing scenarios and working out system elements that are essential for a set of functions. And gradually navigating towards details of products and services that form the model of the complete system, thus identifying the crucial inflection points in a system. And talking about the outcome part, we were supposed to develop potential interventions based on the inflection points, refine them and test them in suitable fidelity, thus finally developing models, prototypes, simulations, etc to explain the possibilities of the system.

Looking at the wide arenas and dimensions one must think off to understand system thinking, this project was encouraged to be taken up as a group of three to five people. Pre-pandemic, the course was structured as studio-based learning supported by presentations and in-person guidance from the instructors. Interacting with stakeholders, field visits, referring books and publications from the library was a routine before the pandemic. At each stage of the project, we were supposed to submit specific deliverables, which were presented to the class in designated review sessions. And initially, as outcomes, we were expected to submit a final project report documenting the process and output at each stage in the form of complexity mapping, blog and framework/ idea bank/ curriculum/ policy, etc.

As the COVID-19 pandemic came crashing on all of us, we were encouraged to go back to our homes and little did we know the two weeks break turned into a long nationwide lockdown. We began taking forward our work through remote means, utilizing different resources to mitigate the situation. Although we made quite a bit study on how to deal with the situation, but it was too immediate and too large of an undertaking for us to really do anything meaningful.

Propagating through Lockdown

As our project revolved around the topic of “resource distribution”, we relied on the internet and peer discussions for our research. As most of the research was conducted through mediums like phone calls, online forms, emails, etc., the ability to research ideas, issues and problems in the chosen context, level of understanding and comprehension got restricted to our computer screens and mobile phones. This compelled us to rethink our design process and methodologies to solve design problems.

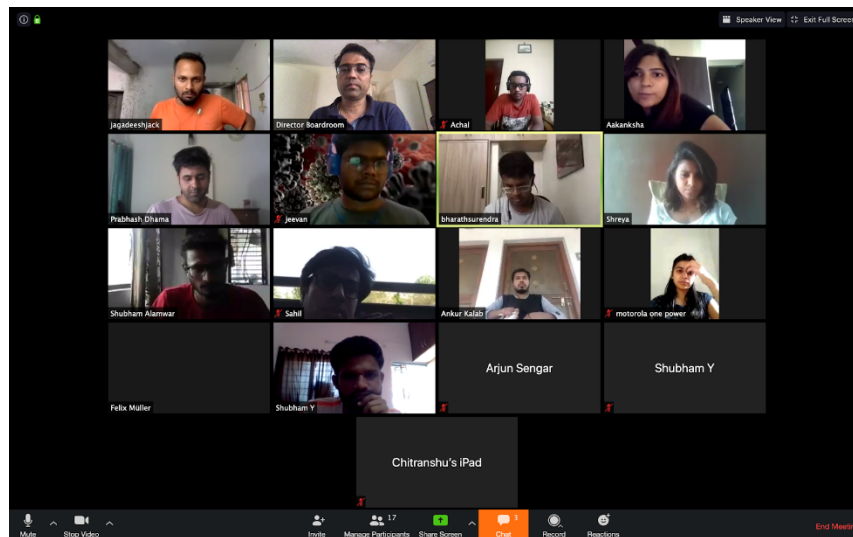


Image 1- Class in progress- Shift from Studio to Computer Screens

We got acquainted with new ways of proceeding through the design process, we extensively used toolkits and frameworks designed for conducting research, mapping resources and analysing data. Along with it, we got handy with tools like Slack, Miro, Zoom, Jitsi, Google Meet, etc, which were helpful for communication and remote collaborations. Thus, collaborating and working remotely during the pandemic, gave us a realization of why design is called a collaborative process.

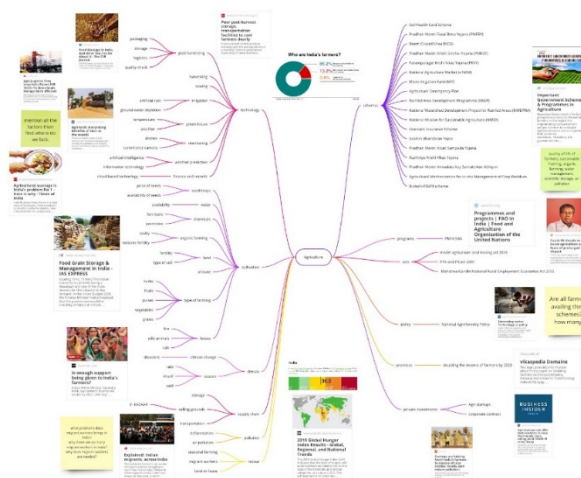


Image 2.1- Mind Mapping using online collaborative platform of Miro

	CROP SELECTION	LAND PREPARATION	SEED SELECTION	SEED SOWING	IRRIGATION	CROP GROWTH	FERTILIZING	PESTICIDES	HARVESTING	POST-HARVESTING, STORAGE AND PRESERVATION	MARKETING, TRADE AND WHOLESALE	PROCESSING AND MANUFACTURING	MARKETING, DISTRIBUTION AND RETAIL	CONSUMPTION
INPUTS	cover-crop, water, irrigation, fertilizers, pesticides	hand tools, plough, harrow, herbicides	price of seed, type of sowing, variety of seed	seeds, method for sowing	water, type of water and pipes, irrigation schedule, electricity	growth, nutrition, information, technology and infrastructure	fertilizers, fertilizing tools	pesticides, spraying tools, PPE, pest, weed, organic	infrastructure and transportation, cutting tools	infrastructure and transportation facilities	farm produce, selling and marketing, general trader, and buyers	manufacturing facilities, storage, recipe, processing tools, management strategy	transport, distribution network, e-commerce, e-commerce	food product, processed food, (government), meals, advertisement
ACTIONS	decision making and planning	using tractors, water, herbicides, weeding, sowing	planting seeds, processing, sowing seeds	sowing and planting	providing water to the crop	monitoring, managing, weeding, spraying, irrigation, planning	application of fertilizer	spraying pesticides, using pest, weeding, organic	cutting, using, processing, storage of product	storing, packing, chilling, drying, food processing, etc.	selling, quality check, using, branding, packaging	value addition to goods, packaging	advertising campaigns, e-commerce, lobbying	consume fresh and processed food from various sources and channels
OUTCOMES AND OBJECTIVES	selected crop for cultivation, timeline	land prepared, sowing, weeding, irrigation, etc.	selection of sowing, "best" or "improved" seeds	field ready for irrigation	water of irrigation, amount and schedule for crop growth	healthy crop growth according to the plant location and soil	growing the optimum crop, ready to give healthy growth of crop	kill, reduce or repel insects, weeds, other organisms that are harmful to crop	prevent or remove pest of a crop, sell to market, ready to be gathered	making the product available to be distributed to the demand of the market	more produce ready to sell	to gain value, increase of processed food, the consumer, processed food	to get, ready, necessary goods for the growth of the business, e-commerce, e-commerce	sell, fresh or processed food, ready to be distributed, ready to be distributed, e-commerce, e-commerce
DEPENDENCIES AND CONSTRAINTS	availability of water, irrigation, quality of soil, etc.	availability of seeds, seed quality, budget, etc.	time, sowing, between, seeds, type, sowing, etc.	time, frequency, amount, quality	climate, quality of the seed, irrigation	type of fertilizer, use of chemicals	quantity and quality of pesticides	labourers, demands, climate, distance from the farm	shelf life, infrastructure, market situation	storage capacity, market exposure	govt. restrictions, market demand	market demand, infrastructure, e-commerce, e-commerce	buying power, availability, awareness	
PLAYERS	farm, individual, government, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.	farmer, labourer, worker, equipment, etc.
RISK	selecting a crop according to weather, region, etc.	land, water, and new, etc.	seed quality, etc.	irrigation, etc.	water, availability, quality of water, climate	natural calamities, pest attack, diseases	pests, etc.	pests, etc.	crop damage, shortage of harvest, climate	seed quality, etc.	market, fluctuations, etc.	market, fluctuations, etc.	market, fluctuations, etc.	market, fluctuations, etc.

Image 2.2- Ideation using online collaborative platform of Miro

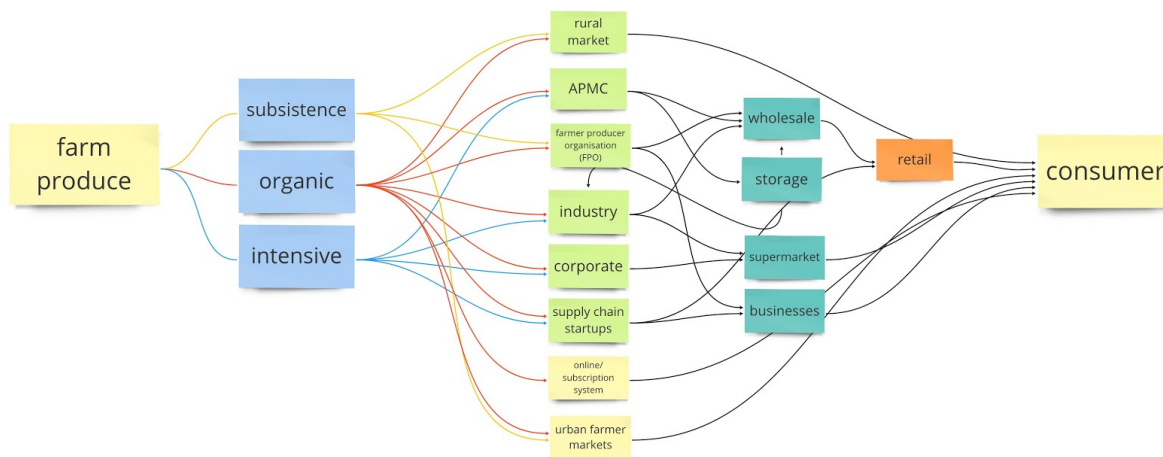


Image 2.3- Mapping using online collaborative platform of Miro

The range of explorations and ideations was diverse enough, but most of it remained on paper as we were unable to test them with the actual stakeholders and in a real-life scenario. Due to online education, issues related to the project rose very frequently, but we were not able to contact the faculty on a regular basis, like we used to do back in the institute. And just as importantly, we lost out on the studio environment, which is kind of an encouragement to work. And to add to the difficulties the technical difficulties and lack of resources like the library, workshops etc. slowed the pace of work. The project and timeline management were some aspects of the project which were hit the most, as everyone in the group was in their respective environment and getting everyone on the same page was bit tricky most of the times.

Though the output of the project seemed very sophisticated and well documented, we were not able to convince ourselves about the effectiveness of the outputs as the project turned out to be more hypothetical, rather than implementable. As all of the stakeholders, guides and peers were remotely experiencing our interventions, we received a surface level feedback on

our project. Thus, being left with no critique and feedback on our work was the most unfortunate part of the process, as we were unaware of where we stand. And it did compel us to think, whether we were able to put into practice the design process and thinking that we have learnt in the past two years to its full potential or not.

Learnings

Peoples perspective of looking towards products and systems has changed drastically resulting in a paradigm shift, it encouraged us to pitch in sustainability and consciousness in a more robust way through our interventions. And it is very difficult to empathize with people remotely and the design process can only get better if it goes through constructive criticism. Thus, doing design education online is like, tasting wine online, this was our mindset after getting a first-hand experience of online design education.

Case Study- II Design Project (Constructed Textiles)

Objective

The objective of this course before pandemic was to expand our thoughts and visions in the textile sector, as well as work with different mediums like non-woven textiles. Eventually creating a product in domains of home textiles, fashion, accessories, lifestyle accessories, etc.

Post-pandemic the course was redesigned to be flexible for students but to still work on similar objectives but with much more flexibility. The scheduled duration of the course was six weeks but we were given extension due to lack of supplies and equipment, also sourcing materials was a problem.

Methodology

NID as an institution believes in the Bauhaus method of education, which was diverse and hands-on, where experimentation across a whole range of materials and disciplines had been the culture. Similarly, at NID the course was supposed to be hands-on experience with a range of explorations in different mediums and resources. Inclusive of field visits, market study as well as research.

During the lockdown, the idea of working with materials felt delusional as some resources were not available and most of us hadn't carried our work/ resources back home. This resulted in us working again with new material and mediums, having an added benefit of learning skills like crochet, embroidery, knitting, origami, just to name a few.

After brushing up our skills and learning new ones, we could now direct our project, which got me to look back at my unfinished samples. I decided to continue working on them but this

time the ingredients were different, which helped me explore further, creating them out of vegetables and fruit waste, newspaper (tapping resources available at home and in one's surroundings).

The outcome was a biodegradable plastic bag which acted as a replacement for the plastic bag we use in nurseries for planting saplings.

This outcome wouldn't have been the same during a normal schedule of this course. As this course demand one to stick to textile-based materials and outcomes to reflect as fabrics/embellishments or fabric-based products. This product is a little out of the box result due to the shift in location as well as the course abstraction.

In fact, it demanded us to view the course with a different lens, resulting in most of us working in different directions influenced by factors like resources and materials available, workspace, tools and equipment, assistance if needed, weather, etc.

Resources

We all worked on what was possibly available around each one of us, one of my classmates worked with corn husk as that resource was abundant at his locality. I would like to point out that the corn husk he used were longer corns that are primarily available at his location, as he worked over the technique of braiding, the corn husk length supported the idea.

My outcome for the course involved methods such as spreading and air drying which isn't possible during the rainy season and it took double the time to dry, as I was working in a humid surrounding. It was made up of vegetable waste, which caught fungus during the rainy season. If this same had to be done at a location like Ahmedabad which isn't that humid, it would be possible to continue working over it during rainy season as well.

I wouldn't deny that a normal schedule or a non-pandemic situation is much better than what we face today, but it's hard to fathom the idea that the pandemic has brought in changes, it be in thoughts, work or lifestyle itself.

Thoughts

The whole situation triggered a chain of thoughts that probably is difficult to have at the studio; like why am I doing design? how am I changing certain things as a designer? my views and thoughts as a textile design?

Work and Lifestyle

As a textile student, my course outcomes are mostly tangible, which demands a lot of, material and space to work, creating that space at home was difficult but help filter what's needed and what's not.

When we all got into our houses, we also created our workspace, which had the essentials and a comfortable platform. Irony is every member of the family was home and working, creating a space for all the members because mandatory, turning the bedroom into workroom during the day or a dining area into one's workstation was not just a physical shift, it was as well as a mental shift, for the participant as well as the family.

Learnings

As the project began at college but was completed at a different environment, if the course flowed normally my outcome would have been different as the course demands a different perspective. But being home and looking around at our surroundings helped solve a problem we neglected. While connecting online, classmates gave different perspectives that always open new doors in the project, this seemed difficult as in a classroom scenario we discussed our work with the faculty and moved on to continue working. Discussions in class occurred when demanded by the faculty and not wildlings, whereas going online has helped us realise how important it is to give detailed get inputs.

They also stirred conversation on- pandemic brought us to the basics- design is about problem-solving. Every situation teaches us if we are willing to learn and grow from it. Another crucial discussion was- design education is about 'design', not a specific discipline during emergencies and pandemic.

Conclusion

This period has given us leisure to rethink and redesign the way we process design modules. Everything that probably made by mankind is designed according to the era it belonged to and it is now calling for a drastic change. Probably for our time it's the COVID-19 pandemic that is the game-changer. It also raises questions about- what is the role of a designer (during a pandemic and also after it)?

For example, the mask, a small object like a mask is designed as it's the need of the hour. Then come the other tools and equipment that are designed according to the situation. Currently, most of the garment construction units are busy producing masks and PPE kits.

Other questions like, why is design important? what kind of designers do we need in the future? why does a particular module or course need to be part of the curriculum? or could we design something even better to uplift design thinking and education? does a pandemic push us to restructure our courses and maybe how we want to teach design? are designers just

for embellishing or decorating things or do they have an upper hand during such times? during times like these, it's probably design thinking that works and is needed the most.

For example, during August 1854, a cholera outbreak occurred in Soho. After careful investigation, including plotting cases of cholera on a map of the area, John Snow was able to identify a water pump in Broadwick Street as the source of the disease. Problem-solving is the key to design. If John snow wouldn't have mapped it down, it's believed that a large population of London would have lost their lives to this disease.

One thing leads to another

In the history of pandemics- some have brought a drastic change in the society we live in, it proved that there is no such concept of hierarchy and it affects every human equally.

In the late 18th century, Napoleon's biggest enemy was yellow fever. While trying to capture Haiti, Napoleon ended up losing many soldiers in his army to yellow fever, while on the other hand, the locals were immune to it. Thus, limiting the French expansion, Haiti became the first independent nation in Latin America. A pandemic led Haiti to its freedom.

Probably this time a pandemic can have a drastic impact on the educational system around the world. Times today demands us to work from home and create mediums to navigate through as well. Probably we could still reflect Bauhaus's method of teaching- go back to basics. One of the great insights of the Bauhaus movement is to recognise that creative education is about more than passing on and refining technical knowledge or skills. It demands to free ourselves & to be more inventive and to respond authentically to the design problem that we are called to solve.

This time we need to set out a change in society due to a pandemic because when it comes to microbes they have the power to cage humankind unless we prove to mould and transform every time a pandemic occurs. This needs to be a practice as there are millions of microbes yet to come our way. The irony is we humans are yet to discover 99.99% of them. A situation like this where change is the only constant, we must evolve ourselves.

Case Study III- Design Educators Perspective

The design project one is an introductory level course in textile design at NID that encourages students to build their textile vocabulary of material and making beyond weaving and print design. The course emphasizes on experimentation and hands-on sampling. Prolific sample development and purposefulness of exploration are essential outcomes that are expected from the students. While one aspect is free, curious, open-ended, exploratory sampling - focused on concept development; the other aspect is directed on product development and detailing.

In usual circumstances, when conducted in the studio, in Ahmedabad, the project is individual led, however heavily aided by inputs and guidance, as well the diversity of

resources available in the workshops at NID. The learners build their understanding of ways of construction of surfaces and form from linear materials through diverse techniques (conventionally these techniques were those of knitting, crochet, braiding, one can also explore innovative techniques of interlacement/linking and even bio-culture). Importantly, they develop prototypes with design sensibility to form, material and structure; developed through direct contact with materials, techniques and constructions, and in synthesis with a translation of abstract elements of design.

The course hinges on the crux of materiality and peer-learning. The most crucial aspect of the project are design critiques that are conducted regularly. These three to four sessions of design critique also include feedback from industry experts, but most importantly, they involve haptic response from peers and thus the aspect of being together and constant display of work is extremely crucial to this course. The sudden need to leave campus and go home meant many students did not have the same equity of resources as others. This was one of the first aspects that became apparent within days of the students being at home - the differences in material resource and digital access. Second, the off-balancing issue was emotional and mental health influenced not just by the larger conditions outside but also within the home and family. Lastly, the issue of coherence, of semblance of a class, learning for peers, of following a schedule of equivalence of output in some manner. It became apparent within a week that these constraints were to stay. If one had to successfully deliver the learning and gain outcomes from the students one had to figure a way of working around these.

The work-around - digital delivery and learning in a material based course, required an immediate rethinking of the course delivery and expected outcomes. One of the first exercises the students did after reaching home was a resource mapping of what was available to them. There was an insistence since the country had headed into lockdown by now, that they restrict themselves from using raw materials that could become food.

The mapping was shared amongst the group through the online platform. It was continually iterated that the students put their work in a common shared drive that allowed them and the teacher to review each other's work at their own convenience. The resource mapping showed the vast diversity of available resources, and also made the constraints that each person faced more tangible. While there were students with availability of almost studio-like resources, from materials to tools/machine, there were others with no textile materials, let alone tools.

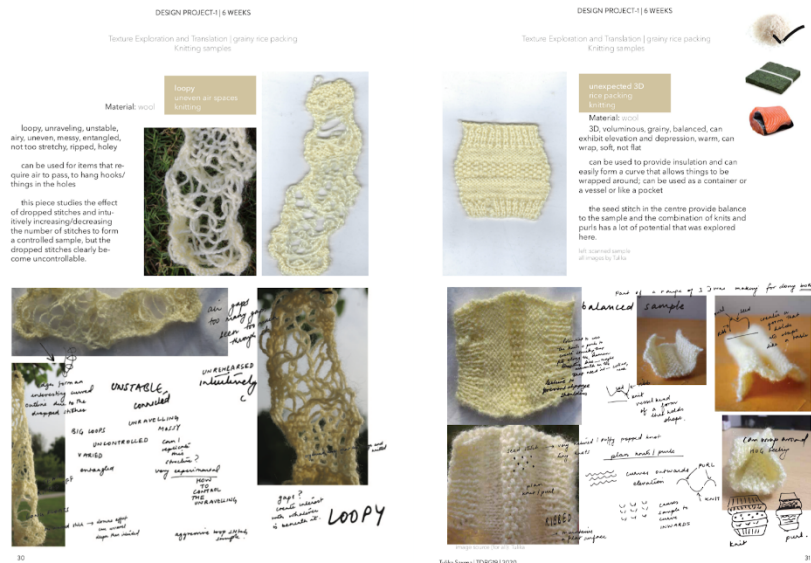


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Image 3- The two mappings show the difference of resources available with students, one student does not have any textile related resources, while the other has quite some

Acceptance of diversity led to changing the brief due to diverse constraints. The students were asked to redefine their projects to a new brief and determine what they wanted to explore now. They all came up with new briefs, however, once they were faced with the constraint of making, many reverted to the original brief. One of the constants that were kept in the course was that the outcome had to remain a tangible form.

The biggest challenge was bringing peer learning and visual sharing to the digital classroom, however after a few online meetings the group came to coherence and was able to help each other online. They formed smaller support groups that became helpful in critiquing each other's work. One of the happy accidents of this format was online documentation became a norm as that was the way to share work with the larger group.



Surface Building

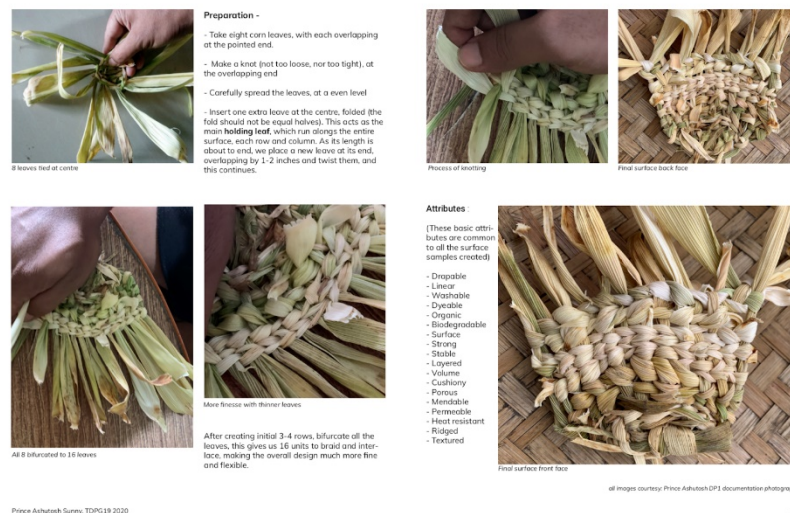


Image 4- Reinvention in work due to tool and resources limitation

The student above had few material and resource contrast and chose to work with the course as it would have possibly happened in the studio condition. However, the student work in the image below was greatly restricted due to lack of resources, and he managed to work with a material that he would have not thought of except being pushed into this corner. Many students reinvented their work due to the material and tool limitations, another positive outcome was the boundaries that the students pushed individually due to their constraints.

The peer group formation, the carrying on of this peer relationship into after class, as working on one to one basis became a norm after the course progressed a few weeks. After the first few group sessions, the students asked for sessions themselves. They initiated responses and searches and feedback for each other, smaller support groups formed inside, they may have existed before, however, they became pronounced. The smaller groups were specially formed based on similarities of situations and helped generate common approaches for the students.

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About the Authors

Diveja Nadar is a second-year masters student in Textile Design at National Institute of Design, Ahmedabad.

Sucharita Beniwal is a faculty of Textile Design at National Institute of Design, Ahmedabad.

Shubham Yadav is a third-year masters student in Product Design at National Institute of Design, Ahmedabad.