**Understanding Design Thinking and People Centered Design Prof.
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**Lecture - 04
Introduction and Problem Discovery
Examine and Reflect on the Problem**

All right, now we are on to sub part 4 of the first section, which is Introduction
and Problem Discovery.

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So, we are now going to be working on the Problem Discovery part. We start our
journey of design thinking and people centered design and we begin with examining
and reflecting on the problem. So, let us say you are given a particular problem to
solve. What is the first that happens, that you do? Very common and very typical in
a lot of situations, we tend to just jump into creating a solution and that solution is
based on what we know, and what we think is the right solution, what we think is the
problem and perhaps it is what we face as a problem in that situation.

So, in subpart 4 and 5, we are now going to be looking in to taking that problem and
then examining and reflecting on it, reconsidering, looking at it from different directions,
looking at it, you know, with a questioning mindset, with a wandering mindset and then,

after all that, arriving at the right problem to solve which may or may not be the problem that we began, with the problem that were perhaps given to solve.

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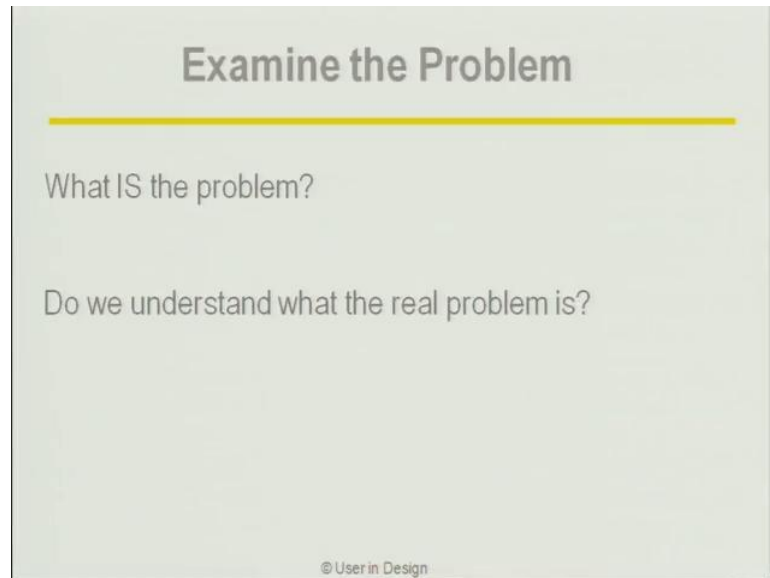
So, first off is examining the problem. We look into what is the problem; do we understand what the real problem is, what is the deeper problem? Which is given to us sometimes maybe at a very surface level, very face value. Do we take it at face value and run with it or do we examine further and try and understand what the real problem is, what the deeper problem is?

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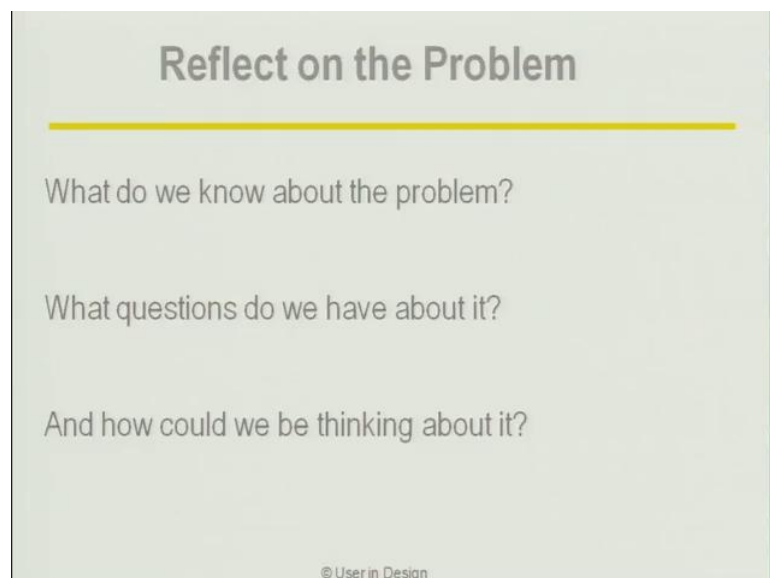
And then, we reflect on the problem, we try and introspect and look further out, what do we know about the problem, what questions do we have about it, what don't we understand, what are we wondering about and how could we be thinking about the problem? How could we perhaps broaden the whole thing, sometimes maybe perhaps narrow it, and then, think about the problem further. And through this reflection and this examination process, we come out perhaps, with a better problem statement. And by better problem statement, what I mean is, something that is perhaps closer to what the user needed. Aowever, we doing this internally, we are doing this within the team.

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So, let us looking at an example of what is the real problem. So, let's say I ask you to design a vase, right. One of the first things and one of the most typical things is you will sit down with a pen and paper, perhaps draw an s shaped object, something that sits on a table and you will say here is my vase, right. Let us look at it a little differently now. Now if we examine this a little more, we say I think this means, perhaps I need to design a container to put flowers; a container could be anything, right. Then you think further and say, maybe perhaps it is about designing an object that holds flowers together, okay. Remember we're changing the perspective, the view a little bit every time. Perhaps we look at it some more, think about it some more and say maybe we should be designing something that provides floral beauty.

So, I am sure you can appreciate the difference that is happening as we go along this path, thinking about the vase and saying well, what does it really mean; that I need to design a container, an object that hold flowers together, design something that provides floral beauty. And then you might say, I wonder, now I wonder, I don't know whether maybe it could be something else.

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So, this is the questioning kind of approach, the wondering, the thinking the deeper. the examining kind of approach that you go through. And now you say, how about maybe I should be designing a way for people to enjoy flowers in their home. I am sure you can see that starting with designing a vase, we have come to design a way for people to enjoy flowers in the home. If you take the second as the problem statement, it's very likely that it opens you up to think of very different possibilities for design, that it helps you think along a much broader prospective, perhaps come up with various solutions.

If you started out with designing a vase, probably it is limiting the solution, right. You might take this further and say, I wonder if could mean designing a way for people to enjoy flowers. It could be anywhere, it doesn't have to be their home, right. So, this is how we examine the problem, we introspect, we revisit it and we reflect on it and then try and figure out what is it that I should be designing, what is it that is the right thing to design, okay. So, this is how we go about this.
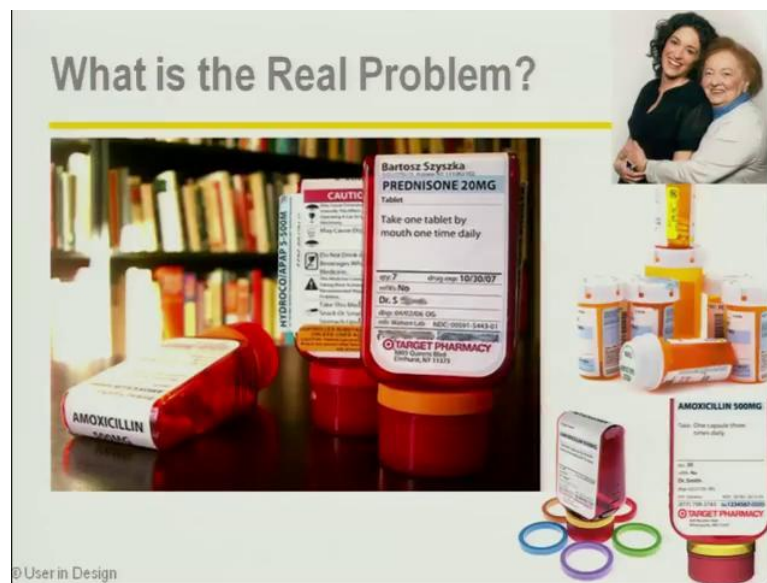
I would like to show you now, an example of this project by Debra Adler, who was a student in a university in California. And she was looking at the way her grandmother and her grandfather take medication. And by the way, this what you see on the right over here, is how medicines are dispensed in the US. Over here in India, many times we have medicines being given to us in packets, maybe brown paper packets or news paper packets or plastic packets. In the US, they are dispensed in these containers.

So, what she found; and this is Debra Adler and that is her grandmother; what she found is that her grandmother was taking her grandfathers pills by mistake. And as, you know, as a youngster you can imagine how alarming that could be. So, Debra Adler at that time was in design school. So, what she did, is she took this on as her master thesis and she worked on it for a period and then she came up with this as her design solution. A design solution that thereafter, target pharmacy purchased. And it went to the market and it went big,okay.

So, if you look at how she has considered this whole thing, you can see the big space over here where very clearly, the person whose medication it is, is able to see what tablet, how many tablets they are supposed to take and at what frequency. You can see that the name of the medication with the strength is very clearly labeled on the tablet. You can see the date and the doctors name and all these other details and of course, the pharmacy name, right. And then you can see that the bottle is shaped in such a way that it stands on

its head and you can also see that when it is lying on its side, even then, the label is designed in such a way that you can still read the medication, the name of the medication. And beyond that, what she did is the color coding of the ring around the lid. So, her original design actually had the entire cap in different colors to denote different medications and different people's medications, right?

However, if you remember we spoken the last section about feasibility and viability. So, what was found during manufacture- prior to manufacture, it was found that it was getting very expensive to have different colored caps for these bottles. So, what they did is, they kind of did a compromise design where the bottles were all the same and this ring was different for the different medications that different people might take. So, this was her solution.

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Now, what is the real problem? Was it to redesign the medicine bottle? If that had been her problem statement, it is very unlikely it would have ended up being the design that it is. Perhaps her problem statement was broadened and understood to ensure that people do not take the wrong medication, okay. And there is a significant difference between the two; perhaps redesigning the medicine bottle would have been just making it into a more modern shape or a more attractive shape. Where as in this case, a lot of thought has been given to every little element of how the name is displayed and then some of the details in the back cover in which, you know, the details may not be legible, but some of the

caution around the medication are. So, everything is, you know, visible as well as the cap is easy to open especially for elderly folks who may have, you know, difficult motor control, right.

So, reflecting, thinking, examining and saying, what is the real problem? And this is all internal reflections and internal examinations that we would do as a team.

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Now, I did a work shop in rural Maharashtra with about eleventh-twelfth standard children. And these youngsters, I gave them the exact same problem, the exact same problem that Debra Adler faced and that she solved through her master's thesis except that I told them that you need to create your design with a single sheet of paper. So, these youngsters went about it very earnestly. The kind of things I am telling you about, they spoke with their grandparents, they, you know, tried to understand what are the issues around people taking medication and this was one of their early solutions, and this was in Maharashtra. So, it is all in Marathi, saying Sakaal Dupar Sandhyakal and they have marked on this when a particular medication needs to be taken.

So, this was an early concept and then I gave them colored paper and I asked them, how would your design change if you were to do this with colored paper. And so, you can see there is a little container taking shape where they would separate the medications for the different times of day.
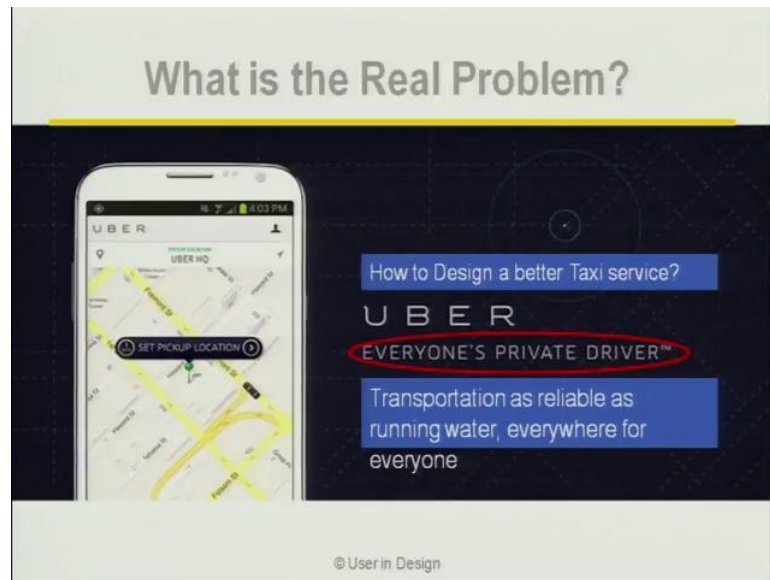
So, this was a very simple kind of solution for, you know, these kids in the rural school, but it was the same problem of how people make mistakes taking medication. All right, an example much closer to us now. Everybody is talking about Uber right, the excellent service that has been created. So, in looking at Uber, I don't know what their initial problem statement was, but perhaps maybe started out with how to design a better taxi service. Would that have led them to where they are today? Probably very, very unlikely, right.

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So, I would imagine they went through a lot of introspection and reflection and thereafter, I am sure, field research and everything. And I looked up what their mission statement is, and this is what it says- transportation as reliable as running water, everywhere, for everyone. This is what Uber's mission statement is and this is their tagline- everyone's private driver. So, I am sure you can understand and appreciate how it makes a big difference how you frame your problem, how you define your problem statement; whether you take it at face value as is or you examine it, spend some time reflecting on it, look at it from different directions and then say okay, I think this is what we should be designing, right. So, this whole exercise, this whole activity, is the starting point of the design thinking process. Where you start with the problem statement and then internally you first look at different possibilities.

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Let us look at another example. So, this is a concept that we were looking at in designing a service that will utilize the professional experience of elderly or retired people. So, we all know elderly retired people, they go through a very, you know, illustrious career many times in which they are extremely busy, it's full of self respect and, you know, self fulfillment and all of those things. And then one day they retire and then everything comes to a close, and it often times leads to a period of loneliness of, you know, not knowing what to do with their time and then need to connect with people and all of those things.

And at the same time, they have spent many years in a career. So, perhaps they have a lot of experience that could benefit different people. So, this is the problem. Reflecting on it, you know, what does this mean? We could have just runoff and said, okay, let us design a service. The service is going to be like this- we create an app and then this person is going to call and da, da, da, da, da. So, instead of that, we try and think about it, examine this and say, I think this means that they, the elderly's, have many years of experience. True. I think it also means they want to share. They would love to share what they have, their experiences and communicate and give to other people. I think it means also that they want a sense of purpose; they feel the vacuum in their lives now and they are longing for a sense of purpose, a sense of having an opportunity to do something meaningful, an opportunity to do something that engages them with people with

meaningful work etc. I think this means they want to connect with people, right, that it gives them an opportunity to talk to people etcetera.

So, looking at this problem and you know thinking further about it we come up with a bunch of a bunch of, sort of, considerations related to the problem. Further, we think that perhaps they need our patience and time, they need a lot of time. Perhaps they also have limited technological abilities, that is something that we need to keep in mind. They perhaps cannot spend long time at a stretch doing whatever task it is, given their advancement in years, okay. Maybe they want to learn new skills; Possible. So, these are the different things that we sit down and try and think about of the problem, right.

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And then the next thing we think about is, I wonder or I don't know, I am not really sure if they would also want to earn, okay. This has an impact on the, obviously, the business, the definition of the business. Will they have a very low technology threshold? I don't know, perhaps it needs to be very, very simple technology if we thinking of a technological solution. Will they need a lot of support, will it perhaps be more support than it's worth it? Would they want to just gain respect again, is that perhaps one of the needs that they have, that there able to share and get the kind of respect and regard that they had at their work place.

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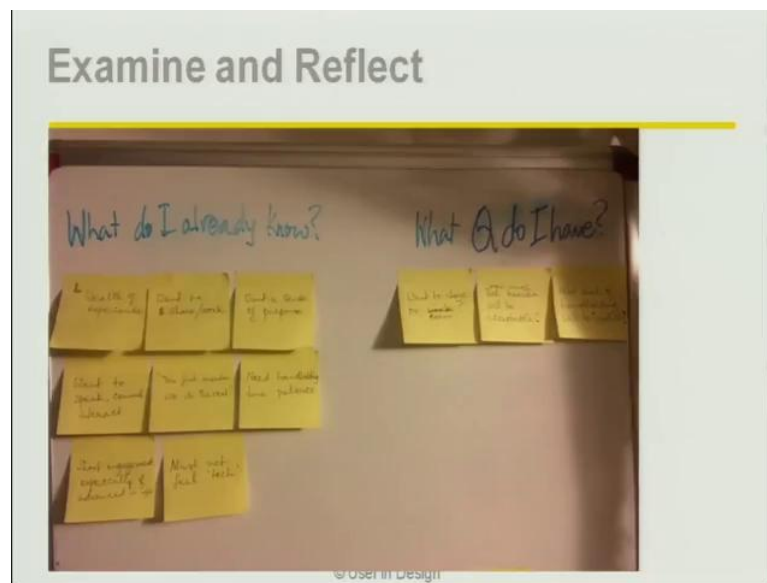
So, these are the difference things we think about and as we examine and reflect on the problem. And as you can see, this is, you know, when we are actually doing this exercise during the project. On the left, showing what do I already know, what questions do I have? And we were doing this on post it notes, which I showed you as well, you know, on this screen. Let me speak briefly about post it notes. As design thinkers that is one of the most important tools you will use. And post it notes are really, really powerful, because they are small and therefore, they hold one idea at a time. They are easily sharable; you know, you scribble something and you can put it up and quickly share it with other people. And they easy, they are very flexible, you can move them around, create different clusters etcetera.

So, this is one of the tools that I might encourage you to consider- bringing a stack of post its and then when you think about ideating on something, when you think about reflecting on a problem or any of those, try to use post it notes and you'll find they work really well. Remember to write one idea only on one post it, one thought, one issue, on one post it. Then it makes it very easy to pull it all together when you're, you know, putting it up on the wall and then sharing with everyone. And of course, not to mention the other thing is that you can take parts of it. Whereas, if you create things on one big chart, then it becomes difficult to move that chart around and, you know, you need to move the whole thing whereas, with post its, you can pull out parts of it and work on it.

Thank you.