Design Practice
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Lecture – 04
Design thinking and innovation

Hello and welcome to this design practice module – 4. We were talking about the design innovation and design thinking process.

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And, in it we talked about how you can actually go hunting for the big idea, the next big idea.

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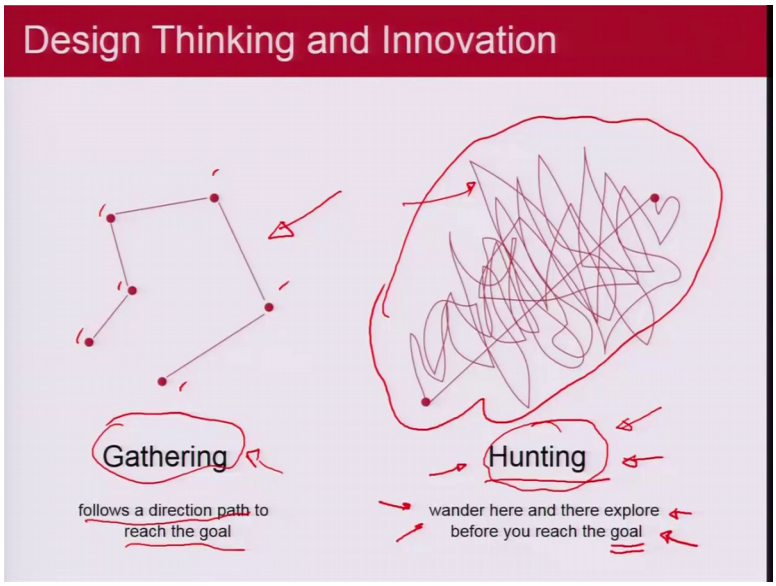

And, for hunting what we saw was that a path needs to be taken which is really very topsy-turvy and you know a lot of out of box thinking has to happen if you really want to hunt for that very big idea.

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So, what I said is that the first rules of doing this innovation or you know so, called hunting is that you do not go alone. So, you basically want to always be together in a team when you actually go hunting for an idea and that is how you get the very big idea because there are many perceptions which are with you and it does not put you biased

towards one way of thinking and then you could actually spread out quite a bit. So, that it could actually get as much possible in terms of ideation and creating the idea rack out of which one idea may exist hidden somewhere which could be called the innovation which sells.

So, the first tool is therefore, that you never go hunting alone you have to build a team.

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And, this team building exercise itself is very challenging because you know you have to go for people basically because teams are made of people. People are real subjects and therefore, if supposing you are basically doing this hunting you have to do it with people in mind. So, hunting is all about the people, the team that you are taking along for thinking the very big idea.

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Now, the other goal when there are people of course is that you need to communicate very tangibly and sensibly with each other. So, you have to focus on your existing mandate of preparing a solution to maybe an existing problem or a problem that you are thinking could be the answer to your question of what would make an innovation happen. So, you have to communicate very well communicate in a very terse manner and also communicate very sensibly with everybody in the team that you are going to take along for doing this hunting for a big idea. So, that is what the second step is that you have to work in a group and communicate tangibly in a group and take people along with you on board if you really wanted to have that very big idea that you are looking for.

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The other very important factor which is important for all of you who are ideating is that you must learn to think out of the box. So, you defy the natural inertia, natural gravity that is probably within any design thinking to think the obvious. Here, the question is not about thinking the obvious it is about think the non obvious think something which may not be seeming to be even a part of the solution yet it gives an addition or a makes a contribution which becomes the solution for the future years.

For example look at that mop stick model that I had discussed a few lectures back where we were talking about that the need lies that the mop has to be cleaned. So, and later on what people figured out that if you carry the stick from between the same user and keep changing the mops then the basic idea is that it becomes much more convenient for the user to avoid this whole step of cleaning the mops. So, the mop which was the earlier product actually fades away and becomes a reusable product whereas, the product which is retained along is something else which is completely out of the box.

So, this is what you call defy gravity think about the associated response or stimulus of a user to a product and in that domain you will definitely find an answer were you could give the innovative idea to carry the product not only the product, but the idea forward in a much better sense, so, defy gravity.

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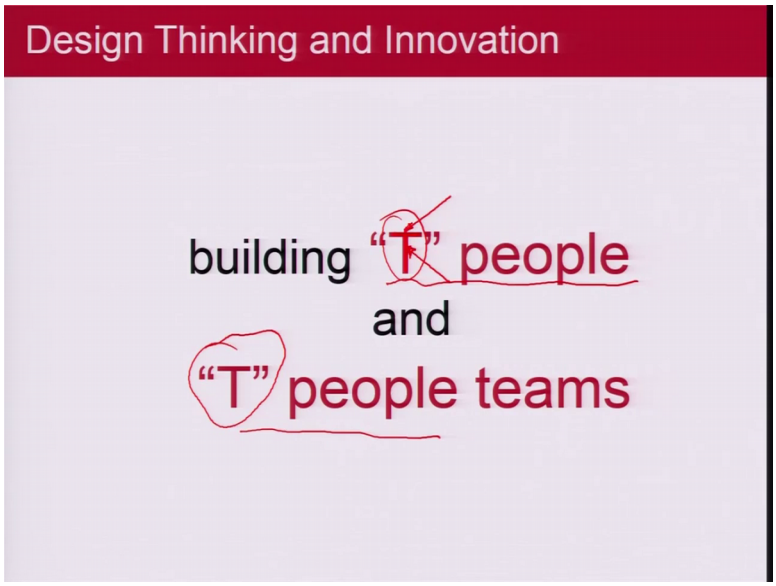

So, then the question is about people who are really also known as T people and T teams meaning thereby they should be T shaped people where the arm of the T basically represents the arm of the T here represents the broadness of the thinking process and the stem of the T right here represents the depth of the thinking process. So, you should have people on board on your team where you have not only an acceptability of ideation which is happening, but also you should be able to look into ideas with the requisite depth that is needed for a team to be successful.

And, you have to in order to be a natural leader here to lead the team be completely devoid of your own ego and just have more listening than more talking and so, basically T people and T people teams are very important concepts when you come to actually start designing. So, listen more and take more, absorb more and try to take as much deep strides as possible along the process of the ideation as a natural leader evolving into such activities.

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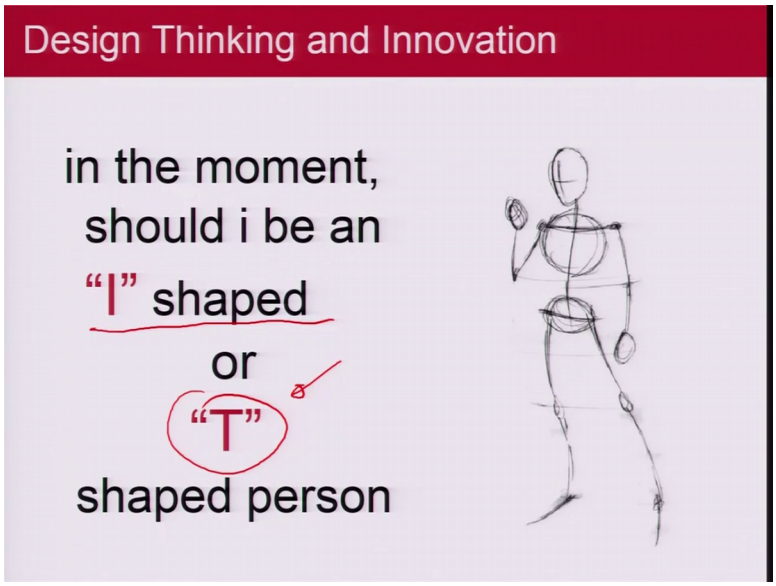

So, in the moment should I be an I or should I be a T the answer is if you are a T and if your team is also built of people who are T shaped then you will have a span across all ideas yet investigate those feasible ideas or even unfeasible ideas with the requisite depth so that you do not have a problem in finally, building the idea rack which would be responsible to be taken forward for prototyping and other works associated with the product development phase, so that is how you really are like.

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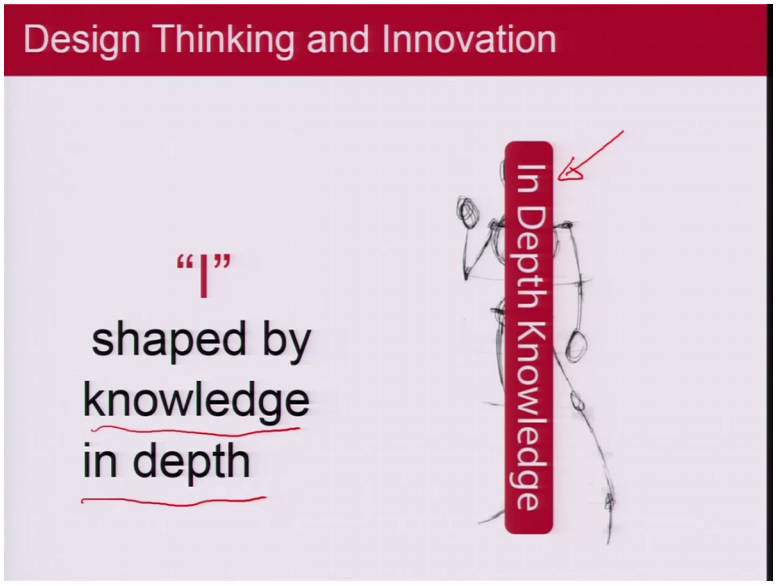

So, I shaped is I shaped in knowledge, by depth. So, some people do have this quality that they have in depth knowledge of something.

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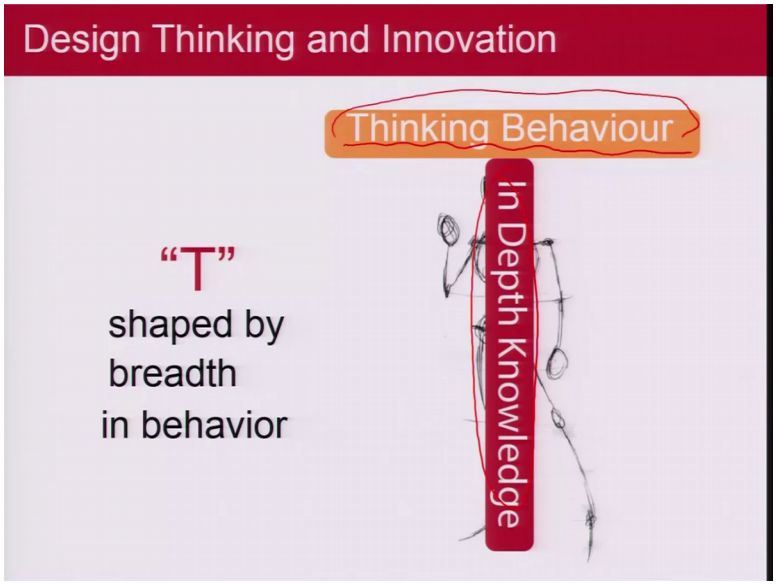

And, when I am talking about T shaped it is basically the thinking behavior. So, not only you should have a depth of knowledge, but also very wide spanning thinking behavior as a member of the team and you should actually have a T shaped philosophy in general for good work to be carried forth.

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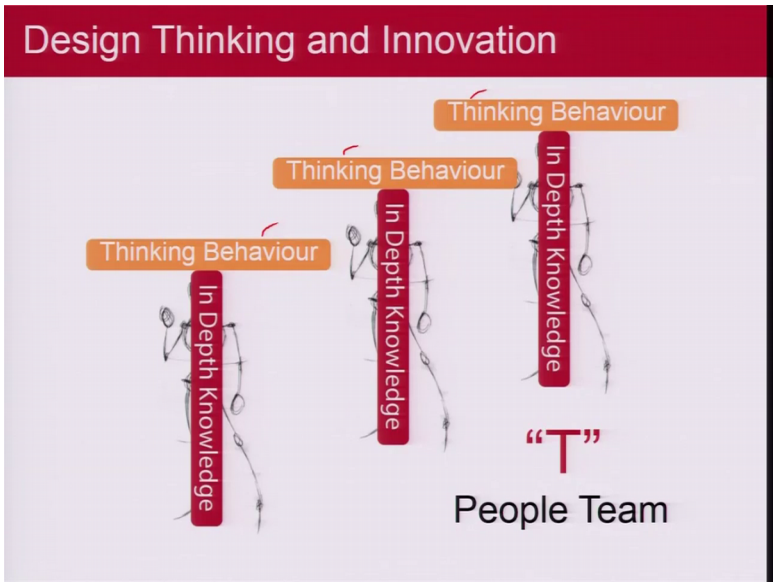

So, T people teams would typically look like this where the thinking behaviors kind of match and there is a lot of acceptability among the members while each of them or each of the participants give in depth in their own domain of expertise. So, that it can contribute overall to the ideation process.

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So, very a best example of what you can think of you know in this whole idea rag generation is a case study which was done by Belcorp sometimes back where they were reinventing the eye make-up experience.

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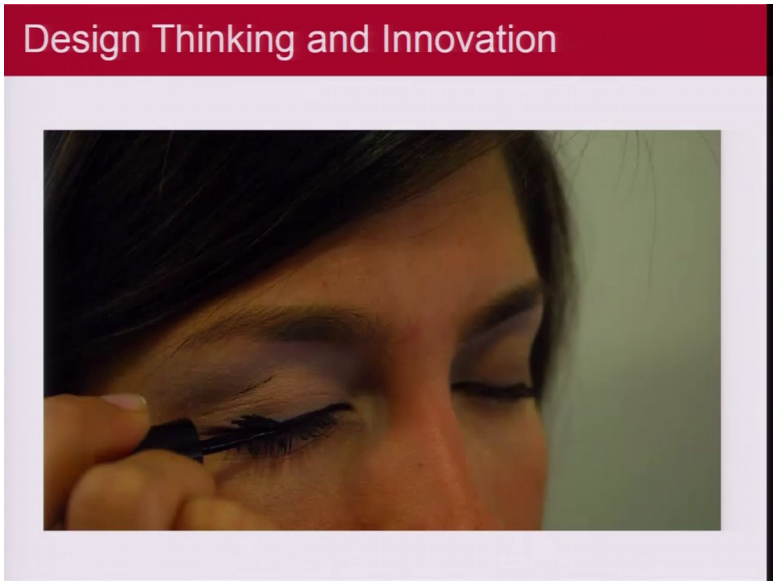

So, what they found out is that the major issue with eyeliner is about the deriding of the eyeliner pencil from into unidentified or into unwanted regions that is causing a strain mark which otherwise needed to be removed. So, there was a need underlying probably ever since the eyeliner business grew up about how to get off a mark which accidently comes because of wrong movement of you know the eyeliner pencil into an unwanted region, nobody just had thought of how a product can be improvised with this pertinent need in mind.

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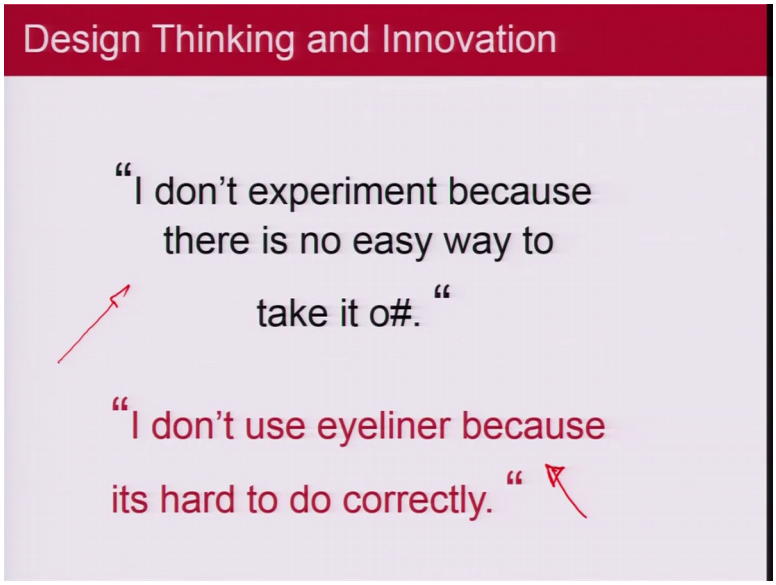

And, so, basically when the case study was done and then there was a lot of consumers or customers field surveyed, there were the general response that came out is that I do not experiment because there is no easy way to take it off and so, I do not use eyeliner because it is hard to do correctly. So, these are some of the responses and like you know from some of the customers which came out for this simple product as just a pencil.

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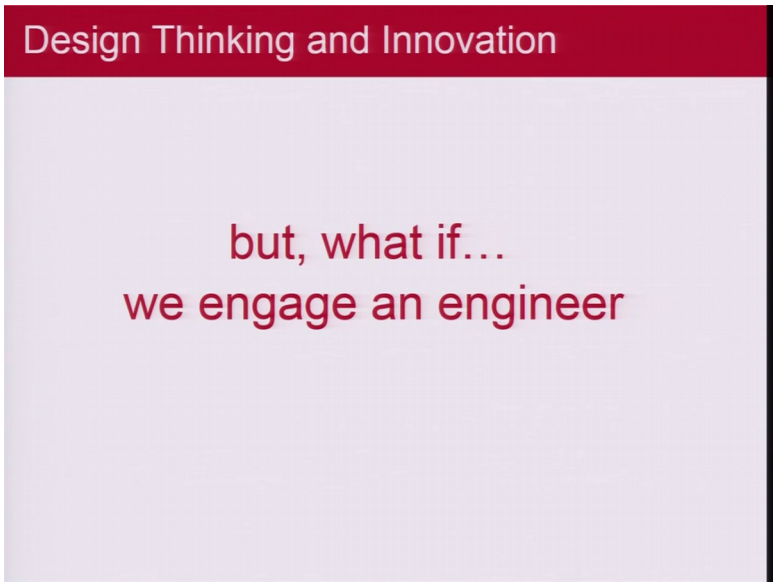

And, therefore, there was a need to ascertain whether we can improve the product engineering in a manner by coupling liner to probably an eraser in a manner so that you know whatever stray marks come off can also be reasonable in the same set of the liner so that you can give this complete package to the customer rather than the liner itself.

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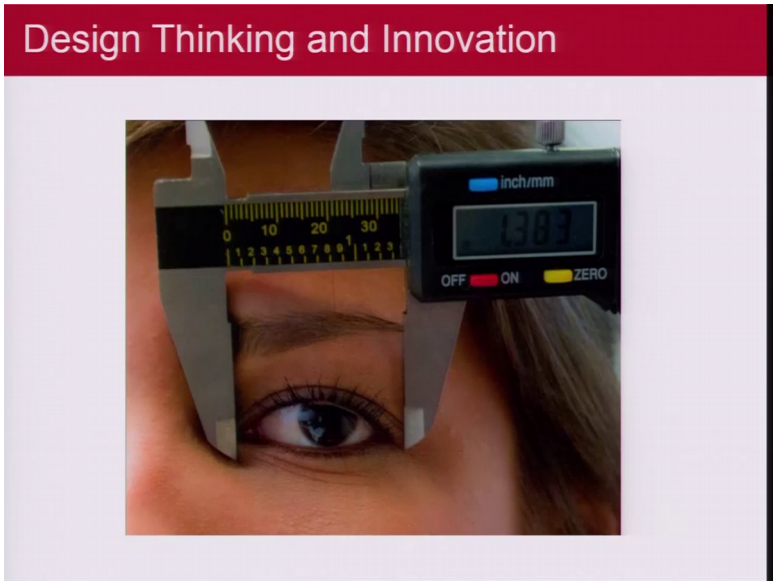

So, an engineer was according to your team of engineering people who were engaged.

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And, basically there was a simple mechanism with which one could actually now not only you can see this mechanism right here not only actually create a an impression, but also be able to remove the impression. So, this whole you know objective of how to remove it and how to lay it which was earlier coming in a quite a big package was changed by just changing the very modality of the eyeliner design and it was a product which was a very hot selling product.

So, this is how innovations should come into place for really out of the box thinking and as I told you that because it is all about the right kind of teamwork I would just expose now all of you to a sort of an activity where you could actually get through to know about your team how good you are in decision making or what kind of you know T shaped people you have in your team and for that what I would request you is to basically without going any further on this presentation just look through this slide and probably the next and then try to just gauge your answers in a team or in a group and the then out of the answers there would be some conclusions of course, I will actually share with you the responses which were given by a set of students whom I was teaching last semester for this particular activity to build up a team.

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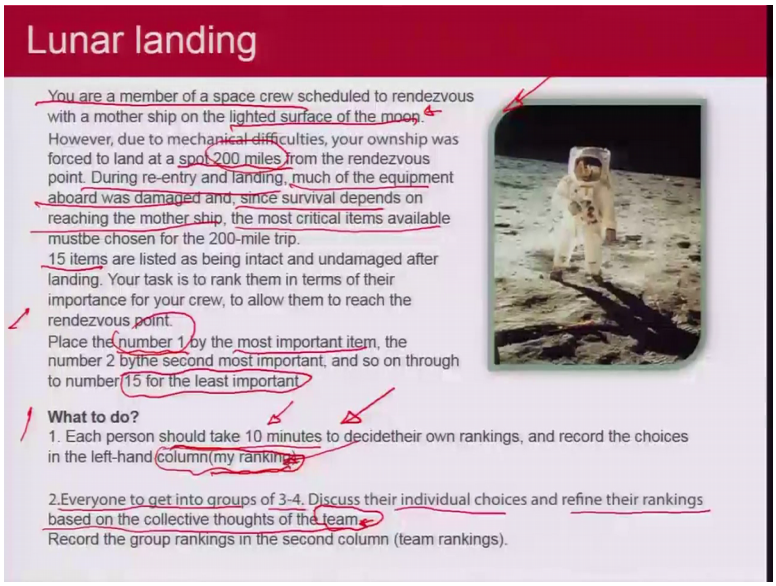

So, this small you know activity is about a you know it is like a guesstimation of what would be the most important or the most relevant and the least important item that you can carry on given a situation that you were in the situation is that you consider yourself to be the member of a space crew which is scheduled to meet with the mother ship which is otherwise landed on the lighted surface of the moon. So, this is the side which faces the sun and because of mechanical difficulties somehow the landing was at a different spot which was about 200 miles away from the point of rendezvous and during the re-entry and landing what you find is that much of the equipment aboard was damaged and you had to somehow survive on the terrain of the moon mind you the moons conditions are completely different than that of the earth because it does not have it is own atmosphere as well as a very less gravity. So, the weight of different things may not be that much on the surface of the moon and so, it may be difficult to even walk properly because people are used to walking at you know full gravity conditions.

So, the survival really depends on can you reach the mother ship which is 200 miles away from the spot that you have landed and will be shared in the next slide, are a set of about 15 items which are going to be listed for you know which you will have to rank. So, the ranking should be in a manner that the most important item that you would need to take with you for going to meet the mother ship you have to traverse 200 miles on towards the lighter side of the moon, so, place number one as the most important item among this list and so on so forth and 15 for the least important item.

And, basically the activity promote says that if you are now already teamed up in teams of 3 or 4 what I would request you is to for each person to first rank for the first 10 minutes to decide what would be your individual ranks record their choices and then I will share a list of rankings which was given by some astronauts from NASA which can be considered as the sort of write values you know for people who are trained in the profession and. So, with that ranking you would actually now, so before that first you will independently make this decision of ranking and then you will get into groups of 3 to 4 of your teams and you will now discuss the individual choices and try to find out and refine and make a collective rank for your team.

So, one set of rank should be your individual ranking and another set of rank should be that of your team. Beyond that I will share this NASA ranking and the idea is that in this case we will try to interpret something out of the rankings that are shared. So, I am going to share the experience then I had with a group of students for you to see how you can map also in a similar way what is your team dynamics in comparison to by following a similar strategy as I am going to define in the next few slides.

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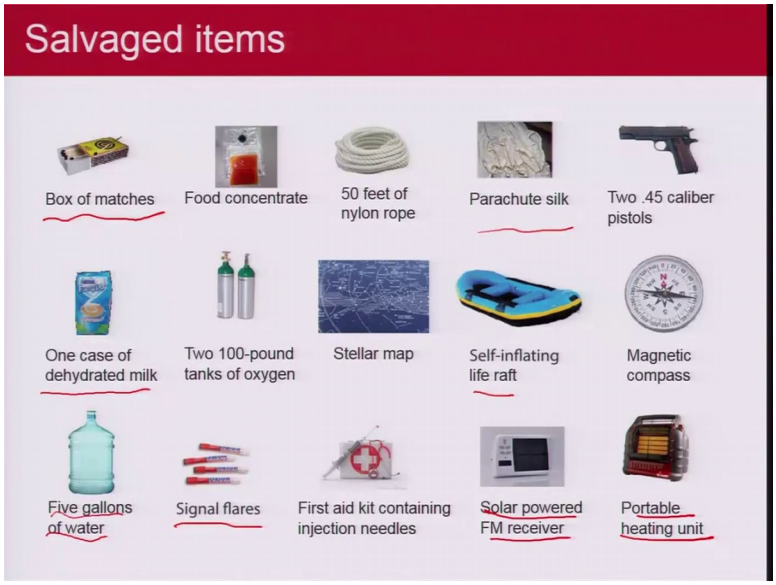

So, the items that are in place are box of matches, food concentrate, nylon rope around 50 feet, parachute silk, you know some 2.45 caliber pistols, one case of dehydrated milk so on so forth, two you know 100 pound tanks of oxygen, the stellar map, self inflating life raft so on so forth, magnetic compass and similarly you have five gallons of water,

you have signal flares, you have a first aid kit containing injection needles, have a solar powered FM receiver and then of course, portable heating units. So, all these are the 15 items. So, some time should be spent now typically by stopping the video here by you to gauge the individual rank and show us the team rank and then I will actually now in the next slide share with you what are the ranks given by people who are trained in this art.

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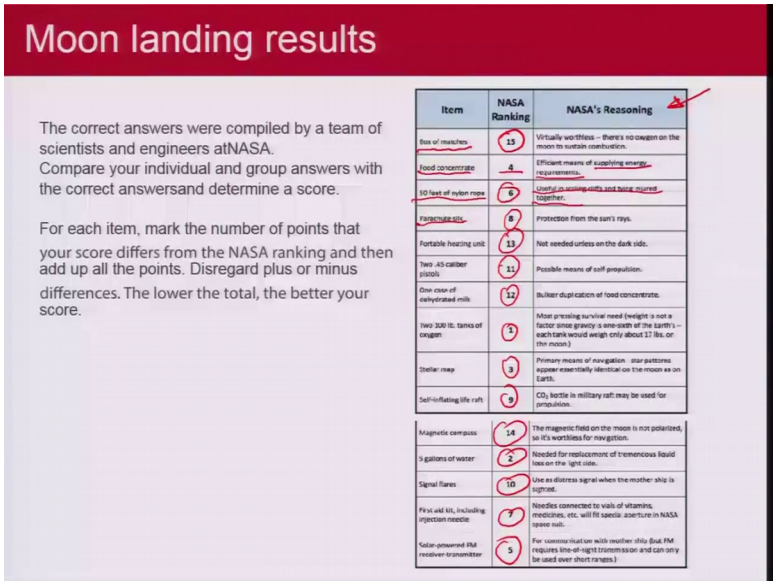

And, so, this is what the NASA actually shares and then there is some reasoning that is being offered by people who are scientists and engineers at the National Aeronautics and Space Administration. So, let us say the box of matches is ranked 15 because there is hardly any oxygen on the lunar surface and so, therefore, there is no use, it will not burn. Similarly, the food concentrate is rank 4 because it is an efficient means of supplying energy requirements for human systems you remember you have to move 200 miles, you need nourishment on the way. You also have 50 feet of nylon rope which is ranked sixth by the NASA astronauts and because this is typically useful in scaling cliffs and there would be many instances where you will find that the terrain of the moon would have either cliffs or valleys into which you may have to travel long to reach the or to cover the 200 miles. Similarly, parachute silk, portable heating unit etcetera they are all ranked as different ranks as you can see here by some trained individuals.

So, I would like to share now, some of the rankings that some of our students who were working in groups and they were about six teams made and then from there I would like

to give you an interpretation of how you interpret the team dynamics or based on these rankings which are being discussed.

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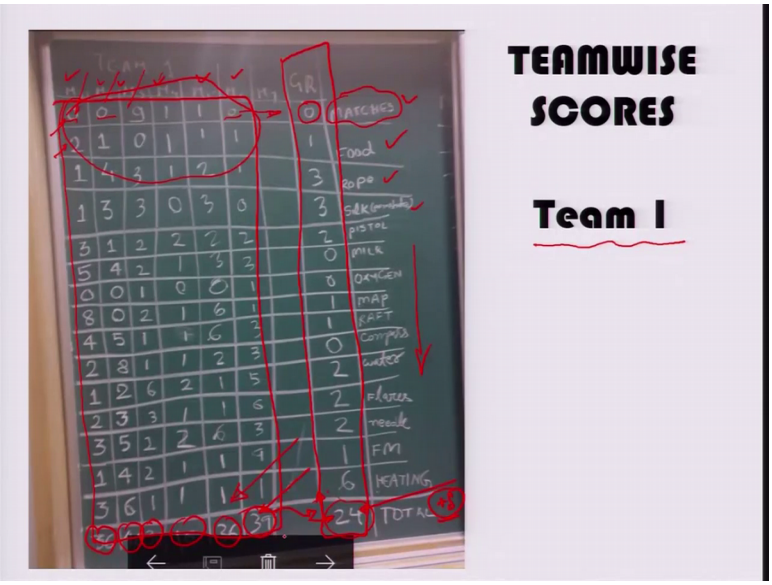

So, in the first score shared by one of the teams you know as you can see that there about six members in this particular team varying between M 1 to M 6 and what they have done here is that you know they have calculated the difference of the different items here you know there are 15 items like matches, food, rope silk so and so forth. So, they have calculated the difference of the individual rankings in the first you know six columns here as you can see, these are all the differences of the individual members ranking and this is the difference of the group ranking. So, the group ranking changes quite a bit and you can see here that the members for example, in you know this particular team 1, they have given the matches almost correctly at least 3 of them have given the matches ranking correctly whereas, there are 3 who still have some variation and when it actually goes to the group ranking after discussions among the group members the convergence is that they again go for rank 15 as that of the matches. And, so, therefore, there is no difference between the rating given by the experts and the rating of the group.

So, in this case in this particular case the group dynamics helped them to improve you know the overall gauging ability for one of these items towards the rank, but, also what is apparent here is that if your individual scores total up to some particular value for example, in this case the individual score of the groups totals up to about 24 which is

actually the plus delta or the difference between the actual ratings and the group ratings and then you look at your individual averages that is the average of all these different totals of the differences that has come on the way of all the members rating all the different 15 components.

And if this lowers, that means, the average ranking of all the 6 individual members are having a higher average difference in comparison to that of the group it means that as a group you are better, if you are thinking as a group probably you are going to end up in to a better situation, but if supposing as a group you go up then you identify that what was the dominant decision making person within these 6 you know people who were responsible for changing the average score in such a manner that this average probably came down. And, so, that can be identified as a leader on the other hand it can be the other way around that if some score of some member is dominant enough and this rating goes up of the dominance it means that that member is playing a key role in to influencing the group decisions.

And, generally when you are talking about T people and T teams you have to remember that one has to be acceptable to ideas and not very dominating yet the most convincing ideas are the you know enough depth in some of those ideas have to be finally, carried forward. So, there has to be really a tradeoff between not being too dominant. So, that the ideation process does not stop, but at the same time carrying forward and not just looping you know about what one should do or not. So, there has to be a balance or a tradeoff between both the aspects when we talk about the group dynamics.

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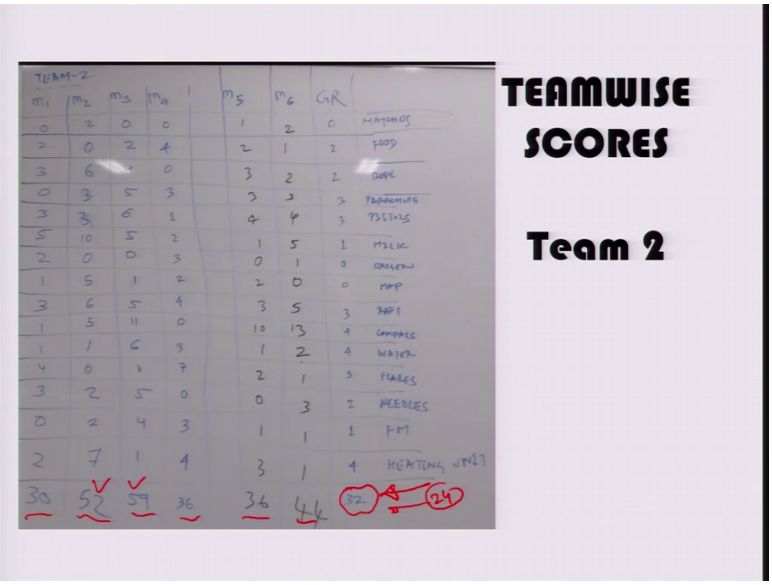

So, I will actually share team scores for all the different teams that we had for example, in this case as you see probably you know the group rating in this particular case the average was higher in comparison to the last case and if I looked at the average score some of the members here in the group were very you know dominating and that is why the rating went from the last group to this group you know from 24 to 32. So, some of these interpretations can be made when you are talking about relative evaluations of the teams and then you can actually figure out how to change that dynamics team dynamics so that you can actually come back on track. So, such activities are very much needed to well ground the decision teams which you build around for you to be able to gauge whether you are on one plane or not as regards the decision making process.

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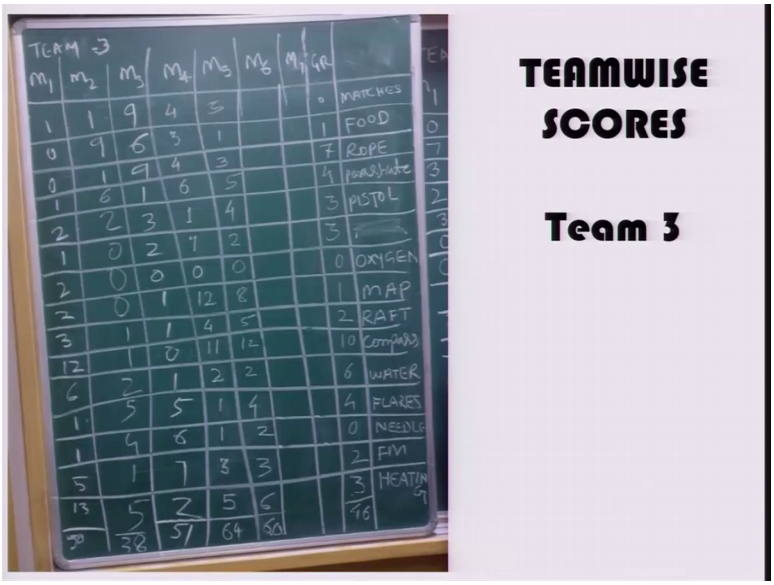

So, I am going to just share these few scores with you. For example, we had one for team 3, 4 and 5 and also 6.

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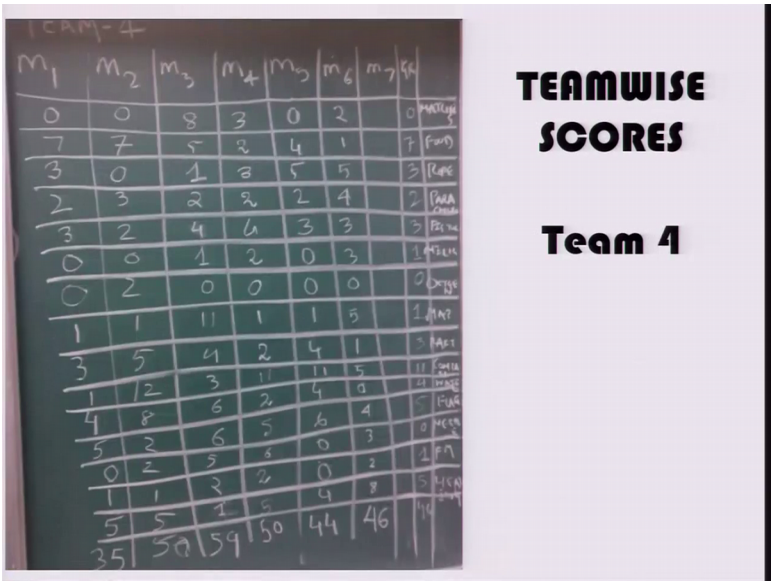

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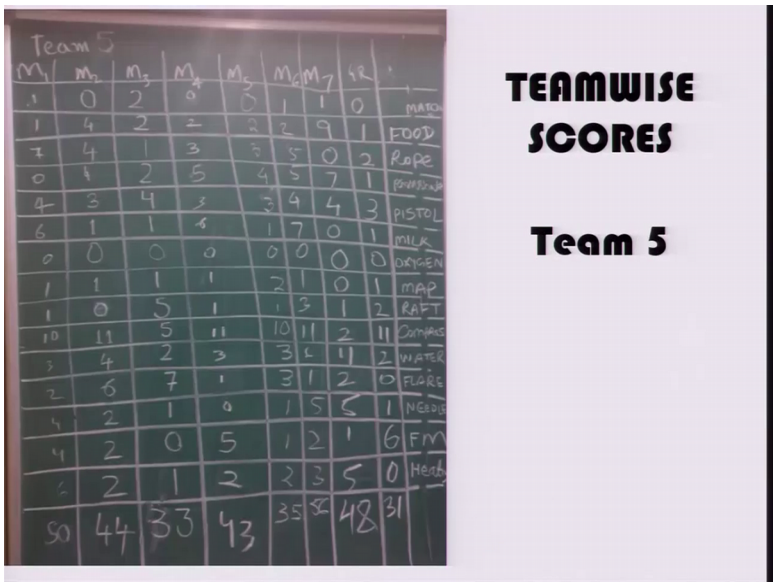

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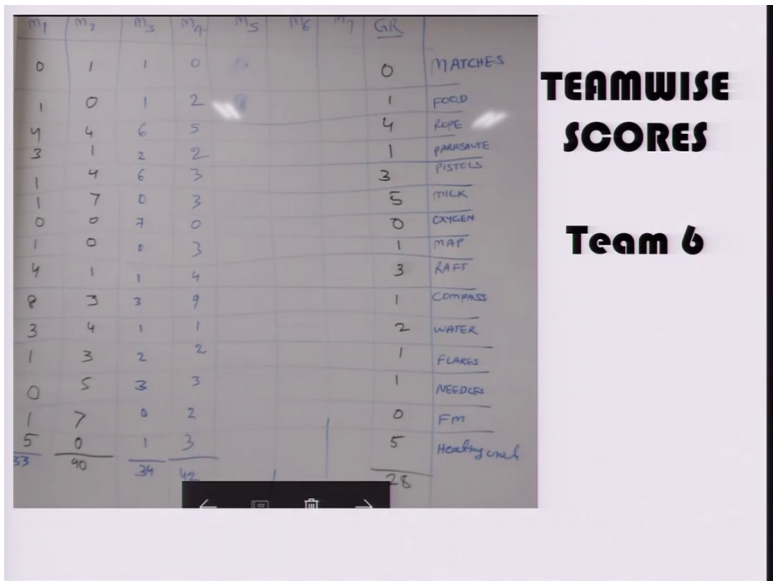

Where, we find out various issues because of the group dynamics as well as the dynamics of individual members.

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So, once the team is ready you want to do something which is also known as brainstorming or body storming, because now, the team is good enough for you to go to the next level of actually trying to ideate for problems which are existing or for solutions for some of the identified problems that you may have made.

So, I am going to close this presentation here, but then in the next module I will give you some tips about how you actually carry forward doing storming and then how you carry forward to generate the need you know the real need which exists and in light of that some activities may be also done so that you get a perspective of how all this processes carried out internationally.

Thank you very much.