Designing learner-centric e-learning in STEM disciplines
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Lecture – 05
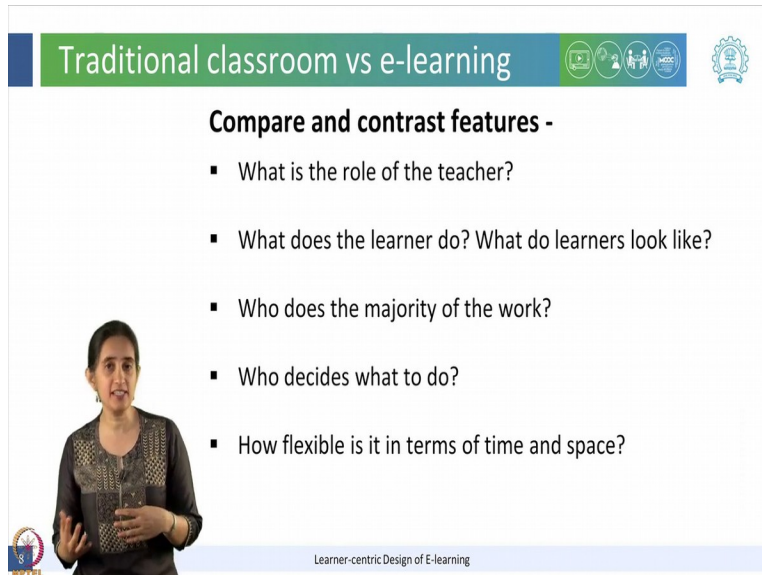**Challenges in e-learning**

We are all familiar with the traditional classroom approach.

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There is a teacher, there many students usually in fixed spots, the bell rings after the period is over and so on. Many of us are now also familiar with various e-learning contexts like you see in some of these images. You can also think of other examples of e learning that you may be familiar with.

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Now, that we have considered both these approaches let us compare and contrast these two approaches. Consider for example, what is the role of the teacher in each approach, what does the learner actually do and who are these learners; who does the majority of the work, who bears the primary responsibility, how flexible is it in terms of time and place who chooses the content and so on.
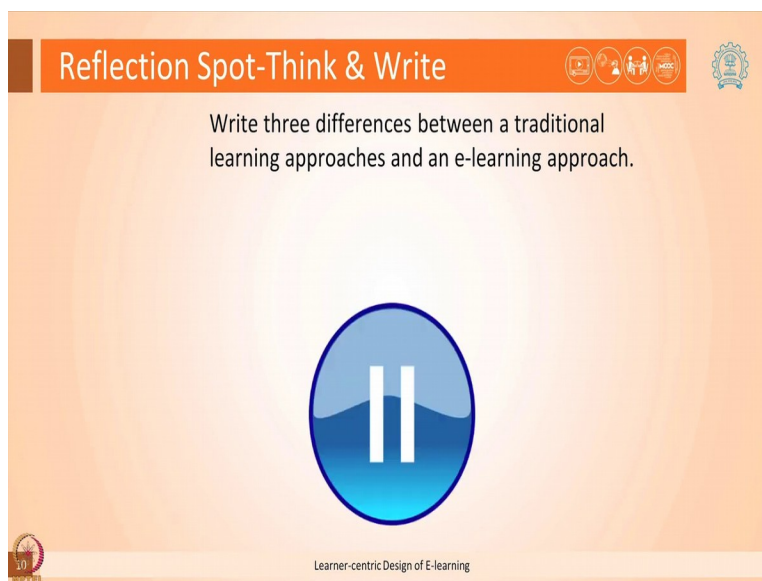
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Pause this learning dialogue right three differences between a traditional approach and an e-learning approach when you are done writing please resume.

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	Classroom learning	E-learning
Role of teacher	Provides knowledge, Physically present	Creates content & activities, Not always visible
Role of learner	Receives knowledge, Follows instructions	Makes choices – what to learn, which activities, No day-to-day monitoring
Experience	Relational, synchronous interaction	Many asynchronous activities, some synchronous interaction
Learner profile	Largely homogenous	Often diverse
When, where	Fixed time & space	Flexible time & space

Learner-centric Design of E-learning

Let us discuss some of the key differences in the features between the traditional approach and an e-learning approach. Some of you may have considered the nature of the roles of the teacher and learner to compare the two approaches. In a traditional approach, the roles are rather fixed. The teacher is the provider of knowledge in terms of content, information, skills, techniques and so on.

The teacher also has a physical presence along with the learner and the group of learners. In contrast in the e-learning approaches, the teacher does create and design the content with the instructional designers of course, but once that is done the teacher may not be visible to the learners. In terms of what the learners do in a traditional classroom the learners primary role is to receive the knowledge. They may follow the instructions of the instructor do the activities and so on, but they are primarily receivers of knowledge. By contrast in an e-learning approach the learners roles are more varied and the learner bears more owners for the learning, why is this so?

It is learner who was to choose what to do next some sequence may be provided, but it is still the learner's choice. It is the learner who has to actually decide that yes I need to go and learn from this e learning content. So, there is a lot more responsibility on the learner's part. There is

nobody to monitor the learner on a day by day basis or not even on a minute by minute Basis. While thinking of the reflection spot some of you may have visualized or imagined the two learning environments.

A traditional learning environment necessarily is a relational and interactive experience between a teacher, one learner and a group of learners. There is a direct physical presence a direct physical contact between these people and this there is a lot of mediation in terms of discussions, in terms of communication which is very direct and physical. In the e-learning approach; however, the not all interactions are synchronous; there may be some synchronous activities such as face to face interactions where hangouts or video conferencing, but a lot of the activity in e-learning approaches can be asynchronous where the content is created at one point at one place and the learner accesses it somewhere else at some other point.

In terms of who the learners are; in a traditional classroom again there is more of a homogeneity especially in a school or college setting. Because we know who our students are; they may be third year engineering students or 7th grade students in a particular school and so on. In workplace scenarios or workshops there may be a little bit more variation, but by and large we know who the learners are and they are more or less similar to each other.

By contrast in an e-learning scenario the diversity or heterogeneity among the learners is very high. For example, in online courses we do not know who might enroll for the courses in workplace settings you have people with varied backgrounds and knowledge and so on.

So, there is a high diverse difference in diversity of the learners. In terms of the flexibility again, there is a difference in the two approaches like we said the traditional environment is fairly fixed rigid in terms of the place where it occurs and also the time at which it occurs. In e-learning scenarios, both the place and time are more flexible because it can happen with personal devices, in it could be in a lab or a classroom, but it could also be in a public place or it could be in the learner's homes and so on.

There are a lot of studies comparing the effectiveness of the traditional approach with the e-learning approach and the results are actually very mixed. One reason is that there is such a

variation in terms of the features of the two, the benefits are different and the challenges are different.

So, what we will do in this course especially in this learning dialogue is to look at some of the key challenges present in the e learning approach, and then later we will see ways to address them.

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Before going ahead let us pause briefly at one more reflection spot. What you see are a number of features in the e-learning approach which according to you are challenges to the teaching and learning process. You can choose one or more than one option; pause this learning dialogue and once you are done choosing the options, you can resume.

In the e-learning approach there are several challenges which often could lead to poor learning outcomes.

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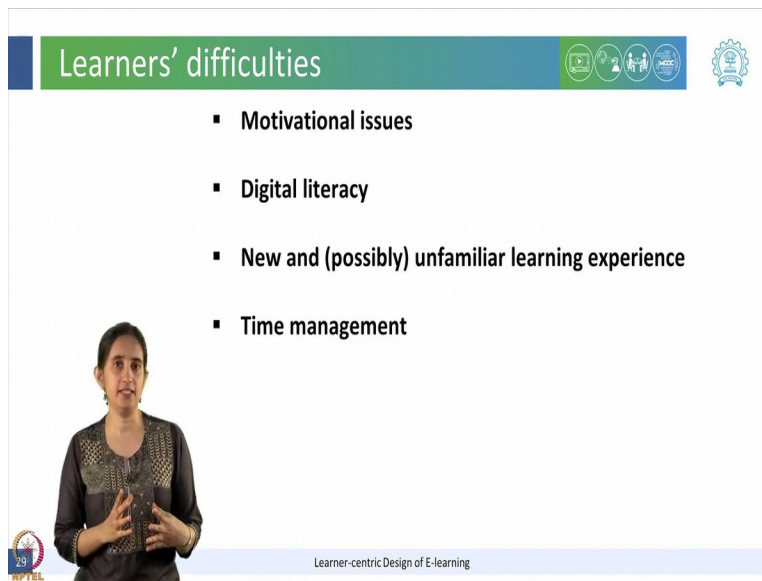
Some of these challenges could be due to the struggles on the part of the learner, other challenges are inherent in the format of e-learning itself. Yet others could be due to the lack of training or the lack of knowledge by the instructional designers.

Let us look into each category of these challenges and delve a little deeper into them.
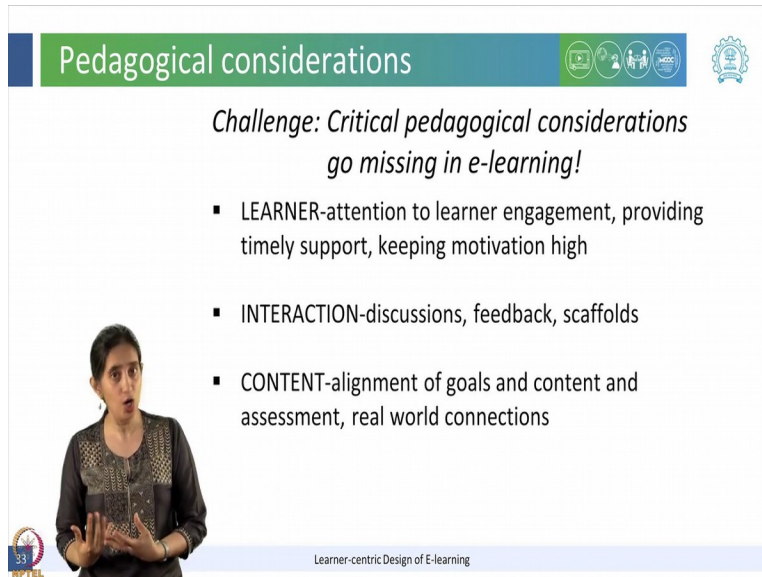
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One category of challenges in e-learning are the difficulties faced by the learner. For example, motivation self motivation becomes a very crucial issue in an e-learning scenario. This is an essential requirement and without self motivation, learners often are known to drop out of the course or whatever they are supposed to learn or they may not complete the assignments and this challenge is something which the designers as designers we have to keep in mind.

Another challenge for some learners is that of digital literacy. Learners should be able to navigate, evaluate and work with content in the technological medium. Using a variety of tools and if learners lack the background knowledge to be able to do so, it becomes a stumbling block for them to access the content to actually do anything to interact with the content.

One more challenge which learners might face is because of the unfamiliarity of the medium itself which leads to a very new learning experience. Switching from a face to face classroom scenario with physical presence of other learners and the teacher to an online scenario, where there is e-content may be just one on one with the device this sort of a switch is an unfamiliar learning experience and that could lead to discomfort and times even resistance to the new format. Again this challenge is something we have to keep in mind and see how to address.

One more challenge that learners face is that of time management which in fact, is the flipside of flexibility. Time management is known to be difficult for learners because they may have other priorities and other commitments. While it may seem that this is a burden of the learners, it is something that instructional designers and teachers and content creators can address to some extent in terms of how they sequence the material, how they chunk it, how they give supports and so, on. A very important challenge that becomes that looms in e-learning is that of pedagogical considerations.
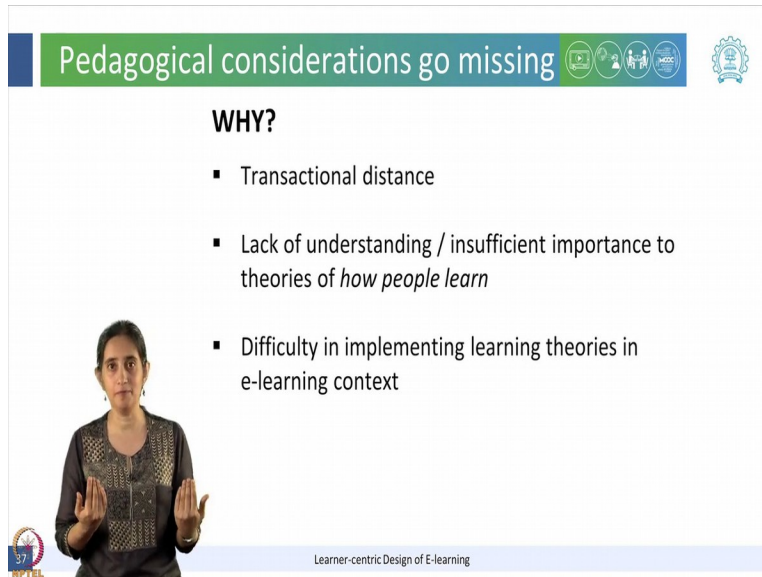
E-learning is not merely dumping a bunch of information on an online portal, assuming that learners will look at it learn from it and benefit somehow benefit a bunch of pdf files uploaded somewhere is not e learning.

What is very important for effective-learning and as teachers we know this our learning theories pedagogical design principles and we know how to implement them in a classroom many of us know that. What is a key challenge is that these pedagogical considerations go missing in the e-format. What are some of these pedagogical considerations? They could be related to the learner such as learner engagement with the content learner motivation and so on. They could be related to the interaction the discussions, the feedback given, the scaffolds provided; they could be content related also such as alignment between the content and the goals and actually alignment between the goals and the content and the assessment or real world examples.
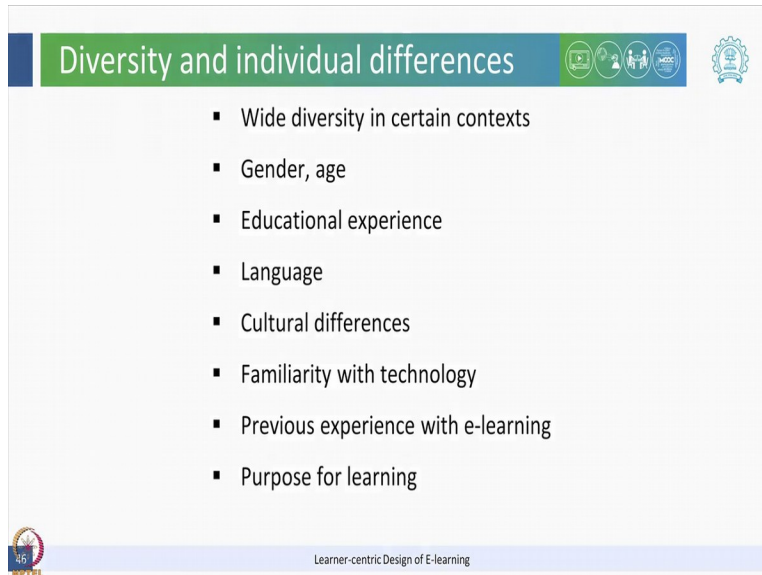
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What are some of the reasons for these pedagogical considerations to go missing? One major point is that of transactional distance and this comprises not only the physical distance in terms of time and space in e-learning, but also the disconnect in terms of communication. For example, what the instructor may have wanted to convey, what the expectation of the learners are and what finally, the learners take away.

Another reason for these pedagogical considerations to go missing is the lack of knowledge of learning theories and how people learn or maybe the lack of importance that a content creator gives to it.

Even if the e-learning content designer knows about theories of how people learn, translating it operationalizing it into the e-learning setting comes with its own challenges.
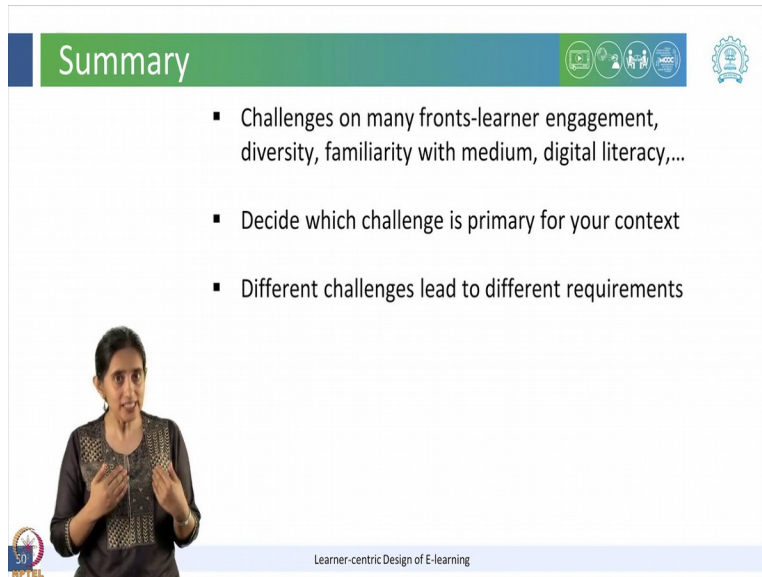
Another category of challenges for some e-learning scenarios is that of diversity and individual differences this becomes especially important with adult learners and in the workplace. Diversity in terms of gender and age, but also educational background, prior knowledge, language cultural differences background with e-learning format and the purpose with which the learner is actually interacting with the content.

Even for teacher in a standard school or classroom setting something like language or cultural differences can become important. For example, in what examples it an instructor decides to give which is relevant to her learners. A very simple example is if I am creating content for a primary school fractions in a circle should I talk of a chapati or should I talk of apple pie? To summarize we saw challenges on many fronts learner struggles pedagogical considerations not being present in the e-content diversity. Now this seems like a lot of challenges and for many of us this seems daunting.

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So, what do we do at this point? What you can start doing to begin with is which of these challenges are important in your context which is relevant for your learners. For example, if you are a teacher perhaps the pedagogical consideration of learner engagement with the content is more important than the diversity in terms of age agenda.

On the other hand if you are a trainer in a learning and development division in some industry, the individual differences and diversity might take precedence. If you are an instructional designer in an ethic industry or you are a content creator in MOOC, again the learners familiarity with the medium might become important learners engagement and attention becomes important. If you are creating e-content for an NGO that works in rural areas digital literacy might be primary. Each of these challenges brings about a set of requirements that as designers we need to make sure is present in what we design.

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So, in this course what we will focus on are some of these requirements they may address some of these challenges the key requirements that we will pay attention to learner engagement with content in terms of, interactivity in terms of how learners reflect. What sort of support we can give learners in this new medium? Support in terms of prompts when the learner faces doubt or difficulty or in terms of interaction between peers and discussions.

We will discuss a lot about the requirement of learning by doing how to promote active learning in an e-learning scenario. We will also touch upon a little bit requirements that come from the content end such as alignment between the goals and content and assessment and the technology tools. But most of our focus will be on the pedagogical considerations of learning by doing and the design principles that underlie it.

Thank you.