Understanding Design Thinking and People Centered Design
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Lecture - 11
Concepting and Building
Generating Ideas

Welcome back to this course on Understanding Design Thinking and People Centered Design.

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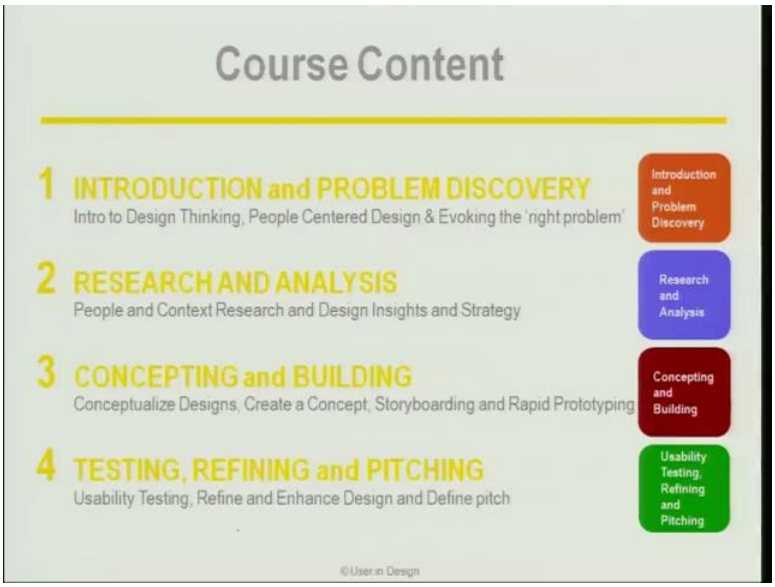

We are now on to the next part of our journey which is concepting and building right. We focused initially on the introduction and then problem discovery we understood how do we discover the problem that we are trying to solve and uncover the right problem to solve then, we did research and analysis with users and tried to understand what their needs are, what their criteria, what their constraints are and then thereafter we arrived at our insights for design and we arrived at our design strategy statement and we now have our how might we questions that help us to get started right.

So, in this section we will learn how to conceptualize designs, how to create a concept from all the different ones that we come out with, then we will learn about story boarding which is how do you now create a story, how do you create a representation of how this product is going to live in the users lives. Again, we are being futuristic over here. All of

this is we are thinking ahead it is like doing our homework ahead of time and predicting in the future what is going to be. So, that we again come back to the business aspect of it. So, that we can minimize our risks, minimize the failures we fail many times through in order to reduce the risk in order to eliminate what does not work that is the whole point of this approach and then we will also learn about rapid prototyping which is the approach through which we make our designs and very important part of being a design thinker is to be able to make what you have in your head. So, let us get started with this third part which is concepting and building.

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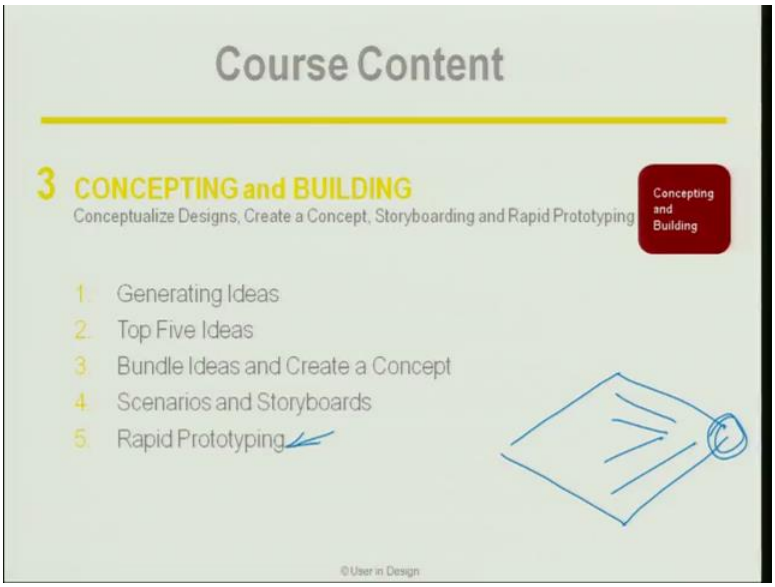

In this we will cover generating ideas, how do you come up with different ideas, we will cover method called top 5 ideas as an example to how to ideate and then, we will speak about how do you take all these bunches of ideas you know through this converging and diverging process that, we talked about how do we bring all these ideas together into one single concept and then how do we create scenarios and storyboards. Scenarios that now depict how, before this we were speaking about scenarios of the existing situation of the user right. Now we will be speaking about the scenario where this product is living in the user's life. So, what is that scenario like and then we will speak about rapid prototyping as I said it is about making the product that we are looking to design quickly rapid prototyping.

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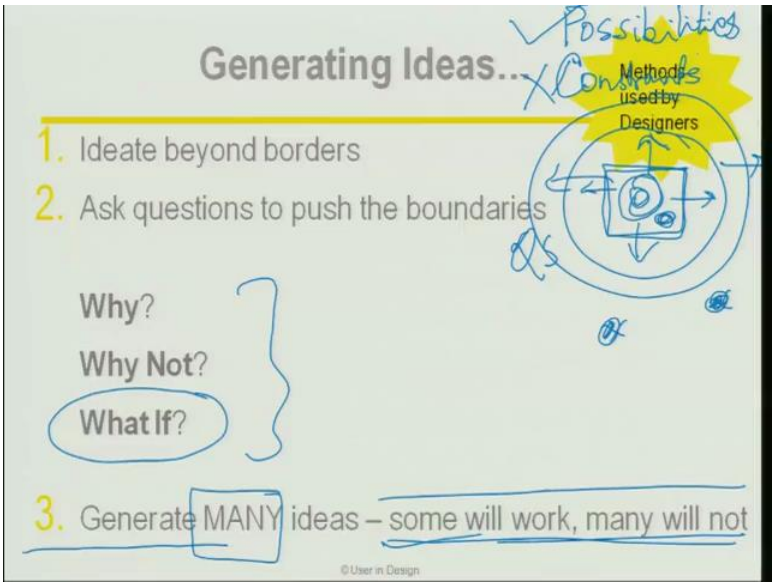

So, let us get started with the section on generating ideas I am sure you have been faced with situations. Where you know, when you are trying to ideate you have to come up with different ideas and you have such a mental block you are not able to come up with the right idea it is like your brain is not delivering on what you are asking it to be right.

So, let us look at a few techniques tools and techniques that we use that you know that we use often times in as designers that help to generate ideas right the first of them is ideate beyond borders right. So, first thing are you known you define for yourself a certain border of your problem right this is your problem. So, remove those borders ideate beyond that start to think beyond and beyond and you know through questioning you can say we will speak further about the kind of questions, you can ask to push the boundaries outwards what you are doing in the process of this is when you work within a border you are working within constraints right. The uppermost thing is the constraints, when you work outside the borders when you try to operate outside the border what you are focusing on is the possibilities. So, instead of focusing on the constraints we try to focus on possibilities that is what ideating beyond borders is all about right ask questions to push these boundaries right.

So, let us say we have a goal that says we want to achieve working literacy for women in 30 days and perhaps you know majority would say that is impossible. We cannot do that cannot be done cannot be done is a very common phrase that we hear particularly in

industry it happens a lot because in industry risks are difficult right it is understandably difficult. But you know if we are able to say why not why we cannot do it in 30 days, let us think about it lets think about how we can do it in 30 days right that is the design thinker's approach. So, push the boundaries by asking questions what are some of the questions that we ask why right why does this have to be this way why is this you know not being delivered in this way right the second question that we ask is why not why not if we think again about that 30 days for working literacy among women why not why cannot we do it of course, we can do it right.

Next question very important question we ask is called what if I said you know I need you to design so and so product, and it must not have a user manual no user guide what if we could come up with this product without a user manual right if we do not even ask that question we will never even try. So, these are the important questions that we ask in order to push our boundaries outwards and what happens in those boundaries there are possibly those brilliant solutions out there that we have not thought about that, if we stayed within our boundary we might come with the most humdrum solution with the most you know average incremental kind of solution.

But if we would have done this kind of exercise perhaps we would have gone beyond what else do we do in generating ideas we generate many ideas we generate many ideas and we are perfectly comfortable, that some will work and some will not work it is generate many ideas you will generate a lot of noise amidst the signals you will generate some garbage amidst the good stuff. But keep generating if, you do not generate how will you know which is good and which is not right. So, many ideas and be very comfortable and that you will throw away several of those ideas. So, these are the methods used by designers alright.

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So, we generate ideas and then moving on to innovating products from those ideas how do we go about that after we generated all these many ideas. We discarded some we combined some we rationalized and integrate to one unified concept one unified concept that we all agree on that is the right design remember that, word right design and then we quickly prototype it to understand how good or not it is until we take it out of our computers out of our heads out of our sheets of paper we will never know whether it makes sense or not.

So, it is very important to prototype it may be very crude and we will learn in this section how you can create simple quick prototypes just to inform, you whether this even make sense or not. So, that you can discard it if it does not make sense, that you can discard it very early when it is much less expensive to discard ideas right. So, quickly word quickly is very important and then iterate with users once you have made something you bring your users in iterate refine iterate refine. So, that is the general approach that we follow again methods used by designers.

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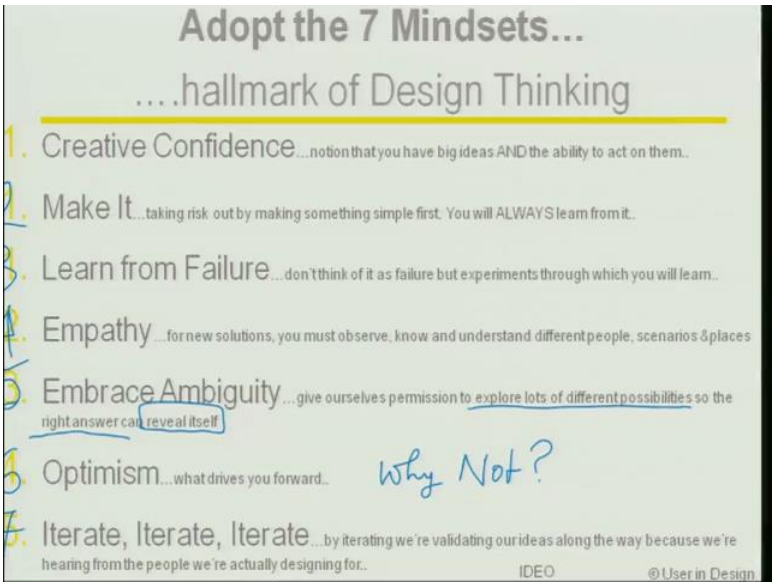

And not to forget adopt the 7 mindsets that we spoke about as the hallmark of design thinking let us look at them one more time creative confidence have the confidence that you have the ability to create these big ideas these really amazing solutions. You are going to come up with something amazing right and you have the ability to act on it make it that you are going to make it by taking the risk out and making something simple first you will always learn from it learn from failure and again do not think of it as failure. But experiments remember what a scientist does right do they first straightway come up with the final discovery no they experiment and they refine they experiment again and they refine. So, this is what needs to do in the design thinking approach as well empathy for new solutions you must observe know and understand people.

So, we covered this already in the last section about important it is for you to wear that empathy hat and then, be going out and interacting with your users speaking with them observing them feeling their pain and coming back to take those as insights for design embrace ambiguity like as I said, think of exploring lots of different possibilities with the notion that many of them will be throw away. But unless you have different possibilities the right answer will not reveal itself this is a very important word remember it is not that you will come up with the right answer the right, answer will reveal itself and this is a process that mends itself to very well to that revelation that realization that what is the right design number 6 is optimism that drives you forward that sense of optimism must be there.

Therefore, from there comes the notion of why not unless you are optimistic you are not able to practice this notion of why not and then number 7 is iterate. Iterate keep refining your idea, that it can lead you to a better and better and better solution. So, adopting these 7 mindsets is a very important part particularly keeping them in mind at all times as well as important during this ideation phase.

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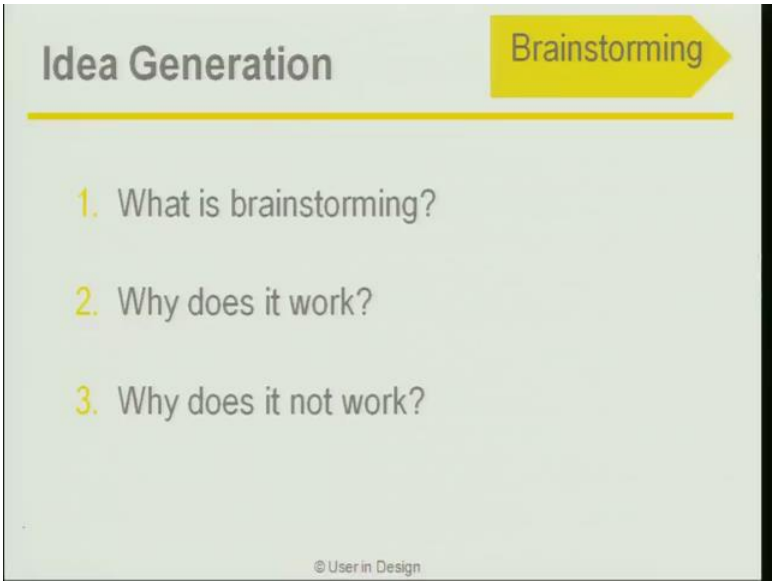

Let us now look at some methods and tools and techniques for generating ideas those of you in industry will know that brainstorming is one of the most popular techniques. It is one of the most common techniques and it is practiced a lot right. So, what is brainstorming, those of you who do not know brainstorming is a technique where we come together as a group of people and we sit down and we put a problem on the board an issue on the board that we want to generate ideas on and we then start to come up with ideas we speak out, we shout out our ideas and one person is writing all the ideas on the board. So, very important rule of brainstorming that needs to be respected is that there are no bad ideas, we do not discard any ideas anything that is coming out let it come out there is no such thing as a bad idea right.

So, that is the part of brainstorming and why does it work number one is because there is a group involved number 2 is because you know everyone's generating ideas and number three that it creates lots of possibilities. We do not take one solution one person coming up with one solution and that is the end however, why does it not work there are various

limitations to brainstorming even though it is one of the most popularly used techniques there is one person holding a pen and the others are shouting out their ideas or speaking out their ideas. So, it is not it does not often become truly democratic it is not everyone does not have a pen second thing is you know, there despite the rule that says there are no bad ideas there are always shy people there are always reserved people who hesitate to share ideas in the middle of everybody there are also you know people who feel intimated in sharing in a group and many people feel they may have a great idea. But they would feel I think you know it is it is not such a good idea.

So, even though they have the ability to there is no criticism to ideas they might still feel that you know it is not I wonder if that is a stupid idea and let me not say it. So, that is that is the way it goes right and the reverse also of the shy people there are some who are loud who are more extroverts. So, generally what happens, is it does not end up being a balanced eliciting of ideas often times what happens is there are some people's ideas go out and some peoples do not go out as well. So, let us look at some other idea generation techniques and we will talk further about you know what is a better way to brainstorm a little later down the line.

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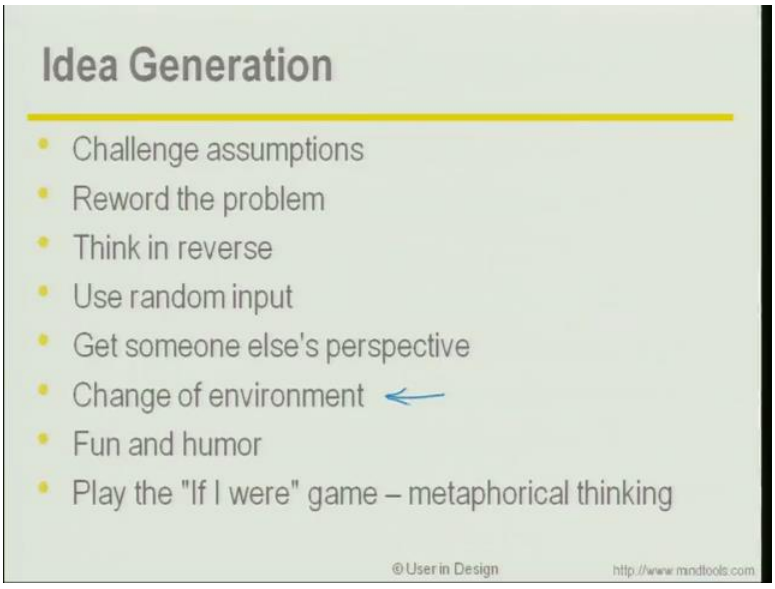

So, let us look at some different idea generation techniques other than brainstorming. So, one of them is to challenge the assumptions right. So, let us say you know we talked about the walking stick on the first days then, let us say we challenged the basic

assumption that you know we do not need a walking stick we can come up with we are going to come up with something that is a substitute for a walking stick that is not going to that is going to make the person feel very good because they look good holding that whatever that thing is right. So, it is very easy to there will be people who say how can you have life without a walking stick how can you imagine it is not possible to come up with a substitute for walking stick right. So, challenge those assumptions say that yes we are going to try and come up with something very different reword the problem.

We saw some of this in the beginning where you know, if I say design a vase versus design a way for people to enjoy flowers in their home you saw what a difference that can make to how you start thinking about the problem and possibly the kind of ideas that you might generate. So, another technique is called thinking in reverse right. So, how do you do this you know instead of trying to solve the problem you try and make it more difficult and in that process sometimes amazing ideas come up. So, let us say you are working on a problem that it is focused on how you can encourage children to eat more vegetables right.

So, you let us say you are really stuck and you say how can we you know make children not eat vegetables how can we make sure they do not eat vegetables at all it is a wacky crazy way to think about it right. But try it really works another is using random input what random input might that be you are and again idea generation is not easy sometimes you get stuck right. So, random input is perhaps you open a dictionary or a random book and you pick a word from it pick a random word that has no connection and then, try and say how does this word connect with our problem right from the dictionary and then it might just generate some beautiful ideas.

Beautiful new things get someone else's perspective this is again something that works really well sit down and chat with your child about the problem that you are working on and you will be amazed sometimes at the insights that they can give you because you are trying to peep into their world peep into their way of thinking how do they think about this problem because you have been thinking of this a lot and you are kind of stuck right.

So, talk to your mother about it talk to your you know random friend or acquaintance who do not know that will talk to them about it what are their how do they think about it. So, one else's perspective can often unlock some of those blocks right change of

environment this I can you know vouch for because, it really works just step into a different environment and you will find it. So, much easier to generate ideas sitting in that same conference room or in that same classroom it starts to you know not let you be as creative fun and humor it always works try and make a fun activity out of it may be make a competition out of it you know who can come up with the most ideas who can come up with the most wacky idea and you know everyone would vote on it or something like that. So, then that that lends a sense of fun and humor to it if I were if I were game which is metaphorical thinking right if I were superman or if I were Sachin Tendulkar. If I were whatever it is right and then, how you would approach the problem. So, these are some methods that can help you that we use typically to generate ideas.

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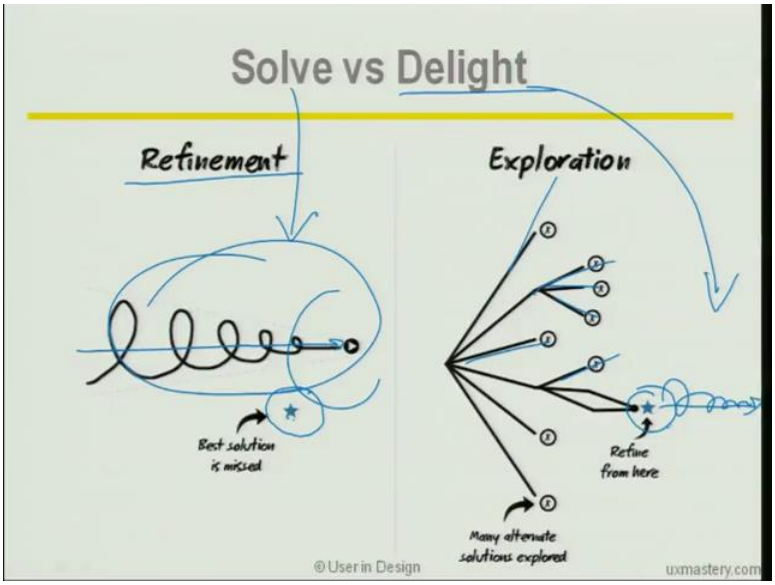

Now, why is it important to come up with all these different ideas why are we insisting on you know, widening possibilities coming up with many ideas and then zeroing? Why do we not start with the problem and immediately start narrowing and focusing on the solution because your best solution may be out here you would have been on this path and you would have never looked in this direction right instead. So, in this kind of situation you would be refining the problem you would be doing incremental work you would be you know just enhancing it, finessing it right instead, if you are in this exploratory mode something in this direction something three ideas in this direction different directions. Then you may zero in on the best possible idea right and then from

this point on you can refine to make it better and better and better. So, you will not have lost this very nice idea.

So, I hope you appreciate the need and importance of coming up with various ideas and many ideas and what does this do for the user in this you may, be just solving their problem just solving it and in this you might be delighting them because why you have taken that additional step stepped out of the comfort zone, stepped out of your middle you know this may be your comfort zone you stepped out of it and you have gone ahead and actually discovered what the deeper more needed requirements of the user is.

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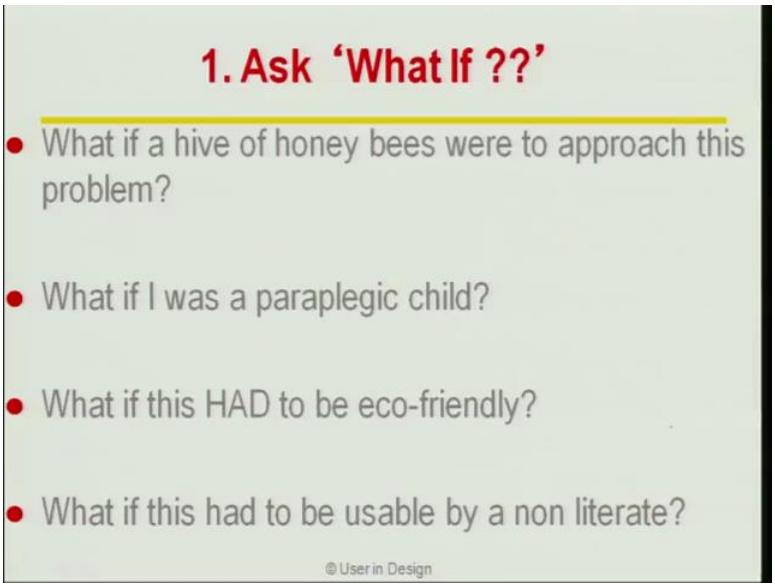

So, let us now look at the different questions that we can ask as designers in order to provoke our thoughts right. So, the first question is what if let us looking at some examples of this right. What if hive of honey bees were to approach this problem this is one way of looking at it right so. In fact, we were working on a on a design problem where we were looking to encourage more voting behaviors amongst youngsters, how can we motivate young people to vote more and one of the things we thought about was this you know, what if it were a hive of honey bees how would they approach this problem. What if I was a paraplegic child what if I was lying in my bed and I you know needed to communicate with the world or I needed to plan, x, y, z.

What if I was a paraplegic child right what then how would I design how would you know design for this situation what if this product that I just asked you to create had to

be eco friendly it has to be eco friendly what then, what if this had to be usable by a non literate you know remember the contacts of that person with the phone you know the low literacy person with low literacy. So, what if we have to design something for her that this phone that she uses has to be usable by a non literate then what do we do.

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So, let us look at an example on what if for a bank a bank is perhaps one of the most you know sort of serious notions we can think about right. What if for a bank what if there was no more cash anywhere ever for anything. So, if you are ideating for a bank may be lets think about this what if my money was a part of me it is not something external that I take out of my bag or I store somewhere else it is a part of me how could we make that happen right. What if your money is yours immediately? So, let us say I have to give you some money and immediately you have it in your hand what if I never paid another fee ever again let us say your credit fee or your bank whatever minimum balance fee or whatever it is right what if I never paid another fee ever again is that possible.

Why not what if my bank partnered with me to share both risk and reward both risk and reward what if I could switch banks with the tick of a box what if my bank was like a personal trainer what does the personal trainer do for you they work with you they motivate you they help you they set goals for you and then, on a ongoing basis they keep making sure you are exercising and staying to your exercise plan and to your the weight goal or the health goal the health goal that you have in mind. So, what if my bank was

like that, but instead of being a personal trainer they are a financial trainer. What if my bank was as small as you know when you first read some of these then you feel ridiculous, but therein lies some of the inspiration for different ideas right.

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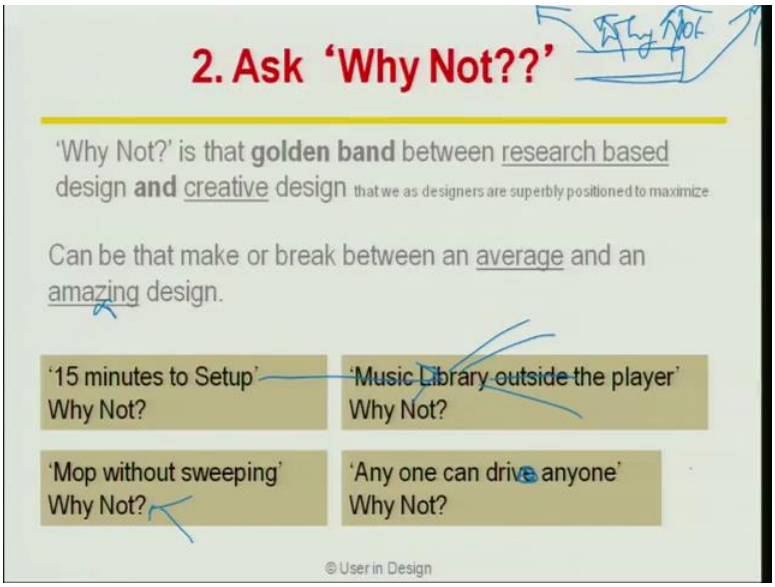

Secondly, let us look at asking why not. So, why not is that golden band between that research based design and creative design. So, through your research bases you have come up with you know sort of a foundation of what needs to be done what is the basis basic general area general theme in which, you need to design. Now this is the point at which you ask the question why not in order to take it from here into different directions right it can be the make or break between an average and then amazing design. If you had not asked that question why not you know it you may never get to this amazing design remember that the zone outside of that path this is what we are looking to get to.

So, the product that I shared with you earlier that office product where we had set the goal and again based on a business requirement of 15 minutes for setup by someone with high school education with no calls to the helpline right. It is possible you know many people would say oh that is impossible it cannot be done cannot be done why not let us try.

The Procter and gamble example; if we think about a mop without sweeping you do not sweep the floor you directly mop it many would say that is impossible you cannot do it

what will we do it with all the dust, but somebody said in Procter and gamble why not and thereafter came this amazing design

Music library outside the player I am sure at some point there were lot of people who said that that is a ridiculous idea. How can you not have music in the player why not right and you know where it has led to anyone can drive anybody anywhere impossible why not and that is what has led to what we know as Uber story. So, why not is a very powerful question to ask especially when you are at the end of your research bases and then to launch off into a spectrum and a range of possibilities for ideas.

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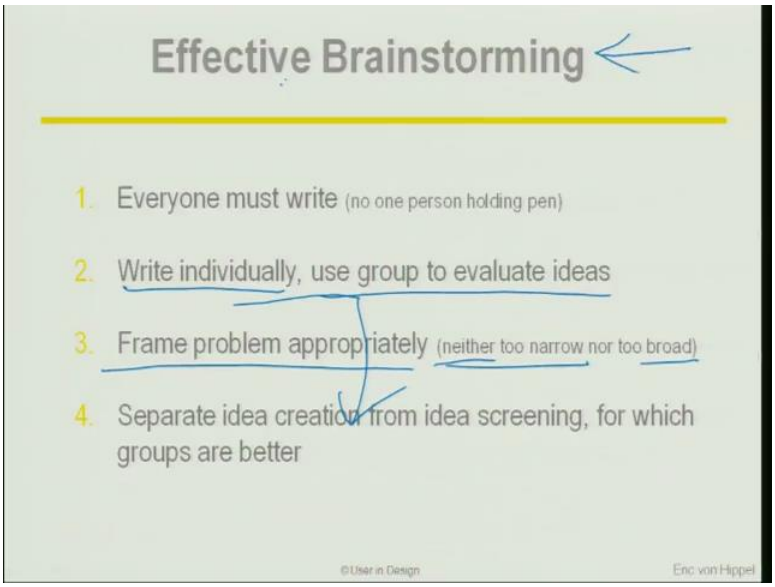

Let us now come back to brainstorming we spoke about brainstorming as one of the most powerful and most popularly used techniques. However, we also understood what were some of the limitations, what could be an effective way of brainstorming one way is that everyone writes everyone writes their thoughts. So, it is not one person holding the pen, but everybody has a pen and everybody is writing down their ideas even the shy people even the reserved people even the loud people even the extroverts even the introverts everyone is writing. So, that is one effective technique.

So, everyone's all ideas are coming out on to the table writing individually not discussing each one. So, that way my ideas come out and your ideas and your ideas and your ideas and your ideas everybody's ideas get to come out rather than me express an idea and then everybody's comments on it and all that. So, writing individually brings out maximum

ideas may not be all good ones, but then use the group to evaluate those ideas this is a way to effectively brainstorm right because, the group is very good at evaluating and building consensus and then frame the problem appropriately neither too narrow nor too broad too narrow is designer vase too broad is that we are going to do something about the education of all children everywhere that is too broad it was narrowed down to you know we are giving we are going to focus on the first five years of life and how the parents can ensure that children's first 5 years of life is enriched right.

So, frame the problem appropriately you know when we talked about also design a ware for people to enjoy flowers in their home we broadened we had broadened it to even say design a ware for people to enjoy flowers right that makes it very broad. So, perhaps we needed to narrow down. So, this is the part about framing the problem appropriately and then separate idea creation from idea screening for which groups are better this process you know make it separate process. So, this makes brainstorming much more effective. So, while if you are in organization you are already doing brainstorming try it doing it this way and you will find that it is much more effective.

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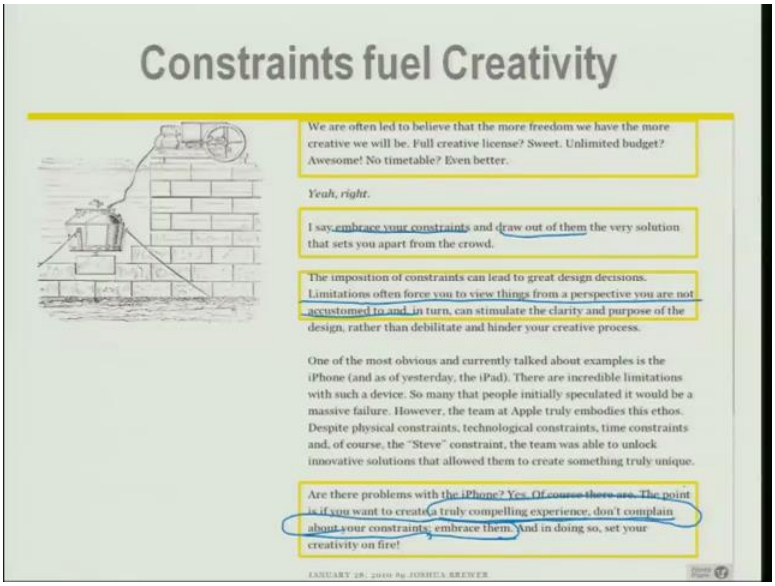

This is an interesting write up by Joshua brewer that I liked to highlight to you about constraints many times when, we are in the process of ideating. We think that you know constraints are limiting if we have constraints; that means, you cannot be creative that is not true we often are led to believe that the more freedom we have the more creative we

will be no timetable no budget wonderful, wonderful, wonderful that is not true. So, he says I say embrace your constraints embrace your constraints and draw out of them the very solution that sets you apart from the crowd this is a very important part this is where you know you cannot just be blue sky take your be blue sky.

But take your constraints into consideration as well the imposition of constraints can lead to great design decisions limitations often force you to view things from a perspective, you are not accustomed to it is very easy to dismiss things embrace them right and work with them. So, you know he talks also of how many constraints the iphone and iPod worked under right they went through it is not they just had no constraints. They had tons of constraints, but they came up with a brilliant disruptive solution are there problems with the iphone. Yes of course, there are the point is if you want to create a truly compelling experience do not complain about your constraints embrace them, this is a very insightful important statement that I would like you to keep in mind that it is not that you know creativity is just about blue sky and then, constraints means you have to come up with a very boring most obvious solution embrace your constraints and try and fuel your creativity, from within and by embracing those constraints fuel creativity.