Designing learner-centric e-learning in STEM disciplines
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Lecture – 10
Implementing Constructive Alignment

Hello to all. In the last LED we saw, that constructive alignment means creation of content where learning outcomes learning activities and assessment are aligned to each other or a closely associated.

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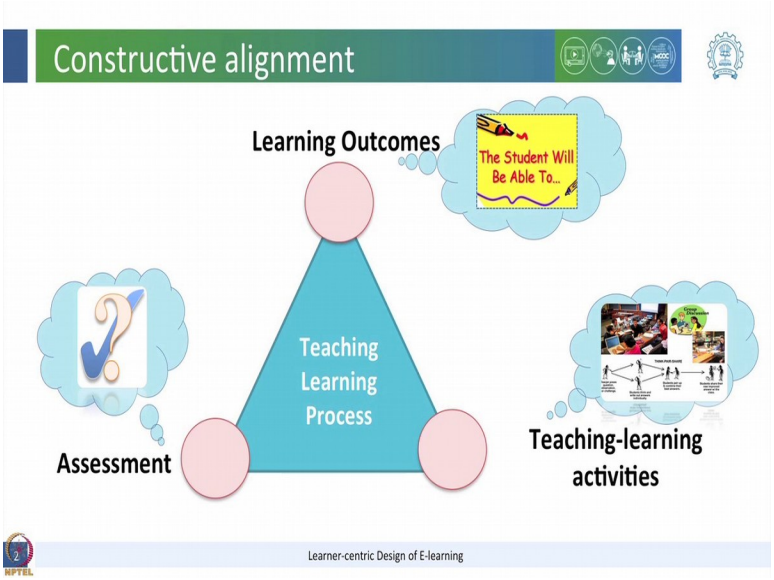

The closer as the alignment between the three, the more instructionally effective is e learning that how implement this approach on e-learning platform.

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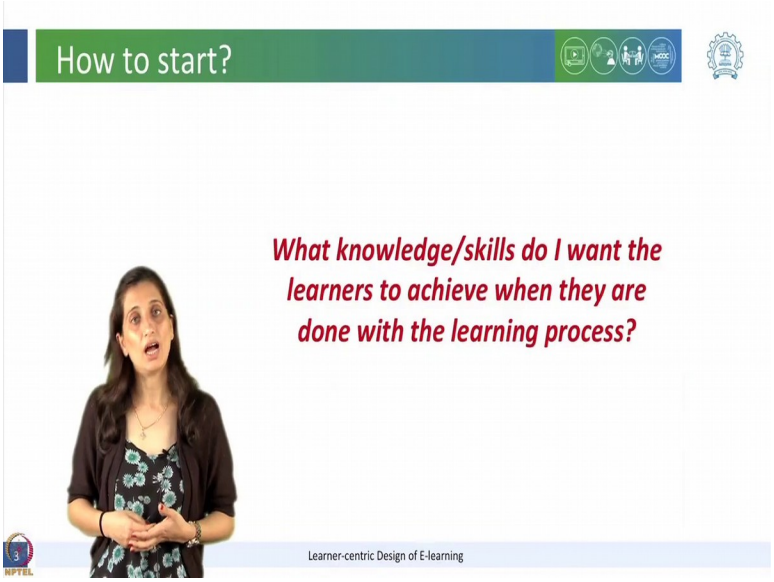

A good starting point is to ask yourself a question which is that, what knowledge or skills do I want my learners to take away after the finish of the learning process. This question will inform you about your learning outcomes and in the design of your assessment tasks.

It will also help you determine the appropriate learning activities and resources that are required to achieve the learning outcomes. Now let us look at each of the three critical components involved in constructive alignment.

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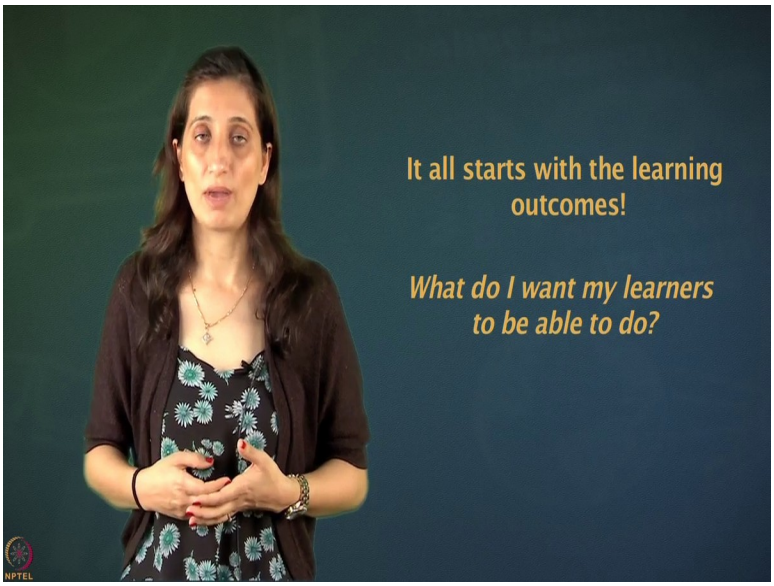

It all starts with the learning outcomes the how do we define the outcomes? The answer lies in the question what do I want my learners to learn.

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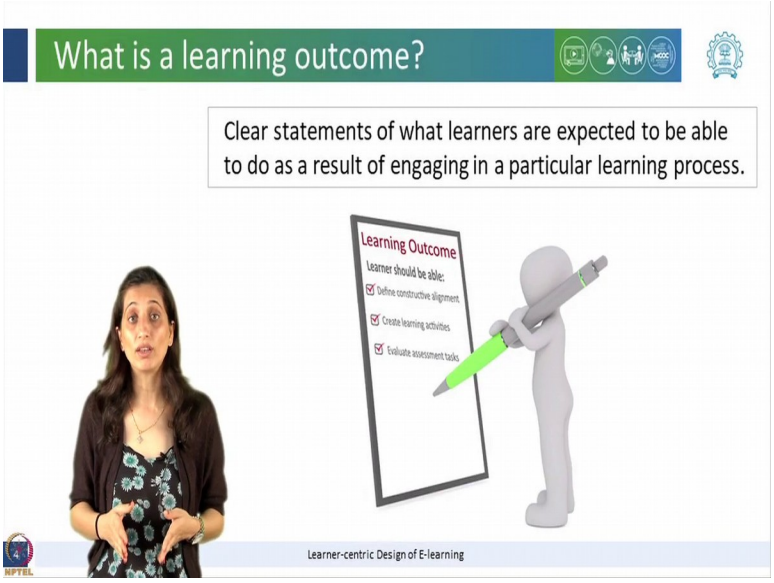

Does the intended learning outcomes will constitute clear statements of what the learners are expected to learn as a result of engaging in a particular learning process.

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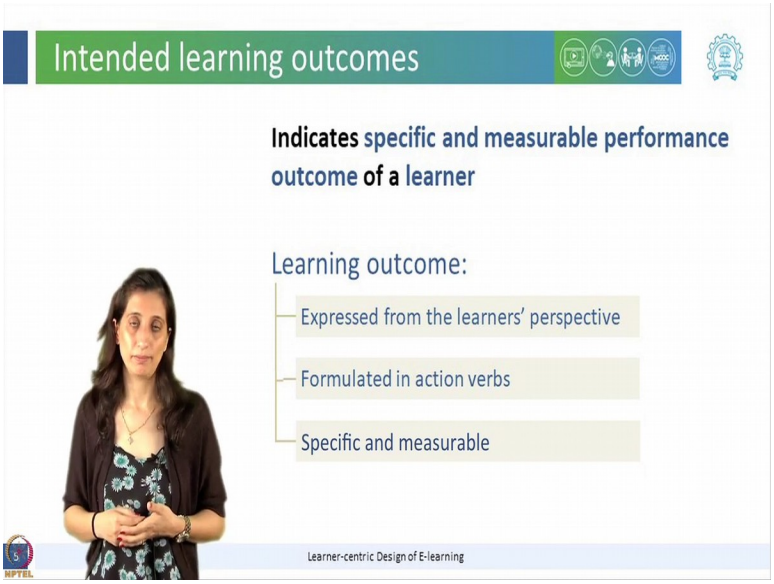

By definition learner outcome should indicate specific and measurable performance outcome of a learner.

Now, when we state these performance outcomes in a learner centric e-learning and environment, few requirement should be met. The first one is that the LOs should be expressed from the learners perspective and not from the instructors perspective. The second one is a that the LOs should be formulated in action verbs. Thirdly the LOs should be measurable and specify the knowledge or skill that you want the learner to be able to demonstrate.

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Before we talk more on the learning outcomes that is talk more as to why do we will want to define the learning outcomes.

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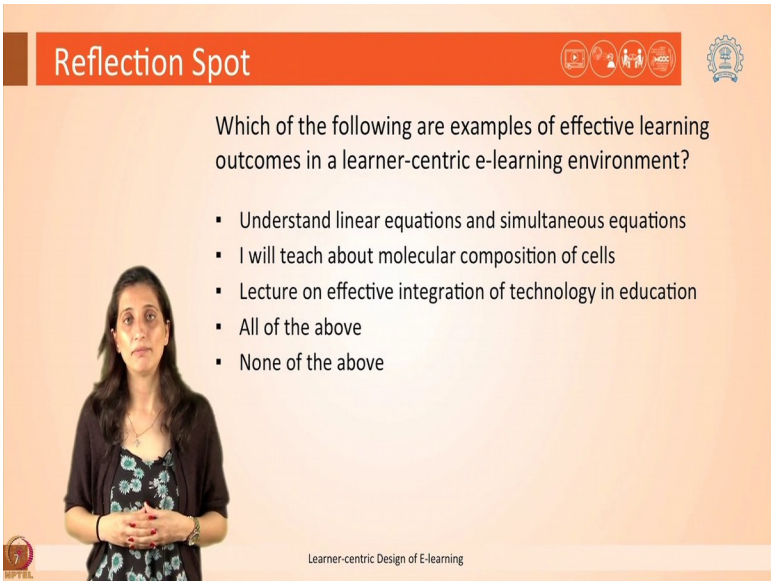

Firstly defining specific and measurable learning outcomes makes learning systematic. The skills and knowledge to be developed by the learners are clearly defined. Secondly, it makes the teaching also systematic.

Its structures the comment and helps the instructor design plan and resources and instruction strategies to be used. And thirdly learning outcomes also make the students learning to be accessed effectively. Let us do a reflection spot on our understanding of learning outcomes, which of the following are examples of effective learning outcomes in learners centric e-learning environment.

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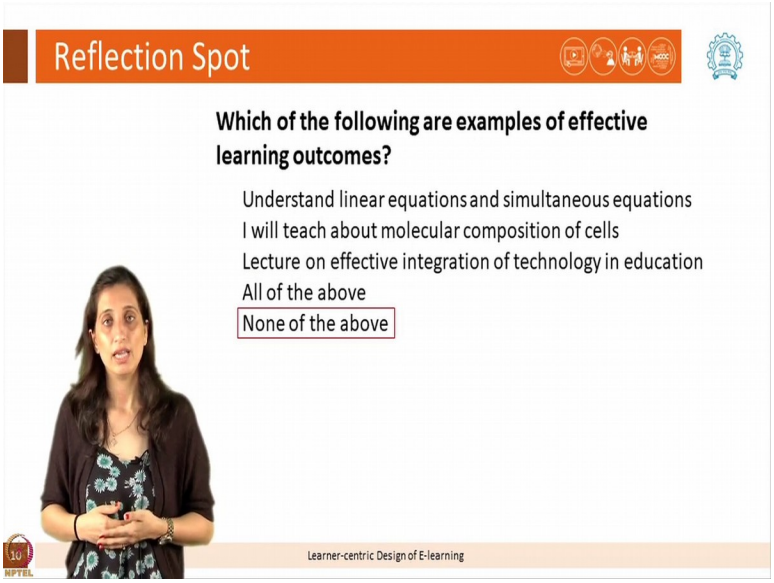

The mere understanding of learners of linear in simultaneous equations cannot be measured at such and thus it is not an effective learning outcome. The instructors stating that he or she is going to be teaching about the molecular composition of cells is not an effective learning outcome, since it is not coming from the learner's perspective, but from instructor's perspective which is not desired.

Once again lecture on effective integration of technology in education is something that the instructor is going to perform and not something that the student is going to achieve thus it is not an effective learning outcome. Hence none of the learning outcomes mentioned here and effective learning outcomes, and let us see how we can convert them into effective learning outcomes.

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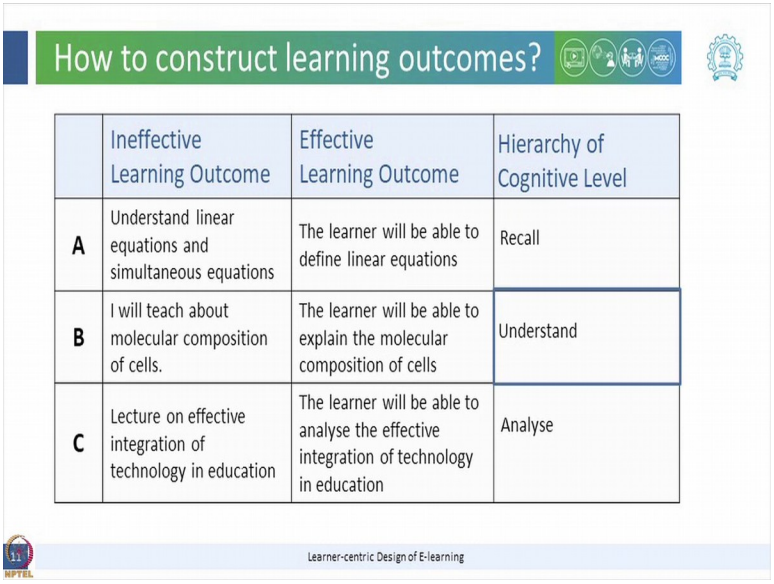

As you see here each of the corrected and effective learning outcome is stated from learner perspective using action words which are measurable. There is one more thing that you should notice here and that is that the three learning outcomes are and different cognitive levels which is based on the blooms taxonomy. The first learning outcome here that are recall level while the second one is at the understand level and the last one is at a higher level that is analyse level. Let us briefly discuss about the blooms taxonomy revised blooms taxonomy and digital blooms taxonomy with respect to the e-learning environment.

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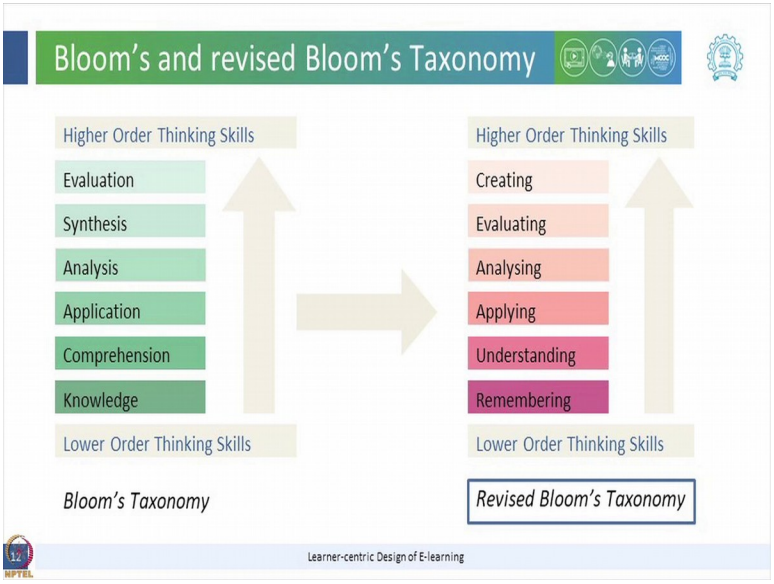

As you are seeing here though one of the left in title blooms taxonomy is based on the original work of Benjamin blooms and others in 1956 as I attempted to define the functions of thought on cognition. The taxonomy on the right is a more recent adaptation in redefined work of bloom from Anderson and craft wall around 2001.

As you seen here the revision of blooms taxonomy involved re wording of noun to verb renaming of some of the components and even reposition in the last two categories to make the taxonomy more useful and comprehensive at different levels of knowledge.

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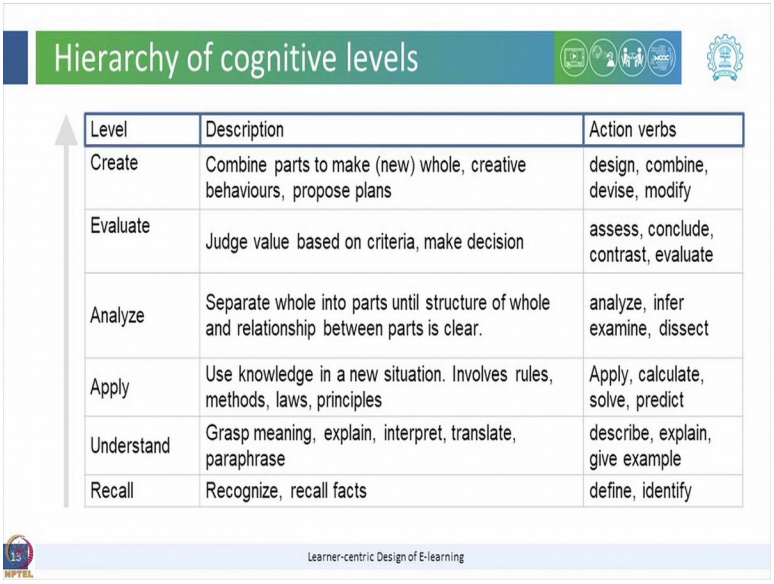

Based on these learning taxonomies, the table here shows the hierarchy of different cognitive levels with their respective description and action verbs to be used while defining learning outcomes.

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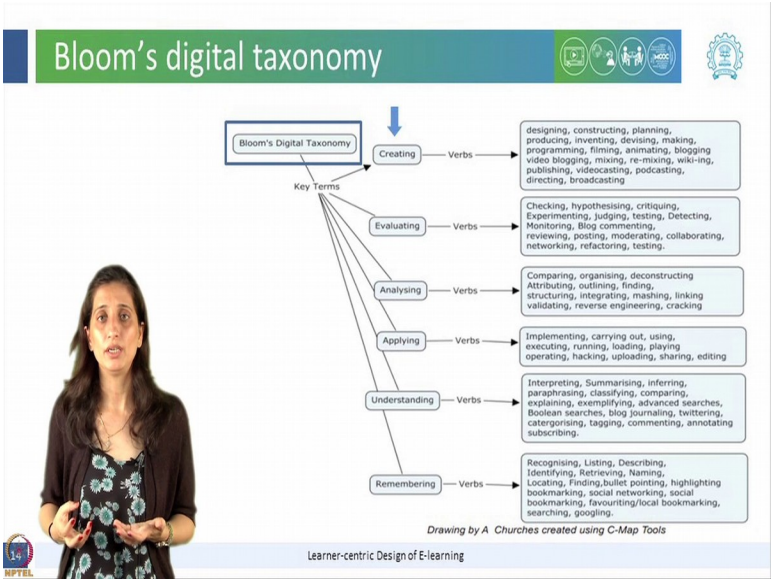

As an extension of the revised blooms taxonomy Andrew churches in 2008 developed blooms digital taxonomy which creates a hierarchy of learning activities in a digital environment.

Churches taxonomy incorporated new digital key verb such as uploading, bookmarking, networking corresponding to each taxonomical element to be more inclusive of digital technologies and digital cognitive outcomes.

These are some of the technological literacy concepts that we need to keep in mind while designing learning activities in e-learning. For deeper understanding on the blooms digital taxonomy, we have provided in LXT resource this week describing each taxonomic element with digital key words and their corresponding digital activities.

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Now, you draft the learning outcomes considering what your target audience is supposed to learn or be able to do after going to the content. And also the teaching and learning activities should be designed such that they facilitate effective achievement of those learning outcomes and subsequent assessment tasks. Additionally through these learning activities, learner should also be made to apply the newly acquired knowledge in solving contextualized problems.

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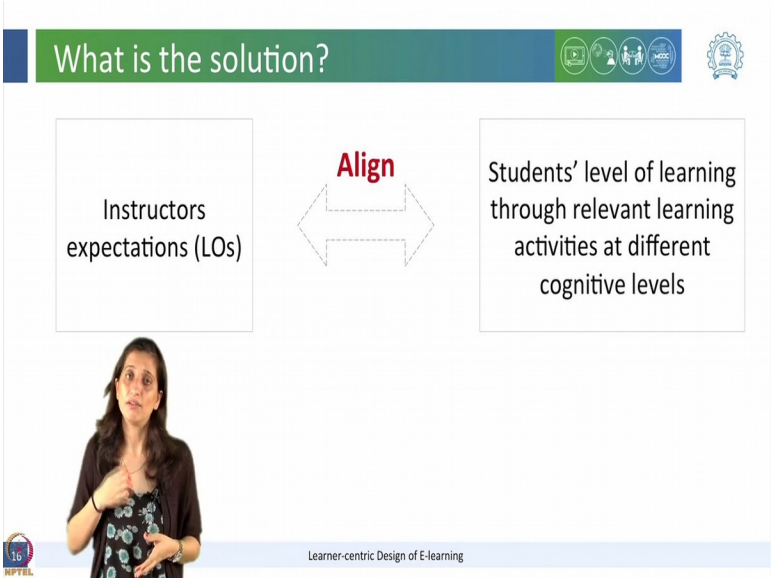

Now, to create effective learning activities, you need to align the instructor's expectation in terms of learning outcomes with students level of learning through relevant learning activities at different cognitive levels.

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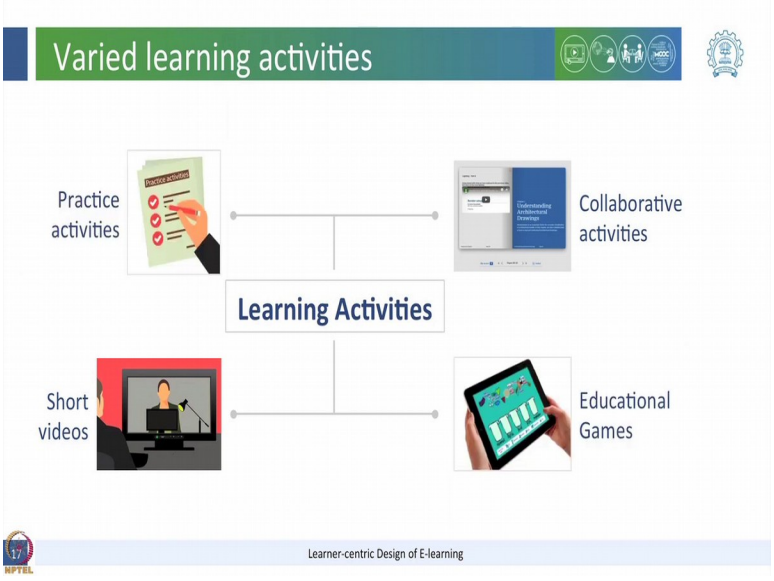

The nature of teaching learning activities may include short videos, reading resources, small collaborative activities with peers practice questions educational games reflection activities.

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It is to be made sure that all the goals mentioned in the intended learning outcome was embedded in these learning activities in one way on the other.

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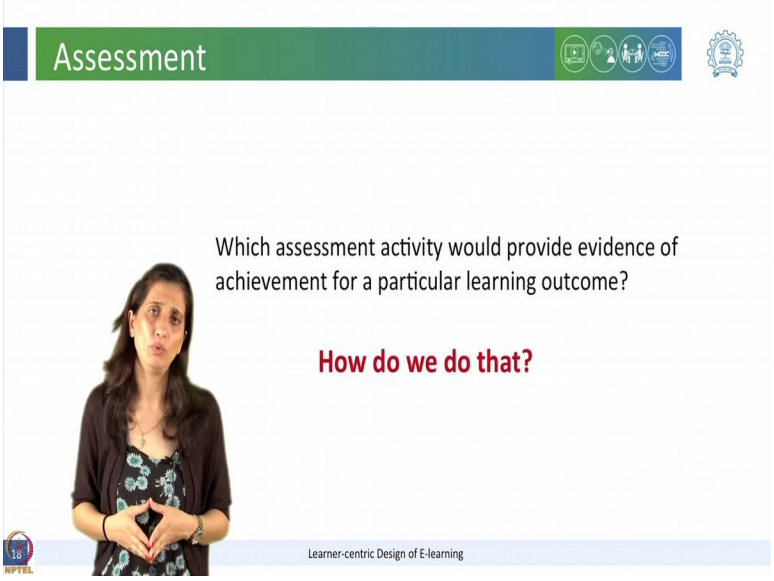

While designing assessment, the most important thing to ask is which assessment activity would provide evidence of achievement for a particular learning outcome and how do you do that ?

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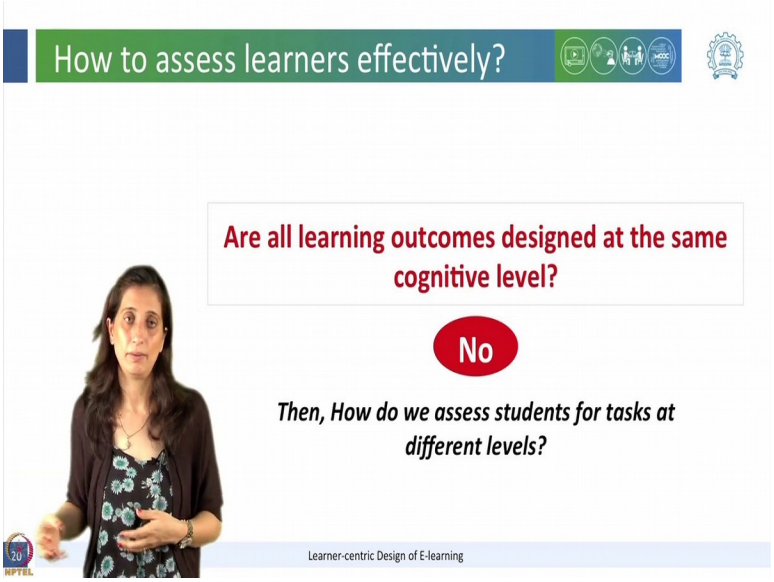

To assess learners effectively, we need to ask if all our learning outcomes are designed at the same cognitive level and most of the times the answer is no.

then how do we assess the learners for tasks at different levels ?

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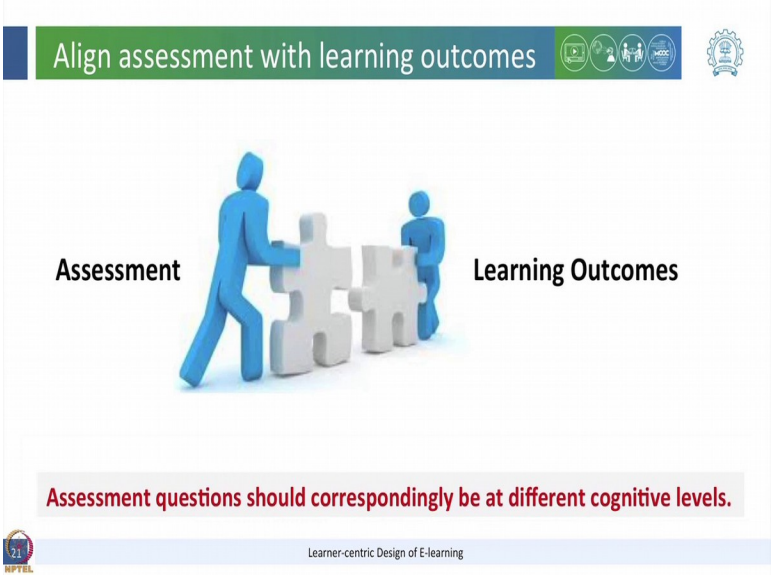

The solution is to align assessment with the learning outcomes and assessment questions should correspondingly be at different cognitive levels.

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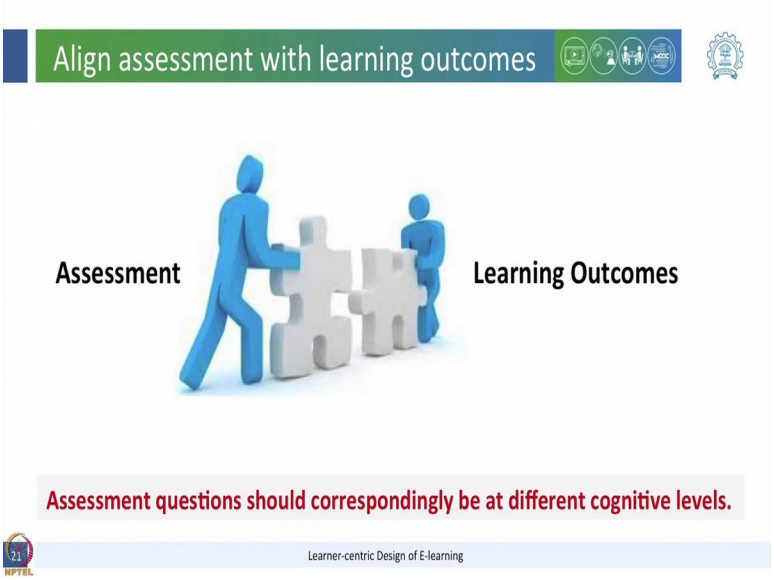

The assessment may involved formative assessment to practice skills apply knowledge improve learning analyze progress towards goals or to improve teaching. Or the assessment may be summative well learners demonstrate achievement of knowledge and are skills and evaluated with respect to certain standard or with respect to others.

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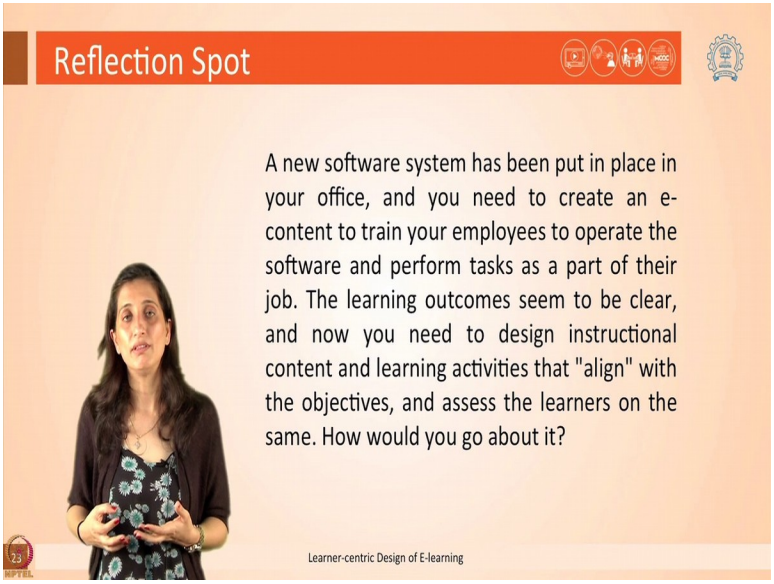

Now, since of aware of alignment between the three components, let us do a reflection spot. Consider scenario where are a new software has been put in your office and you need to create an e-content to train your employees to operate the software and perform tasks as a part of their job. The learning outcomes seems fairly clear here now you need to design instructional activities that align with the learning outcome and assess the learners on the same know how would you do that ?

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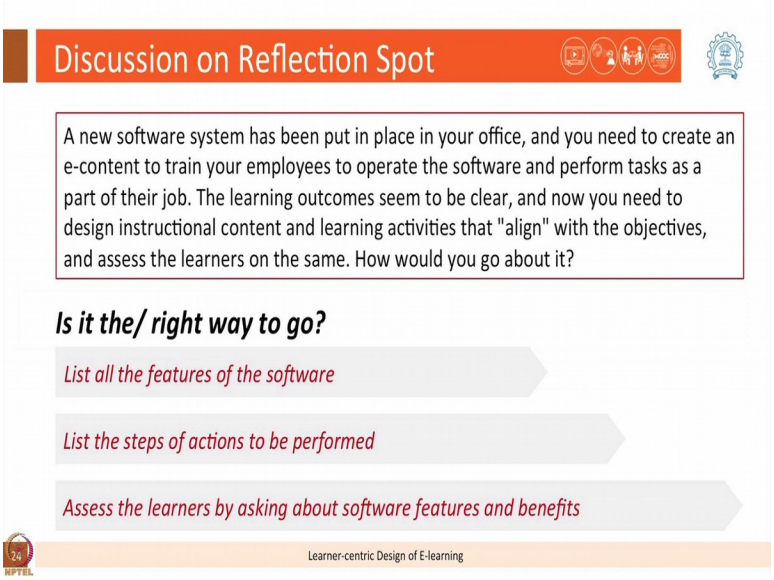

Now, let us say you did the following. First you listed all the features of the software, then you listed all the steps of actions to be performed and then you assess the learners by asking about software features and benefits.

Now, is that the right thing to do? Well certainly not since again here the learning activity and assessment for not align to each other to achieve the intended learning outcome, which was to train your employees to operate a particular software.

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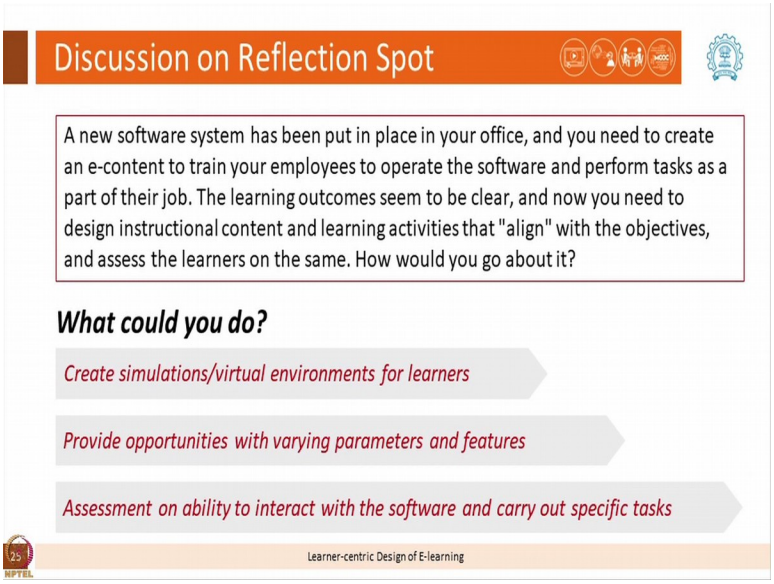

Now, to meet that learning outcome what you should do is to create simulations of virtual environment for learners to know the environment, provide opportunities for learners to be able to play with the different parameters and features inside the software and also be able to see the results of their actions. And design assessment activities which test the learners ability to navigate through the software interact with the software and carry out specific tasks.

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Bringing about constructive alignment in an e-learning environment; it is all about planning. You should plan your content so, that the learning emulates reality that is the intended learning outcomes can be achieved and assessed in the learning process and also the learners can build upon their knowledge meaningfully.

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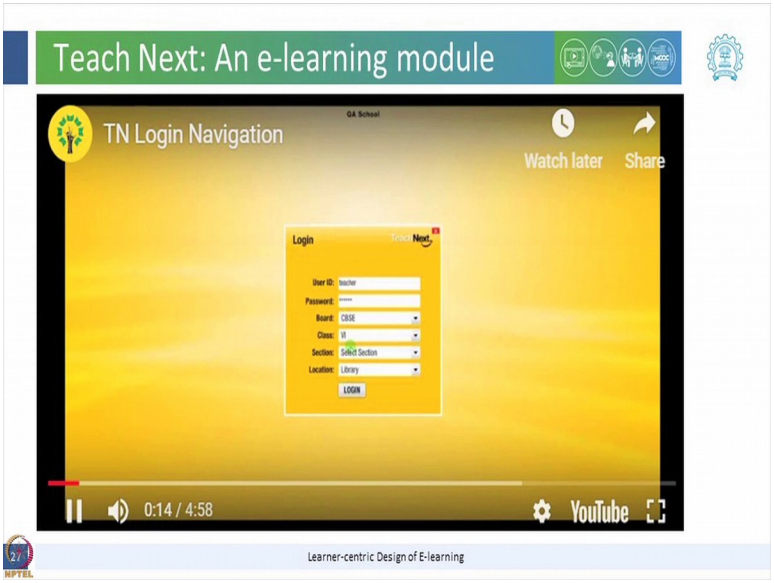

Let us now look at one of the examples of constructive alignment on an e-learning platform named ‘Teach Next’ which entails educational content for school children.

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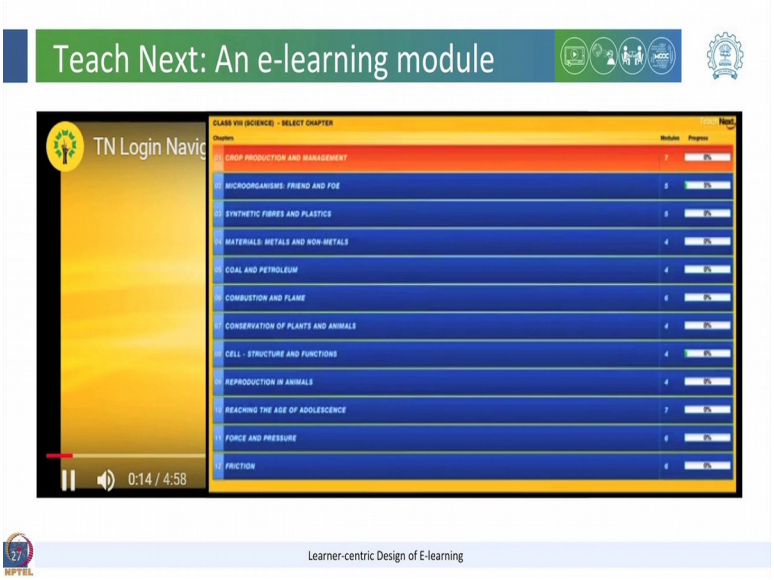

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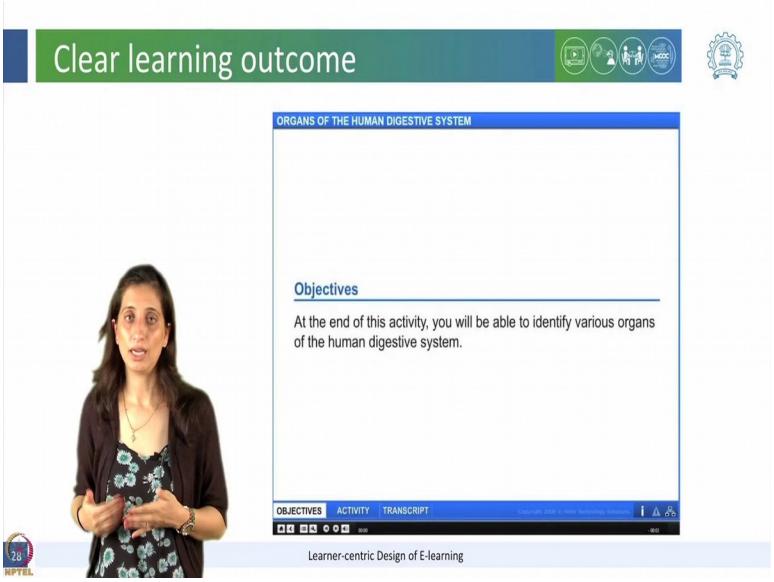

It takes us to the intended learning outcome which here states that the learner should be able to identify the various organs of the human digestive system after going through this learning session.

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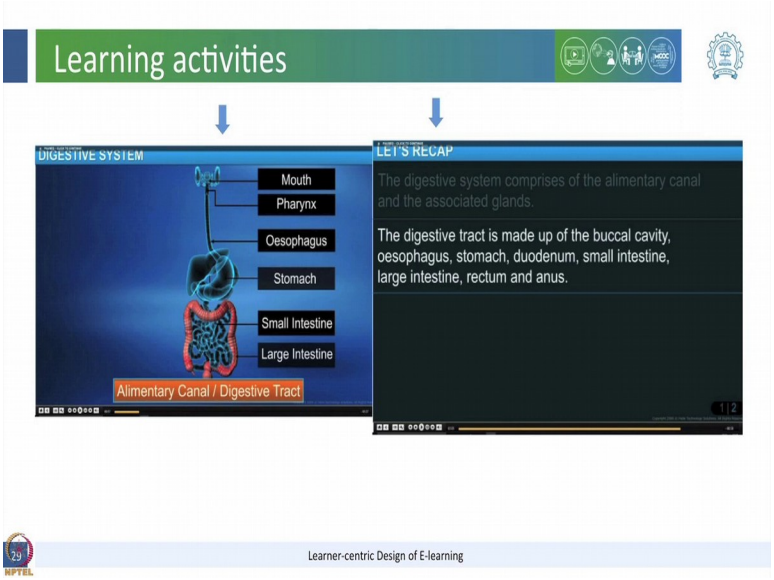

Following this learning activities involved explanation of functions of each of the organs of human digestive system with the appropriate visualization. At the end of this explanation there is a recap which summarizes all the important points covered in the activity.

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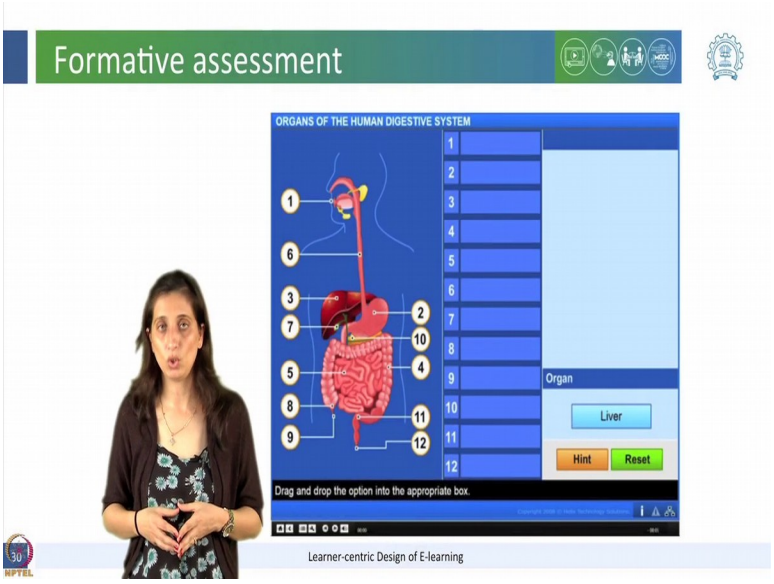

One of the formative assessment tasks here involve the learners to identify the organs of the human digestive system with some hints provided to them. As we saw here this was an example

from in e-learning platform, where learning outcomes learning activities and assessment or well aligned with each other.

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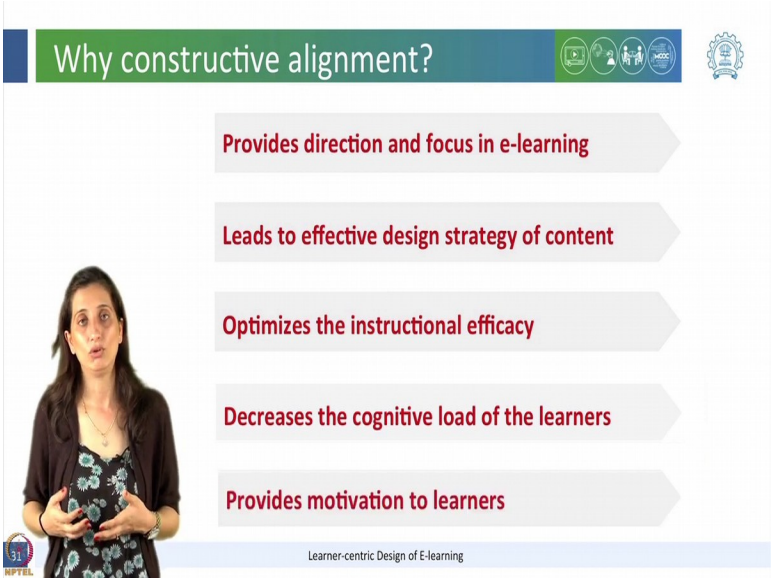

Before we summarize this session let us reflect as to why should we focus on constructive alignment.

When all the learning activities and assessment in e-learning content follow from learning outcomes and all the components map with each other it provides the focus direction to e learning. The type of learning activities and assessment tasks chosen to achieve the desired learning outcome will term in the effectiveness of e-learning content. When you aim for constructive alignment the cues for an effective design strategy becomes evident.

Constructive alignment optimizes instructional efficacy and helps the student learn what the enrolled for. If the content does not align well with the objectives learners keep wandering as to where the causes leading and they are not able to perform well during assessment. Constructive alignment decreases the cognitive load of the learners. With constructive alignment learners are more likely to feel engaged find the content more meaningful and thus be more motivated to complete the learning.

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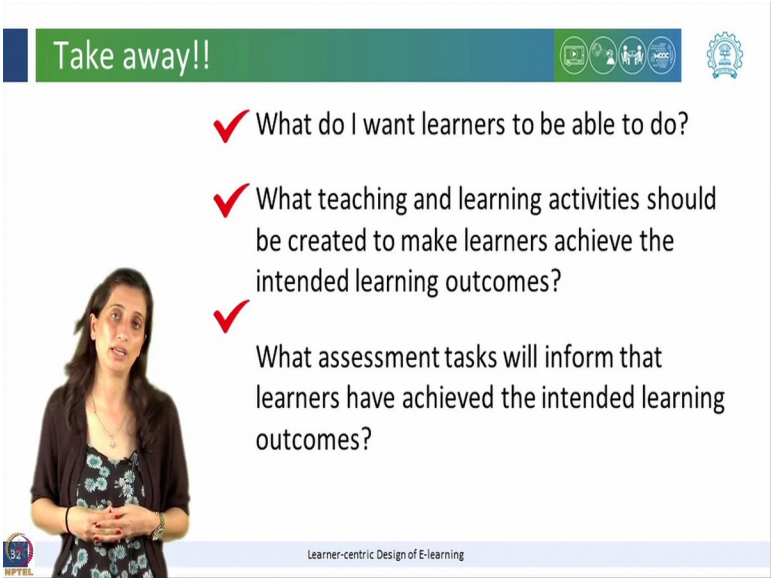

To summarize the three main questions that we need to keep in mind are what do I want my learners to learn, what teaching and learning activities should I create to make learners achieve the intended learning outcomes and what assessment task will inform that learners have achieved the intended learning outcomes.

Thank you.