**Making Learning Engaging Through Interactive Games**

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**Lecture – 1**

So today we will get introduced to a tool which is a very very powerful interactive tool you cannot necessarily call it a gaming tool or in the in the sense that some of us have experienced but one of the primary ideas is to make the classroom interaction interactive okay how interactive can we make a classroom so this is a tool that helps in achieving that. Now before we actually discuss about the tool, let us actually experience it. So, let me just post this QR code those of you who have mobiles can use this alternatively those who are on laptops can go to www.menti.com and enter the code as 42773800 you see this on top I will just slightly increase the size so menti.com 42773800 or you can use the QR code and answer that question that you see.

The question that is posed again is, so let us wait till everyone finished scanning their QR codes and then we will discuss the question. I am hoping you can all see this question as in a typical lecture based classroom teaching learning, what are the missing things? Now, let us try to see the answers as they come. So, so far we are seeing learning, interest, let us wait for more answers. Innovation, visualization, practical applicability or knowledge and experience.

We will wait till more of you answer and then let us try to make sense of this entire classroom inputs. So, right now practical knowledge seems to be at the center, let us see how it changes as we get more responses. So we have about 17 responses so far. We will wait for some more. As you can see at the bottom right, it goes to show the number of people who have responded.

Okay, I think broadly we are seeing patterns. The patterns that are seen are emerging at the center. That is what most of you seem to be , the majority of this group seem to be highlighting which is interaction right in the middle the boldest is practical knowledge. Why are we learning what we are learning right where do we use these.Visualization, sometimes concepts are theoretical but we are not able to visualize where it will get used etc.

Fun, interaction and there are many others which are equally relevant. Hands on learning is a valid point, bite size learning, adventure, active engagement. Yes, I think all of these points are valid, there is no all inputs are valid, but we find a broad pattern emerging at the center and I am not saying that is the right answer or anything, but that is where the convergence is as far as the opinion of this group is concerned. Now, how much time did we spend on this? Exploring the answer to this question. Seconds may be a few minutes, may not be seconds but close to seconds, you are saying less time, may be about 2-3 minutes at the max depending on the time taken to.

Now how many views have we got? Not the number, numerical count, opinions shared by people as a proportion of the class strength class strength today is about about 25 maybe 19. All of you answered great and ah so almost entire classes participated ok. Is this a good thing. Is it good? It is fantastic. Now had this question been posed not in the form of this form but just in the form of a teacher student interaction, right, what do you think would be the number of people who would be answering? It will still be good number of people will answer I am not saying that but what do you think that percentage will be.

It's almost 100%. Usually, this is about 80%, 70-80% in large groups. This is a smaller group, but what will be the typical, what is your guess in terms of number of people who will answer? 15-20%. That's what you have seen in other classrooms generally. Do you all agree to it? You all agree? Why? Why do you think are the reasons? I mean, it's obvious, but I still wanted to emphasize that.

It is not anonymous, it is not anonymous very very important factor. Why do we do that? And that is true even if I were a student by the way if I was sitting and listening that is exactly it is not I just happen to be playing the role as a teacher, but if I was in the audience I would exactly be in the same way, wondering whether to answer, etc. Why does that hesitation happen? Yeah, people are not sure whether the answer will be correct or not. Very important factor in the eyes of, correct, complete that.

No, no. The answer is, even here the answer is correct or not, we do not know. This question is an open question. It is not like a subject question which has a specific answer. Even in an open-ended question, we are unsure about the answer. More importantly, we are worried as a human, right? What if i give some answer that is not relevant.

In the eyes of peers. Be it my fellow students or in the front of the teacher okay and this is as i said if i was playing the role of the teacher i'll have the same exact fear no matter how much experience you have that fear is there psychological fear is there for all of us.

Even if the teacher is not a person who is likely to find faults, nobody is going to judge us if you are giving a wrong answer. In fact, the teacher will be happy if somebody answers vis-a-vis not participating, but still that fear is a reality. Anonymity is the number one powerful feature of this method.

What is the second? Supposing, let's assume that we create an environment where it's an open environment, all students know each other, great bonding between teacher and students, failure is encouraged, wrong answers are encouraged. Do you think the percentage will go up? And if so, until what percentage? It could go a little bit more, 50-60, but it will still never reach the 80 to 100 it will never ever reach 50 60 is upper really upper I mean if the class is that conducive and all that, but more realistically 20 to 30 is the upper that happens. Now, another question even in such conditions let us assume that the class strength was large.See, we discussed two things. One is, we discussed about the class, the polling was done, the views were sought in a few minutes, maybe 2-3 minutes, right.

Although we are exploring that deeper now, the inputs itself was obtained in 2-3 minutes. Now, if it was a class strength of 60 and 30% participated, 20% participated, that will be around 12 people speaking up right and if it was slightly larger class 80 or 100 again 20 speaking up will be around 20 students what happens takes a lot of time that is the second aspect here see it is not a question of participation alone from the teacher's angle If everybody were to respond also and if that conducive environment was created also, would there be time? How much time would it take for 20 students to respond? And that response is for the rest of the class anyway, right? Here, how quickly are you able to gauge the opinion of the class? Number one, we are not judged for our answer. We do not know who answered what. We get an idea whether our answer matches with the class answer or not, broadly, in either same terms or related terms. Again, this is an open-ended question, so there is no right or wrong answer.

But we know that our answer will be broadly sticking to the pattern if it comes closer to the center and in bold. And if the other answers are not also wrong, they may be stand-alone, it does not mean that there is a wrong answer. So that internal convergence and validation happens without any extra effort. And what are the other diverse views also is managed within 5 minutes even if it was a large size class. In a small size class may take 2 minutes, may be at the most 5 minutes all these objectives are met.

Environment is very safe and these objectives are met. So this is the power of anonymity and using this tool is called Mentimeter. It used to be used in large corporate settings and events earlier. But with the advent of COVID and online teaching, it is being increasingly used in the education context also. And so one of you highlighted or a

couple of you have highlighted interaction, right? Interaction, what all did we see here? Interaction, visualization and attention.

All these components also were there as a part of using this tool, right? As a part of you viewing the responses there was interactivity there was visualizing the answer and so some of the things that you are looking for in a class also automatically is happening. I'm not saying every aspect has been covered okay and again the practical knowledge etc but you got a practical knowledge in the teaching context here so this is a worthwhile and a free tool worth exploring in any context where there is a what do you say where digital is allowed. One challenge is that there could be some classrooms where mobile is not allowed in which case it happens to be a challenge but even there there are so many groups where the teachers and students interact over whatsapp. I mean at least they allow digital outside of classes so some kind of polling and spot checks can be done gathering the student inputs. Now, let us move on to the next question.

The same exact window the question will change to this. What are your recommendations for making classrooms lively, relevant and interesting? So, try to take a shot at it and this is a long form question answer. A lot of nice relevant points. The teacher-student ratio, interactive activities, less theory, play some games and industrial exploration, less exams. Exams puts a very, it is a big stress on the learners, right.

The exam part actually damages learning in some times, I think. We are very focused on our self-worth, we attach to the the marks and therefore, the interest in the subject also is changes. We can scroll down this, non-judgmental environment. This is nice, interactive learning experience where everyone irrespective of their knowledge level has something to contribute or participate in. So, I just changed the format of the presentation here, so that the individual answers can be read.

So, this is so very vital. Whoever gave this answer, all the other points mentioned also are relevant, but see sometimes in a subject, right, when our own understanding is not that great, right, we feel like aliens, right. Or will my contribution be relevant, right? So, if we can create a learning experience where irrespective of the knowledge level, because everybody comes with a different knowledge level. You take any subject, there is no single class where every learner has the same level of knowledge when they come into the class. It is varying level.

So, very critical input. Yeah this one, yeah digital that is what I think digital is anyway there as a part of our lives and if we can maybe make it more relevant and make it so that the student interactions are interesting then at least we are using digital very meaningfully. Yeah, so this, in fact the games are intended, talking about this comment,

right? In games we do not view failure as failures. Games in that way, they are serving as a practice in a fun-filled way so that you keep practicing it and you keep at it and your learning improves with time. Practical demonstrations, simulations, yes, end use application of all subjects. A lot of times we do not know where our theory is used, how it is used.

If we are able to connect the appreciation for that subject becomes better. Activities, practical knowledge. So, broadly Similar themes again we have got about 27 points across 18 participants. How much time did this take? This took a little longer than the previous one but how much was it? Probably 5 to 6 minutes. If the earlier one took about 2 to 3 minutes.

This was long form answer. Here again how much have we gathered as a class, a class of 20 how much have we learnt. We have learnt 27 different inputs in a very short span of time. Once again the same benefits It is much better than reading right, you are actually actively reading reflecting, hey this idea is good, that idea is good rather than just reading from a slide. This is different from a slide reading right. Supposing if it was a all these points had I prepared in the form of a slide and put it on screen versus this, what is different between putting it in a slide and presenting like this? Any thoughts on that? The same points, let us say if I were to summarize and put it on a slide and explain.

This is getting your inputs from you all and showing it. What is the difference in experience? Engagement is one, you participating. Any others? Yeah we are attentive why are we why are we attentive? No no supposing these facts let us say I gather all these facts and summarize it and put it in the form of a slide. This is they appear one by one do what I was trying to come at was, Isn't there a slightly bigger correlation when you know that it is one person in this classroom who is voicing this rather than somebody from some book whom I don't know. Some guy has put some theory which is being shown.

Here, I may not know who, which of my classmates, but I know that it is very live happening right now. Somebody is speaking up in the class. I feel more connected. The points may be the same. Do you agree with me? That is what makes it a little more lively and engaging.

Because you know it's a real person. I don't know who might be that person. But the other one I don't know which book, which year research, when, in what context they said. Whereas you know this is for this question and it's happening right now.

Live. Live feeling. Real time reflection and answering. Okay and it's not like a made up thing right I mean you you have to think on the spot all of you had to think on the spot.

Although you may have some preformed ideas you have to think on the spot and answer whatever you felt was relevant, correlating with your previous experiences. So very very simple tool it's not a gaming tool but it's a highly safe tool for creating super interactive classes we just saw two variants of this the first one is called word cloud The second one will go again and see here.

This is an open ended question. Now, let us go back and see how we can create it. This is available in a tool called Mentimeter. We need to login to a website called mentimeter.com and you just need to go to a new presentation and you can use a template or start from scratch.

You have these varied variety of questions. You have multiple choice. Multiple choice is something very easy and obvious for all of you. You have used it in many contexts. Open-ended is something that we saw. And maybe in the interest of time, I will just show the variants of what all is possible.

As it appears on the right hand side of the screen so multiple choice question this is how it will look the class responses will be displayed depending on the number of participants. Open ended we got to see just now. Ranking is another kind of opinion taking sometimes they are not these are questions for which there is no right or wrong answer. What is your opinion opinions are important. See there are a lot of our teaching is about facts right where there are determined answers.

Sometimes we need opinions and opinions are found based on the learning that has happened so ranking is another way what do you think is the best way out this is guess a percentage . This is a 2 by 2 grid. 2 by 2 grids you might have come across. Particularly in your happiness course.

Happiness versus success. Those of you who have attended. Where do you stand on the quadrant. And it is used in several other courses to find your opinion. Pin on an image. I am assuming it is used for let us say diagrammatic things.

Word cloud you got to see it. Scales is another very interesting mechanism. See, here again it is opinion forms and what you think of it. Let us say you have to discuss questions about let us say future or what is happening in the economy, who is likely to win elections, what is the kind of foreign policy to be framed, how is the Indian economy heading. There are no right or wrong answers.

Again, it is an opinion of a different kind. Do you agree with liberalization? You can just say in a scale of low to high how much you agree. Do you agree to project based

learning? And there could be multiple connected statements also. In the case of statement, there could be multiple related statements and a different kind of a class opinion is gathered. Earlier in word cloud and open ended we saw a specific question whose class opinion was being formed. When you have multiple class opinions on related context then scales is a good way to do it .

Again Q&A is a simple quiz kind of a thing so just wanted to introduce you all to this very simple but very powerful tool. Any thoughts or opinions on this tool? This may not be a gaming tool in that sense but it's a very useful tool for any of the presentations that any of you will get to do to an audience. Like sir, most of the tools that we used before were mostly in the form of games, right? And back then we concluded, okay, it's more suitable for kids maybe. I think this is a more professional setting and I think like especially teaching in college, higher secondary kids. Correct yeah it's very, as I said as you rightly said this is more useful in a college come corporate because it came from corporate.

See what is happening, see there has been one pattern, see the moment we say games we associate with kids. Okay, which is actually true because we consciously stopped. We started differentiating play and learning as we grew up. While there are positives to it, there is lot more negatives because the fun part of it went away from learning because we consciously segregated.

That has happened even in work. If you are fun-filled, you are not a serious worker. If you are fun-filled, you cannot be a serious learner. If you see all the products, all the EdTech products, they have a corporate version, they have an education version. And if you see it is spanning across ages, most of them, unless of course there are very few which actually restrict by age, but a lot of them span across ages.

What do you say, span across age groups. There's no upper limit per se. See, for example, quizzes, right? What is your opinion of who's an ideal user for quizzes? 11th, 12th students, okay. Any other? Quizzes, we can use in universities also. That has been my observation. Of course, there are a few companies which do hi-fi simulations, really make super immersive games, but everything comes at a cost.

If you have to keep the cost affordable and provide interactivity, if you see many of corporate training videos and training material, they come with these kind of simple interactivities only. Maybe with time, maybe there may be advanced versions like when the AR and VR take over in a more stronger way, maybe cheaper simulation technology comes in, things may vary, but this is the pattern seen as of today. Any other observations? But it's a very good point you made. What is different anything that you

could notice in this tool? Sir i feel this tool could be used in a setting where everyone has like not very different knowledge. For example what i'm pointing towards here let's assume We are using this tool in a engineering core course.

Let's say chemical engineering core course. Okay. There, in an average class, the knowledge level of people is very different. So, in that type of a setting, I don't think this tool will be very useful because not everyone would be able to contribute equally. Or even if you are, let's say, using it in a high school. Okay, okay. Why do you think so? What will be different let's put that question i mean just for a better understanding.

You you feel people may not answer as many. See of course don't go by the hundred percent answer rate or eighty percent answer rate. What do you think will be the answer rate there it will be very less is what i feel. Will it be see we earlier discussed that the average class participation is fifteen to twenty percent when asked teacher to student. But in this kind of a tool, what do you think will it be? Let's assume that, of course, learners have a different learning level.

I agree with you on that. What is your gut feel? It will be around 20 to 30 percent. Some people will answer for fun also because it's anonymous.

Okay. Okay. That's okay. Okay. So, it will be around 20 to 30 percent is maximum. Like if you are using it for a difficult course. Okay, let me pose that question to others, do you agree that it will be only 20 to 30 percent in a, if it is used in a different course, elective core course, you meant core course or, a core course of a engineering elective, what is your opinion? So, we have no answers because they can give it a try, like they can give their answers, that they cannot actually tell because they are not sure if they are correct or not. Okay. They can take a chance and just write their solution because everybody has some kind of answer for questions.

Okay it's like not very specific okay so that's one input. Anybody who who's with kashish and who's with your good name. No, no, I am not, I am just trying to expand the debate to get different opinions. Who are we converging with? Because I want to understand also myself because I just wanted to, what do you say? Try and see. Yeah, go ahead. The main point I think what Siddharth is making is that, but he's probably speaking from a third or fourth year perspective.

Okay. It'll probably not be the case in a first or second year course. Okay. The reason is, as you go along your degree, you end up specializing either in your core or in your non-core. So people in that core could have a much higher chance of responding or even knowing what to respond. Similarly, there are many sort of groups where it's not

equitable. Everyone's not at the same place.

You may take a simple example of, let's say, boardroom. Where you would have somebody like the CXOs having a lot more knowledge and say than somebody else, some analyst who may be there, whatever. So, this does not really address that. The case where you have a power imbalance within the group itself. But that is exactly the point that this is supposed to address because power imbalance if it is there, knowledge imbalance if it is there, that is when it makes it difficult for the person to speak up in person.

You understand, right? What is your... Yeah, yeah, please add. So I think here the format would matter a lot. Let's say it's an open-ended question and it's a script first. And let's say we don't know certain terms. But if it's like a quiz where the terms are already mentioned, you just pick an option and then I guess it's a quiz you get to learn and reflect on your answer.

And I think a quiz would get more active participation than an open-ended question. Because in an open-ended question you wouldn't know what to like actually.. Very good point i think there's a different perspective. I tend to agree with him because well i don't know whether you are right or you are right. Okay but i was tending to lean more towards you in the sense that i thought this is a tool that will that will definitely get more participation than people speaking up.

Now i'm not saying it will go up to 80 or 100 even but that 20 class participation would go up to at least 40 50 because that freedom is there of making mistakes. It could be a wrong answer see how many of you hesitated in putting something when you are not going to be judged. Okay but in a answer with a specific in subjects or topics where you are looking for a specific output, this is not the tool it should be more opinion based . There also your life is made easier when you give choices. Like we saw the multiple choices and we saw the forms like scales, right? Where you can, you concur to what extent in the scale of 0 to 10.

That makes it, the form in which you put the question matters a lot. I think that in conjunction with the tool itself, no? It needs some experiments. It's not like a, I agree with you that it's not a magic solution that can work everywhere. But that it is certainly a little better than the because we are talking about safe and unsafe environments. There you are totally unsafe and you have to speak up in a class it is a most unsafe thing.

When particularly when the topic you do not know much that really can be very difficult. But that can be made easier by the multiple choice or other routes so it has to be thought

through. Point taken. So the idea of this class was to introduce you to this form of interaction.