

Psychology of Learning

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Lecture – 37

Learning and Pedagogy (Contd.)

Hello viewers, welcome back to this NPTEL course on Psychology of Learning. In the last class we were discussing about culturally responsive pedagogy and social pedagogy and to continue with that its relevance in teaching learning process. Now, we will discuss about some of the aspects of the effective pedagogy. So, effective pedagogy it improves the higher order thinking process and cognitive abilities of the students. As we have already discussed the learning teaching learning process primarily focuses on the all-round development.

All round development means cognitive development, emotional development, behavioral development, psychomotor development. So, when we talk about the cognitive development, cognitive development has different hierarchies. So, how to improve, how to nurture, how to nourish the children's higher order thinking process. Higher order thinking like you know in Bloom's taxonomy in different kinds of hierarchies of learning are there like simple learning, simple remembering, getting by heart, simple applications transfer of skills to towards the higher level of understanding in terms of metacognition, in terms of creative thinking, in terms of analytical thinking, in terms of critical thinking, evaluation all these are the higher order thinking process.

So, how effective pedagogy primarily mobilizes, primarily focuses on how to activate this higher order thinking processes of the children. So, that their cognitive abilities, their potentialities will be developed primarily metacognitive abilities. They can critically evaluate everything and they can metacognitive ability is that they understand the know the cognition about their own cognition. They can reflect not just reflect on their own thought process, learning process. They can identify the flaws in the cognitive understanding.

So, the cognition about the cognition that is the metacognition, they can better understand how they are learning, how they are learning, where they are failing, where they are lacking. So, they can self evaluate, self reflect and change and modify and regulate their own learning process. So, that is the empowering the cognitive abilities. Similarly, learning and pedagogy are definitely these are very well integrated as these are well integrated, but pedagogy is primarily based on student centered approach. Now, recent times unlike the traditional things the recent pedagogy the modern pedagogy primarily focuses on student centric learning, student centric practices etcetera.

So, here this kind of modern pedagogy it allows the teachers to evaluate the each individual students performance regularly by giving the regular feedback, by guiding them, by coaching them, mentoring them in order to understand that whether the student is moving in the right direction or not, whether he is learning the new skills or not, where he is facing whether he is being able to deal with the problems, whether his understanding is becoming more clearer, more clear, more you know whether he is learning from his own

setbacks, failures or not, when how he is processing the information and what are the problems and obstacles he is facing all kinds of things. So, it is also pedagogy also about understanding the psychology of learning, understanding the psychology of the learner means how he learns, what are the obstacles, what are the processes, how he moves on. So, here pedagogy actually allows the students to similarly to meet to meet like minded people and learn from their peers, when they are working together in a collaborative context. So, mutually learn from each other again they develop a kind of different perspectives of others like taking the different perspectives, understanding the other perspectives and knowing the new things, evaluating the things and it also focuses on the evaluation analysis and how the students develop this cognitive skills not just to evaluate their his or her own abilities, performances, but also evaluate the other any other performance, any other concept, any other idea, any other solution. So, here you can say in teaching learning process and in the modern pedagogy, modern pedagogy actually is a game changer.

So, game changer and with the technology enhanced learning primarily, technology enhanced only actually is a game changer. So, pedagogy can support all kinds of high level initiatives and the resources required for preparing the fearless learners. That means, they can take up the risk, they can take up the challenges, they can be very innovative and they can be very curious, they can be very you know very passionate about you know solving the not just academic problems, but the social problems, economic problems and they try to you know try to empower them, try to justify, try to fulfill their achievement need by taking up the new challenging problems and also exploring the challenging issues and the problems that exist in our society. So, it is not just about solving the challenges, solving challenging problems, but also identifying the challenges and the challenging task and challenges that we are facing, maybe that in future what we are we will be facing. So, all identifying the problems also that is also it is a kind of you know energizing.

So, this is the process we have already discussed how to engage the children, students. So, that is engagement students engagement, then after engaging then the different stages like you know exploring the different aspects like that helps the students in understanding and expanding their perspective, understanding the others perspective, sharing the experience with the others, exploring the things, explaining the whole thing the teachers explicitly teach certain relevant concepts, knowledge and concepts etcetera to explain them in a better way. So, that it develops a kind of rational thinking, scientific thinking, scientific bent of mind. So, how to experiment, how to solve the problem, problem solving skill, then creative thinking skill. So, this approach can be explicitly taught by the explained by the teacher, then elaborate and further elaborate on particular kind of you know transfer of knowledge, application of knowledge or you can say how to justify it etcetera all, but elaborations and then after solving the problem after getting the solution etcetera again how to evaluate them.

Evaluating our own performances, self assessments, self analysis at the at the same time also evaluation of the solutions problems solutions also. So, here so, here now in this process again another pedagogical approach is that experiential learning. Experiential learning is also like earlier we used to say that learning by doing, learning by doing the children they learn while playing the games while doing themselves. So, learning by doing in the larger scale we can say it experiential learning. So, when we select the students or the teachers, they carefully select some experiences that maybe that community learning community like we are going for some surveys in the community or taking up the you know like for example, tasks of the community like the disaster management task or the some kind of climatic disaster some kind of you know disaster natural disaster climatic challenges or some kind of issues of you know

These are the things suppose some of the challenges when we get into the situation, when we actually try to explore the things by going into the community at the ground level and try to find out the reasons and the critically analyze the factors synthesize the whole thing then reflect on our own thing. So, so, these all these kind of community based research survey research and experiences actually it empowers the learners because theoretical learning something in the classroom and actually working in the community at the grass root level in the field in the field that is field based research field based education. So, these are two different things, but field based education reality based situation reality based education that is the it is more enriching in the sense that that we while getting into the real life situation and the context and while experiencing the actual situation actual problems they are facing then we can relate it to the knowledge that we have captured in our theoretical classes then we can relate it. So, how this theoretical knowledge can help us in resolving the practical challenges that we are facing. So, this is called the experiential learning process, but however, David Kolb's experiential learning he has developed a cycle he has developed a model that we will also discuss that how experiential learning again it is a learning cycle.

So, the student is actively engaged. In the experiential learning process the student actively engaged by posing the different kinds of questions to himself to the teacher to the team members experimenting on the thing being curious being you know being trying to solve the problems by hypothesizing by assuming certain strategies and assuming the responsibility being creative constructive that is all kinds of the positive attributes and the strengths and utilization of the strengths talents resources all these things to solve the problem. In this process this process itself is a learning experience. So, students are engaged not only intellectually and emotionally, but also physically socially they are engaged in the community level also. So, it also involves. So, again it involves all the kind of three domains of when we are actually working in the community in the real life situation definitely understanding, understanding the reasons etcetera from the experiences that we collect that we get.

So, that is understanding intellectual understanding, cognitive understanding that also gives us a kind of new light ok, insight and well emotionally also when we talk to the people when we talk to the discuss the problem with the stakeholders with the victims of the participants with the citizens all these again we also can sense out their emotional their moods their you know their you know their pain their stress all kinds of things emotional they will learn knowledge emotional learning also takes place and socially physically at the that means, at the group level at the community level what how collectively they are also facing the problem. So, all kinds of intellectual social emotional physical all kinds of the engagement takes place and all types of learning also takes place. So, it involves a development of produces a perception that the learning task is authentic. So, in this process experience and learning the learning task is very authentic and whatever theoretical knowledge and information they have already collected gathered in the real classroom situation now they are utilizing it verifying it examining its efficacy and maybe that in the process they are also learning new things. So, that is the result of this learning is the form of basis of the future experience and these real life experience and learning also helps them for you know for taking up the responsibility of the planning some kind of future experiences future projects also.

So, here in this experience learning another thing is that another advantage is the relationships are built up relationships are developed and the nurtured because student to self that he himself not just understands that means, what was his previous understanding and

perspective now with the real life experience how he is attitude his perspective changes and student to student when you relate yourself to the community people to the citizens etcetera they also develop a kind of relationship how the all in this process also positive characteristics develop like being compassionate being you know being sensible being responsible being emotionally intelligent being compassionate being empathetic all these positive attributes also the learner learn or develop slowly develop in the process of experiential learning. As you can see this is the cycle experience and learning again it takes place in the cyclic way first thing is that we observe in the community suppose we are in the community where working in the real life situation in the community where working. So, we observe from their behavior their practices etcetera we observe and experience what is their modus operandi what is their what are their life objectives what are the life experiences what are the engagements what are their economic sources what are their social activities. So, we observe and experience thereafter we review all these experiences whatever we have seen we have sensed we have observed that we again we analyze that is review the experiences then from there again we try to analyze and evaluate reviewing the experiences by reflecting on the experiences then we try to analyze and evaluate. From there we apply certain things then we sort out that these are the significant important vital points and these are the problems they are solving they are facing all these things etcetera we signify identify the different objectives different goals etcetera.

Then thereafter we evaluate monitor and improve it for example, and to solve resolve that problems. Then we apply certain mechanisms certain strategies we apply or try to introduce some resources some planning some strategy development some engagement some activities we try to apply and after some time also like that we used to do a pilot phase pilot study pilot survey etcetera. Then just to apply our strategic plannings and the things then after some time maybe after few months etcetera then we evaluate monitor the degree of improvement. So, these kind of experiential learning can take place in the real life situation in the educational institution in the industries in the technical institutions in the any sector any sector any set up any context this experiential learning thing. Like in our students are going for you know internship program some kind of community because internship has been has become an mandatory component now.

So, internship means for giving that scope and opportunity for experiential learning and how they can have that experiential learning idea about like what could be the real life job real job situation real life problems real life situation could be that to have an previous experience and to work upon that and how can they perfectly blend it integrate it in their theoretical knowledge and the better prepare themselves for the job opportunities and the new portfolios. So, now, here also outcomes of the experiences cannot be totally predicted, but even in the lab component. So, when the children they are experimenting with the different labs the chemicals etcetera, but the instructor here is the instructor role primarily is the facilitator they can the facilitator like supporting them in because they are the actual learner they are the active learner they are curious they are keen to understand what now what could be the result what could be the possible things and this process the teachers role is to facilitate them to facilitate them to encourage them to motivate them so that they can learn themselves. So, it is encouraging the spontaneous opportunities for the learning as a and yes definitely, but here teacher's role teachers they should not be very much they have to change themselves like they should not be affected by any judgment any bias any personal bias or any prejudice all kinds of the preconceptions they should they should be they should be away from all kinds of thing and they should and the design of the learning experiences primarily it includes the possibility to learn from the natural consequences even from the failures even from the mistakes even for

the from the from the you know any kind of shortcomings any kind of unpredicted result. So, how to learn from these things because you know even if we plan certain things, but some of the things some of the emerging problem can also take place.

So, from that so whether we are actually we could predict also or whether we are we are prepared for it not so how to deal with this unpredictable challenges emerging challenges as so that kind that kind of thing. So, how to deal with the natural consequences natural situations with the skills with the common sense with the abilities and to learn from the failures or the mistakes. So, here you can say the experiential learning cycle as you need this is as you know so it is a David Kolb's thing first thing is that experiential learning process is the learning explore experiencing exploring, but doing that is here experiential learning I can say the act first is the doing then thereafter sharing and reflecting after acting some suppose we receive the concrete experiences through our sense organs from the environment then ok. So, now from the facts from some of the facts and events that we experience from the concrete experience then then then thereafter we reflect on it reflect on it that means, what happened actually we reflect on it by asking different questions what it what did I experience what has happened why it has happened all these thing then thereafter that we conceptualize we try to conceptualize analyze it all the processes that happened that when did it happen why did it happen at all kinds of things that we try to summarize it summarize the or abstract at the abstract level we try to conceptualize why to find out the answer of these thing when we process this information then we try to analyze it that is what is important why it has happened. So, analyze so, from there again we try to generalize oh these are the things it has happened because of these things now these are the factors these are the reasons etcetera then we try to generalize it come to the conclusion conclude that oh this is the process and next what to do next process what to do.

So, then then after some time then when finalize oh these are now the at the end these are the important things now what to do how to apply it. So, this is the next is that then after this that the generalize application phase this is the application phase. So, this is the generalization phase that is when after when we conclude that this has happened because of the these things and these are the results then after that how to apply it how to apply that is what will I do how to primarily it involves active experimentation to active experimentation problem solutions etcetera. So, apply so, this is again the learning cycle first thing it begins with the act acting is that experiencing the whole thing then we reflect again it is the cognitive activities are reflecting on it reflective thinking then conceptual conceptualizing abstract conceptualization is all the cognitive assessment then with then again we try to you know apply it and experiment it that in a sense of psychomotor is the behavioral aspect then we need try to apply it and then only after after application then we can evaluate it actually it gives me success or not what is the whether it has been cost effective whether it has been sustainable or not then. So, this in this process learning cycle actually goes on.

So, this is the experiential learning cycle. Then there are different qualities of experiential learning are also there which involves primarily the interpreting our own personal learning experiences. So, after some group work group project team work some survey some tours study tour academic tour etcetera all the students all the participants all the team members are being asked to you know to interpret to write a summary to give a some comprehensive report of their own experiences. So, that report then when we summarize we prepare comprehensive report of our field experiences. So, preparation of that report itself is also a learning experience because when we are that means, it is a process through which we are we are reflecting on a fast learning because maybe that while experiencing we were not so much of we are

experiencing, but again when we are summarizing it writing it means we are not just jotting it down, but we are reflecting it again thinking back it again and maybe that in this process also some new insights are coming up to our mind.

So, student's roles in experiential learning are they are the they are their problems primarily are related to practical social and things and freedom and then students will be allowed to allowed the freedom in the classroom like in whichever community in whatever activity they are doing they must be given enough of freedom and they need to be involved with the difficult and challenging situations and this is they not just reflect on the situation, but also self evaluate themselves their progress their skills and they become very open minded receiving open minded in the sense that very democratic in the in their aptitude in their aptitude in the sense understanding other's perspective being rational being judicious in analyzing understanding have not just from the not being the not being bias not being a very sentimental or emotional, but rational thinking that logical thinking scientific bent of mind ok. So, so the experiential learning opportunities in the higher educations are there are many opportunities as we have discussed. It is a kind of apprenticeship experiences like on the job experiences or apprenticeship experiences clinical experience maybe some dealing with the real life problems real life patients etcetera that is hands on experiences especially in case of medical practitioners. Then cooperative education experiences like the some paid professional work experiences like suppose paid jobs some paid jobs part time jobs, philosophy experiences when we are going we have gone to some other countries some other institution and fellowship and we share our experiences knowledge with others. Field work experiences internship experiences that is that these are related to jobs. Then the practical experiences service learning experiences student teaching experiences as study abroad these experiences voluntary experiences all these are the varieties of experience experiential learning thing is that which are related to reality which are related to our practical experiences.

The context may vary, but the experiences are there so we learn from different types of experiences. So, the experiential learning theory primarily given developed by the David Kolb's theory is a very important he has developed a learning model experiential learning model which has the four stage of learning cycle as we can say feeling. The same thing we have already this I think feeling first is the feeling that when we experience the concrete events and situation we feel it first. Then we watch and observe and reflect on these. Then thereafter then when we are engaged in active abstract conceptualization so there again active thinking takes place.

Then when we think of applying the solutions applying some strategies then it is doing. So, here feeling that is emotion aspect watching observing again that is cognitive aspect thinking higher and higher order thinking process then the psychomotor that is practical experiences. So, this is the learning cycle actually the David Kolb's learning experiential learning model the cycle this is very popular and it happens in at every stage be the school children's that is why nowadays when the children are you know very much engaged in different kind of co-curricular activities like gardening, playing the drama, role playing or you know playing the playing or playing engaged in the different kinds of games, playing games, learning through play way method all kinds of the situations like these are the experience pardon experience and learning at different contexts and different stages of life. So, concrete experience as we know reinterpretation of the existing experiences, reflective observation that is the inconsistencies between one between the experience and the understanding like when concrete experience that what we write now experience feel about it. Now, reflect when you reflect on that when you observe and reflect on that then we try to match match with what actually what

was whatever what is our existing understanding knowledge about it and what is the real life situation that is and what are the differences, what are the incongruences, what are the inconsistencies that is there in between our present situation whatever we experience and our ideas our thought our previous preconceived notions and understanding about that that is the reflective observation.

Then abstract conceptualization is the new idea we try to interpret it, we try to summarize it, we try to interpret from our past experience and with the present situation past experience rational thinking all kind of thing then we try to conceptualize summarize it. Then active experimentation like applying our ideas these ideas then we try to solve it solve it through the some strategies that is the active experimentation or applying this in the real life situation. So, these are the different stages of this course learning style. So, same thing. It is given here concrete experience to reflective observation to abstract conceptualization to active experimentation all those thing all of us we can do it we can do it without the help of a teacher also we can also being the adult learner we can also practice it. So, same thing the experiential learning model, same thing the constructive and primarily this Kolb's constructive Kolb's model is being initiated is being prompted is being advocated by the constructive learning approach of you know constructive.

And here also by applying by developing this learning model Kolb also developed different kinds of learning styles. So, how the all of us we learn some of are we are more of you know visual learner, auditory learner, practical oriented learner, inductive learners, sequential learner, holistic learner different types of learner. So, in this process also the Kolb has also developed different kinds of learning styles like for example, the person who combines his concrete experience with the reflective observation ok. So, feel and watch this his approach will be more of feel and watch then it is a more kind of diverging learning style ok. Now, the person the student the persons who will combine more of reflective observation and abstract conceptualization.

So, they do not bother about the concrete experience, but their focus is more their learning is more focused on reflecting, observing, watching and then thinking. So, this kind of think and watch their activities their learning is more of think and watch. So, this is the kind of learning style that is called as assimilating learning style. So, though do not do not want to go into the material life situation practical situation, but they just observe reflect and then observe reflect and then think.

So, that is assimilating type of thing. And then another is that people who think and do they are more practical oriented people practically scientific the experimental experiment they believe in the practical experiments and experiments and verification. So, they what they think they what they primarily focus on think and do. If they are thinking of some ideas some they hypothesis something there you will they would like to instantly examine it test it validate it. So, their approach is more of think and do. So, it is a more of converging learning style.

So, kind of more of converging learning style. Then active experimentation is that again doing and another and then a fourth category is that that they are more focused on actively experimenting it and concretely experiencing it. So, their style is more of they rely more on feeling it and doing it. First you feel them rely more on the concrete experience feeling it and doing it. So, their learning style is of a accommodating learning style.

So, here as you can see this is the thing is that it is a continuum. The perception continuum

starts from 0 to 100 like this is a continuous process it is not absolute. It can be anywhere in this how do we perceive the world our perception can be anywhere in this framework in this continuum. So, it is one of this how do we perceive the thing and again how do we process this information. So, these are two continuums it happens in every individuals life how do we perceive the situation either through concrete experience or through abstract conceptualization and how do we process the things whether through active experimentation or observation again it is also a continuum. So, these are the continuous it is a continuum processes and depending on the preferences depending on the degrees to which we rely on the or in any of these modes then that decides that decides what type of learning style we prefer to apply adopt.

Whether we try with the whether we try to be very theoretical that we rely more on reflective observation and abstract conceptualization or do we really need to experiment on it and or feel or get our sensory experiences or believe that what we see, what we hear, what we listen, what we observe the things. So, concrete experience to completely abstract of our conceptualization it is also a continuum that is our perceptual continuum and process how do we process that information either through reflective observation or through active experimentation. So, in between we are taking into account the combinations there are these are the four types of learning styles can be there as per the Kolb's theory exponential learning theory. So, now, the experiential learning model that defines the same thing it allows the same thing four stages of model how do we perceive the new information, how we experience concrete tangible felt qualities whether them some people they believe their or believe more mostly believe on their real life experience. So, whether they have personally seen something, felt something, sense something, observe something they have seen.

So, they rely more on the concrete experiences whereas, others after by observing they they by interpreting observing those kind of situation they try to analyze. So, it varies that how do we perceive the things, how do we interpret it and then how do we process it. So, similarly processing is also reflective observation through multiple perspectives we try. So, we like for example, in four stages model first thing is the perception how do we perceive it some people they try to be very immerse to be very immersive very you know very try to individual personally experience it then some people we want to experience the whole event through our observation our reflection etcetera through our thinking. Then in when so, far as the processing of the things comes in how do we approach to a task whether by just watching it or actually doing it or performing it.

Reflective observation like reflective observation actually it is here reflective observation is that it it adopts it applies multiple perspectives. We take into account all the things type of to some extent the our experiences real life experiences to our observations to our thinking to our some practical aspects. So, reflective observation that we observe an environment from a distance ok through multiple perspectives as we search for an understanding of the situation. So, all of us we must adopt a kind of reflective observation now reflective reflect being reflective not just in our own periphery on our own territory, but by observing the distanced situation also. So, now the active experimentation is no four learning cycle active experiment just now we have discussed about the active experiment or co well described four learning styles, diverging learning style look at the things from the multiple perspectives sensitive to the stimuli prefer to watch rather than do and gather the information this is the diverging learning thing.

Assimilating learning style is now they prefer a concise logical approach that is and the concepts are more important and taking a lot of information organizing these in a logical way

that is assimilating they try to assemble the whole thing and try to interpret it. And then converging thing is that they prefer more technical task they there and they would like to left alone to solve them their primary individual learners self learners they they focus more on the great they are very great at solving the problem finding the practical uses of ideas because they prefer they learn better they get into the depth of the whole situation buying a learning by doing the self study or self engagement or independent learning. Accommodating is now is more of hands on learners they rely more on intuition gut feeling relying on others they are very great at bringing forward the new challenges etcetera. So, all these types of learning styles are very useful for us, but yes it is not that it is not very much fixed if we want we can be very flexible we can be very flexible in our approach. So, like for example, we can combine this acting reflecting theorizing means conceptualizing abstract conceptualization then planning.

So, these kind of learning cycle we can also develop that is we can interchangeably use it. So, these 4 types of learning styles can be used by anybody with self effort and with the rational integration. So, pedagogy that facilitates the experiential learning yes definitely internships also that facilitates the real life situations on the job training the you know scaffolding during a during and attending a training period computer assisted instruction life cases case studies business scheming and reality check surveys like the feedbacks service community service social surveys. So, these are kind of some of the situation some of the context real life situations that can also help us in understanding the real life problems. So, factors that again learning styles that we have already discussed the factors that influence the learning styles as you can see like for example, adoptive competencies career choices current job roles educational specializations personality types etcetera.

So, Kolb suggests that a number of different factors can also influence our preferred learning style because as the context varies like for example, job context varies and educational research context varies job context current job role varies you know again suppose and you know a kind of social organizations service oriented organization the context varies as the context varies the learning preferences learning styles also varies. But however, Kolb suggests proposed for a more holistic approach like interchangeably using all kinds of thing holistic approach how experiences including the cognition including the environmental factors including the emotions including the relationship interpersonal relationship including the emotional intelligence everything how it can be perfectly blended integrated to create a kind of holistic experience meaning because whole is more meaningful than the sum of its parts. So, then yes constructive pedagogy so, constructive pedagogy again it is the instructors to how the instructor the teacher can encourage can promote these things the instructors to encourage the students to construct their own knowledge. So, for all the classroom activities for all the lesson delivery etcetera some time some freedom should be given to each and every learner that you think of like just by posing some questions putting some new ideas asking some you know brainstorming some ideas etcetera. So, always they should be given an opportunity to think themselves and come up with the answer.

So, it has to be prompted, it has to be promoted, it has to be induced it has to be encouraged by the instructor. So, educators they also then constructive pedagogy also always try to focus on promoting the skills subject and also focuses on mastery learning having the domain mastery disciplinary mastery subject mastery through hands on activities lessons and self guided learning etcetera developing metacognitive skills. And students also ask to form their own conclusion their own interpretation then over perspectives students would also be asked to observe and understand the course concept interpret it from their perspective students also learning through learning by doing and also the teachers there is a again thread by discussions

like the students can at any point of time they can ask different questions to the to the teachers and and the teacher can also promote this kind of discussions by giving a some kind of you know simulation. So, simulation like a you know like a similar kind of by real life similar kind of virtual opportunity virtual games virtual situation virtual occasion context. So, simulation conveying the stages of by giving some similar kind of lab situation similar kind of problem situation by artificially creating that simulated learning environment context etcetera or maybe that through some advanced organization by posing some questions in advance of discussion discussing about the topics that is called the some kind of using some kind of primers or the advanced organizer to you know to prepare them to mentally prepare them to to you know getting them ready towards active thinking about the particular situation or emerging issues emerging challenges.

So, that this is kind of then how constructively how every learner can be more creative can be more constructive can be more active can be more innovative and can create the knowledge clear knowledge and ideas and information. So, constructive pedagogy always supports knowledge cannot be possibly observed and it is there and it is also you know it helps the students. So, in this process and practices actually it empowers the learners to be very self reliant very independent. So, students are to ask the questions complete the research through it is a primarily the research perspective the while the learning the different various concept maybe theoretical or experimental whatever the in-depth analysis in-depth research that actually helps the learners to occur the more skills required more skills more ideas you know and you know more help and help them in asking many questions to themselves. So, being inquisitive being curious being having a dialogue with dialogue with others.

So, so, if here you know here is this in inquiry based pedagogy inquiry based actually learning it helps the students in teaching you know their questions using different constructed response for the. So, inquiry based learning actually is prompts it is instigates stimulates that induces the learners to think of multiple problems challenges etcetera and how to resolve this. So, these are also how to reflect on what has already been done and how to activate our metacognitive skills thinking about our own thinking then collaborative pedagogy like for example, when we work together how the peers they find the solutions how they examine the experiment and the validity and reliability of the solutions and how the students may teach one another that mutual peer teaching peer teaching is peer teaching peer tutoring peer to peer interaction peer tutoring these are also some collaborative strategies interpersonal not just for the interpersonal engagement, but collaborative pedagogy to mutually help in learning process expose the students to diverse perspective equip the learners with soft skills social skills and emotional skills and a kind of temperament and attitude positive attitude towards helping each other. So, all these things these are the outcomes.

So, outcomes of the collaborative learning. So, best learning happens actually in small groups or the peers yes group team learning is very effective, but again the group size that nature of the the topic the that is the topic the content the context and the size of the group are also very important. So, small group like the easily through you know 3 to 5 is the ideal size of you know group activity the students work together to solve the problems and educators they step aside, but you know they act as a mentor as a observer as a facilitator etcetera and involve the students in developing sometimes also going beyond like whatever you have solutions you have come up with and now beyond when you apply it will not just for the solution then from there also you can go for a you know start up for a business proposal for the business strategy. So, in this way the in have especially in higher education the mentors the teachers the the teachers mentors and the coaches actually they encourage the learners to go beyond the only

domain knowledge or the content knowledge, but how to apply it for the social benefits, economical benefits even for a business purpose business proposal also. So, integrative learning is also a teaching pedagogy integrative learning is also a pedagogy to help the students connect the concept to the real world experiences and students also built up the soft skills including communication, critical thinking, being empathetic, then listening active listening and then understanding others' problems issues. So, many thing being compassionate it helps the students to adapt to the needs of the rapidly changing workplace and these kind of skills these development of this kind of soft skills, generic skills and you know communication skills, sustainability skills it actually helps the learners to be more adaptive to the workplace situation the changing workplace situation. Post-globalization the workplace environments workplace situations are changing and to be more adopt how quickly they can adopt how to be adaptable, how to be successful, how to be you know effective, how to be competent in different workplace situations.

So, to empower the learners to prepare themselves for the rapidly changing workplaces jobs in the global scenario. So, and also learners also they also need to develop some kind of transferable skills transferable skills in the previous job they have learned something they have done something which can be transformed they can utilize it for utilize in either in the present job new jobs or in the future job also. So, it is more of helping the students to for a for having a deeper understanding not just theoretical conceptual or domain knowledge, but also the real life workplace situation. So, teaching that helps in bridging the gap between the classroom and the workplace that has actually it has it has proved it has it will be proving to be an effective pedagogy and effective learning situation. So, and in and again this teaching learning process it is a mutual learning it is not just the teaching teacher delivers facilitates and then students are learning no it is mutual learning.

So, it is a kind of partnership it is a kind of you know relationship it is a kind of mutual learning the in this process it is a participatory learning in this process both the teachers and the learners they learn from each other. So, students are asked to form the connections how to apply these. So, here how to encourage them. So, here how to encourage them to have the diversified or divergent ideas and diverse implications or multiple application and implications to encourage them to think differently to think divergently, but at the end how to again out of this divergent thing how to converge them to the one or two topic which are of most relevance highest relevance and use it for the or so, albeit for the present purpose or the workplace purpose objective etcetera. So, they have to be very comfortable in both the divergent thinking to deal diversity to deal with the diversity to manage the diversity and again out of this whole thing then to converge to rationality just with justification rationality etcetera converts into one or two topics or the problems which are most important for the time being for the society for the jobs for the workplace maybe how to solve it and again after solving it also how to solve it most cost effective way most sustainable way to solve it and then in future you can plan for some new other purpose.

So, how to apply these learnings for the society and again how to carry forward this in the process of experiential learning or learning, but how to capture that learning how to utilize that learning new learning because primarily in the experiential learning we are learning primarily some of the tacit experiences tacit knowledges that we capture, but how to retain that tacit knowledge how to, but tacit knowledge is that implicit in nature primarily how to make it explicit how to record it how to capture it how to share it with others. So, that is again. So, how from the experiential learning how the tacit knowledge implicit knowledge can be can be summarized can be made comprehensive can be transferred to the new situation can be shared

with others as an experience. So, this is in this way the knowledge creation. So, basic concept of constructive approach is that constructive learning is that to create the knowledge from various sources to create the knowledge to organize the knowledge to manage the knowledge to save the knowledge to share the knowledge and to use it for the future purpose ok.

So, integrative learning also three steps: it includes integrative inquiry application and transfer of knowledge, integrative inquiry that asking the meaningful questions and application and transfer by applying the skills to the new situations and then reflection. These are the in integrative learning it often involves these three steps of learning that is integrative inquiry application and transfer of these skills and knowledge and then reflection. So, the process of making connection between the concepts and experience. So, this is the integrative learning then reflective pedagogy primarily focuses on continuously reflecting on the lessons curriculum how every time every time you are reflecting on the class formulation plan or the pedagogy or the discussion or the etcetera or any activity then you have to it always try to make a difference something different something unique something better something better.

So, these are the. So, reflective pedagogy you know how to you know how to gather data from different sources. So, learning so, here another is the collecting the data analyzing the data it is again it also also reflective pedagogy also encourages learning analytics. Learning analytics like suppose you have a large pool of students large pool of learners. So, how can you predict how can you assume that what is the current trend of learning what is the current trend of passion or what is current trend of preferences for the present present age learners or the you know students group.

So, by drawing how to collect the data how to analyze the data. So, learning analytics plays a very vital role to analyze to collect the data large pool of data analyze it then from there you for analyzing with the data then we can get a picture from there we can observe the trend of future learning observe the trend of you know trend of preferences of students. So, both the quantitative data qualitative data similarly self assessment is also it can be a reflective pedagogy and we take the take the large pool of data collect the large number of learners learners or the workers or the employees data to predict their preferences predict their trends predict their practices etcetera then we are learning analytics can help us. So, educators may use this kind different kinds of inventories for the learners and and similarly the employers the employers now that is where the data scientist the machine learning students machine learning professionals IT professionals. So, they so, the through the through using the software through using the mathematical model the statistical model now learning analytics through learning analytics we not just collect the data analyze the data about the consumer choices for the market, but also for the future job preparedness future learning learners characteristics requirements all kinds of things HR practices we can also predict predict. Be it in the students case in teaching learning situation or in the workplace. So, these are the four R model of reflective thinking is that reflective pedagogy primarily instructor reflects on the lessons projects assignments etcetera students are also encouraged to reflect on their own performance educators continuously reflect on their own lessons student satisfaction engagement these are very vital component and these four R model of the reflective thinking as you can see reporting then reporting then you can say relating it how do you relate the things relating and reasoning it justifying it analyzing and reconstructing it.

So, these are how these are the four stages of you know four stages first to respond to the respond to the things reporting understanding then relating it how these factors are related then reasoning justifying it finding out the logic behind it the rational rationality

behind it then reconstructing it. So, these are the four these the four R model of reflective thinking. Reflective pedagogy primarily it refers to the effective educators to collect and analyze the evidence of effective teaching educators may collect the record whatever we have seen that discuss about the lectures the data from different sources the feedbacks students feedback even teaching inventories using teaching inventories to assess the not just the students performances learning outcomes etcetera, but also their you know their experiences their you know experiences their attitudes their behaviors all kinds of their emotional perspectives all these things. So, collecting the data and reflect analyzing data to have an reflection of the thing. So, that we can also grow for go for the new new strategy news we can plan for the new strategies new approaches etcetera.

Now, in in this content another pedagogy is very important that is called the critical pedagogy. So, critical pedagogy again it has it is a new type of pedagogy it is more of it is more socio-centric in the sense that it is it primarily focuses on some issues of the social justice it is related to some social issues it is related to some kind of democratic behavior. So, how to prepare the students for the for the society to be to carry on to to adopt to take up the social responsibilities more like for example, nowadays we are talking about the injustice inequality or gender equality or sustainable development goal gender equality recent jobs you know equal wages all kinds of things we are talking about. So, the this kind of sensitization this kind of the students should be sensitized toward these issues social issues social challenges and should be sensitized. And from the school level itself from the basic educational level itself how the student can be sensitized towards the social issue social causes social challenges social things etcetera by asking many questions.

So, theory and both the theory and practice that help the students to question and challenge the prevalent beliefs existing beliefs practices the social ethos the prejudices and the cultural practices etcetera to achieve a critical consciousness. So, that is the primary goal of critical pedagogy. Now, we will discuss this critical pedagogy in the next class. Thank you very much.