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NPTEL ONLINE CERIFICATION COURSE

Course
On
Education leadership

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Lecture 29 Innovative pedagogy and technology
For learning (contd)

Welcome viewers once again to this course on education leadership in the last class we are discussing aboutmetacognition and how it facilitates in declarative knowledge procedural knowledge and conditional knowledge.

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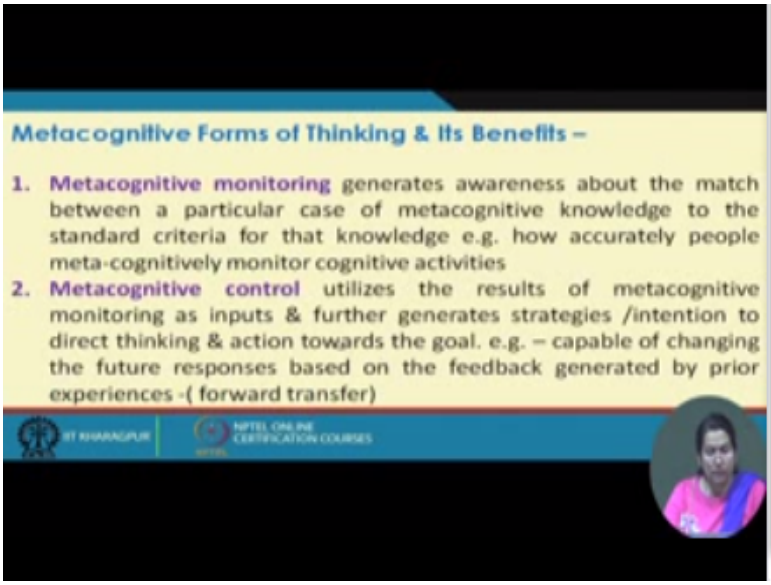

So now we discuss about the benefits of met cognition metacognitiveforms of thinking in our various cognitive processes so metacognitiveforms of thinking and its benefitsmetacognitive monitoring another thingies the met cognition metacognitivemonitoring how it generates awareness.

So when we are engaged in met cognition and we are evaluating our own cognitive processes thinking process so here wearer also monitoring our own cognitive process or thought processes so this cognitive met cognitive monitoring it generates awareness generates awareness about the match between particular cases of met cognitive knowledge to the standard criteria for that knowledge.

For example how accurately peoplemetacognitively monitor the cognitive activities like for example so we are trying to attempt we are trying to attain and that means the to achieve ascertain level of mastery or will allowed try to achieve a particular goal set for our set for us at a particular criterion level like when we are engaged in either solving a problem or achieving the goal the goal has been fixed and certain criterion level okay.

So when wear engaged in met cognitive monitoring constantly where we are evaluating monitoring our own progress and mapping it with the criteria level set for that goal okay so it creates a kind of general awareness it creates a kind of awareness to perfectly match between this particular met cognitive knowledge case of Pen cognitive knowledge that we are engaged in and whether it matches with that criterion or not.

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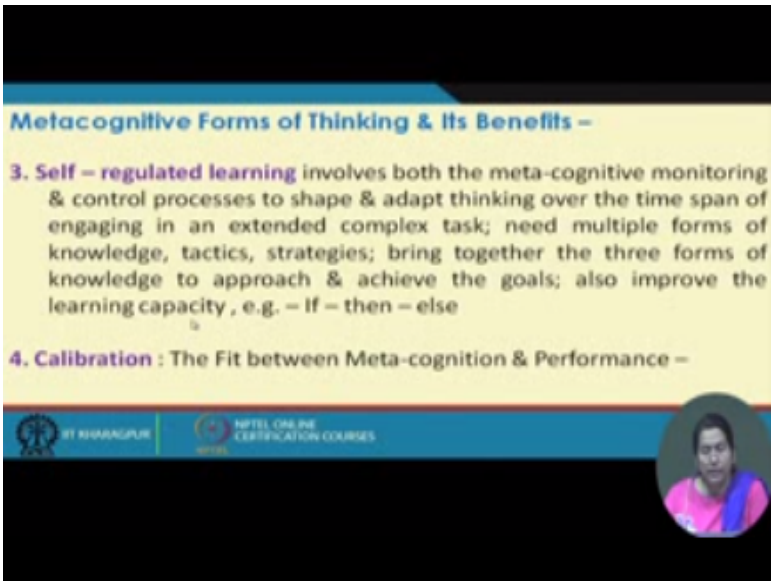

So in that way people accurately that means evaluate how accurately metacognitivelymonitor cognitive actively like whether we are adopting whatever cognitive strategies where we are adopting whether it is perfectly helps us or matches with the Creighton level or not or whether will be able to achieve that goal or not so constantly we are in an effort to map it to compare it to match it with the specter Crichton like we constantly evaluate monitor our own McConnell's and thought processes like whatever you have selected the hypothesis.

The strategy of selected would be a helpful really helpful and accurate and correct or right to achieve that goal or the criterion goal is very high or and you commute something different some extra effort or some new strategies that we constantly match and map with thismetacognitive knowledge with the criterion knowledge ok so meta cognitive control again meta cognitive control utilizes the result of the metacognitivemonitoring as an input so in this process when we are constantly comparing or matching our knowledge met cognitive knowledge with the criterion etc.

So that that knowledge is self it acts as aninput so that is called a metacognitivecontrol so when again we try to reevaluate it control and evaluate those processes so these knowledge inconstantly matching and trying to match it to other things with it as an input material it access our monitoring as at his kind of met cognitive input monitoring it acts as an input and further generates the strategy net foramen levels also in formulating new hypothesis new strategy new techniques strategies and the intentions to direct the thinking and action towards the good.

So to be more accurate to adopt a more accurate more appropriate more strategic state towards the goal achievement so for example our capable of changing the future responses based on the feedback generated by the variable so in the when we're engaged in the metacognitiveprocess firstly the metacognitivemonitoring is a process where we constantly try to match or map our elite abilities approaches and strategy with the criterion growth okay.

And in the next step that is in metacognitivecontrol these hot processes monitoring and processes it acts as an input material formal met cognitive control which further helps also in generating the new strategies are enabling our intention to achieve - to redirect direct our thinking to redirect our cognitive behavior towards that goal okay.

So in this process that you knowyou can say met cognitive monitoring is the initial stage and metacognitivecontrol is the letter stage of being more successful towards the goal attainment goal achievement so as result of which we gain some experience okay so we gain some experience as result of our reflective thinking the feedback we received from our own thought processes etc so it helps us in forward transport like which helps us in applying those things in the future learning behavior.

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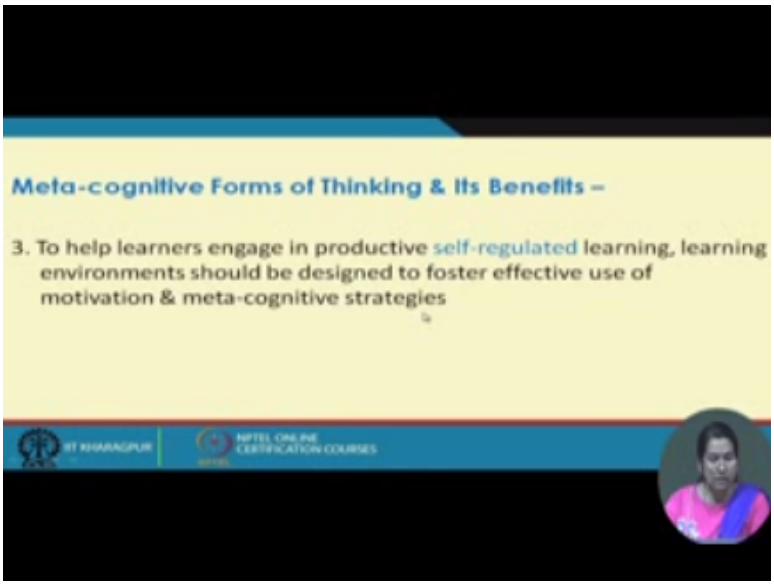

So another thing or another form of the benefits of ametacognitive thing is a self-regulated learning self-regulated learning that means very often is because we are engaged in met cognitive monitoringmetacognitive control and gradually becomes successful or in directing our cognitive behavior and actions towards a goal achievement so here in this process we gain experience and we become more efficient in our own cognitive monitoring man etc.

So that is called gradually we graph control over our own learning process that is called the self regulated learning so gradually when we can we grasp the control over our own learning process because we can very well know our own thought processes our met cognition has been ametacognitive processes has been and strengthened because of the rigorous practice and the experience of dealing with different kinds of the problems.

So gradually we with drafts we occur the site's regulated learning regulated learning it involves both themetacognitive monitoring and control because very often we when we are engaged in any kind of learning and problem-solving exercise very often very quickly very actually we use thismetacognitive monitoring and control processes to Street to shape and adaptor thinking over the time span ofengaging in an extended complex term.

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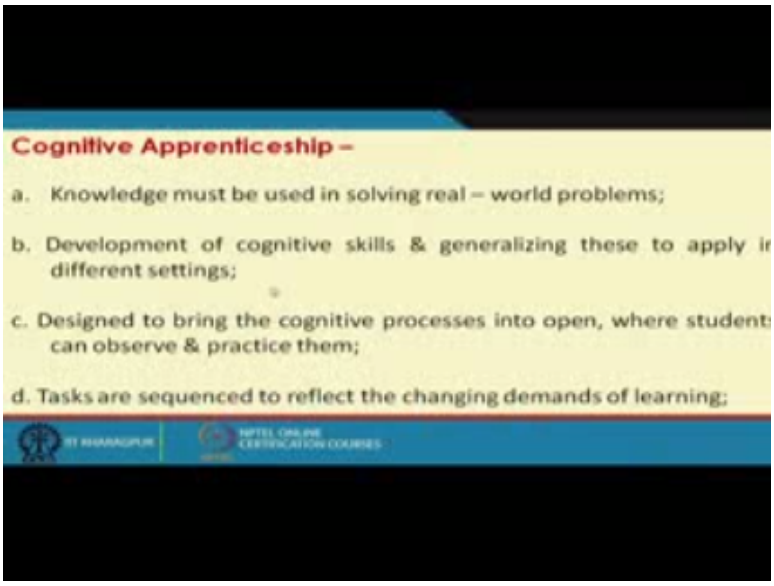

So very often we can flexibly use both these met cognitive monitoring and control to shape our thoughts or to say to reshape our strategies to adopt outthinking according to the requirement of the problem so when we are engaged indifferent kinds of complex stuff and enable us to perform it to deliver within the time span is it within the time span framework times framework so it needs the multiple forms of knowledge tactics strategies.

So it requires it makes us more flexible in adapting multiple strategies multiple tactics multiple approaches and knowledge from different sources and to put it together bring it together the three forms of the knowledge and declarative knowledge the procedural knowledge as well as the conditional knowledge to but to blend it strategically and to achieve the goal to blend it and statistically to achieve the goals.

Also improve the learning capacity that is if-then-else so self learning a regulated learning you can say is the benefit is an outcome off is an outcome of engaging ourselves very often in met cognitive processes while we are engaged in learning or problem-solving behavior so it gradually empowers us to control to monitor to control our own learning experiences our own thought processes and strategically blend all the declarative knowledge for Shebelle knowledge and contextual or conditional knowledge etc.

For achieving our learning goal and it improves our learning capacity or you can say it also enhances yourself-efficacy self-efficacy then tenet benefit is the calibration is the fit betweenmetacognition and the performance so when we can cliff mash when we can perfectly

match our met cognition like the analysis all kinds of cognitive analysis monitoring control and speculation and reshaping rethinking the strategy real an adaptation of our you know action plans according to the role requirement.

So it is a perfect match betweenmetacognition and the performance like all the outcome of these metacognitiveexercises it perfectly match with the performance or the expected learning outcome so that is called a calibration that how in this calibration takes place this is the I can say final benefit or for our ultimate outcome ofmetacognition the fit betweenmetacognition and the performance.

So in this perfect massing of workmetacognition and the outcome and the performance so the degree to which adperson's judgment about his or her performance correspondence corresponds to his or her actual performance let initially when facing the problem when I was evaluating how difficult it would be what strategies would be appropriate.

But how much I should blend the technical knowledge domain knowledge the declarative knowledge with the know-how in a particular context vision that when have like when had formulate those strategies and evaluated the whole thing and prepared a kind of design plan or action plan so now and accordingly I had moved to resolve that issue or the problem and resolve that issue or solve the problem.

Now actually I am facing am experiencing that yet it has perfectly met and messed with my performance and actually it has happened in that way and it perfectly corresponds in melt and I am now recently now I have got the exact outcome learning outcome the actual performance actual good so this actual perception of performance mastery.

So this is not just most accurate like whatever I had expected I had evaluated monitored and regulated design in that way and my performance exactly matches with that neither overestimating my performance not underestimated it is just perfectly matches with my performance had designed it the way I had designed the action plan the way I had and a proscheme the way I had an upgrade the different kind of strategy I settle now it has perfectly matched with the performance that is the outcome performance actually one that's perfect matching is the result of calibration.

So that is called neither overestimated notunderstandso here mapping the performance weight the met cognitive strategiesmetacognition so when this match are theft between the met cognition and performance perfectly matches that is called of calibration takes place that's with regard to mapping the performance second is that to foster effective met cognition learning environments should offer appropriate scaffolding aligned with the nature of the task knowledge being studied and the learners character.

So to end to a strain and this kind of calibration this kind of perfect matching of person's judgment about his met cognition and his actual performance so to foster this that the first of this kind of a metacognitionamong our students in the learning environment we should offer that within the teachers the administrators will the educators they must offered they must offer the appropriate staff.

Holding that means for each kind of complex task complete complexity incomplete complex and competency etcetera the teachers educators they must blame this effect cash holdings affording align with the nature of the task the scaffolding not that randomly scaffolding techniques etc. but the scaffolding as it required as it is required in the particular context in the particular context with the type of the path at hand and the nature of the task knowledge being studied.

And the learners characteristics so the learners characteristics the appropriate tasks and the knowledge being studied or the competency to be developed so competency to be developed we can embed and which are embedded in the particular context all these things should be properly aligned perfectly blended with the scaffolding technique to facilitate effective metacognitionso then to help the learners engage unproductive self-regulated learning at the same time we also that means all should all real.

So that means our learning environment there are educators the teacher we should also help the learners engage in productive cycling related learning. So we must give them the opportunity chance to not only solve the problems but to again encourage them to practice met cognition in a more productive way in a more constructive way so as a result of that practice rigorous practice regular practice ofmetacognition of whatever they restudying whatever they are doing whatever their problems.

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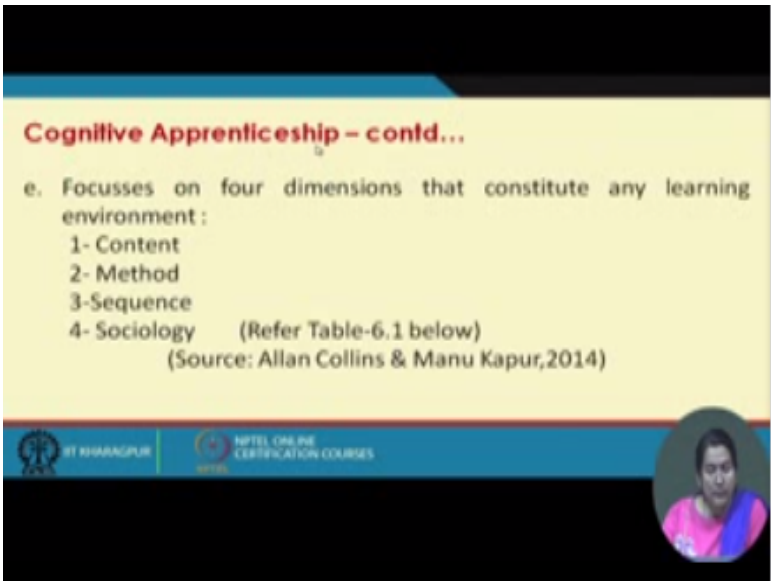

They are dealing with and that can gave them in the productive sighs regulated learning for not only Mistake and Jays in themetacognitive practices but also explaining it explaining it narrating it articulating it explicitly.So they can understand their own learning process and can improve and monitor control and improve so I will improve their own phoning learning process that is called the productive size regulated learning.

So when they are engaged inmetacognition cognition metacognitiveprocesses they can explain it they can articulate it they can justify it they can give feedback to themselves oh yes they can bring modification and change in their strategies they can evaluate their own strategies so. So the all these exercises will help them in being more productive in self-regulated learning and learning environments would be designed to foster effective use of motivation and met cognitive strategies so for sulfa enhancing for self-reliant hunting.

The productive cycle regulated learning two things are also important one is the learning environment which is designed in such a way to foster effective use of metacognitivestrategies and the motivation. So through the scaffolding we can properly align the learning environments the tasks the situations are not the context and wean also adopt to the learning science of the learners and it also motivates the learners to engage themselves inmetacognitive studies and how to how effectively we can how effectively you can practicemetacognitive strategies that also that can also be learned.

So we can promote this kind of whole thing align them properly to get the maximum benefit ofmetacognition and to make the London more independent and through size productive self regulated learning sour next technique is earnest innovative approaches or another is called the cognitive apprentices so thesis also another approach innovative approach towards teaching learning behavior or cognition.

So cognitive apprenticeship it can rotate for like knowledge must be used in solving real-world problems so the basic philosophy of this cognitive apprenticeship is that that whatever knowledge we gain we acquire these are not just a theoretical knowledge not just abstract knowledge not the bookish knowledge so whatever knowledge we gain which must be it should be used for solving the real-world problems and it also advocates for development of cognitive skills.

So when we acquire the knowledge it should also enhance our various cognitive skills abilities like you know higher-order thinking skills analytical skills critical thinking skills evaluation skill a metacognitiveskill and you know imaginary skills circuited thinking skills all kinds of cognitive skills that is the development of cognitive skills and generating these to apply in different settings.

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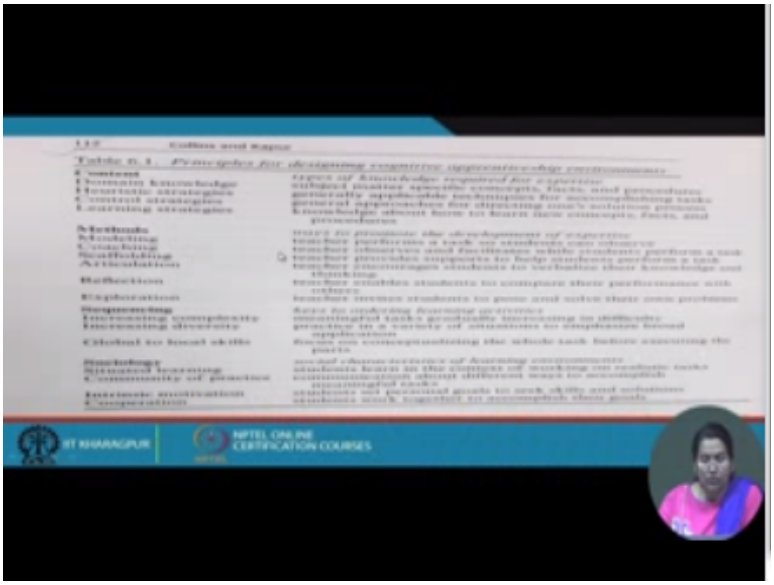

So it is not just on rote memorization of certain things or imagine applying these in the different context but also higher-order thinking skills that is development of cognitively higher-order

thinking skills and generalizing these skills to applying different settings and tools think about how these skills can enable us help us in resolving different kinds of problems in different settings designed to bring the cognitive process was sent to open where students can observe and practice them.

So in the teaching learning situation the de learning programs academic programs should be designed in such a way that how to make this all cognitive processes or higher level cognitive skills be very explicit theory you can say conspicuous be very clear and open to everybody so that anybody can observe it anybody can I didn't immediately practice it so designed to bring these all these cognitive processes to open if we are Indian state is thinking if you are engaged in high a high level of analytical thinking if you are engaged in high level of critical thinking higher level of imaginary Keys etc.

Then how to exhibit how to demonstrate it for that the sports will be able to learn it by observing them and practicing them okay so cognitive apprenticeship it also says that the earnings programs should be designed in such a way to bring those cognitive skills and processes and open to bring these to the and to bring this to BA are you know open our open forum open observation for all of the students.

So to help them to enable them to observe it to imitate it some after often imitated to practice it to experience it so that they can quickly learn those skills they can quickly learn those higher level of cognitive skills to applied so tasks are sequence to reflect the changing demands of the learning situations so accordingly when we want to make it open and we want outpour learners our students should develop those skills we have to design certain tasks in such a way that it has been sequenced to reflect the changing demands of young gradually.

When they are learning when they are observing graduate also reflects its consequences it also reflects its outcomes it also reflects its improvement its improvement in the performance and reflect the changing demands of the learn so when the tasks are being designed in a hierarchical order in Erin order to exhibit in order to demonstrate the higher order cognitiveskillsit must be sequence this must be arranged in a very inductive way in Avery orderly sequential way so that at the completion of each step of this cognitive staff.

It exhibits it reflects some kind of change such a certain kind of result in the learning performance so in that way like you know I can save the like the instructional design are the instructional design and should be sequence in such a way that at every point of progress every point of progress and learning and performance it gives us some kind of feedback which formally which openly and you can say complements the results we doe complete explains the outcomes.

So similar in cognitive up in the apprenticeship focuses on the four dimensions four dimension that constitute any learning environment so here the focus is that we must give some kind of cognitive training to the students to the learners some kind of apprenticeship on the training of the cognitive skills require cognitive process a higher level of cognitive processes in terms of giving them are converting these things into different kinds of tasks and arranging.

Those are arranging the staff in sequential way so that by performing each task and sub tasks they can understand they can learn the learn here the cognitive skills in a very gradual in sequential way and for that matter four dimensions are important one is the content method sequence to the Sociology so the constant is knowing so basic deep content the content that the content or that means the content is related whether it is related to higher cognitive processes related to designing.

Designing a machine a kind of you know equipment audio at a mobile design or what kind of thing we want to design the content method how we’re going to do it in sequence how it has been arranged logically and social again within the context in which context it has been embedded so in this context we'll just both wave table which better explains it okay so here we can say the content primarily says about the domain knowledge that means in order to solve that task to solve the problem.

To complete the task what kind of domain knowledge we need we need to acquire then the heuristic strategy that is the soft cause mental soft course for fact the strategies heuristic strategies control strategies and the learning strategies control strategies says about the approach of directing one solution process generally applicable and the heuristic strategies or applicable techniques for accomplishing the task and the learning strategies but what about how to learned concepts etc.

So content that was primarily dealt with these four kinds of things domain knowledge heuristic strategy control strategy learning study and the method like the technique the ways how to teach them that the method says of us either through modeling the teacher the tutor they themselves can model the behavior performs a task that is themodeling then a coaching a coaching the teacher or coaching is that the teacher observes and facilitates for the students that performing a chili and scaffolding the teacher provides suppose to help the students perform the trackman.

That means gradually help the teacher helping the students supporting the students for performing the task and learning budget articulation that is openly explaining the teacher encourages students to verbalize the knowledge and thinking articulation then reflection reflecting upon the performance then exploration the teacher invites the students to pose and solve their own problems okay.

Own problem explore the new factors emerging factors and explore and they expose the students expert oppose and solve their own problems again sequencing orderly arranging those things ordering and ordering the learning activities increasing complexity from simple to complex there are julienne and inductive a increasing diversity practice in a variety of situations and situation campus to emphasize the broad applications like not in a particular typical one way method.

But multiple ways of solving those things and the global to local skill focus on the conceptualizing the whole task before executing to the part that means for our first offer in the first instance we should have an overview of the whole thing over Q often whole thing then to translate it into the local skills or the sub skills or the with Babbitt action plans then social sociology is the in which context actually has taken place the situated learning context social characteristics of the learning environment.

That in which context has taken pluses the situated learning community of thepractice communication and about the different ways of accomplishing the meaningful tasks then intrinsic motivation of the students at the personal goals to seek splits and solutions the intrinsic motivation why the students have become interested in solving that problem in taking of data that is intrinsic motivation then the corporation students work together work together.

To accomplish their goals that Is community cooperation community that missing the students shared their knowledge and experience cooperate with others and try to sort out the whole thing

accomplish the whole thing together cooperatively collaboratively so this is the show so logical sociology factors like situated learning the context community of the practice what are the different kinds of practices and available for a complexity of those staff intrinsic motivation cooperation.

So these are the factors for design principles for designing the cognitive apprenticeship environment so now here we complete this cognitive apprentices reputation approach her - pedagogy so primal you can say that engage on-the-job training on-the-job training for you know different kinds of music like it our automobile engineering or mechanical engineering even in logistical engineering all kinds of things so where we try to give our students more kind of on-the-job training on-the-job experience.

So we often call them or end gear the meaning in different kinds of internship for where this cognitive apprenticeship training through cognition training through cognitive approach training through cognitive skills for this kind of environment we create design the learning content in that way and we provide them a kind of learning environment to learn those cognitive apprenticeships as click light to gradually understand unfold and learn the this kind of you know cognitive skills.

Cognitive skills web - and to make it more open more explicit more elaborate and to have articulated to verbalize it so they themselves not only understand the recognizer identify and they learn those skills they learn those skills they themselves demonstrate it evaluated and improve the performance and so that in this process the basic theme is that basic philosophy is that whatever knowledge we gain it must bemused for the real world problem.

So whatever theoretical knowledge they have gained it must be used for solving practical problems it beat automobile engineering knowledge be it philosophical knowledge beat economic knowledge social cone and sociological knowledge whatever knowledge but how to use those knowledge for solving the real world problems and in this process how-to shape how to reshape our thinking process the cognitive process.

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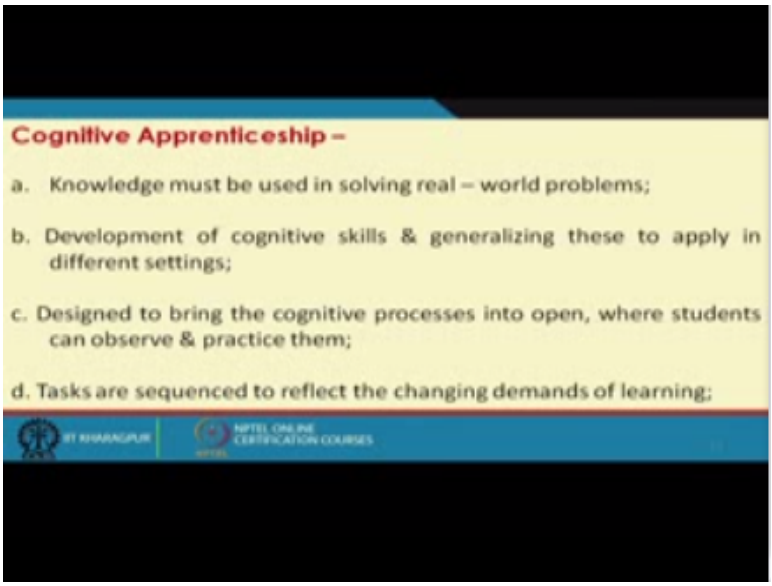

Through Adventists intimate apprentice sitting through cleaning through training so development of the cognitive skills and you know and for that matter how-to design the whole learning situationcontextin such a and we saw that the task cane sequence in an inductive way exhibiting the skills required skills clearly explicitly and in that process the students they observe them with practice then they learn them so this is the whole purpose of cognitive apprentices the next class will follow will discuss another topic new topic now for this session now we stop here so thank you very much.