Psychology of Learning

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Lecture – 33

Learning and Instruction (Contd.)

Hello viewers, welcome back to this NPTEL course on Psychology of Learning. So, in the last class we were discussing about the different learning styles. So, now, today we will start about instruction, discussing what exactly instruction is, what are its principles etcetera and all the details. So, now instruction refers to those curriculum related things professionally informed decisions that the teachers purposefully enact to enhance the learning opportunity for the students. The thing is that instruction it relates to relates to a kind of formalized teaching processes where the instruction is related to curriculum that is related to professionally informed professionally informed subject content, subject specific things with the instructional objectives, with the instructional guidelines and with the again how to measure learning outcomes.

So, in a very structured way in a very systematic way how the teaching is being provided with the expectation that it purposefully it can enhance the learners learning and enhance the learning opportunity for the students. So, here then the then we come to the effective instruction. Instruction definition is that it is related to more curriculum oriented professionally informed decisions about particular content, subject content and expected learning outcome etcetera and how to enhance the learning opportunity that is the in general that is the definition of. Now, but when we talk about effective instruction the instruction which has to be very effective it must have some impact some positive impact.

So, effective instruction is more of interactive it is more interactive and designed to accommodate the students learning needs styles through a variety of teaching practices. So, here effective instruction it includes a lot of teaching practices because it has to cater to the different learning styles and different learning needs of the learners and it has to be interactive and it has to accommodate all the individual learner's styles and needs etcetera at the same time to cater to the diverse needs of different learners in the classroom. So, it must be a combination of different teaching practices. So, effective instruction it includes all these activities. So, that is the effective instruction has multiple functions, multiple actions, multiple objectives.

First thing is that effective instruction is guided by the general pedagogical approach and the specific instruction instructor's office instruction practices. Thing is that effective instruction it includes different pedagogical approaches and the structured content and different instructional practices. So, effective instruction is eclectic, it is a combination of it is not just one individualistic it is eclectic it is changeable it is a combination of different thing as per the requirement. It is again it is directly related to the success of the learning experiences. So, the basic objective purpose of effective instruction is that how to make this learning a memorable experience, how to make this classroom learning or the discussion of classroom discussion a memorable experience not only a normal experience memorable experience in some

knowledge acquisition, but also experience, but also sharing the things, but also learning some social   skills.

So, it is a memorable how to make it make this learning experience more meaningful or memorable. So, again it is also related to empowering the empowering the professional practice in action. So, it is empowered the professional activities the more often we change or that means, change and use on innovative practices in action it empowers the learners, empowers the teachers, it empowers the professional practice strengthens. It integrates the component of the core curriculum. It is definitely the core curriculum the content the framework is also there. It is generative and dynamic. It is not fixed it is no it is very dynamic it is very flexible it is it all it is it is generative it creates more and more things.

So, it recognizes so, that is why effective instruction it is recognized both as an art as well as the science of teaching. So, instruction it recognizes that there is an art as well as the science of teaching. Science of teaching when we talk about the rationality, objectivity you know structured teaching, structured content etcetera this is the when we follow a very scientific method of. Whereas, the art of art of means whenever we the teacher instructor explains narrates guides mentors. So, then it is an art this again the individual factor also comes in.

So, it is both an art as well as the science of teaching. It acknowledges the comprehensive understanding of comprehensive understanding of the instructional style in the instruction cycle. How from where like in every instructor in the every teacher they usually lesson plan lesson plan. So, they will achieve the lesson plan is a blueprint of how this instruction cycle revolves how the instruction cycle takes place or functions like it is beginning with the how to introduce a topic till the assessment of the learning outcomes. So, all these things in a circular when   they   in   a   cyclic   way   one   by   one   step   by   step.

So, it is so, it effective instruction. It always acknowledges a comprehensive understanding systematic understanding of the learning cycle of the instruction cycle and in a very systematic way. The to find the effective instruction find the best expression when the educator collaborates to develop implement and refine their professional practices. The thing is that is not even though it is a subjective it is individualistic, but it gets strengthen when the number of educators they collaborate the group the two they group together they meet together they form a team and then share and they discuss and then refine their professional practices. So, in this way they also create they also create the new practices. So, it is new practices effective instruction gets strengthen with the collaboration educators collaborations they are discussions sharing   the   practices   as   well   as   getting   engaged   in   the   research   also.

So, research also strengthens the instructions effective instruction process like with the with the research also getting engaged in different educational research also pedagogical research instructional research etcetera content analysis etcetera. So, we also get the research also strengthens the efficacy and efficiency of the instructional processes. So, now so, instruction as you can see instruction that is again instruction it is not just the acquisition of knowledge it is organizational of knowledge it is the retention of the content again it is the calling and application. So, instruction is a set of events it not just about delivering the thing it begins with the designed blueprint the lesson plan it starts with how to introduce a topic and again before introducing a topic how to you know recapitulate the old learning old knowledge old or previous lesson etcetera from there it to begin with and at the end to assess and evaluate the learning outcomes the key takeaways ok. So, it is a set of events outside the learner to facilitate the   internal   process   of   learning.

So, here even though learner is a important factor, but all these instructional procedures and processes and mechanisms are actually designing it structuring it which is outside the learner. So, learner whatever he learns he experiences that is his individual you know reflection, but instruction takes place outside the learner, but keeping in mind the learner needs keeping in mind the learner styles preferred styles. So, it is a set of functions it is not just one event, but n number of events and concepts. So, the events of you know events of instruction like for example, instructional events can be diverse can be different can be varied for example, gaining attention to information that the learner of the object is stimulating the recall or prerequisite learning then presenting the stimulus material guiding the learning eliciting the performance providing the feedback assessing the performance of students enhancing the retention and transfer all these things are instructional events. Relation to the internal learning processes like reception of the pattern of natural impulses activation of the process of executive control how to retrieval to the working memory emphasizing on the features of selective perception semantic encoding all these are the cognitive mechanisms how do we learn: cognitive mechanisms semantic encoding activating the response organization establishing the reinforcement activating the retrieval make retrieval making the reinforcement possible. These are the relative that the relation to the internal learning process these are the event how does it relate to the learners learning processes the internal learning process and mechanisms learning.

So, it is all these instructional events takes place in interaction with all these in learners factors learners process learning processes. So, here the role of the trainer is that yes the role of the trainer or the teacher instructor is that he is an expert he is a his role is an expert he because he transmits the information about the subject to the audience to the student and he is he has a he is a planner also because he has a planning role means he has to design the plan design how to present the thing design to how to create that learning experience in the within the learning environment how to make them understand how to engage them in different discussion how to make it more interesting innovative all these things. Instructor again guides and directs the learning situation often giving some instruction direct instruction to learner to do what to do what not to do as a facilitator to facilitate the learning process because when he is responding to learners needs their styles and their etcetera he also lends guidance how to support them facilitate them in self learning. So, as a facilitator as a resource person because he as because he provides the materials information etcetera. So, he has response repository he has a repository. So, he is the resource person also with whom we can consult about about the where about of what the location of different information sources or the books etcetera. He is a co learner learning together because when as a facilitator as a as a mentor he also learns together with the with the learner with the learner being a part of being a participant being a member of that group learning in lab classes in you know tutorial classes a co-learner and he is also model role he is also role model like model which influences the behavior and the values.

So, not just about the content knowledge not just about the subjects, but also values and attitudes and behavior. So, he is he has the multiple roles in the in the process of instruction then there are different types of instruction again. Direct instruction where he is which is more of the teacher centric teacher gives all instruction demonstration he decides what to teach what not to teach how to design the lesson how to frame the question all these things it is actually teacher centered. So, traditional classrooms where everything was being prescribed you follow these book these are the text book how these are the lesson the teacher comes and delivers the lesson in the classroom with some black board work etcetera gives instruction what to do homework etcetera how to follow etcetera or lab classes or assignments etcetera. So, it is more teacher decided teacher centric teacher direct instruction coming from the teacher.

Indirect is that is most student initiated. Student's interest. So, students they they they have been given the teacher guides the student, but the teacher are free and the students are free enough given the freedom to discover the concept what to learn what not to learn let let you let us explore the students explores different domains of you know knowledge or different concepts different interdisciplinary topics etcetera. So, the teacher guides the students to discover these concepts principles related skills and how to acquire it how to learn it in a better way that is the indirect student centered student is the initiator student takes the interest student is active learner he takes the interest and the teacher is there to support him to guide him.

Interactive instruction is the group centered. Interactive is the where the in the socially situated group context like the teacher facilitates the group discussion the debates the role plays the cooperative learning again the teacher is the facilitator here, but the interaction takes place in group context group learning context ok. Independent instruction is you know is the individual center like individual the teachers assigns the projects individual projects individual research self study homework to the individual learner it is independent instruction individual centered.

Another is experimental instruction is more of inquiry centered is that it is more it engages it includes more of hands on experiences more field visits more experiments more simulated simulations more problem solving more investigation of field investigation. So, that is experimental when we experiment to explore something new ok, that is inquiry based that is inquiry based verification based inquiry based that is the experimental instruction. Now, then these are some of the principles of instruction like as you can see the what is the what how this Merrill Merrill has presented different guidelines principles for instruction that means, which context the instruction can be effective for effective instruction this principles would be followed. First of first thing is that task related to task related or problem centered if it is research related then it has to be problem centered and task related the content. So, where the learning is promoted when the learners are engaged in solving the real world problem.

So, whatever task you are assigning what are the problems you are doing it is learners are engaged like if it is related to real world problem if it is related to any socio economic problem if it is related to any community problem physical problem real life problem then learners seem to be more engaged ok. Activation is that learning is promoted when existing knowledge is activated as a foundation for the new knowledge ok. So, activation is that you have to ignite their existing knowledge their intrigue behavior that present knowledge in order to achieve in order to learn the new knowledge. So, it is existing present knowledge will be ignited and will be taken as then foundation active foundation for the future learning for the new knowledge ok. And demonstration yes you have to demonstrate it learning is promoted when the new knowledge is being demonstrated to the learner.

Exactly demonstration like for the demo the teacher or the instructor they demonstrate how to do it how to perform it how to say it. So, by observing this demonstration of the teacher learning takes place and the teach and in that way the learning takes in a better way. Application application of the knowledge in the new situation learning is promoted when the new knowledge whatever it is created is applied by the learner in different situation similar situation ok. Then integration learning is promoted when the new knowledge is integrated into the learners work it is not just about the theoretical knowledge that the learner acquires, but he is he is also he will also be thinking of using it for solving other real world problems. So, that means, it he can adopt this kind of thing I integrate it as a part of his daily routine daily behavior daily practice these things.

So, learning is integrated in the real life situation in the learner's practical world. So, you can say the task related problem centered instruction should be there it should be activation that is related to you know it should be it should be very active learning it involves active learning demonstration it should be based on demonstration application oriented and integrated in the real world real world experiences life experiences. So, if the these are the basic principles on which the instruction is being built up built up on or the constructed. Then then thereafter comes the instructional design of how to design an instruction. So, instruction not just is confined to the classroom teaching not just related to some particular course, but instructions is it can also be provided with you know employees also.

So, even in service teachers also in even in service teachers in service teachers professionals that is existing professionals working professionals all these things. So, how we let us think about a design that model scientific model authentic model through which we can provide the we can create the instruction can module we can create the instruction module and we can provide it. So, that is the instruction system design that means, to design the system design the instruction in a very scientific way. So, many researchers they have also given different designs models of like the models of instructions instructional design. So, similarly out of which that is the instruction system design ADDIE model is the most popular one what is the addy it is the abbreviation of different stages.

So, instructional system design this ADDIE model it can be it can be used for any professional for any trainer for any group of learner and the trainees ok. So, ADDIE model because it is scientifically done pedagogically sound and scientifically designed instruction model. So, which can be replicated in different context depending on the trainer or the learners development stage or the needs etcetera. So, there are also other models, but we are not going to the other things ADDIE model is very popular one we will be discussing. So, instructional system design or briefly you can say ISD.

ISD is used for assessing the developing the courses and the solution needed for the formal training when we talk about the giving formal training in some skills, some competencies, some content knowledge, some on the job training etcetera. So, here we can follow this model this ISD model. It is more systematic because it has applied a more systematic approach to design the courses for training delivery and at the end with like for example, with the instructional objectives, learning objectives and with the content how to design the content and at the end also again evaluating the learning outcomes as expected learning outcomes. So, in a systematic step wise manner it has been designed. So, it has been developed the systematic approach to.

Second is that applying ISD in designing this is developing the course primarily it is more of to keep track on the learner based is more of learner base because and teachers teacher based approach it has the teacher on track for the learner base rather than the teacher approach. So, here our target audience is learner the trainees ok. So, instructor the teachers are designing it, but the target audience is more of learners or the trainees. And therefore, and in order to make it more effective in order to make it effective learning process. So, it has to be based on based on a grounded on the learning objective or you can say instructional objective and expected learning outcomes.

So, therefore, the most popular is the ISD model is the ADDIE model actually it is the abbreviation of ADDIE means it is analysis first is the analysis stage design development

implementation and the evaluation these are the different stages and the sequence wise phases and that abbreviation is called the ADDIE model. So, it is a step wise step framework by design used by the instructional designers to give the to develop the content to develop the content to deliver the content and then implement deliver the content implement it and evaluate it at the end at the end to create the educational or training programs. Like for example, all the training program in service training programs faculty development programs management development programs all these ongoing working professional programs in service programs usually we design this kind of primarily the instructors experts they design this different kinds of you know training programs for competency development skill development based on this ADDIE model this ADDIE model. So, ADDIE model it actually aims to organize the different content streamline the content streamline the development and structure the framework for you know for catering to the needs of specific group of the people or the specific group of the people of the individual of the professionals of the trainers of the of the trainees who have that who have some specific needs whether we can we are designing for the engineers for the scientist for the tourist people for the faculty for the management trainees for whom who are the target audience. So, the here there are some prerequisite feature like the who are the target audience target by audience that is the for whom we are designing.

So, accordingly we have to analyze all their needs all the need analysis all the analysis will be done. So, it is very specific and customized and specific training module for the for the for the for the continuous you know workplace experience workplace learning for the in service learning and different kinds of learning and instruction. So, the principles of instructional design system design what should be the principle what are the certain principle. So, the instructional design program should be able to teach the subject matter efficiently. So, here efficiency expertise in depth content knowledge that should be that should be taught that should be given.

So, that the participants the trainees are the participants they will be able to acquire the acquire these kind of things they can they will be able to understand this thing they can acquire and develop their own skills on the basis of it. So, here again it should encourage the learner encourage its learners to cover all the learning activities enabling them to apply the subject matter in the practical situation especially in the workplaces in the offices in the educational institutions. Then to do this also instructor should also the instructor while designing this thing should also look into the students' background their learning capabilities. That means, who are the target audience who is the focus group who are the learners. So, and also add on to some supplementary resource materials through and some extra materials if in case they need some kind of intervention then extra remedial kind of material also they can they can also collect.

And to allow the students to observe the lesson faster suppose we are designing a training model for the slow learners or low skill workers. So, for them how to improvise their performance how to help them in understanding and acquiring the skills and knowledge and competencies etcetera. So, we have to also give some kind of intervention that also that also that can also address the remedial things also. So, it is it should clear it should be designed very in a very clear straight forward way in a organized format in the structured format and primary aim is to build up the knowledge to develop the to teach or to help them to acquire the skills. And based it should be related to the previous lessons or previous or that their background information background knowledge explaining how the current subject links to the next one.

So, it is a sequence of thing suppose we are giving and giving developing a training ISD model training model training module based on the ADDIE design for the IT in information

technology IT professionals. So, keeping in mind not it not just about addressing their needs, but also their background knowledge what actually while come we are inviting the IT professionals we must know about their existing knowledge. What is the already or entry behavior or entry level knowledge is already there and whatever we are creating more further we have to relate it to their existing knowledge otherwise it can be they cannot understand it. It will be wastage of thing. So, we have to relate it to their past knowledge past learning experience or existing learning then we have to how to from there we can take it up towards the progress towards the future towards the more knowledge and competency development. So, that is why we have to again systematically break down the lessons into different smaller chunks usually we call that the suppose one week training module one week training module we can divide it into different chunks in terms of you know module each 2- 3 module or 2 or 3 or 5 module depending on the whatever within each module there may be some different learning objectives hands on and combination of other things.

So, we have to design the whole thing in a very systematic way in a modular way in a with the groups modules are the chunks of the group of things similar things under one topic. So, that it can help them in learning the things and take it forward that means, not just linking the at the knowledge level, but can translate it into function into the action into the performance. So, that is a it should be it should be it should put the information into the context. So, enable the learners to understand the subject more deeply and linking the new information to the existing knowledge. So, that is why we usually relate it to their background knowledge to their work experience to the context working context classroom context in which area actually they are familiar with. Linking the information to their existing knowledge and in which context actually   they   are   working.

So, providing the context as to how they can apply it in the real life or in the work place or in the. So, either in terms of written format practical experience etcetera how they can relate it not just to their practical life they can also use it in their work place also. It should be community based again group based should be learning together it should be group oriented learning should take place within the community of learners in the team in the in the in the situation of context of the team learning group learning etcetera. And as of course, all these you know all the principles of instruction like peer feedback, student to student interaction, instructor feedback, classroom discussion, brainstorming all these innovative practices should also be incorporated. And also it also requires the activities related to collaborate with collaborative with collaborative in nature in the sense that every in every group people   there   they   will   collaborate   and   cooperate   with   each   other.

So, usually you might have observed in the training program after initial some lecture some common lecture some topic some presentation etcetera thereafter the all the participants usually are being divided into different groups. They may be assigned different tasks, different problems, different topics etcetera and they are they are they are they are instructed to discuss among themselves and come up with the solution etcetera. Then all these after the group sharing and caring discussion etcetera then their representative will discuss and all the presentations of all the groups will be discussed one by one and then again openly discussed for comments for the critical review for the feedback etcetera. So, it provides the opportunity for the learners to create the original output also because when they are each and every member in the group set up they are engaged in discussing brainstorming in finding out the creative solution for this. So, they are engaged very often they are engaged in divergent thinking,   convergent   thinking,   brainstorming   all   these   things.

So, it ignites their learning potential it ignites their you know their creative thoughts innovative thoughts etcetera. So, it is not just again at the same time as because the learning in the group context not just involves the cognitive functions like memorizing, remembering or retrieving etcetera cognitive function, but also it relates to the social activity it relates to the social skills. So, learning improves on the students. They are able to produce the output that applies to the real life situation and they how when they teach when they educate they share and mutually again the how they mutually decide to come to the one conclusion. So, all these activities actually help them.

So, that is the instruction usually. So, instruction ISD actually follows these kinds of principles. So, so that how it can be learned based how it can be more effective how it can be done very successfully. So, that the theme the essence the summary the meaning the basic meaning the core value of these training program will be carried on will be transferred to the workplace for a longer period of time. So, for example, all these examples are given. So, here like in this context critical thinking problem solving exercises all these are the things can be will be provided from time to time differ in terms of taxes in terms of some assignments etcetera for the practical for the for dealing with or how to apply it in the practical situation kind of you know hands on activities.

So, similarly on the job on the job trainings internships on the job trainings these are also of very these are also very relevant relevant. So, it has become already now a days it has been already become a part of our curricular. So, so then again appreciating the different viewpoints like for example, how the course becomes very significant for the day to day work for the trainees for the interns. So, that will also be that will also be included in the training programs provided we select we identify our target group target audience. It creates and uses the evaluation tool different standardized tools different survey tools different feedback tools different self assessment tools n number of diverse tools are also being used as a part of this design instruction program to you know to get the to get the feedback get the feedback get the knowledge of how much they have learned and they also the learner can also trainees can also assess themselves.

So, ensure that the learners have the full grasp of the lesson before conducting and the any evaluation. So, at the end of the course actually usually evaluation is evaluation is being done at the end of the course may be in the last day also before the in closing before on the last day. So, we have to make sure that they have been thoroughly discussed, they have thoroughly gone through they have thoroughly understood the whole thing thereafter evaluation can be taken. So, that must be provide some time ample time for them may be that after the whole day whole days lecture and all activities you can also give them assign them some homework some homework which they can go through and do in the night they can do it revise the whole thing in the night and come up with the answer.

So, that kind of thing. So, the we have to give them the sufficient time for learning. Space space out the delivery of the materials. So, that time gap that means, sequence of giving them the different delivery material, feedback in small chunks in the progressive and systematic way. So, make sure that that. So, we have to ensure that the tests are very relevant very authentic very effective and it is a kind of you know self feedback through the through the test administration or evaluation this process would be very transparent in the sense that it is a kind of performance appraisal it is a kind of self appraisal.

So, performance appraisal self appraisal which also gives the feedback to the trainees. So,

these are some of the things. So, ADDIE model as you know it is a framework for the productive effective learning these are the things that we have already design these are the stages these are the stages analyze design development and evaluation etcetera. Now, we will go through the question: 'at what stages, we will do what?' That we will discuss in the next class. Thank you very much.