Understanding Incubation and Entrepreneurship
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Module - 10
Idea to Entrepreneurship
Lecture - 23
Creative Ideation

Students this whole case study which I am going to share with you is to make you understand how you know these various mock up techniques are using different materials can actually you know give us a lot of creative insights, lot of creative you know synergy for building you know forms and you know functional products. So, here you know let me sort of you know take you through this journey all this spoon design.

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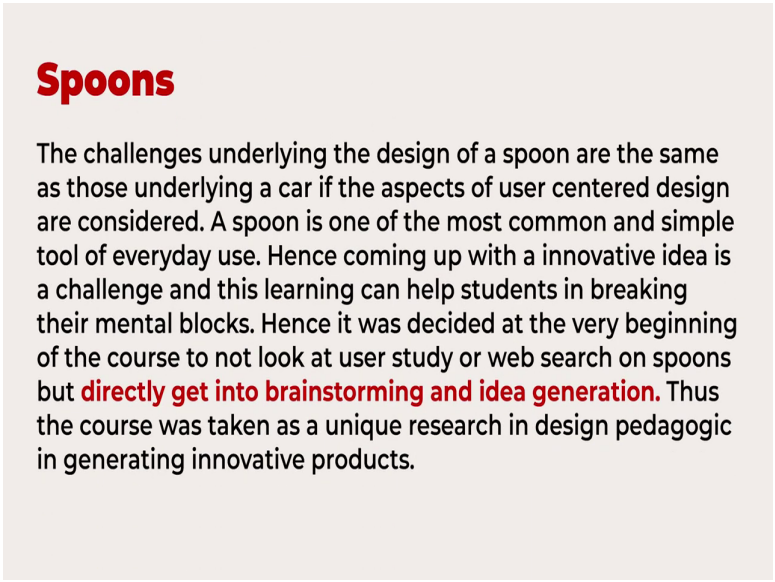

So, we have 6 students who, whose presentation I am sort of sharing with you. For example, the first stage in all these journey was to basically you know just start with creative ideation; the whole idea was that your purpose was to design a spoon and you do not even look at the function as of now [FL], but you will start using creative analogies just to, because it is like an assignment we did. And then you know of course after you build, you do all those processes I told you last time, you know when you make a lot of ideas whatever comes to your mind.

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You build whatever analogies you take you build, you know or you could take an analogy of a bird feeding its baby bird; you can take an analogy of you know the indirect analogies, which could be you know what if I take inspiration from my mobile phone and design a spoon, it look foxy you know.

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How can I use your mobile phone to design a spoon; students anybody can help you there. I can my mobile phone [FL] mobile phone [FL] consider [FL] as a symbolic analogy to design a spoon.

Student: Maybe the way we hold the phone, maybe the way we hold the phone.

Would I just take the holding aspect yaar wide, very nice. You could take the technical aspect or you know I you know like technical aspect of how you know sort of what how you interact with the mobile phone, press know; like for example, with the you use a thumb to do an activity. So, can I use a thumb to you know press something where my spoon becomes more deep or more.

So, I am just trying to push you know our mind into thinking various things. So, here; because it assignment was like that we are you know trying to do all that, but very good. So, like that for example, you build a lot of ideas, you cluster them and then look for function [FL] and then you know you build products. So, that was the you know whole journey to exemplify the issue of creativity. And remember students we have a lot of these courses [FL] form [FL] course [FL] form [FL] manufacturing [FL] material [FL], we always think how this material should be used effectively.

In fact, you know I have call it as a new name called the champion properties of materials, [FL] champion property [FL] use [FL]; I should tell you this very good instance when I was in Hawkins, I was telling the CEO [FL] Hawkins [FL] cooker stainless steel [FL] cooker aluminium [FL], students aluminium cooker [FL] [FL] spinning [FL] aluminium [FL].

Because aluminium is a soft material [FL] spin [FL], stainless steel [FL] spin [FL] huge amount of force and the product becomes very expensive; stainless cooker stainless cookers are nearly one and a half times, two times more expensive than aluminium cookers. So, then, but the biggest problem is perception; people wanted cooker in the same size I believe, in the same shape I believe, because they are used to that shape.

So, that is a business angle, but a manufacturing angle looks very wrong. So, it is very interesting you know situations which keep coming to us.

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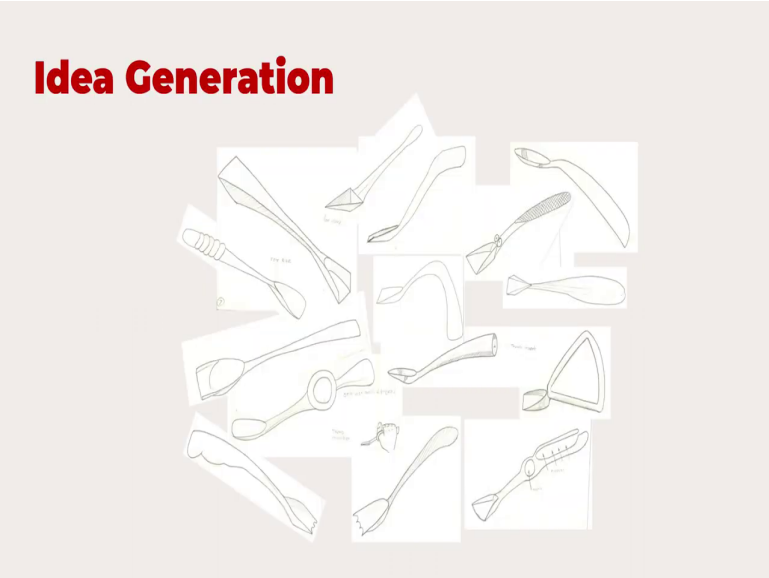

Sarang get you know considered his spoon for a 2 to 5 year old child, after this idea generation. Let me show you his you know multiple ideas, very very interesting you know ideas, different shapes. So, look at all the you know a shaped students, these shapes can be inspired by a car, inspired by a tube, inspired by anything around you, it can be inspired by animals whatever. So, context here is how would you go above the process step by step.

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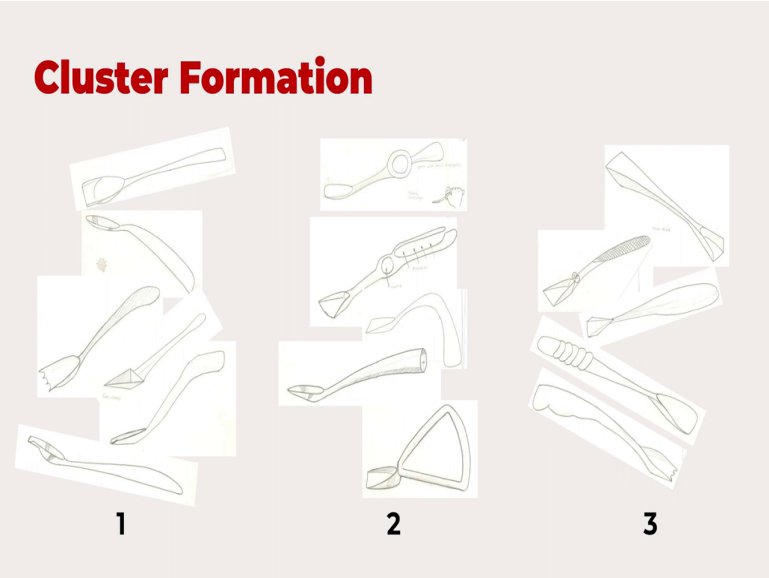

Cluster formation. So, now, is not it interesting. So, these are all the ideas. So, how do you form clusters students and why do you, why do you need to learn a systematic idea generation?

Student: Maybe because we are able to build on the ideas and add features when we go systematically. Build upon ideas, very good answer. Why do you think we should have a systematic way of having a lot of ideas and then building into three concepts and choose fighting to choose one concept to take it to the market?

Student: Then we can have extreme ideas and we can pick up something out of it; it might not be possible, but it can have some point that we can include in the actual design that we will take forward. So, if we have.

That is really good point, what happens is a lot of; when you put a lot of ideas together, you do not miss any important feature into your final concept. A concept is an amalgamation of multiple ideas and solve and solution to multiple problems.

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[FL] Product [FL] function [FL], just for example, [FL] bottle [FL] [FL] table [FL] you know cap tight [FL] leak, the thousand things right; for cap not to leak I need different design, for table to dress properly I need, for to hold better I need. So, you have lot of things which for each holding [FL] I can come up with ten ideas. For a cap I can come up with ten ideas, for the you know for the putting on the table, so that table I can come with 12 ideas are you following.

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So, lot of each you know product is a you know like combination of multiple you know requirements you know and these multiple requirements you come up with multiple ideas and you choose the best idea; of course you choose a cluster of ideas which will form. For example if I am looking at a carry on bottle, feel my cluster will change, the way I cluster the ideas will change; if I am looking at a bottle for a table, my cluster of ideas will change.

So, depending upon your functional leave then you build your clusters. So, you know that you know we will be you know showing you in detail over here. So, here we have these cluster of ideas and then once you have decided here that I want to you know design for 2 to 3 year old; you know it should be fun, it should be movement, it should be you know early you thought children, but then you know you got this age group fixed up.

So, we can see that there are distinctly three different types of shapes. So, see what he and there is no hard and fast ruling creativity; you can have a different you know clustering method you also and you know it will give you very very good results.

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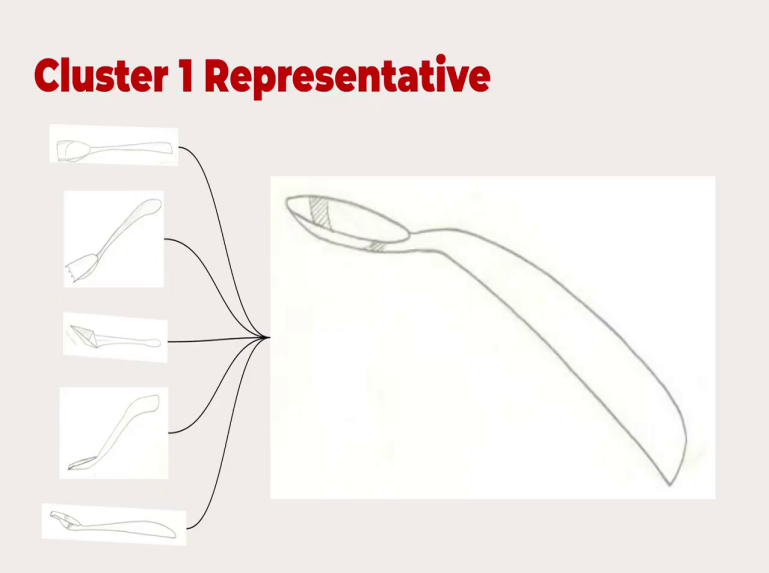

In cluster 1, wherever the handles were you know slender the spouts were wide he picked, the formally he made cluster 1 you know with these type of wider spout and you know handle.

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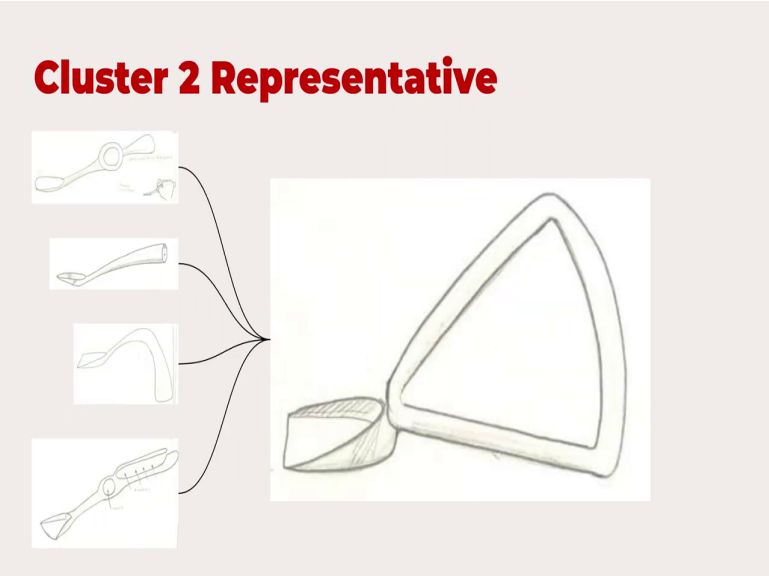

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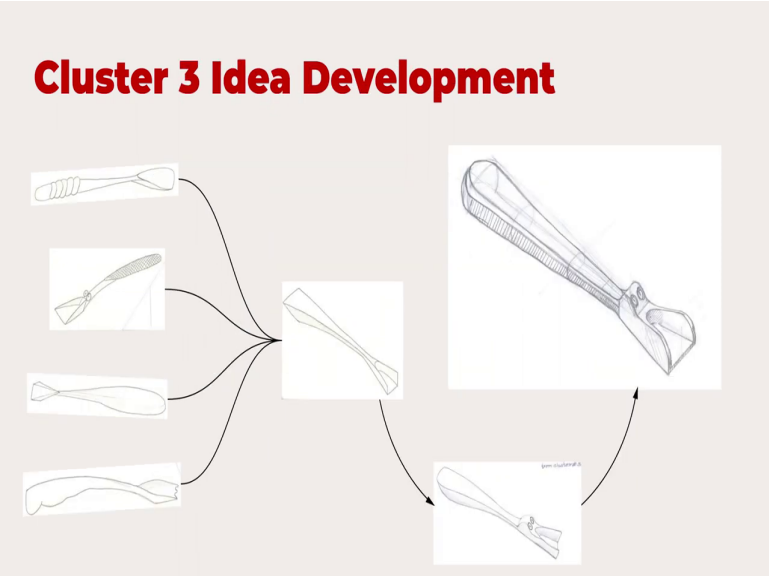

And cluster 2 for example, you can see how they are; they got a you know very very funky handle and you know there is interesting details and you know hand, it is a very handle oriented you know designs. And of course, you know the three do not sit any of them, they both have spouts and some interesting handle. So, they are both best of both words, so you he made into cluster 3.

So, now how do you sort of take these clusters forward let us see. So, out of this for example, for each of the cluster, you take one representative, which is a very close representative of your requirement you know a spoon for a children 2 to 3 year old children. And once you take that you know representative which is wide spout and you know very nice wide handle; you actually fit in all the features of the other you know other details of the cluster.

Look at all the other cluster details; 1, 2, 3, 4. Just imagine if you can put in all these things not directly, but analogically also; analogy means [FL] if I consider alligator teeth, I can you know I do not need to put exactly the alligator teeth, but I can give that you know rough texture over there. So, that it look it gets better. But here when I say analogical; for example, if the handle and spout is wide you know, I can I can just turn this spoon into a wider spout spoon, I can add a triangular feature into. Let us see how the how it has been done.

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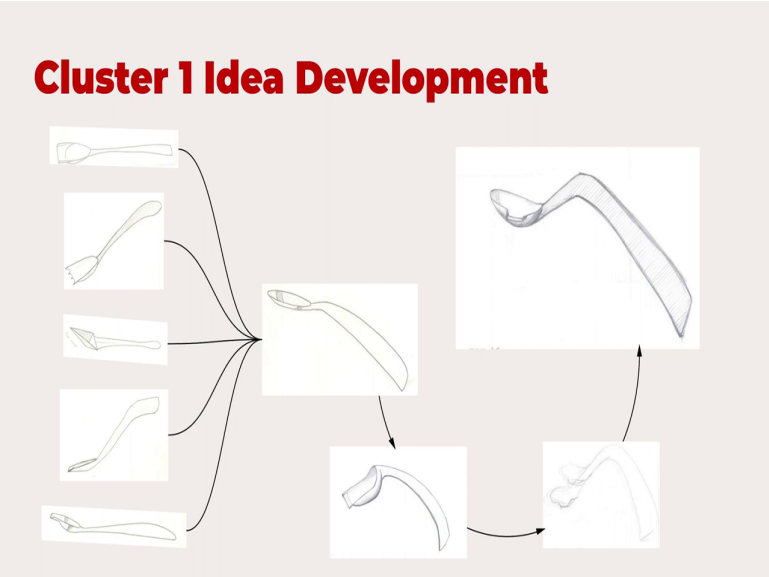

So, when I add each of those features you know into it, you know see how the you know representative has changed; the representative has got a handle which is bent, it is got a spout which is got a opening, because there is the there is a flat opening on the side for one of your earlier designs. So, you know change the idea, you grow the idea and I believe this is not

possible automatically in the mind; this is possible only when you externalize your thought process by sketching and of course, this becomes the concept 1.

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So, then we come to concept 2, where this becomes the representative the tangle to handle one and you are to add all that other feature that hold to hold your thumb, that clamp teeth, clamp means to you know grip better, you know that bend which is coming in. So, you know and this is the way the you know idea was grown into a concept.

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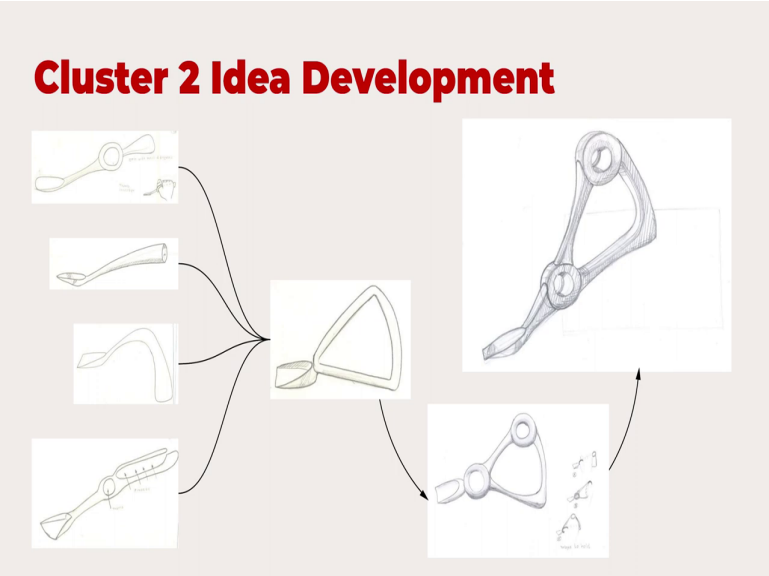

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And then when you go the idea of concept, this is what became the concept 2. And of course, from here we have the you know a representative one of them forming the representative, you know add all the ideas to it and you make concept 3.

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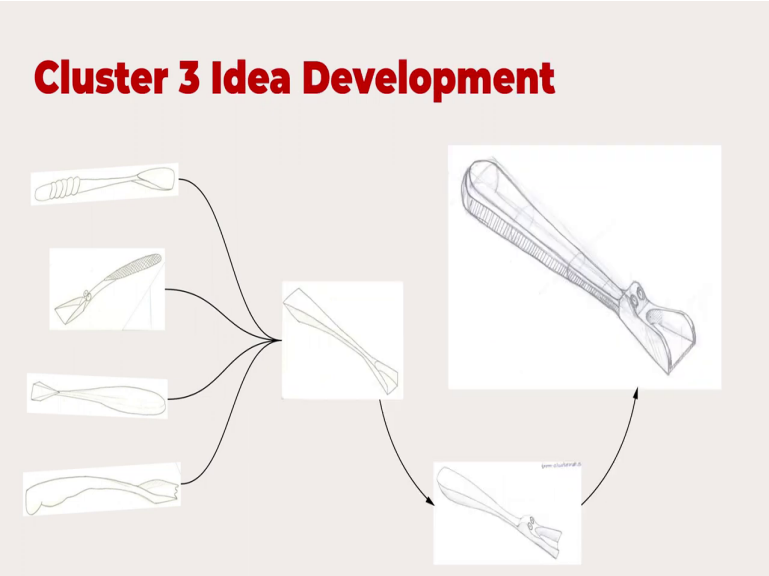

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So, you choose out of these three depending upon your brief you know, you consider which one would you like to take it forward as the best you know a representation of all the you know all the functions or all the requirements of the spoon; like it should be playful, it should be easy to use, it should be easy to gripe you know all those things which a you know 3 year old you know would like to, like you have. And here still you know we are not still doing any survey or any discussion on any internet survey.

We just you know, this is just an assignment to build ideas to concepts and you know mock ups.

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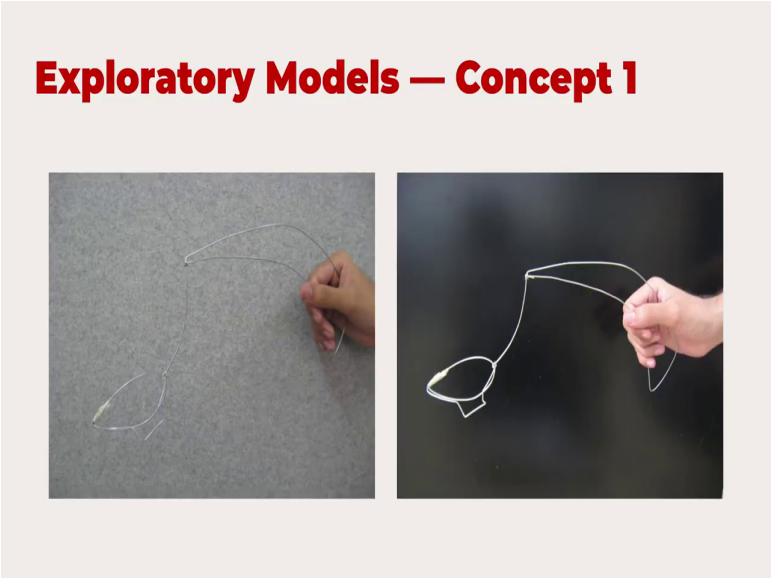

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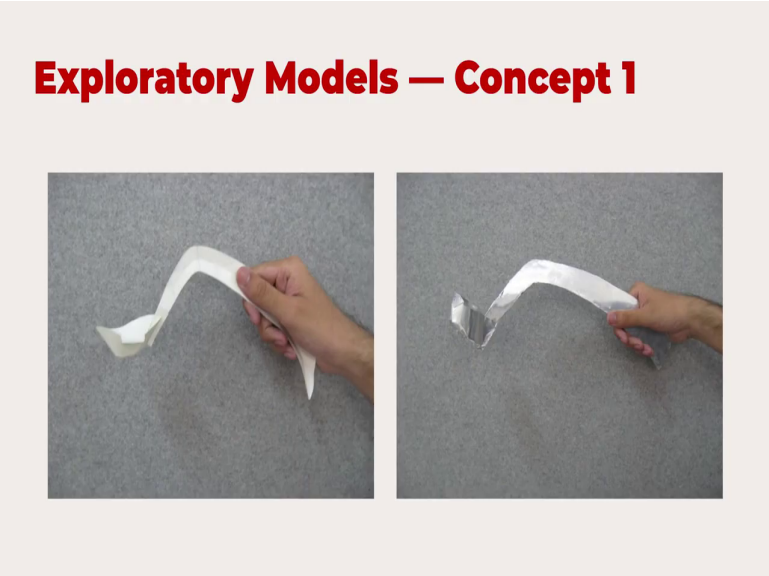

And then here comes the interesting journey now. What we did is, remember the strange familiar strange, but now we are also adding materials; we said we will build these spoons with wire, we will build these spoons with flat paper and flat metal, just see how the things change, how the profiles change. And a lot of it happens because we are doing, it is you know for visually also it works for us to understand.

But when you are doing it yourself, you realize a lot of aspects of; when it is a fold how can I stiffen it, how can I make this groove in the middle, so that it is stiff, you know how can I make the spout, so that it is easy to handle.

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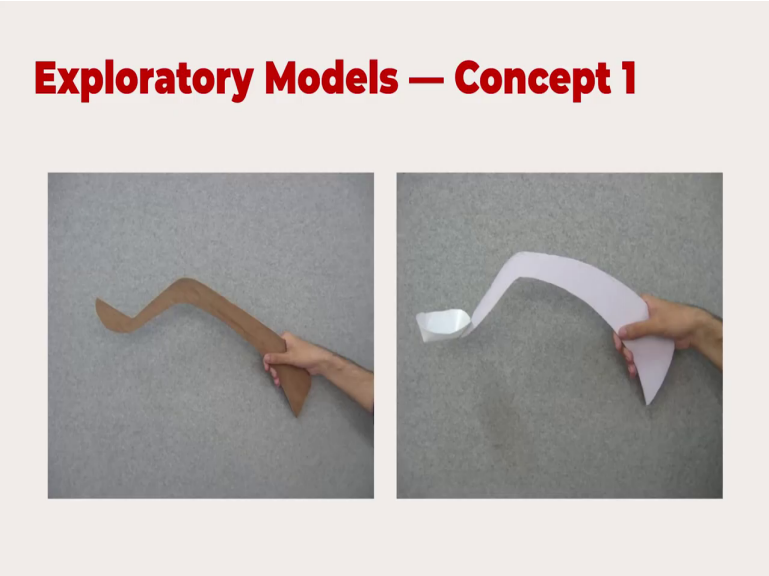

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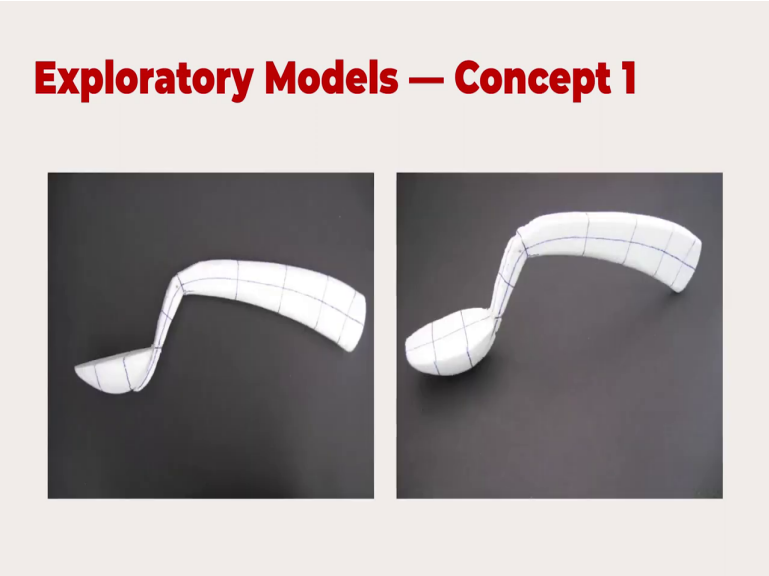

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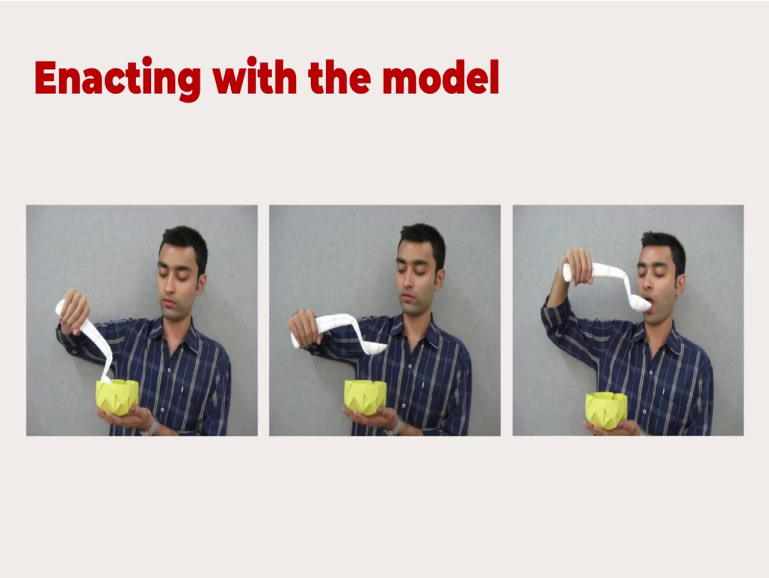

So, you know things like that we will come and of course, when you make it in you know like a solid form you know what would you get you know. So, and then you are doing enacting, you are you know playing, you are you know working with it, you are folding it.

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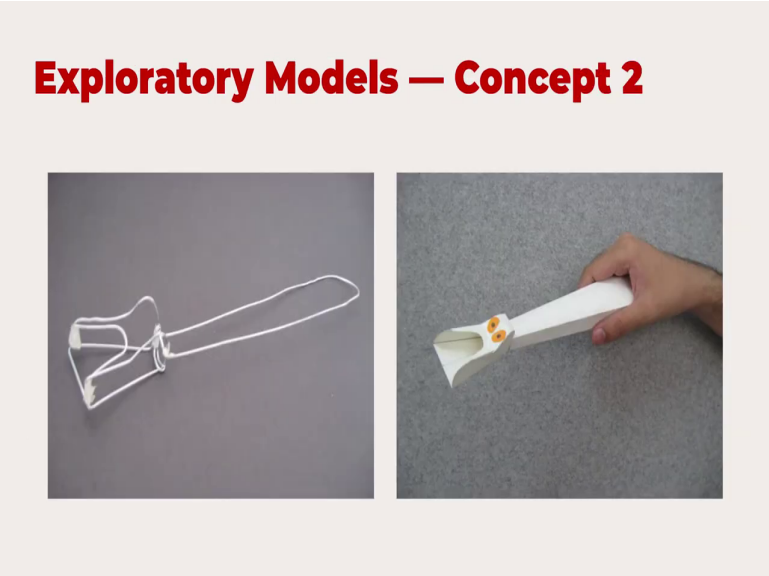

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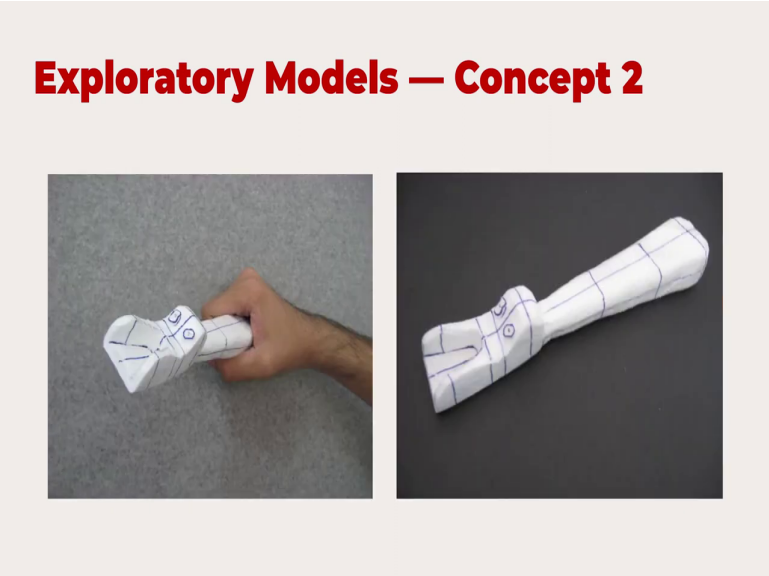

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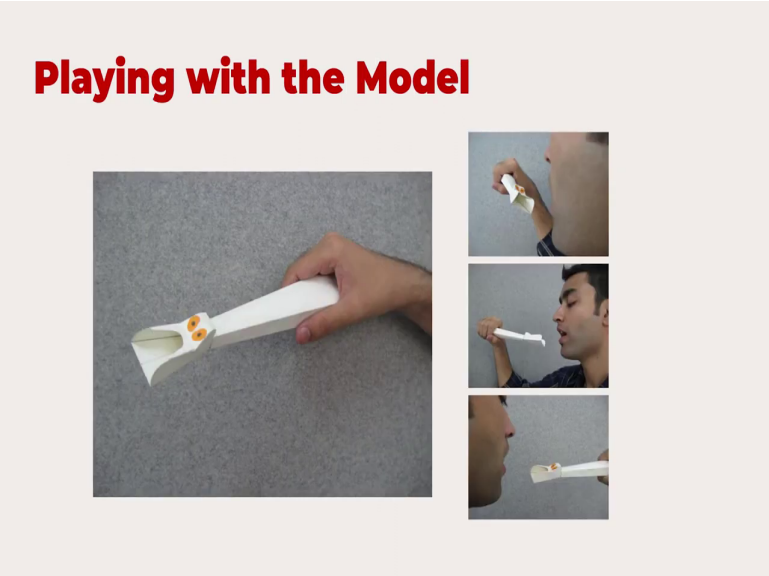

So, all these things are happening and that will you know give you of course, and similarly it is done for all the other you know ideas too. And then here students you must have done a form code sometime, where you had this planar you know like planar solid forms, planar forms and wire forms. See all the three now are implemented in your form development for your spoon and the creativity is phenomenal when you do that.

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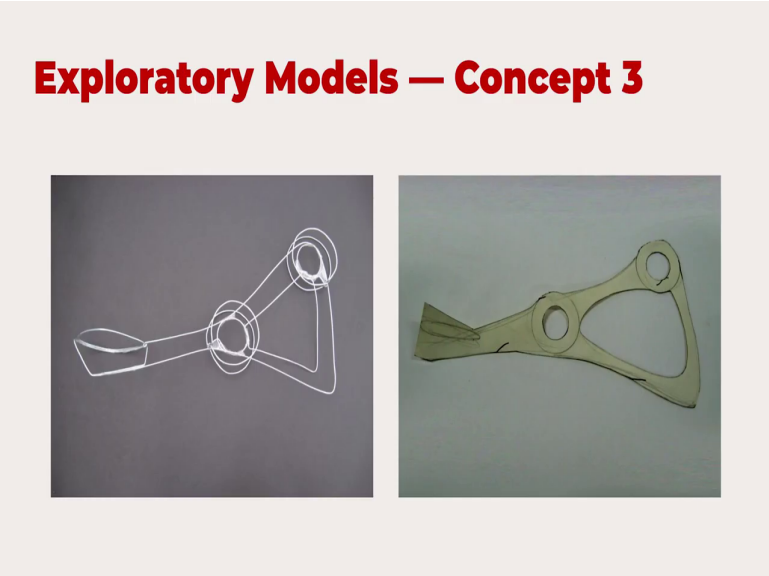

And of course, the wire model. So, when you do the wire model cognitively, you are looking at you know how the rings will come, how the you know like how the rings will be attached to the wires joining the surfaces.

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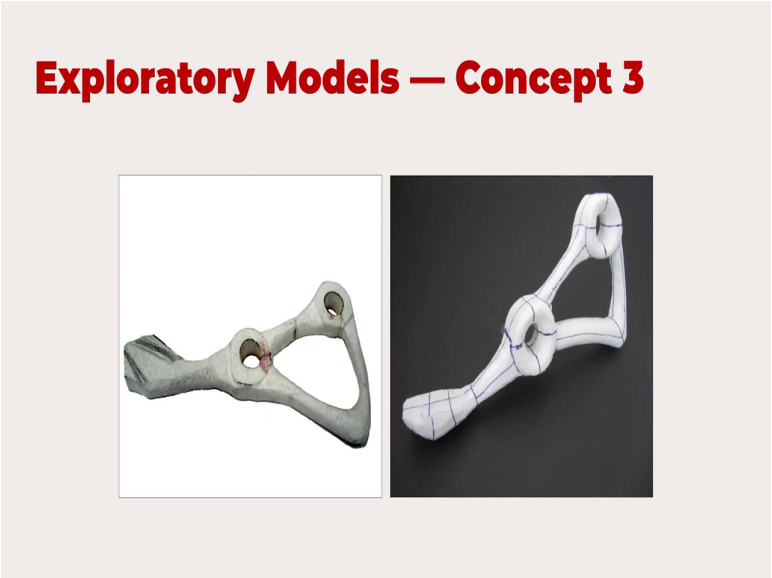

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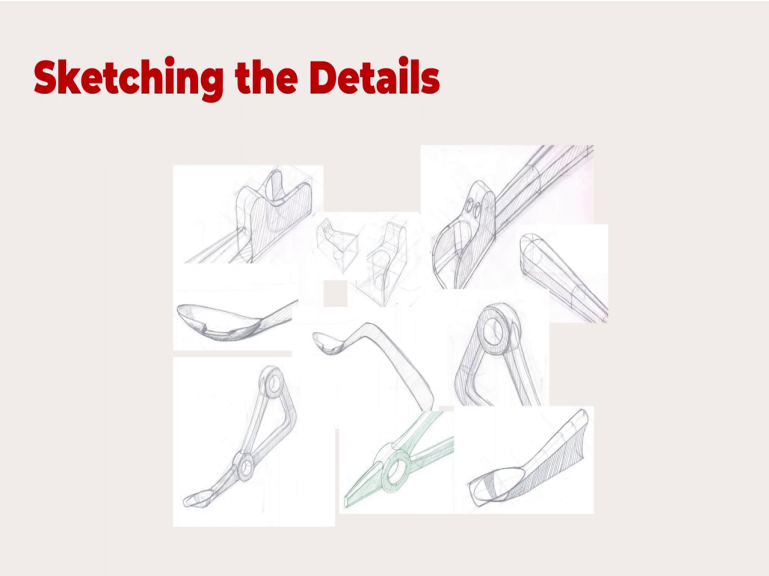

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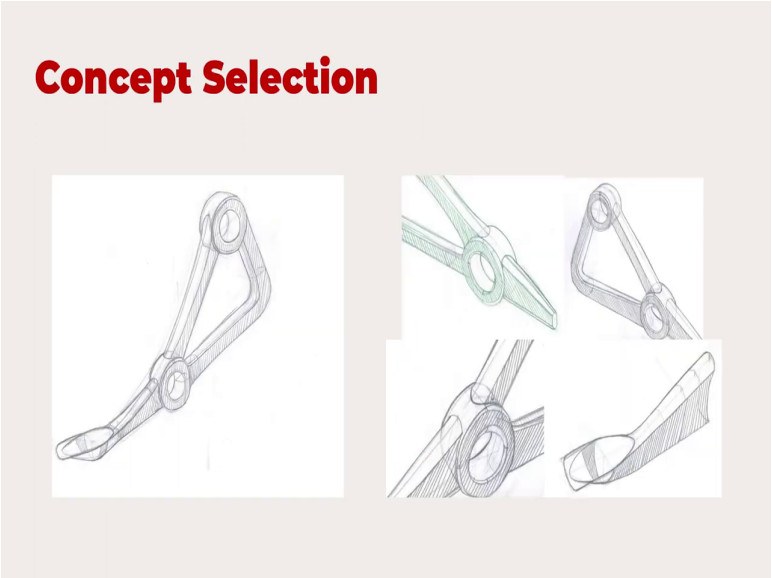

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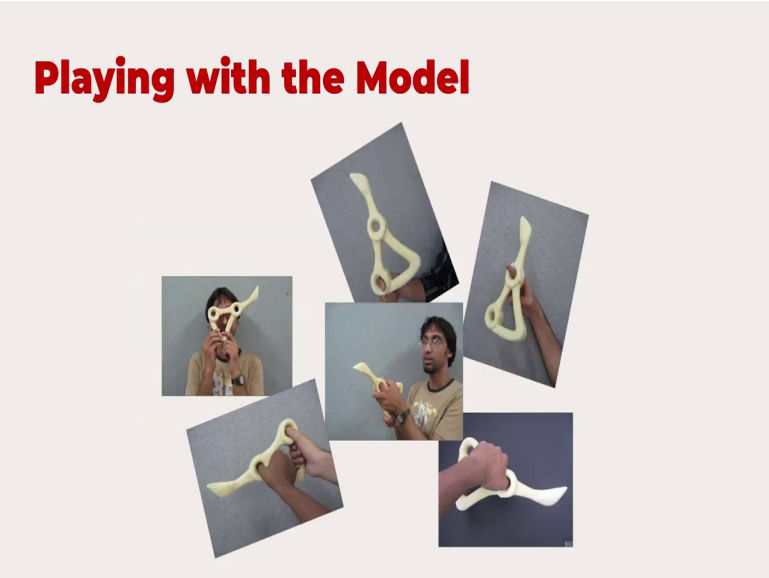

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So, all that would be you know big using that and the new a solid 3D spoon models you get this done. And of course, you enact, you play, you do drama to check out how things move. And then you know sketch out the details, you do the representation of these details using mock up models and you know of course, you check up two, three variations of the selected concept, this is selected as a concept.

So, they are making variations of this concept, try to do for the refinement if it can be simplified, you know like final it was you know considered to use it in the you know like form rather than one old form.

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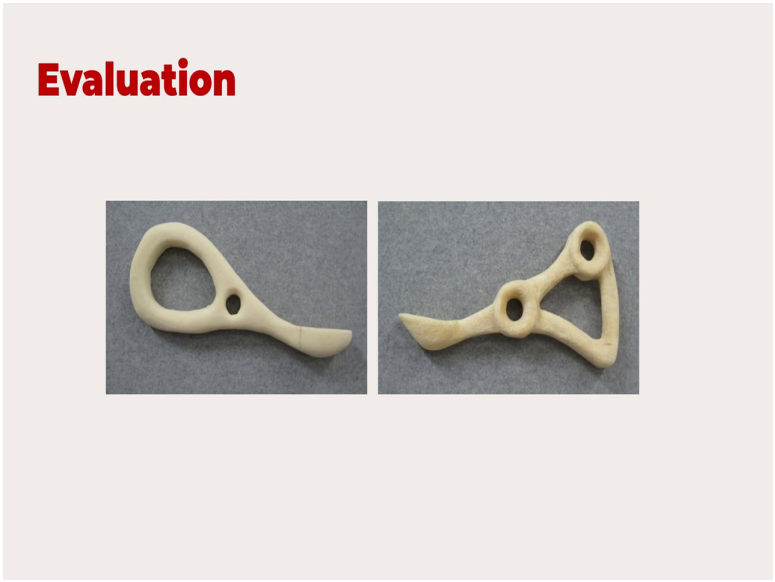

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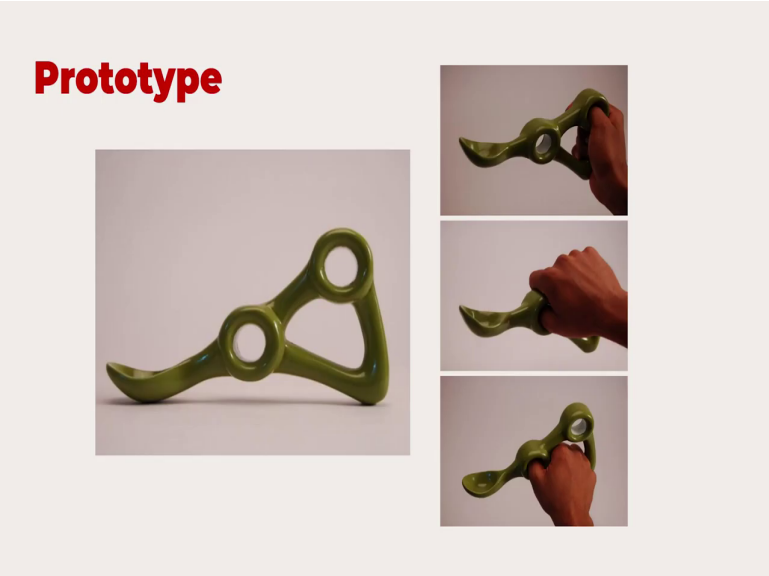

And you know like this was selected of course, you bring in all the details of manufacturing, materials, you know what will done, you know how will it be you know manufactured and of course, what type of tooling costs will come in all those are considered. And then of course, you have your final you know working prototype to see how this spoon works and how this spoon you know feeds. So, this is you know just I want to share with you the journey of this soon.

There are there are other you know like interesting you know spoons also. So, maybe I will you know quickly show you that before I leave you with your own development of these two creative techniques of mock ups using a lot of paper you know 3D surfaces and planar surfaces to build your models and of course, you know analogies from the earlier study.

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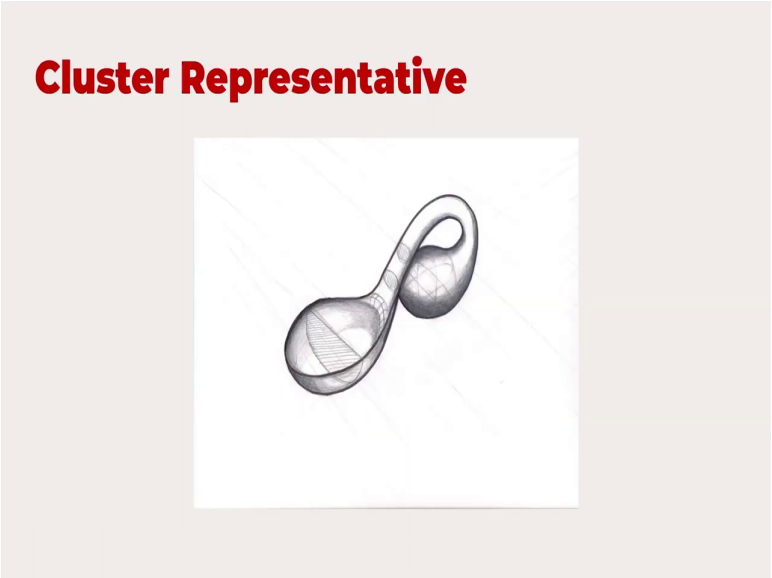

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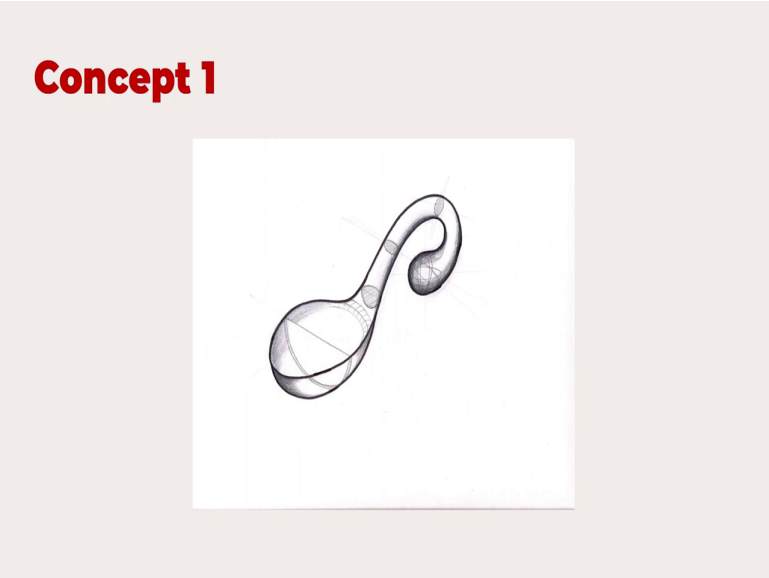

We have the soup spoon, the clusters coming in like this, you know different different you know radical spoons in cluster 1 and this becomes a cluster representative. And the you know there is a concept 1.

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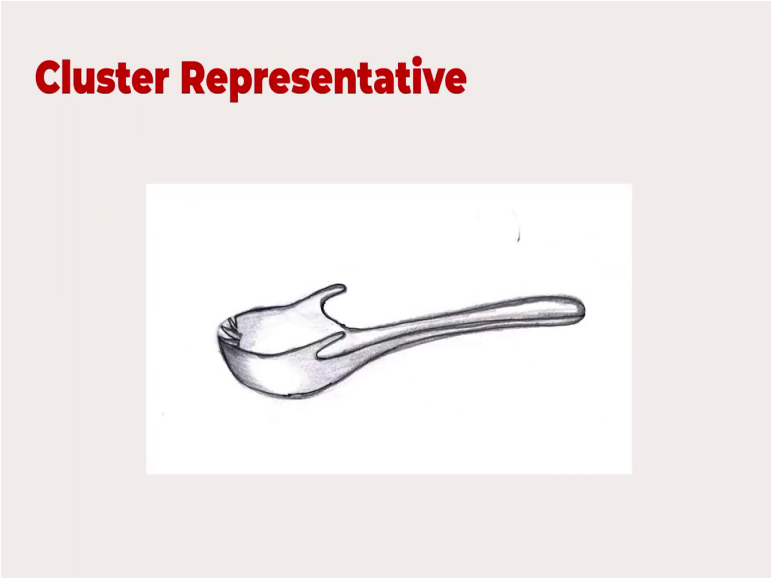

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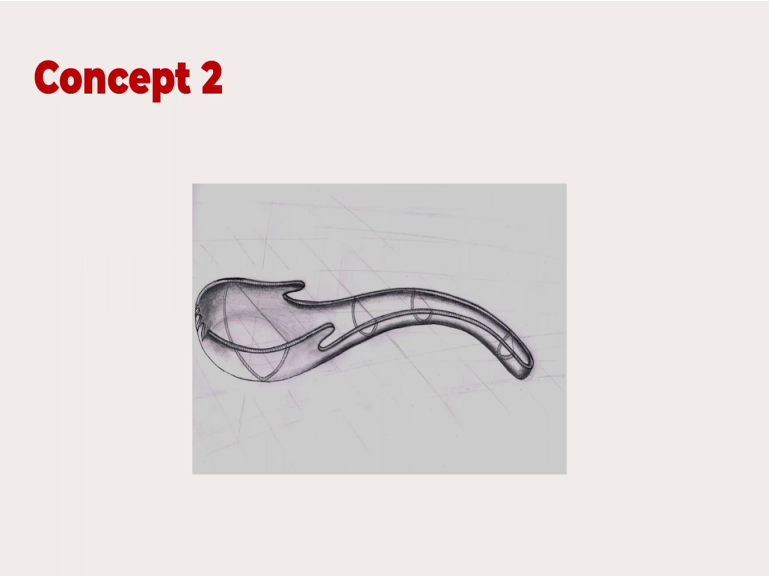

Similarly, you have the thin handle spoons as cluster 2, then he built this you know as his you know final concept and this a interesting concept where the people used to drink it from the back also you know this spoon he built that later on.

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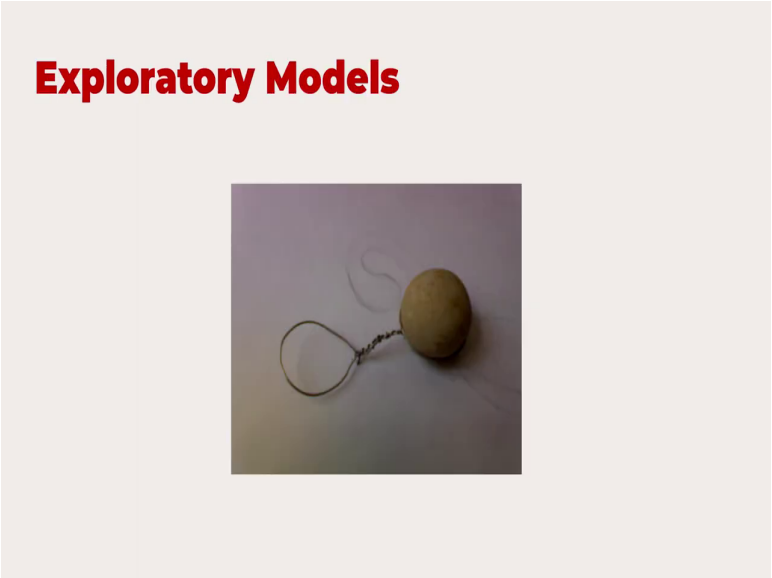

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And you (Refer Time: 13:55) candle spoon a again and in expiatory models I must to build all the things and the exploratory models can be pretty rough, because they are risk getting your cognitive and your you like visual thing correct.

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And of course, you have finally, selected one concept and you know took it forward and there is the final you know prototype, he built and could rest on the you know soup bowl and you know it can be used to drink from the back also if some kids want to play with it. So, you made a nice blue at the back. So, it can cool the soup and you know drink reverses and children like to do that a lot. He did not say children's soup spoon, but the just call it the school scoop spoon.

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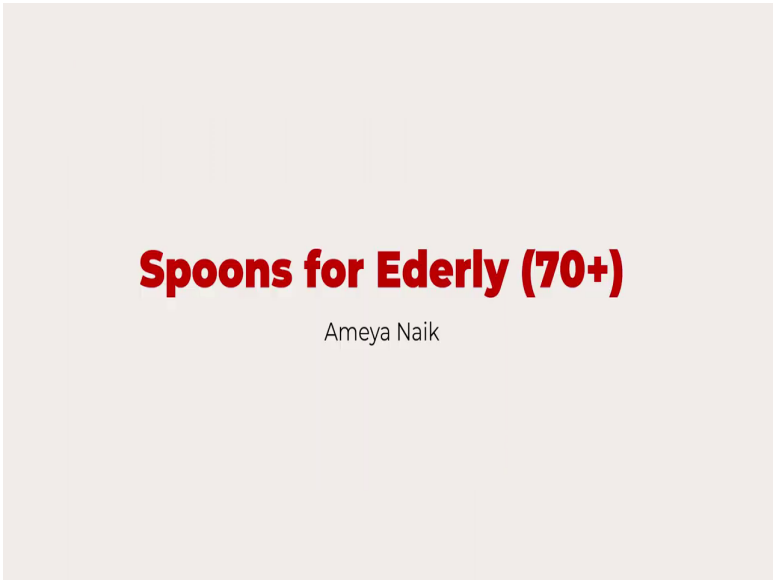

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I am work on the spoon for the elderly. So, here I will rush to just show you the images; all the explorations are not you know like they can be very rough, but exploration is very import.

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Exploratory Models: Cluster 1

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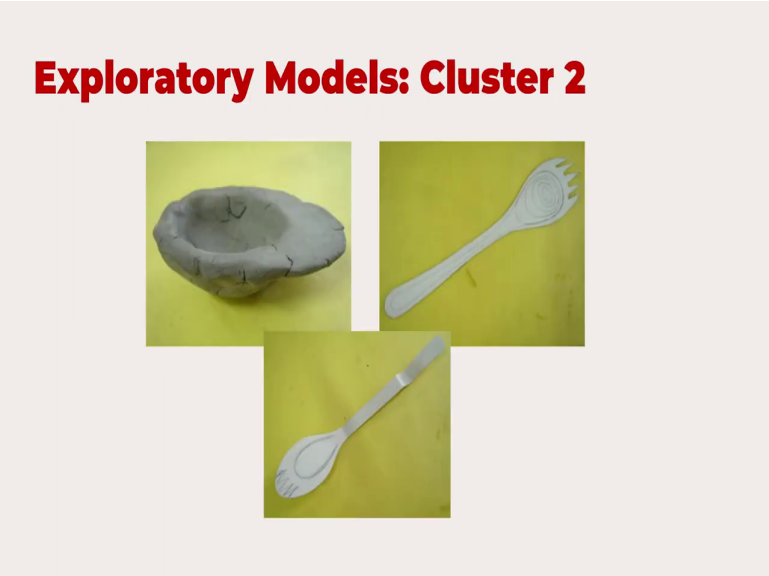

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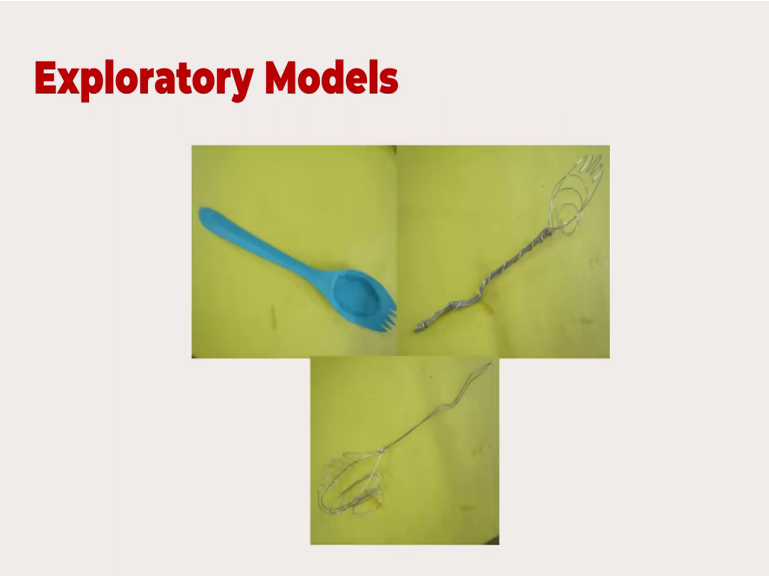

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Look at the exploration and wire know interesting.

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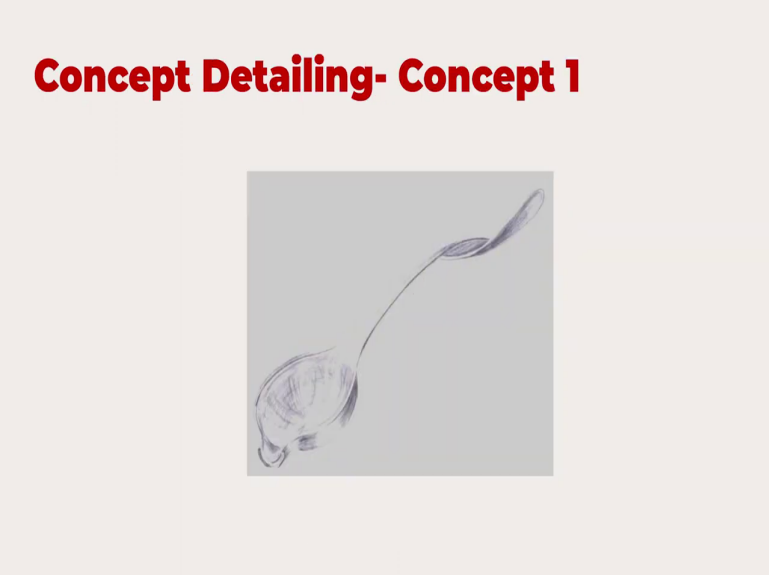

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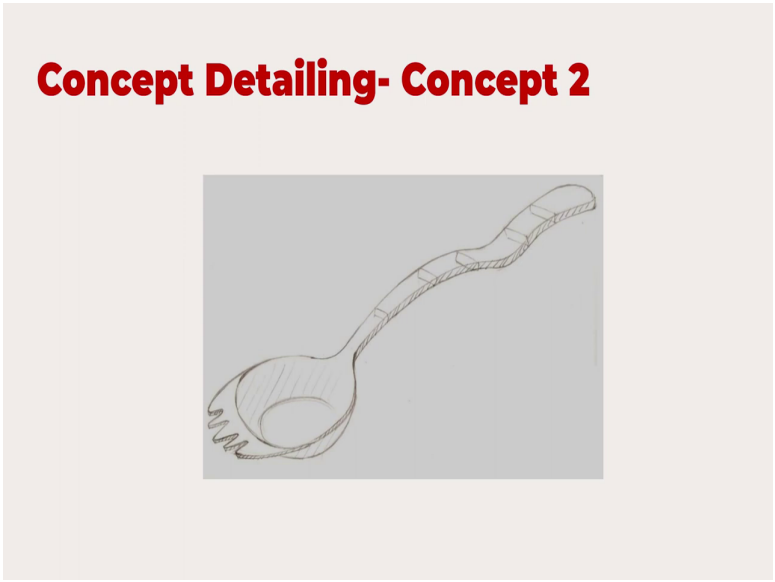

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This is interesting topic this Nagsen took this interesting topic of using the Gujarati weddings.

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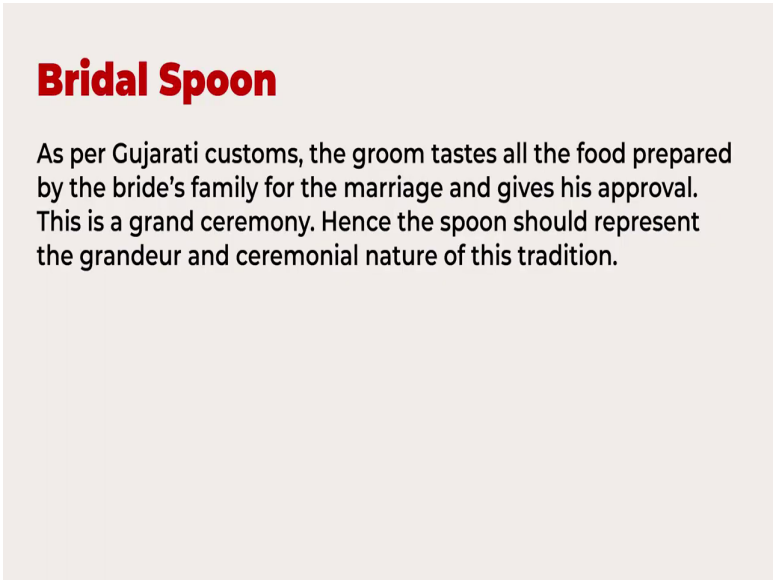

They have something called the tasting spoon and you know that bridal spoon has to be very elaborate.

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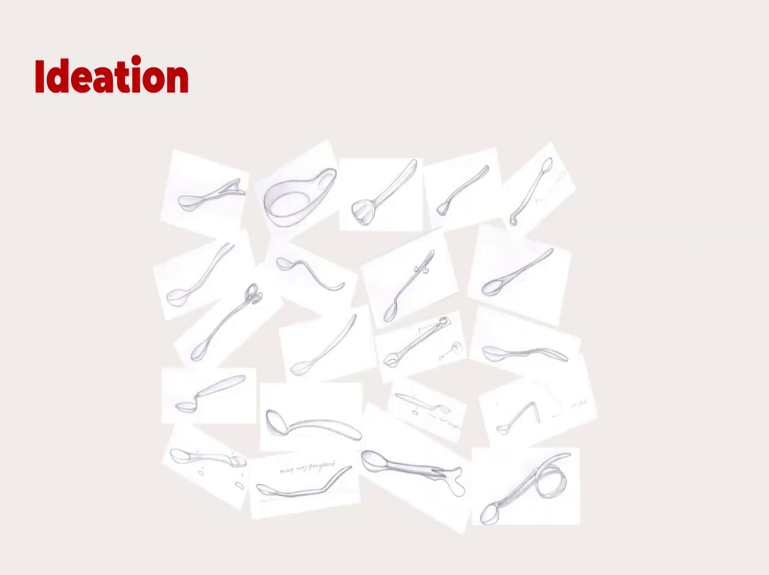

Because it is a procedure, like the bridegroom side goes and tastes the food. So, what type of spoon that should be you know like, so he tried a lot of options.

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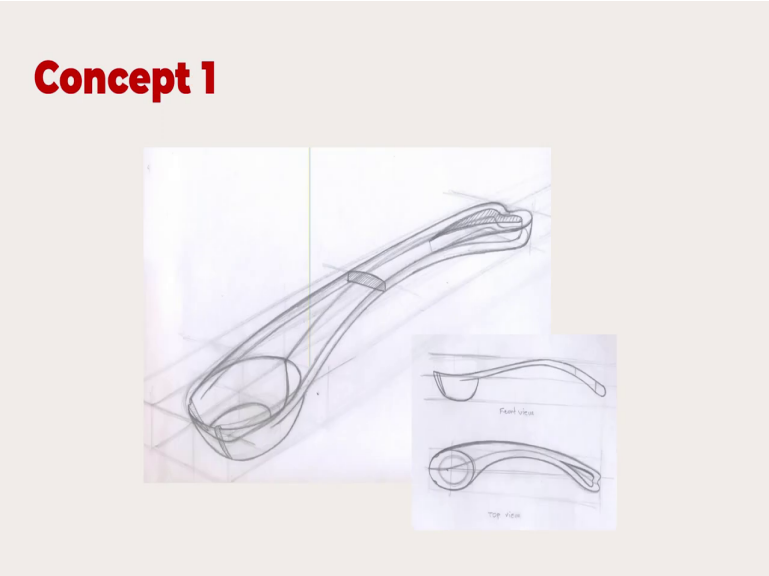

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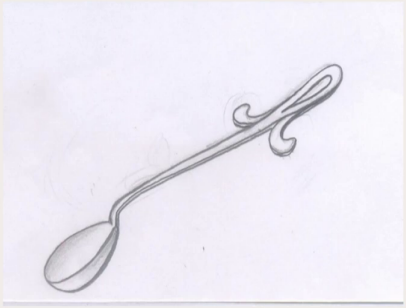
Cluster 2 Representative



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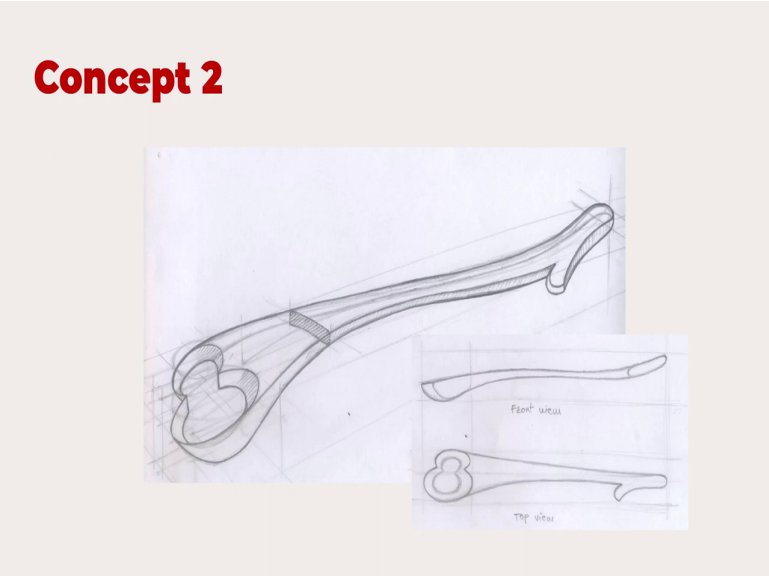

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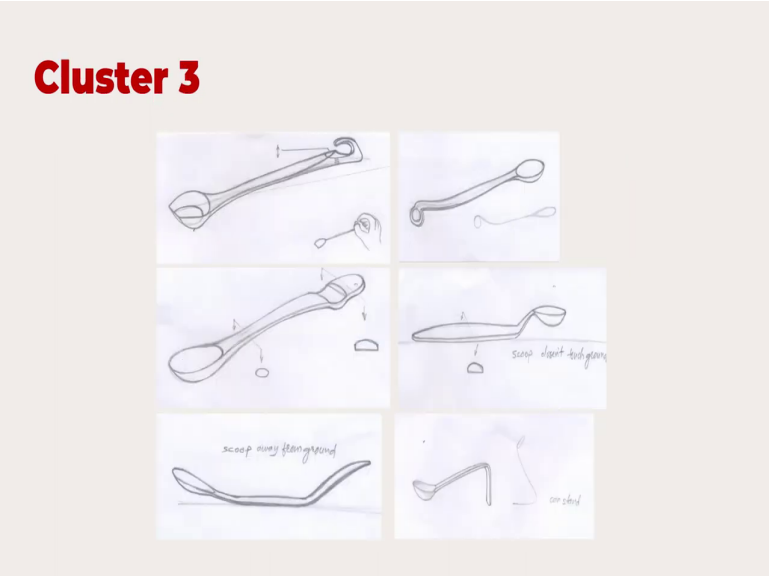

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And you know like finally, we will see you know a very good, because of you know this an acting and the feeling of pride, of feeling of a ceremony you know we the spoon goes pretty well designed.

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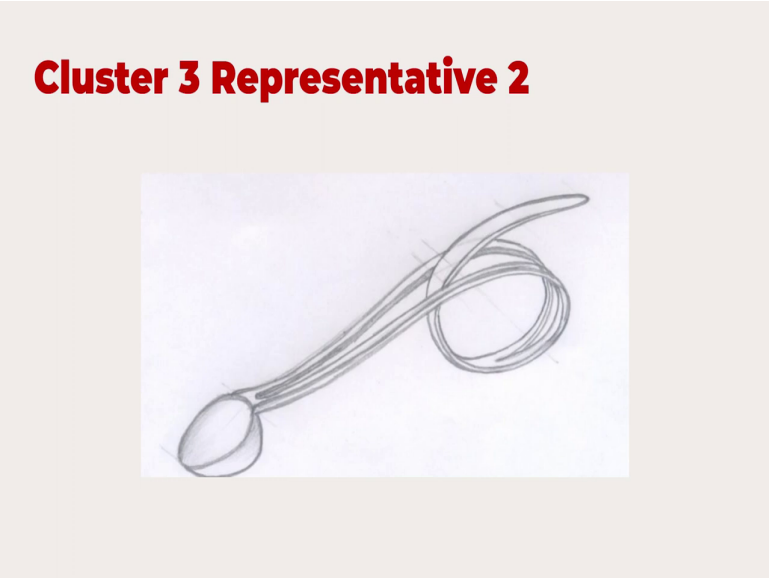

And this is the 3rd the cluster representative.

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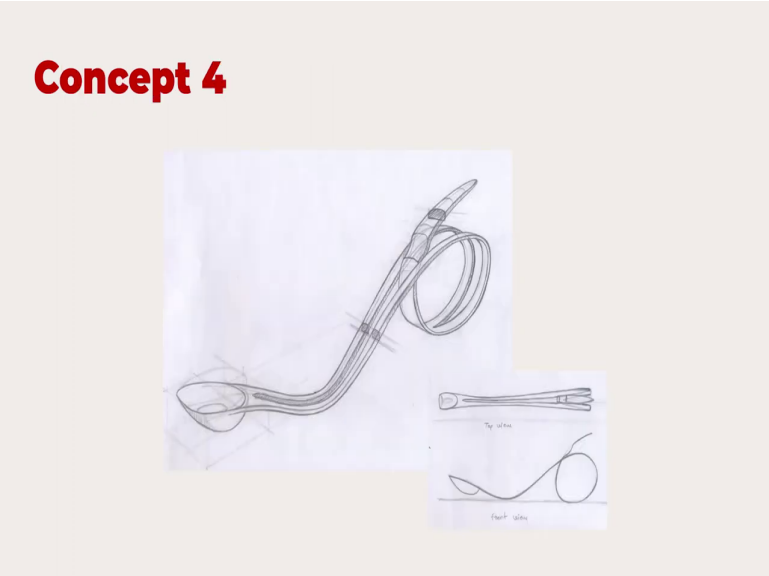

So, it is one of the hand and gone and it is got a value position there.

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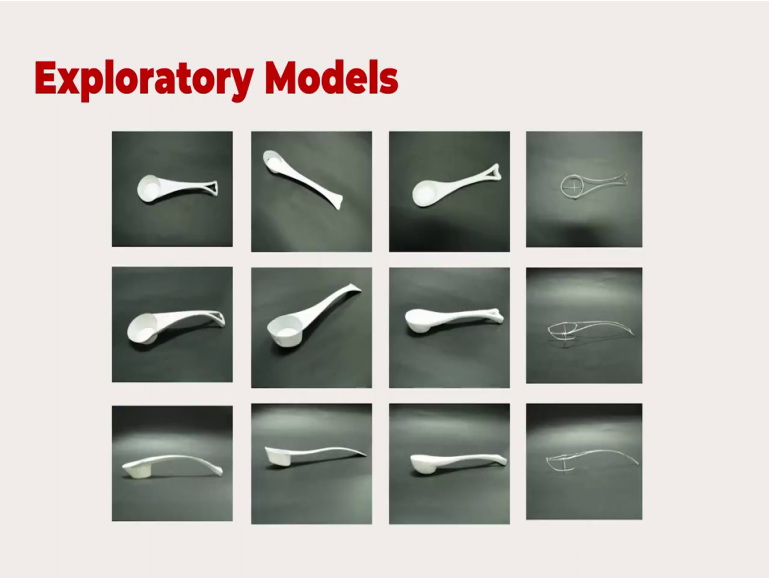

And all these exploratory models.

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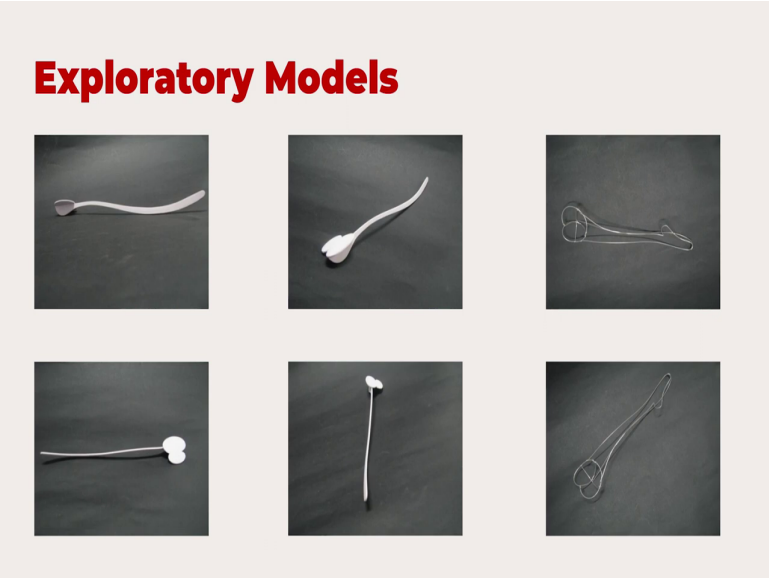

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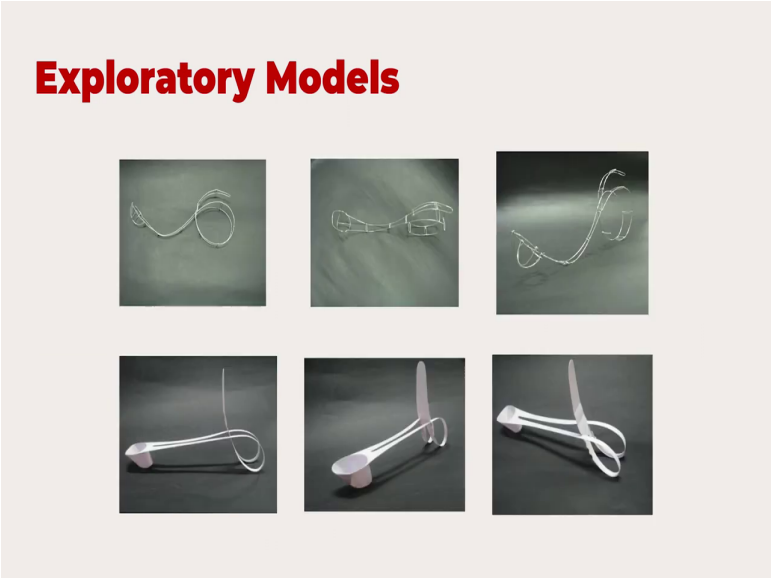

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And finally, you know this is selected as the main one, because it is an event and you have to have the importance and holding and of course, the spout is pretty small, because you do not need that a big thing for tasting and you know how would you use it, how would you feel it and does it give you that type of importance. So, all that you know also comes in this detail finally, you get a prototype of it.

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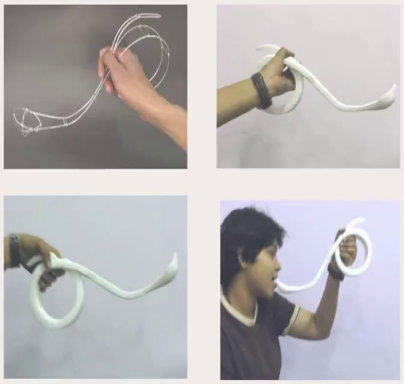
Concept Demonstration



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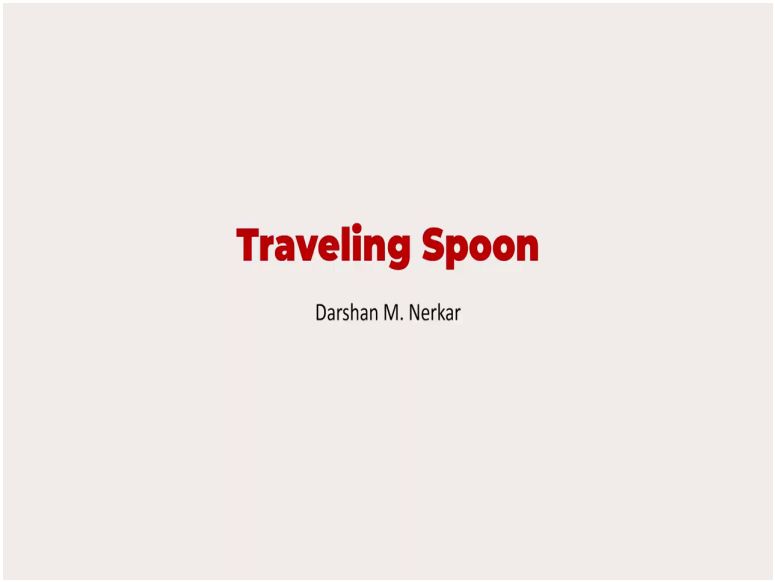

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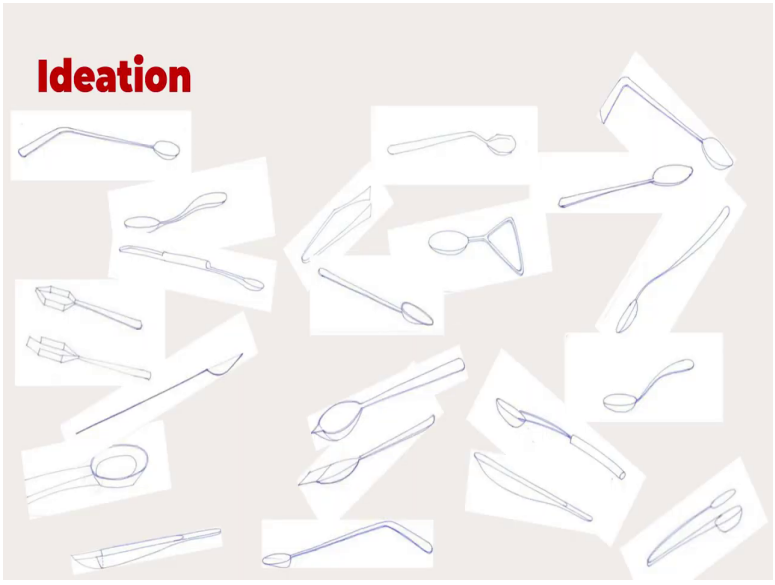

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Darshan was interested in a travelling spoon and again very interesting topics I will you know rush over here; there was a similar phenomenon multiple ideas, build the you know build the mock ups, and build cluster representatives, sorry first you build your cluster representatives, then after representatives you build these multiple mock-ups using three different materials, very interesting wire, you know paper and thermocoles solid, planars and wires, you know like lines.

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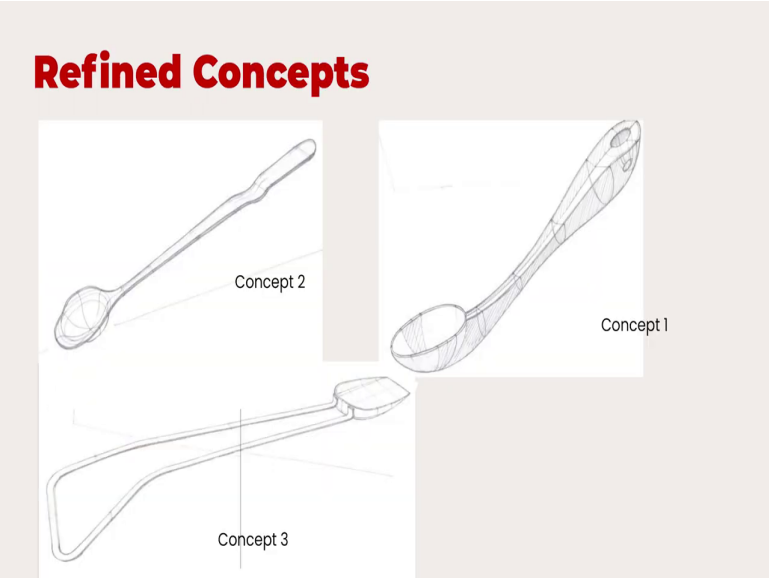

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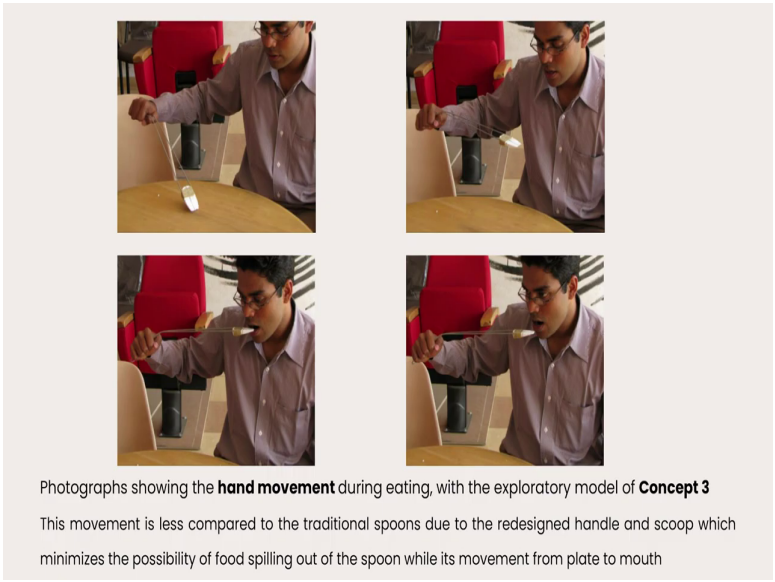

Photographs showing the **hand movement** during eating, with the exploratory model of **Concept 3**

This movement is less compared to the traditional spoons due to the redesigned handle and scoop which minimizes the possibility of food spilling out of the spoon while its movement from plate to mouth

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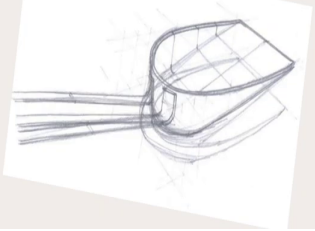
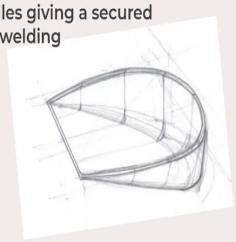
Concept Selection

Based on the innovation potential, Concept 3 is selected for further refinements and detailing.

-**Form** – Slightly widening form at the back with curved edges for proper grip while traveling, properly angled scoop for better pick up from dish and emptying of food in the mouth.
-**Material** – Stainless steel
-**User interaction** – Less hand movement, Two handles giving a secured
-**Manufacturing process** – Press forming and Laser welding





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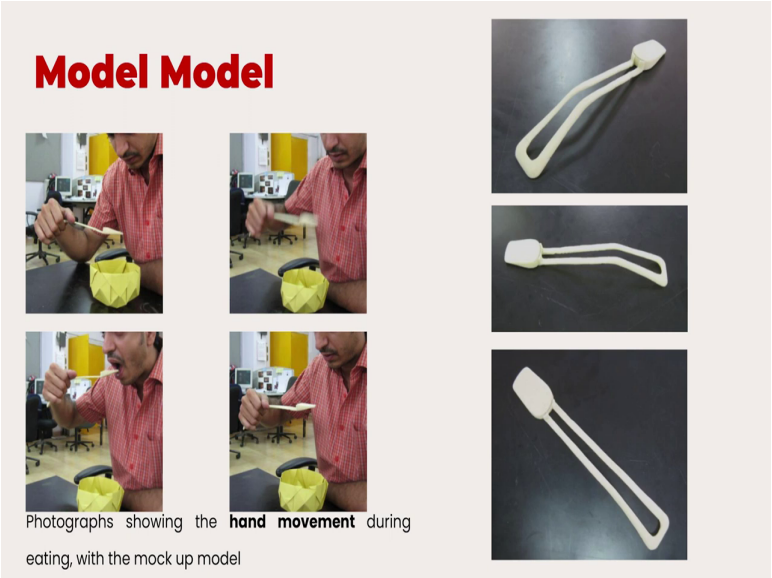

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So, with that you know let us see how things happen, take it forward and you know enacting is very important, though it does not work. So, this is the final spoon which came in. So, that space in the middle gave very good protection for holding, the finger goes inside and really locks when you are travelling and for travelling the side know, so that the food does not fall off the side rim which was very important and maybe this is what came up as his final proto type.

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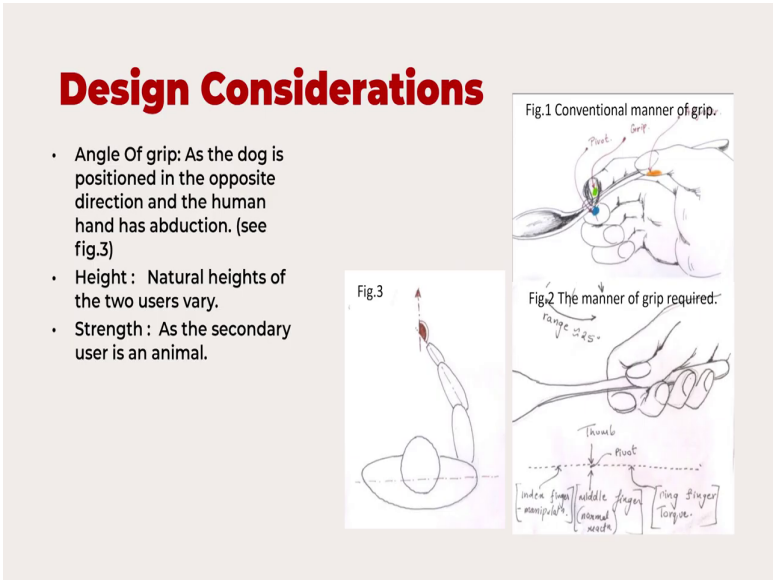

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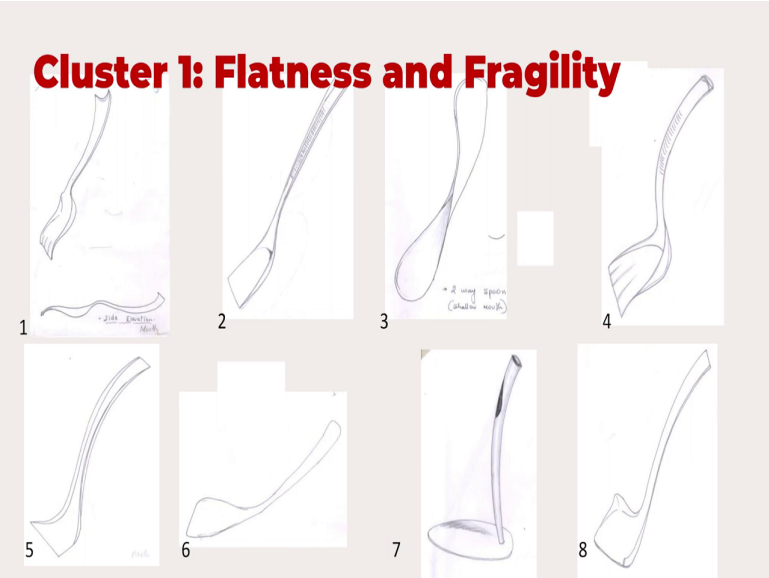

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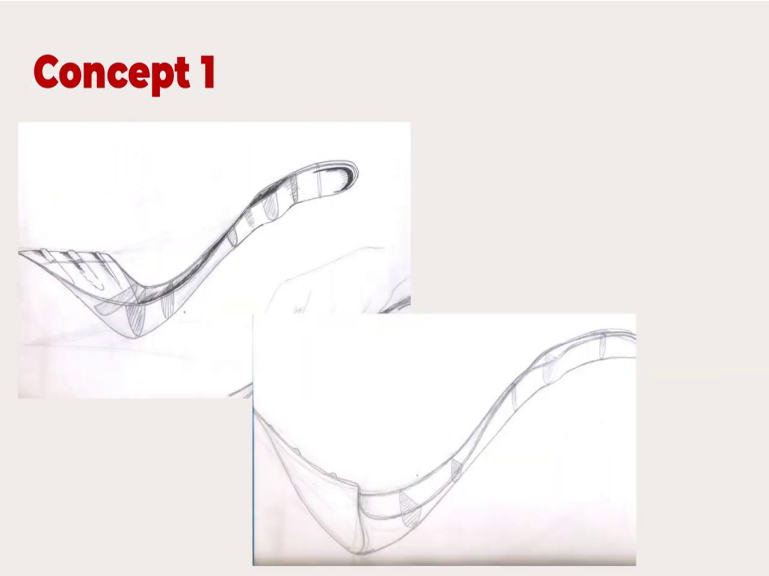

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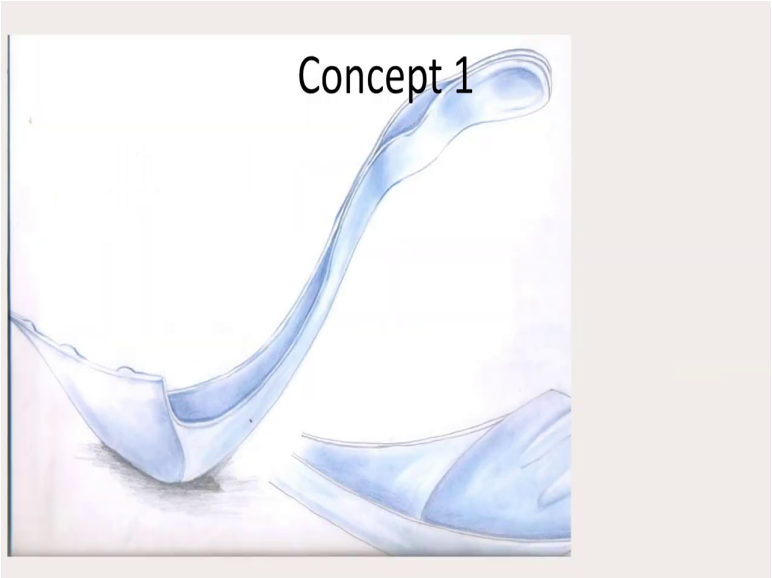

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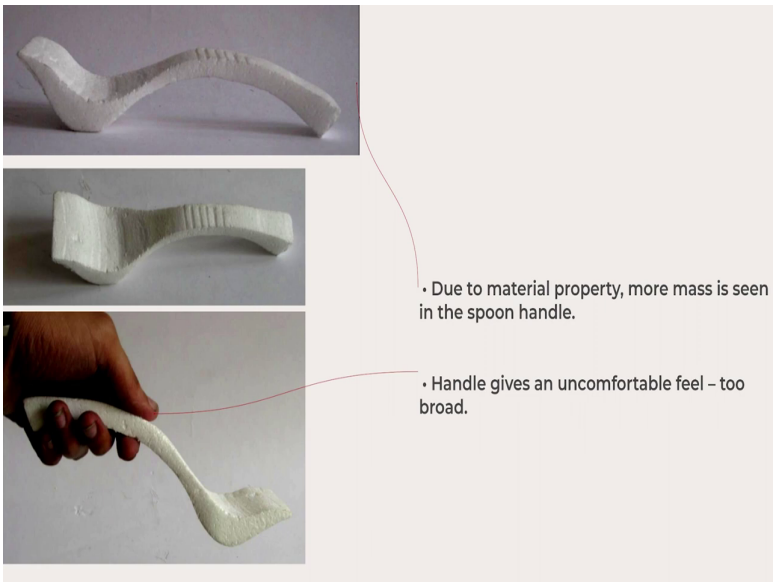

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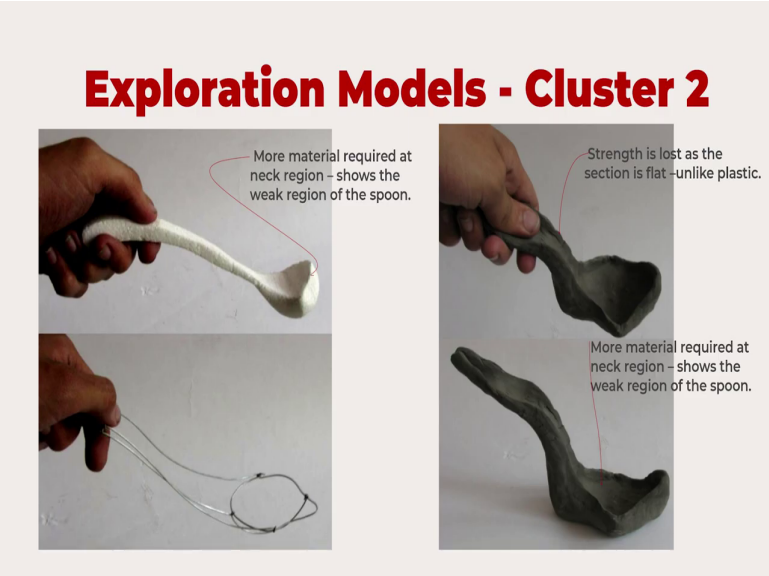

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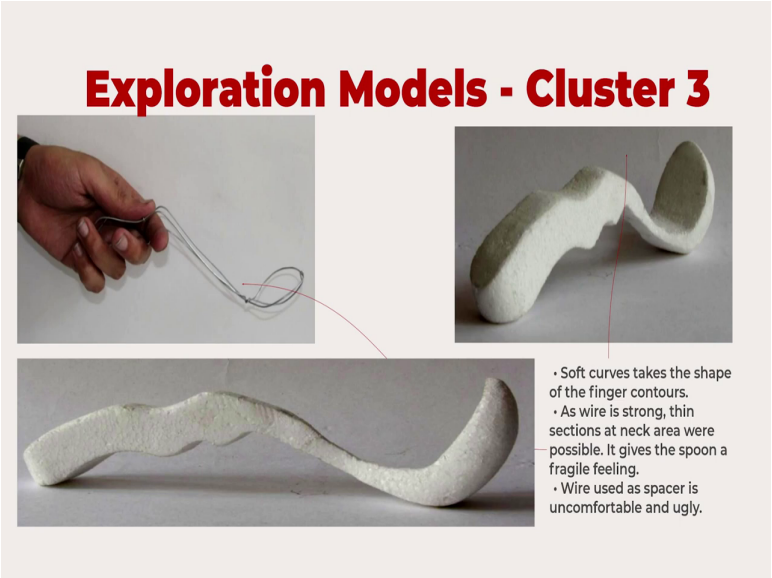

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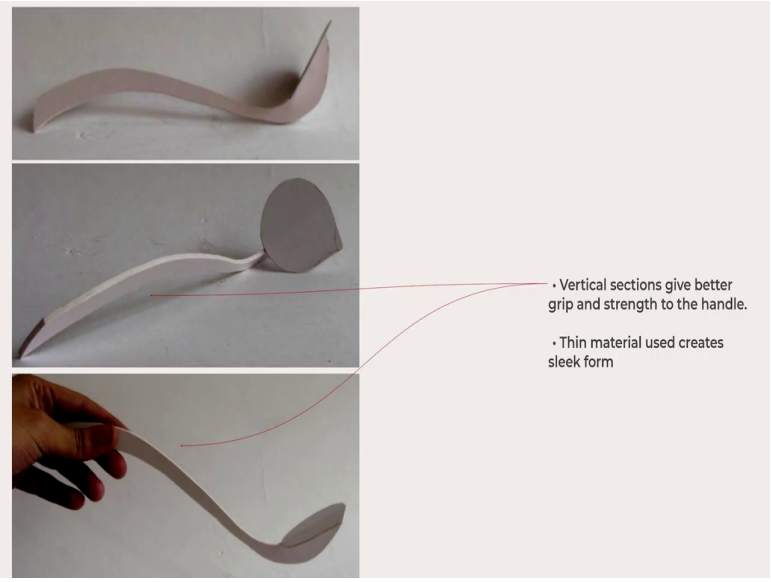

And I think Yohan had pets. So, he like to make a spoon for a pet, let me quickly go and show you the final option here, pin pattern same detailing same option. So, wide mouth, I really do not know how again very interesting thing is we are not checking out whether it will work well or not.

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We just still you know seeing from a perception how the you know spoon; it is a very short handle and you know like good spout and I do not know that is really you know good for a pet, but you know that was not the requirement here. The requirement was to come up with a very you know new spoon which could be very different; but of course that is what happens in courses where you know if you are built on creativity, what are what are your outcomes.

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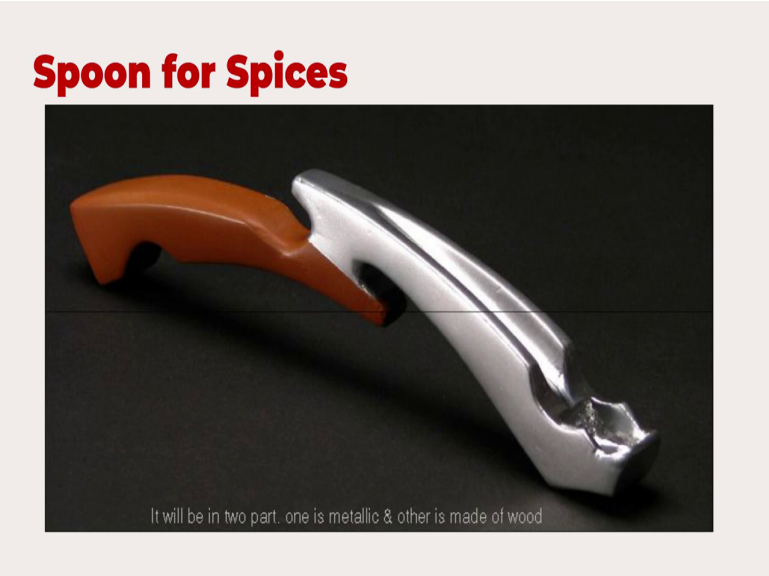

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And of course, people can get inspired and do multiple things out of this and some more spoons this is you know I think spoon for you know measuring, spoon for semi liquid food; then we have those spoon for having tea and coffee, this spoon sits on the you know on the mug vertically, providing nice designer (Refer Time: 18:45).

Then we had spoon for long jars, so you press that and the you know spout comes up; if you to take a picture from a deep bottle, you know you put it in and then you press then the spout comes up very I think a very nice idea here.

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And spoon for rasogulla as a celebration.

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Spoon for another spoon for kids with good you know handle and spout.

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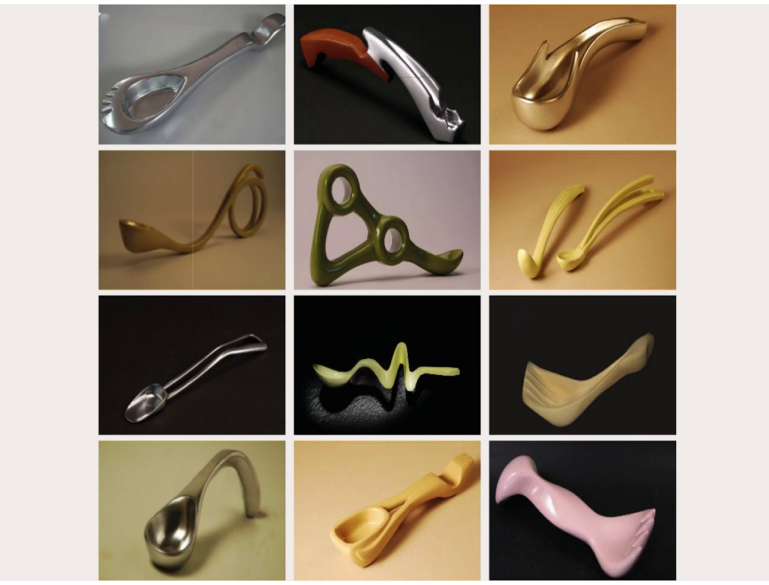

And of course, all the spoons in one place. So, I will just show you this you know direction to emphasize the mock up models for creativity; it could play a very very vital role that would be wire, paper or you know in 3D forms, you could really come up with very very different and very very useful you know ideas and concepts and you know find new designs.

Today we discuss two important things; one is using scenatics to come up with you know wonderful different new ideas and the other one is to use mock up modeling as a very important tool to come up with you know good form building.