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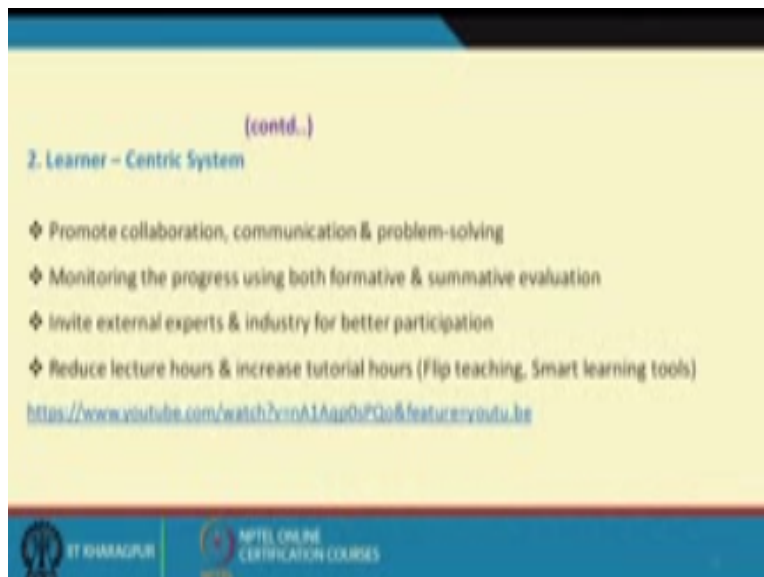
**Course**  
**on**  
**Educational Leadership**

**by**  
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**Indian Institute of Technology Kharagpur**

**Lecture 26: Educational Research and Pedagogy**  
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Welcome viewers to us once again for this integral course on education leadership, in the last class we were discussing about 21st century learners, 21st century educators.

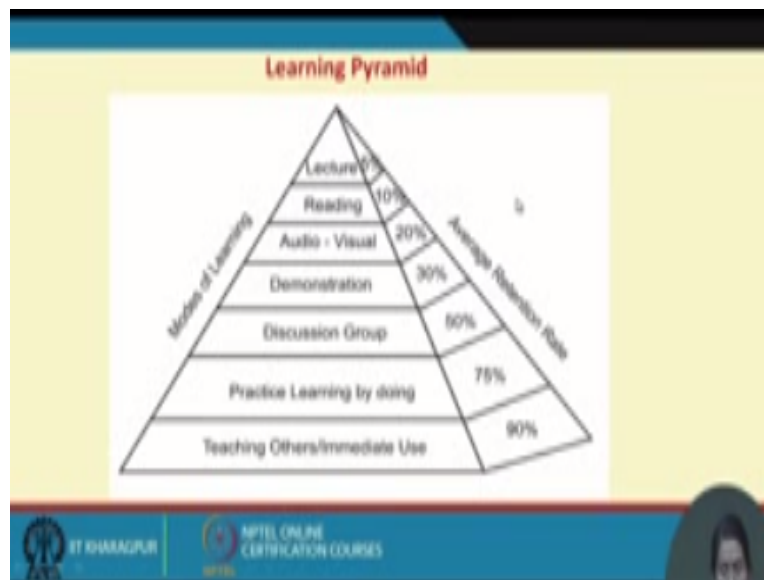
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And 21st century pedagogy, so the primary focus of 21st century pedagogy are you know one is that outcome based learning and secondly learner centric system. So we have already discussed about what is outcome based learning and learner centric system is also getting, how it has more focused or oriented towards making the learner more self-sufficient, self-reliant and how to use open source of learning in a diverse way to you know to get the maximum benefit.

So and the learner centric care system also advocate for the promotion of collaboration, communication and problem-solving behavior and many and more 21st century skills. So in continuation of those we will discuss about the next thing.

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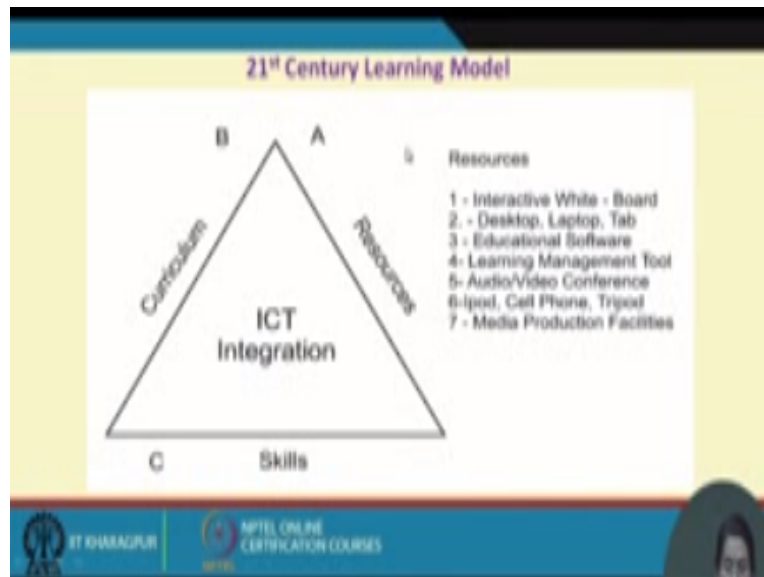


Like then there is a learning pyramid, that means how the learning takes place there are different modes of learning as you can see from the lecture mode, five percent as average retention, we used to gain, so that are different modes of learning and how much do we get out of this. These are the different modes of learning so from the as a diagram source from the lecture mode we used to get 5% learning gained, from the reading more 10% and from the audio-visual mode we used to give 20% learning.

So the average retention elaborate gradually increases with the more kind of unit deviance and learning like demonstration, discussion, discussion and interactions then practice learning by doing 75% learning gain our attention takes place and the most outstanding remarkable a learning gain or retention rate takes place that is up to 90% in case of teaching, while teaching to others teaching to the peers, teaching to the students or discussing the whole thing in a tutorial group.

So the immediate use of learning content that is teaching others may be in the peer group contest or in the tutorial context whatever the maximum learning, we in takes place that is maximum retention that is 90% excellence in teaching others more.

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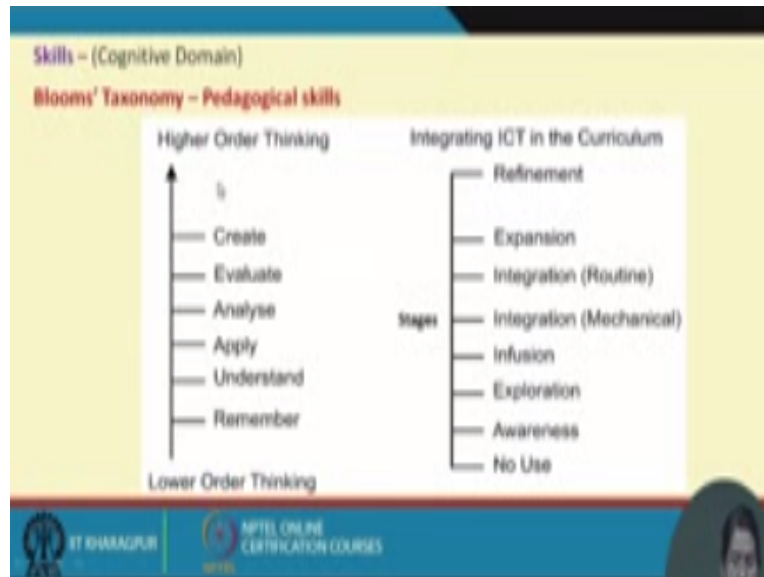
This is a 21st century learning model as you can see once in the one side it is worth what I mentioned is the curriculum as early as curriculum has to be updated, very recent and map to mark the global standard extra curriculum another thing is that as we know the resources open source of learning resources are there.

And ICT used to integrate all these things ICT, used in to integrate all these it acts as an agent change agent while integrating the curriculum resources and the skills we are supposed to develop. So different curriculum for different programs resources open source of resources then in e learning portal in Google in Wikipedia or whatever the sources are there and the screens were supposed to develop. Here the sources are like you know are both the offline and online mode online sources you can use it, like we have the different social a whiteboard interactive, whiteboards in the desktop, laptop tab software are also, there LMS tools are their audio or video conferencing mechanisms are there cell phone tripod.

These are all both online and off cents so resources are there which we are supposed to use it for our curriculum transaction and pedagogy. So and curriculum at details out about the course content modules etc for different kinds of programs and the skills were supposed to develop 21st century skills both the domains specific and value excuse, so ICT use to integrate it. This is the

total central learning model where ICT integrates the entire things curriculum, resources and the skills to be developed.

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So far as where the skill for concern will be primarily focusing here on the cognitive skill is cognitive skills as you can see, in according to Benjamin Bloom's taxonomy bloom has given the different taxonomy of instructional objectives a learning objective, in terms of cognitive domain in terms of effective domain in terms of psychomotor domain, but here we are focusing more on the cognitive domain, so cognitive domain as it is being organized from the lower order thinking to higher-order thinking.

Nowadays we are focusing more on higher and higher order thinking skills develop to develop higher-order thinking things, so by mental hierarchy cognitive hierarchy is like this from the rule lower order to higher order and according to Bloom's taxonomy you consider revised Bloom's taxonomy these cognitive higher like this, first whatever we go through we have to the minimum level is that the lowest level is we will remember then we understand it then, we try to apply it in different space of life.

Then you know then next higher level is we will analyze the whole thing whatever you have learned, then we critically evaluate it whether we have whatever we have learned is worth using worth reading, we are worth writing or not and again after evaluating the whole thing then again we can also add on something reconstruct redesigned, the whole thing that is the create

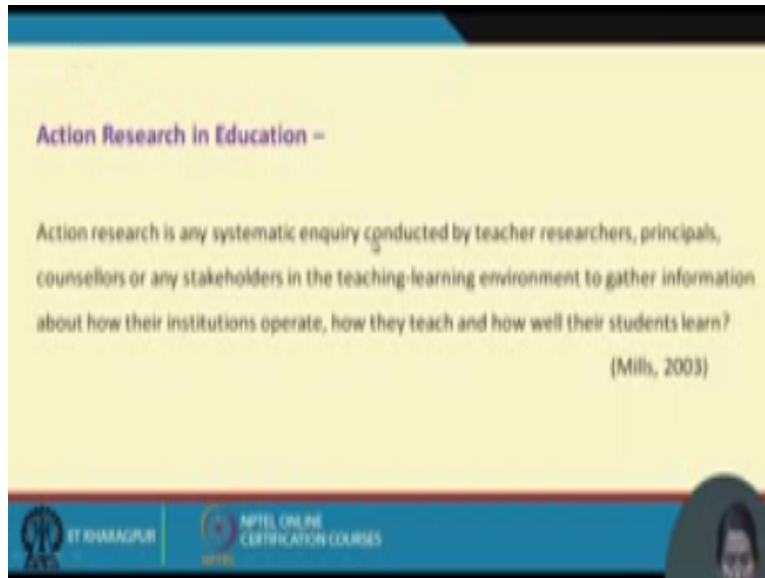
something. So clear so here we can say creative thinking creative thinking is the highest level of cognitive and skill, starting from the lowest level is the remember simply memorizing remembering bolting and the highest level is that and creative.

To do and we create something new design new platform new pattern all kinds of things so it is a cognitive schemes pedagogical skill, so our pedagogy should also focus on how to develop this skill across the different levels of education and integration of the ICT in the curriculum as you know the ICT is integrated, so how to integrated it in the curriculum from the very beginning like initially, where this eyewear off so these are the different stages were just aware of ICT use and we try to explore how many options.

How what are the other resources with offline and online are available etc then how to do the infusions and how to integrate it mechanically in our pedagogical process practices, then another routine as it under routine as, a routine basis or we integrate it like this that is really in our day to day activity, in our day to day classroom activity dates in this to the lecture delivery and the interactions also we use we have used ICT as routine staff. Then we try to expand it for expansion and then the refinement.

So in this way that these are the different stages in this way we can integrate ICT in our curriculum. So here cognitive skills we need to develop and here the how ICT is facilitated in integrating it in the curriculum, so ICT called a curriculum in interaction with the resources we can develop this cognitive processing skills.

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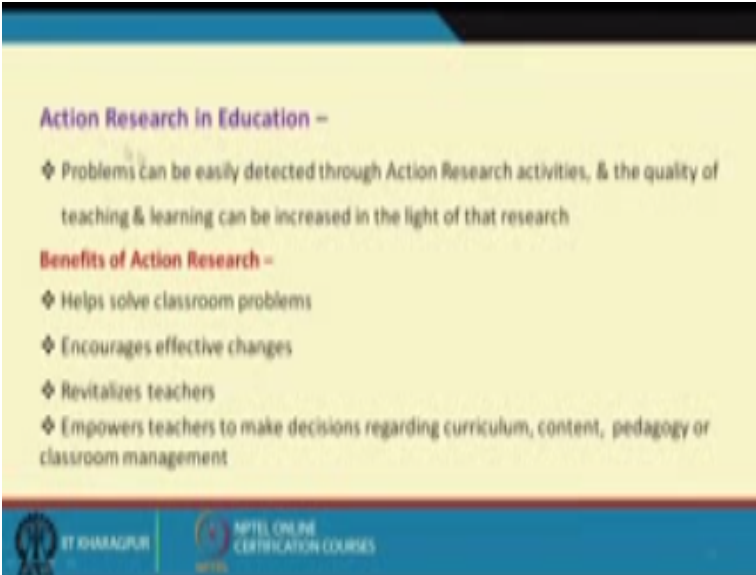


So now here I will first now switch over to action research primarily as we have already discussed in social sciences we have various boxfuls methods to conduct our research but primarily an educational setup we primarily, we select our opt for action differs. Why do we opt for action research what benefits it gives of which to us and what is actually action research that we will discuss it. So action research any systematic inquiry conducted by the teacher and researches principals counselors or any stakeholders in the teaching learning environment.

Action research can be done can be conducted by anybody can be conducted by the teacher can be conducted by the trainees, can be conducted with the principals, counselor wherever whoever instantly feels that you know I need to know, about their I need to get the feedback about it arrive suppose, the teacher has introduced a new method of for method or new technology or new pedagogy or new content a new model whatever here suppose we as we already introduced. Now he wants to get the feedback out of Twitter and wants to know that how much it has helped students.

He can quickly as switch to the maximum research, so it can be used by any stakeholder in the teaching learning environment, for what to gather the information about how their institutions operate? How they teach and how well the students learn? So it can be related to any aspects of teaching learning environment can be related to classroom management it can be related to students attention, it can be related to how the institution functions which can related to cost effectiveness it can be related to anything and every of the teaching-learning process.

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**Action Research in Education –**

- ◆ Problems can be easily detected through Action Research activities, & the quality of teaching & learning can be increased in the light of that research

**Benefits of Action Research –**

- ◆ Helps solve classroom problems
- ◆ Encourages effective changes
- ◆ Revitalizes teachers
- ◆ Empowers teachers to make decisions regarding curriculum, content, pedagogy or classroom management

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So action is in education it tried many focuses on getting the immediate solutions to any kind of dilemma the query or the questions are to get immediate feedback of any innovative ideas implementation or any you know very thoughts, if you want to apply it and get the quick reply or a feedback of it. So problems can be easily detected through action district activities and the quality of teaching and learning can be increased in the light of their destiny subscribe.

Like I saw in the last class we have discussed in our discussing about the video innovative pedagogy or innovative and certain methods like this thing, so if you want to get that immediate feedback whether yes I have introduced this new concept I will reduce this concept of flipped classroom in the class in the last semester. Now I want to know whether, whether did whether it has they really worked or not whether it has really benefited our students or not, so for that matter I can quickly switch to though stick to the action results.

So action resistant video can instantly give me an instant feedback about whether it has really worked out or not and, whether it has really benefited and it has really captured the students attention and motivation and they really engage them in the classroom discussion and they have gained a lot in terms of their knowledge, in terms of their interactions or performance etc. So of action difference we can face the handy tool for all the researchers and the academicians and the teachers ah who are engaged in the teaching learning process.

So there are many benefits of action research result first thing is that I help it helps solve the classroom problem, if you face any classroom problem with a related with relate to it related to we can say your classroom management student discipline shown potential or students motivation students engagement we can quickly opt for the action research, it encourages the effective changes, if you want to bring any kind of for innovative change in the curriculum or in the timetable or in the classroom management or in the regular schedule or for activities.

Then we can we can have it experiment we can have a test on take the orator we can experiment on this action research through these excellent results to get the feedback, like to what extent it can be effective it can be useful for us. Then revitalize the teachers from if from time to time the teachers are engaged in action research to get the immediate feedback of their practices or pedagogy or teaching etc, for it revile it revitalizes the teachers energy spirit change and competences also.

It empowers the teachers to make decisions and regarding the curriculum content pedagogy of the classroom management, so through the action research the teacher can immediately get the feedback regarding the curriculum content, pedagogy or whatever classroom management issues are there. So you can say it is a handy tool of pedagogy so through which we can get the instant feedback about and we can update it we can modify it you can change it.

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- ◆ Identifies effective teaching & learning method
- ◆ Promotes reflective/innovative teaching
- ◆ Promotes ownership of effective practices
- ◆ Verifies what methods work
- ◆ Widens the range of teacher's professional skills
- ◆ Provides a linkage between pedagogical methods & learning outcomes
- ◆ Helps teachers apply research findings to their own classroom
- ◆ Enables teachers to become change agents

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Similarly absences also identifies effective teaching and learning method, with a quick action research have feedback we can we can take a decision of which one is the more effective teaching mode which is the layer which is the best learning more and it also promotes our a reflective and innovative teaching. Reflective teaching because every now and then the teachers they need to reflect upon their own teaching process and competences and the skills, so it promotes reflective thinking and also it brings innovative approach innovative improvement or changes in the teaching behavior.

It promotes the ownership of effective practices, it also creates a kind of owner presence of almost fee for a feeling of ownership that if the teacher has form has promoted or has brought out any positive changes and is a tipping practice, for it promotes that kind of ownership of effective practices among the teachers, which verifies which methods, who actually work in which context among which type of student or learner groups. Then it widens the range of teachers professional skills again.

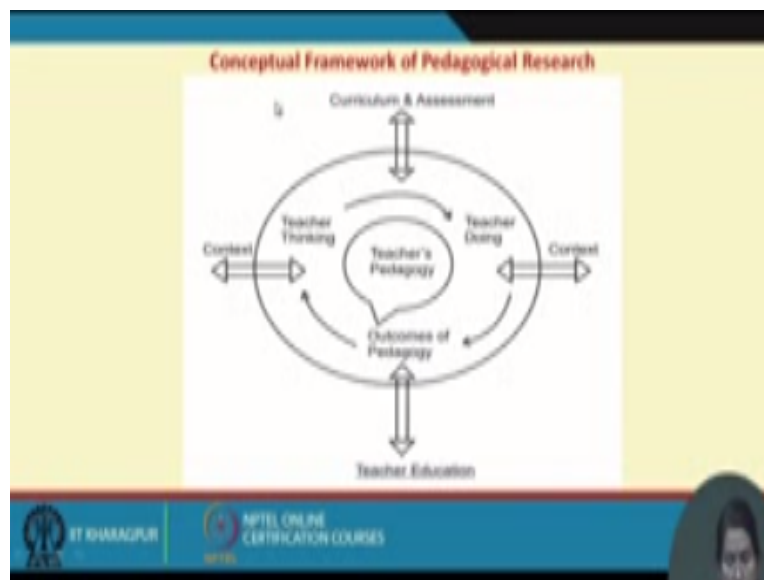
As we have already discussed that this is a handy tool for the teachers and teachers and that leaders education leaders educators etc, even the students themselves can also experiment on it so it gives it provides that in the brains off that means competences and the professional skills for the teachers to develop, as well as provided linked in which in pedagogical method and learning outcome. For when we set the instructional objectives and we target to get some certain learning outcomes.

So we it gives us a technique it gives us options for the different techniques and how to integrate the resources with the ICT and use and how to UM, so how to linkup how to bridge that gap between the instructional objective and the learning outcome, so it provides a linkage between the weather going to pay methods and the learning outcomes of the particular problem. So has the teachers apply the results findings to their own classroom, so they can quickly apply the results findings in their own classroom, classroom management, classroom teaching is that I enable the teachers to become the change agents.

So that on the basis of those findings the teacher can go on in experimenting with the new innovative ideas, we need not have to wait for others because whatever findings he is getting out of that expenditure he is going to apply it for his own class. So he need not have to generalize it or establish its validity reliability, if he is sure enough that yes it works in my classroom it works

in case of my students then it is enough for him to bring the change in the behavior of the students, so it acts as a change agent also the teacher acts as a change agent through or by using the action research tool.

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So being the teacher we are over supposed to we are expected to engage ourselves in very difficult research, so pedagogical uses also this is a pedagogical research framework how same work and, one side as we can see this is a curriculum and assessment what the curriculum has been designed in which way it has been designed and the course content and the module set etc then what are the inaction objectives are there and expected learning outcomes are there and how these expected learning outcomes out to be major through different assessment techniques.

The curriculum and assessment is the one dimension and it takes place in particular context, it takes place in the particular context and as it is being transacted through different teaching learning programs activities and the pedagogy, so here the teachers pedagogy is there how the teacher transaxles deliver seats, so then the outcomes of the pedagogy that means comes in and it

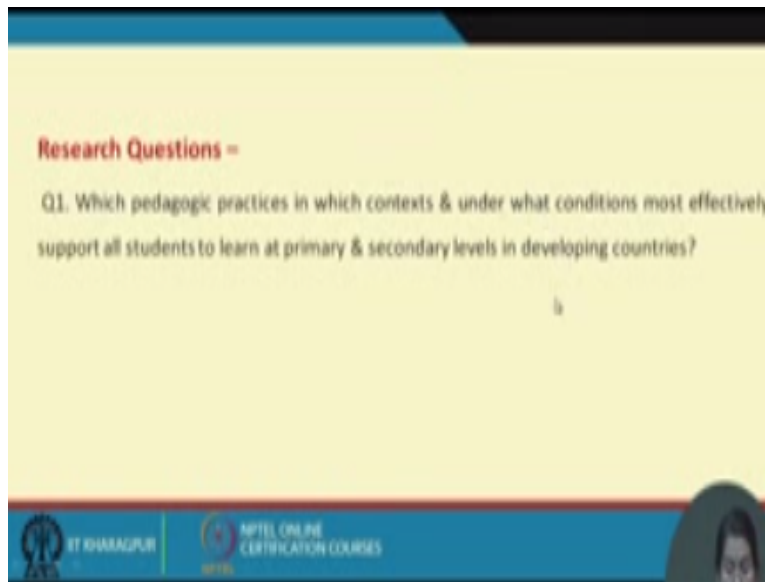
is related to directly and again it gives to the feedback to the teacher education. From the basis of these interactions on the basis of this transaction again we redesign the teacher education program.

Like for this kind of curriculum transaction and assessment and evaluation what the teachers are supposed to get or how they are supposed to be educated regarding what which aspects of the pedagogy content curriculum etc. So in one dimension is the curriculum assessment which is related to the student learners INEC performance etc and other on the other and this is a teacher education teachers content knowledge domain knowledge skills, attitudes all kinds of education and the training.

So these two dimensions on it takes place in the particular learning context and at different levels it may be muscle school level, it may be higher secondary level, at college level whatever this is a context okay. So while transacting the teacher performs it like it is like the learning cycle it is the learning cycle, while teacher performing it doing it, again doing it it again gives the feedback to the outcome of the pedagogy then again it gives the feedback to teachers thinking. So while the teacher is doing his reflecting upon, his own action modifying it, it affects, the outcomes of the pedagogy then again he thinks.

So it is like the learning cyclic, a teacher doing, teacher thinking and it affects the outcome of the pedagogy. So it is an ongoing learning cycle, so in this sphere in this within this circle we can have the we can conduct different kinds of research related to our pedagogy our teaching learning practices our content, content our evolution process our assessment it is a tie any kind of pedagogical results that we can do it.

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So when such question is that for example are we prepared with the practices in which context and under what condition most effective support all the students, to learn at primary and secondary level in developing content. This is a research question specific question having different issues different concepts, like now food pedagogic processes, maybe that means out of 10 pedagogy practices which practices will be most effective and increased context, in which context?

Whether in the primary school context to school and secondary school context, college context rural context, urban context in which context again under what condition? What would be the other classroom conditions most effectively support all the students. So these are the conditions what is the would be the context what will give the condition and out of so many practices which produced pedagogical practices would be effective, that supports all the students to learn at primary secondary level in developing countries again another condition developing control many conditions have, so many contexts are involved in it. So out of this question there may be so many sub questions.

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**Research Questions - Sub-Questions :**

Q2. What pedagogical practices are being used by teachers in formal and informal classroom? ..... a first stage of analysis by narrative overview;

Q3. What is the evidence on the effectiveness of these pedagogical practices, in what conditions & with what population of learners?.....require further analysis & in depth review;

Q4. How can Teacher education (curriculum & practicum), & guidance materials best support effective pedagogy?..... asks for alignment with teaching practices

Let say for example what pedagogical practices are being used by the teachers, in the formal and informal, a first phase of analysis by narrative overview. So this same research question can be divided into many sub questions, like what pedagogical practice both are being used where the teachers both in the formal and informal classroom, that is the first level analysis. Second level what is the evidence on the effectiveness of these pedagogical practices in practices what are the evidence of these practices that these are effective and what in what condition, with what population of the learner.

Further analysis are attend in-depth review, then comes how can the teacher education the curriculum and the practical and guidance materials base support the effective a disparity, as we know and that within the framework of within this framework of pedagogical resource curriculum assessment is one dimension and the teacher education another dimension, in this same one how to know that how the teacher education and the guidance material best support the effective pedagogy.

That when the teacher education or the teacher stakes an educator they interact with the curriculum content assessment, evaluation etcetera, so along with the mat material etc how effective pedagogy can we ensure, ask for the alignment with the teaching practices, so these are many subjects such questions but a vertical questions which can be raised in the conceptual framework in the research framework.

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**Factors Affecting the Doctoral Research-**

- Massification of higher education
- Political intervention & funding sources
- Needs of the professions
- Prioritization of the student experience
- Employer demands
- **Research Questions** -How do we ensure doctoral graduates are equally well prepared for a research career (both in academics and R&D) and for a myriad of employment roles with small & large organizations?

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So that if I allow these many issues who can say these many tough questions we can get away if you want to solve it, resolve each of the answers, we can adhere to action research action refers to get the immediate feedback immediate answer, in a particular context but again findings are applicable to particular contexts, in which context it has been applied in, which context it has been tested and experimented and extended to generalize to other situation or the learning condition.

But we as but anybody and everybody any teacher and any teacher educator, principal or the student or academician can stick to can apply can administer can quickly resort to action research method. So these are than the sum of the factors when affecting the doctrine research, so in our academics in teaching in education being by part of the academic community may be that we are the details you are the teacher, educators with the students at, different levels etc.

We are supposed to engage ourselves in one or other modes of research it, may be as a teacher or as a practitioner we should be involved induction research or as a teacher or as a resource scholar we should be involved in experimentalism, at any point of time in our academic carrier and if you are involved or engaged in the teaching learning programs or academics or education entrepreneurship will also, so we are expected to engage ourselves in one or other mode of an individual research.

We may opt for different kinds of methods but somehow we have to be related to involve in the research. So now let us summarize, now what are the factors that affect the doctoral research

nowadays there nowadays as the research has become very vital, in academics and even in the job sector also, so you have to this again we ask many questions regarding, which quality its validity, credibility is a little benchmarking all kinds of things. So these are some of the factors like massification of higher education as you have already discussed in terms of essentially with the globalization.

The young people is expectations their aspiration has have increased been raised, so as a result of which in our country as well as other countries also, so many institutions of the higher education higher learning that you are learning institution, so in terms of not only in terms of the government universities but also the private universities, private colleges, private schools and education institution research institution have open and so that is it now there is a massification of higher education set has been that means all it is.

And now it is being flooded with large number of mass volume of education institutions, so that is in terms of number in terms of volume in terms of capacity in terms of quantity we are getting it, but again the question is raised, like what is the quality, whether they are at par in terms of their quality in terms of the research approach, in terms of their infrastructure, resources etc then the political intervention and the funding sources again.

When research comes again the funding as a part of foreign funding sources also comes in because as a research it involves a lot of time a you the amount of time likely years, four years and lot of exercises, lot of resources are required etc and we seek four different kinds of funding sources or maybe that through sponsorship from the government or industry or from other organizations. So funding what are the funding sources of resource in a particular organization and often political intervention also takes place in some of these institutions, political intervention.

So these are again the crucial factors funding a resources and the political interventions, when the need of the professions. Now whether the research is directly related to the profession or not whether it is a researcher related to the management profession, that teaching profession the technical professions or whether it is required or not so need for that profession in particular whether a particular profession demands research or not, then prioritization of the students experience.

So when there when the students will go through the research experience they go to the student sleep or the carrier orientation etc, how do the prioritize their experiences with regard to our research then the employed demands, let whether there is a proper matching between what the employer expects in a particular profession and whether the students are the fresher or the young generations are being able to deliver it, so there is a whether there is proper link proper matching between what they will employ demand and what the students are the future employees are prospective employees or they are acquiring or they are learning or they are going to deliver it.

So the first question can be like how do we ensure that doctoral graduates are equally well-prepared for the research carry on. Both in academic and R&D, so in teaching profession in academics we say that it is directly related to the teaching practices, whereas in other profession is related to their R&D sector research and development center development sector. So how do we ensure that is at a particular moment a lot of students a lot of students that are engaged in different kinds of research different types of results in different sectors, indifferent institutions etc.

We have already discussed as what is the quality of that research, whether it is related to the requirement of the society or not or to what extent it powers the doctoral graduates or is no it enables them to acquire the you know required skills knowledge attitude, I am attitude and aptitude, so how to ensure that these doctoral students graduates are equally well prepared for a research carrier both in academics as well as in R&D and for it immediate of employment roles with small and large organizations.

Nowadays we are focusing more as we are focusing more on the business environment economic development, so we are also promoting the small scale industries medium, scale industries and to add to any kind of profession it must it must have, it is own research set up like bead marketing, beet manufacturing, beads or receptor whatever so it would be sustainable it would be strengthened if it is allied with research potential because in marketing also we need to do the market research in manufacturing also we need to do research.

So how this research programs equipped enables the doctoral students, to further persuade carriers in research either in academic quality or in any of the R&D sector.

(Refer Slide Time: 28:04)



"Doctoral Education: Thinking Globally & Acting Locally"

**Critical Pedagogy (CP) & Research -**

Critical pedagogy was first described by Paulo Freire (1970) heavily endorses students' ability to think critically about their education situation which allows them to recognize connections between their individual problems and experiences & the social contexts in which they are embedded ;This has further been developed by Henry Giroux (1988) -

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So therefore our doctoral education primarily advocates for to think globally and act locally for, whenever you are selecting a topic research topic you do a thorough, research review literature review of what is going on what is the global standard, what is what are the emerging issues what is the topic, that is in high demand globally or in global context, so you think global you start thinking globally what are the requirements of the world today. But when it comes to apply it in a particular sector then you narrow down it to the local benefits local implications like even if you have started seeking globally.

But when it comes to applied for the immediate purpose for the social been a benefit or for resolving the issue in our society in our in our factories or in your schools or in your service sector etc, then we have to act locally. So the doctor education family advocates for think globally start thinking be evaluated what is the global scenario and what are the emerging issues the global context in the international context.

But why it comes to apply these things it is benefits then you think of the particular set up locality or society or community to apply it okay. So here we stop on this topic and in the next class we will start another aspect of educational results that is the critical pedagogy and how it is related to research now for the time being we will stop here thank you.