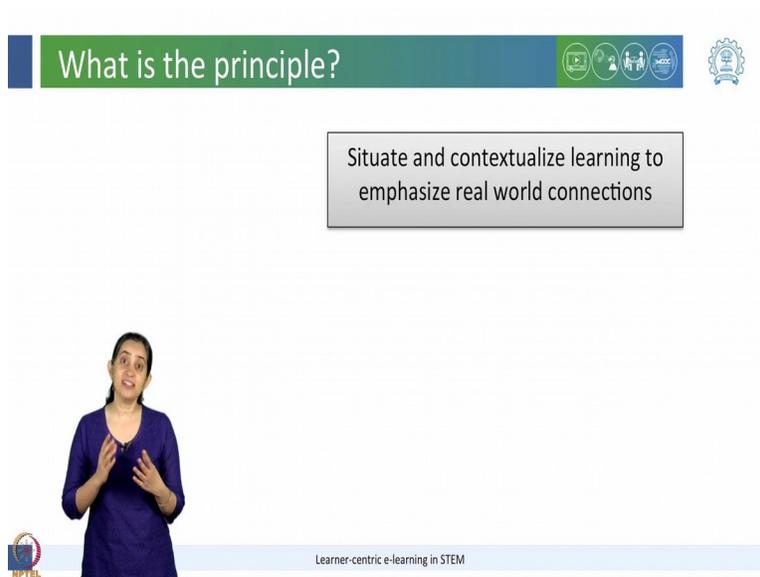**Designing learner-centric e-learning in STEM disciplines**
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Lecture - 16
Contextualized Learning

We know the importance of helping learners connect new formal knowledge which is often abstract with their prior knowledge which is typically about the real world which is linked in the learners mind with the social circumstances such as the people, the interactions, the activities and so on. We also know the challenges that learners may face when new concepts are abstract.

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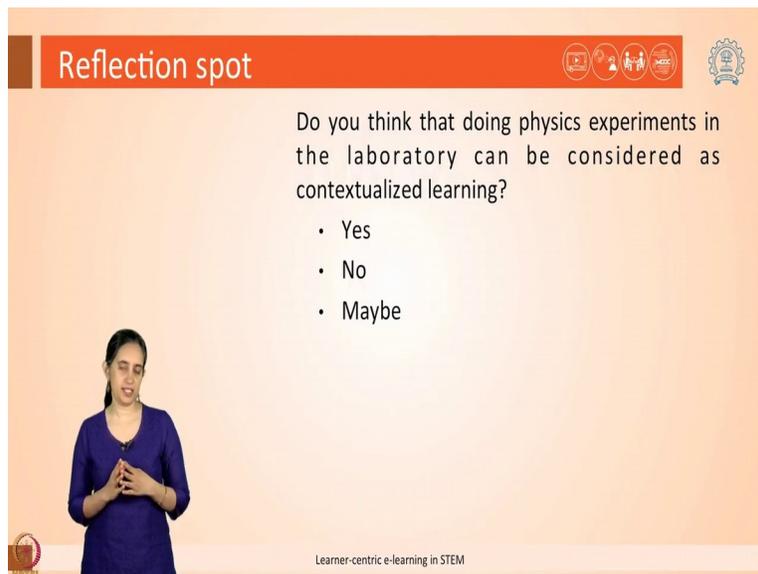

An important principle to follow when we design e-learning is to situate and contextualize Learning to emphasize real world connections.
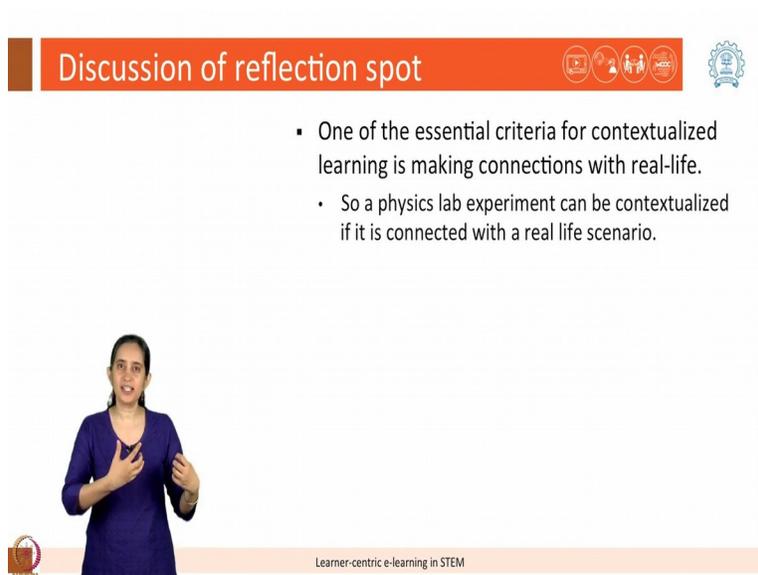
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Before we understand this further let us pause at a reflection spot. Consider a physics class which also has a lab component maybe its 7th or 8th or 9th standard in a school. Do you think doing physics experiments in the lab can be considered as contextualized learning? Make your choice and when you are done please resume.

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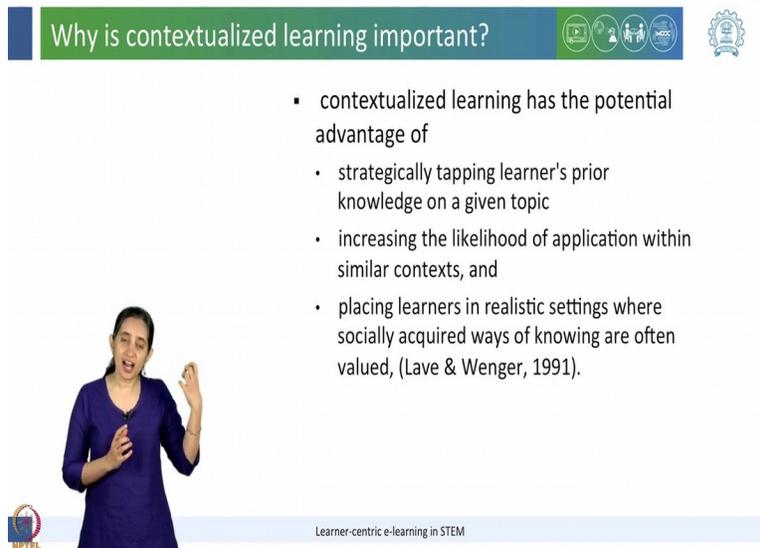One of the essential criteria for situating and contextualizing the learning is that the learner makes connections with real life. So, in the case of the physics lab experiments it could be contextualized if it is directly connected with a real life situation, a real life scenario that the learner is familiar with. A well known example is that when learners are doing experiments with circuits, if the experiment helps them connect to a situation in their home where for example, a bulb becomes very bright just before it burns out.

So, if learners are able to connect these two situations the abstract experiment by the knowledge about the circuit with what happens when bulbs burn out in their homes then it can be considered as contextualized learning. On the other hand if such a if learners cannot make such connections then we cannot consider it as contextualizing the learning.

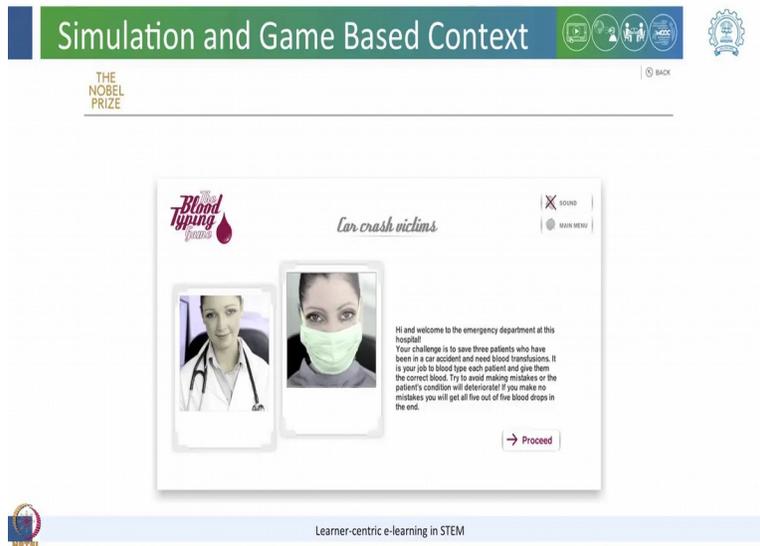(Refer Slide Time: 02:48)

Situated and contextualized learning can have the potential advantage to strategically tap learner's prior knowledge on a given topic. It can increase the likelihood that the learner applies their prior knowledge and the current knowledge in a new situation and it places the learners in realistic settings where the informal socially acquired ways of learning are as valued as the formal knowledge that they learn.

How do we implement this principle of contextualizing the learning in an e-learning context? One way is to use a simulation or game based environment which we have seen earlier, but what

is important here is to provide an activity where the learner directly applies the abstract or scientific or formal knowledge in the realistic scenario present in the game or experiment or the simulation experiment.
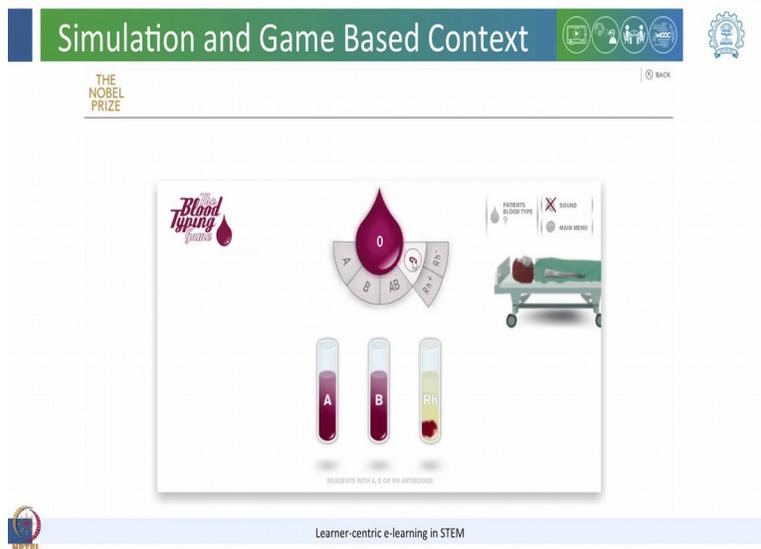
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In the example shown what we see is a blood typing game developed by the noble media to help; to help lay people understand the details of work that has got Noble Prizes.

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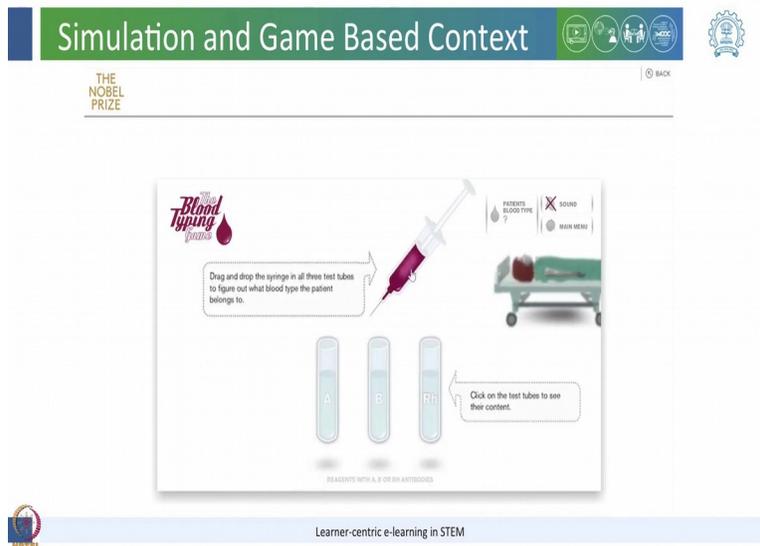
This particular game involves a scenario which is in an emergency department in a hospital where car crash victims have come.

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The player of a game that is our learner is a doctor and she or he has to identify the blood type of a patient, so, that the correct type of blood can be given during the transfusion. In the game the player has to drag and drop the syringe on top of the patient arm draw some blood and then put the blood in three different test tubes, to check the blood type. Then the learner has to see the result of the chemical reaction and based on it decide the blood type.

So, this is a clear application of an abstract concept of blood typing and recognizing the blood type using some chemical reactions to a situated context of an emergency room. There is also the element of roll plane where the learner is directly making these connections.

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Another example is to use inquiry learning spaces where an learners are presented with a real life problem in which they have to apply or and analyze the scientific concepts underlying that phenomenon.

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Any example of inquiry learning spaces that we see here the scenario is what affects the floating or sinking of an object. The learner or the player this also has a slight game like element goes through an orientation phase to understand the context.

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And in the next phase she or he has to do a virtual experiment to identify the factors which can affect sinking or floating and after this they can create a hypothesis in the investigation phase

they do variable manipulations to test their hypothesis and this is followed by a conclusion phase where discussion and reflection occur and the learner has to conclude about the generated hypothesis.
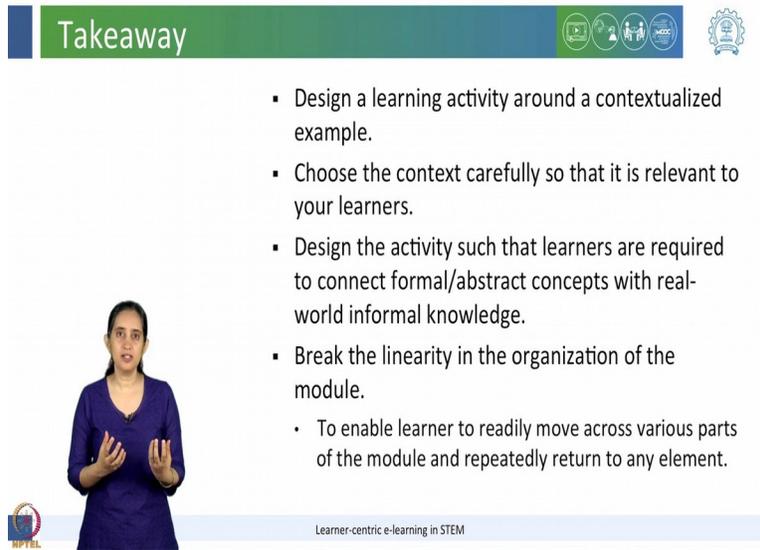
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The tools in the inquiry learning space allows anyone to create inquiry spaces for their own topic, for their own content. So, based on the topic that you are teaching there for which you are designing e-learning content you can create activities using the tools shown and within a context that is familiar for your learners.

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An important point for us to remember is that contextualizing the learning is not only about giving an example, every good instructor gives examples. But it is actually helping the learner connect formal and abstract knowledge within the example and by providing scenarios by providing activities. So, that the learner is required to make this connection. As we design e-learning content using a learner centric approach; what we need to do is to design learning activities around a contextualized example we need to choose the context carefully.

So, that it is extremely relevant for the learners for whom we are designing this content and finally, we need to design the activity. So, that the learners are required to connect formal abstract concepts with the real world informal setting. In order to do this we may need to break the linearity in the organization of our e-learning content and this is in fact, a good thing, this is what is recommended.

This will enable the learner to readily move between various parts of the e-content such as between the abstract concepts and the real world scenario it will enable the learner to come back to repeatedly access various parts of the module and return to various elements to the previous elements that he or she has encountered before. All these are important for the learner to be able to construct their own understanding, to deepen their knowledge and to make connections.

Thank you.