**Lecture 33: Innovative Pedagogy and Technology
For Learning(Contd.)**

Welcome viewers one second to this NPTEL course on education let us see we are discussing about innovative pedagogy and technology and its role in analyzing the educational effectiveness so we have already discussed about various modes like computer collaborative computer supported collaborative learning web based learning all kinds of that so now we will discuss about mobile learning.
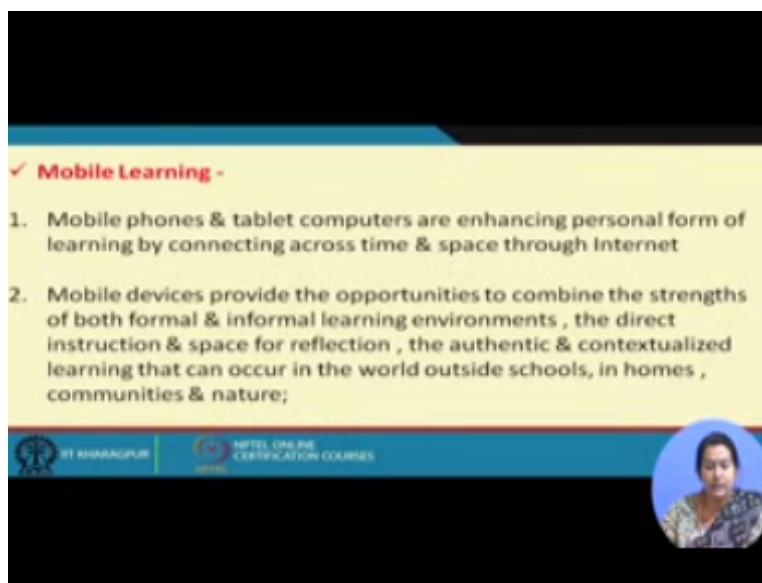
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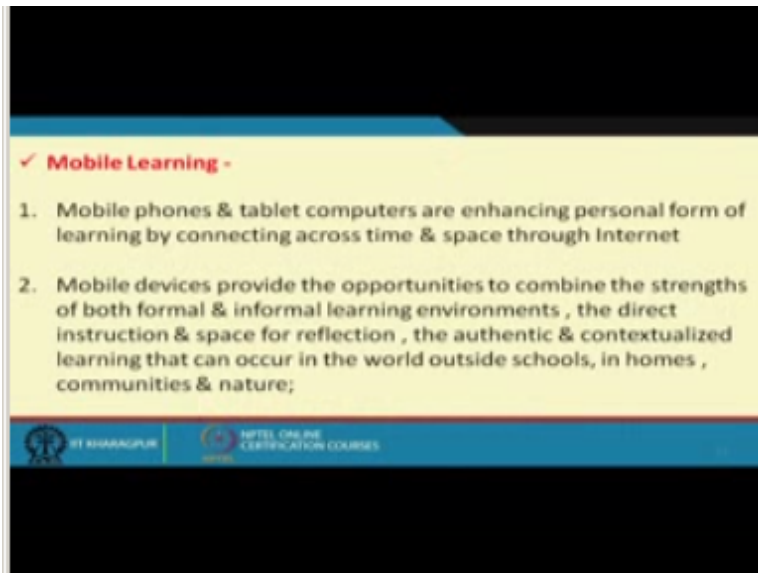
How mobile learning nowadays mobile is a very common instrument get now when the smart phones are available nowadays and so it is an you know it is an educational treeless and effective educational tool and it not only enhances the you know computational literacy or it literacy of the

children of young generation but it has a power of you know downloading the sources of learning materials all kinds of you know we can use all kinds of event a game.

So all kinds of you know in for dele purposes also for all kinds of dele uses like a putting the giving the electricity bills to the depositing money in the banks all kinds of the transactions you know some rational inter base transaction banking transaction to over cover all on day to day transactions we can have it through mobile phones.

The mobile the smart phone mobile and the mobiles handsets do you know lattes move letters mode of letters tool of not only learning but all kinds of our day to day activities so it has in means power of you know decimating the knowledge decimating the information like this now let us discuss about this advantages.

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So mobile phones and the tablet computers are enhancing the personal form of learning by connecting across time space through internet so mobile handsets smart phones and the tablets at the you know the latest gaiter through make our learning more personalize as per our requirement as per our timely as per our comfort as per our need so any time when we are free we can use it and we can need to use it for different purposes not only for educational purposes for downloading the resources for communication purposes you know for preparing the learning material purposes All kinds of the purposes and across the time and the space so it has given us flexibity of using it in our convinced time.

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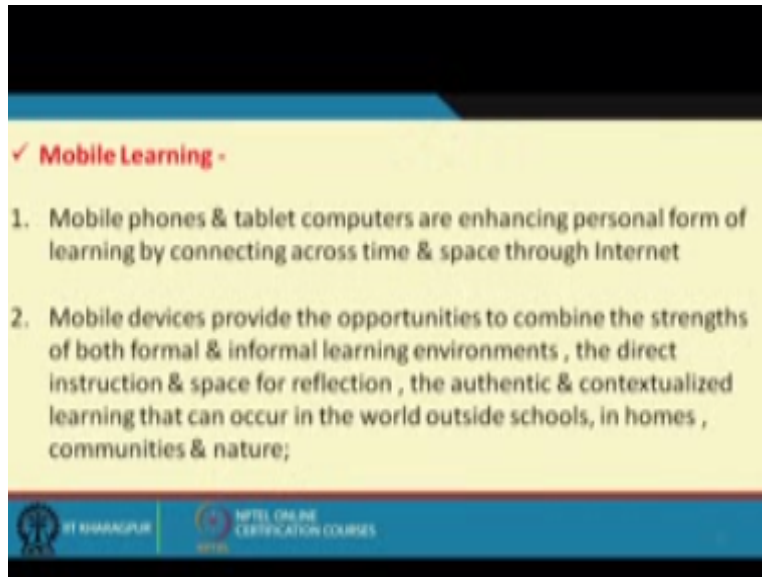
Mobile devices provides the opportunities to combine the strengths of both formal and informal learning environments so it is such a tool which tries to blend the advantages of formal learning for the formal learning also in the classroom also we can use it and for informal learning also we can use it so it tries to blame perfectly blame the advantages of both the formal learning and the informal learning and direct the instructions in space for reflection.

So also it gives us some kind of instruction for reflecting on our task for getting the feedback for knowing the our result the authentic and contextualized learning that can occur in the world outside the schools so it can take place within the formal school formal education support as well as the outside the school setup we get it can happen in the when we are travelling in the bus or the train it can happen at home when we are relaxing it can happen in the office everywhere it is possible so mobile phone is a such a instrument such a technological tool of which can be used for multiple purpose not only education but for multiple purpose it is day to day activities etc and it tries to perfectly blend both the formal instructional objectives instructional goals as well as the informal educational goals as well.

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So through mobile learning it also another thing it also advocates for this seamless learning so it has added a new concept that is called the seamless learning is should be continuous ongoing never ending kind of thing so it advocates for this mobile learning it advocates for seamless learning means all kinds of learning should be bound together to seem appear it to make it appear it continuous learning life learning of endless learning so this seamless learning concept has been adapt to the mobile leaning and as a result.

So this new kind of learning mode is called as the mobile assisted seamless learning so MSL that is mobile assisted seamless learning is the latest convocation of mobile learning I can say it starts then learning activity in the classroom it formally may start it through our tablets like the tab lets internet well using the tablets in the class room for doing the homework from the assignment for using it as the eBook for completing the task so that like in the last classroom with the tablets while they are completing the assignments the teacher can instantly evaluate it in her device.

So instantly you can monitor you can give the feedback each and every student those who are engaged in the class room learning so this tablets this mobiles are the eBooks also it can been used as a eBooks as assignment tool as a gazette as a open source of information as instructional tool like tablets of through the mobile phones they are getting the instruction from the teacher so it is the learning tool even in the formal class room set up starts from the learning activity in the class room and continuous the discussion throughout to the online.

And this continuous for all 24/7 timing and then discussion through online could provide the customize and general experience like through that is through the online discussion and chat they can also clarify the doubt they can ask for the questions to the teacher so the both the teachers and the students are you can say online are easily available and the digital mode for 24 hours so even though it has started with formal education from the classrooms situation but it can go on and on in the informal mode in the digital mode.

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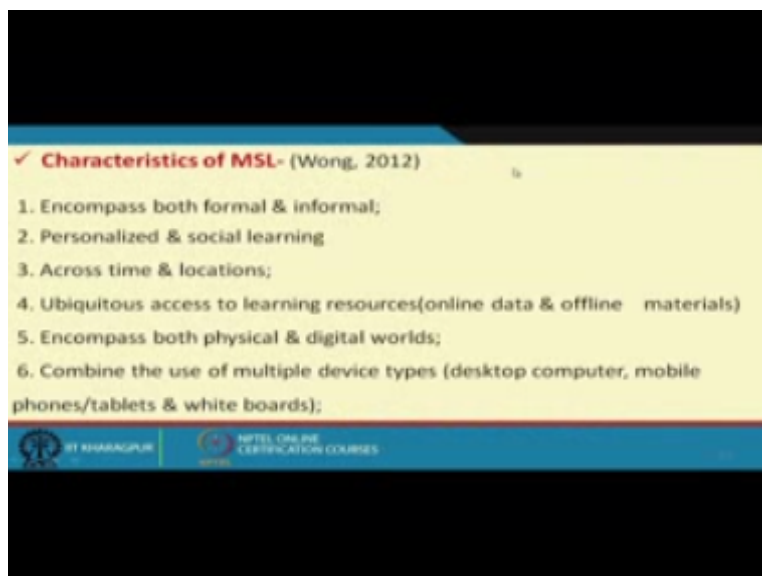
So this characteristics of this MSL that is mobile seamless learning it is continuous so characteristics as this is conversion of mobile learning so it encompass bo6th the formal and informal as let us discuss which is used as gazers learning tool from the classroom situation itself

but it is a continuous usage tool you can say lifelong tool continuous tool that is you can keep it with yourself for all kinds of educational activities for on it encompass both formal.
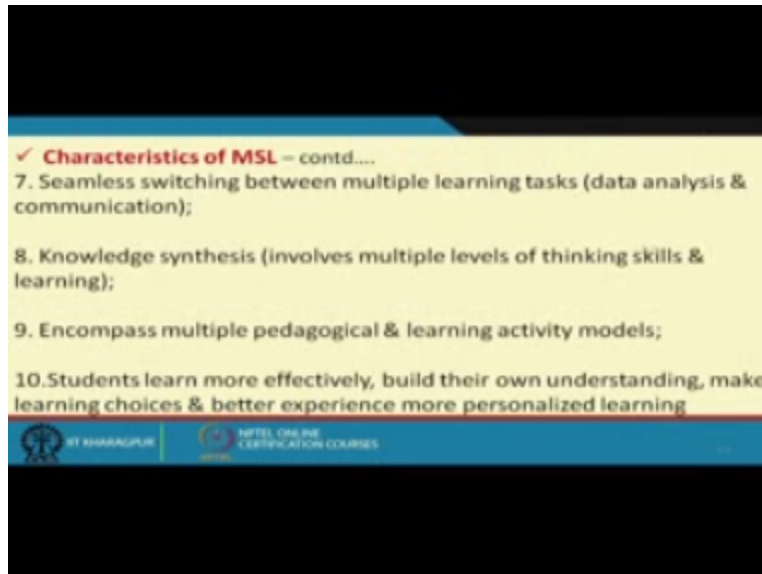
And informal sector it is personalized as will social learning whenever it is required you can used it for your own personal learning and performance same time learning for the social networking or social connectivity for social learning also good learning collaborating learning you can also use it can be use across the locations there is no restrictions that means life saving is a lifelong tool you are keeping with yourself 24/7 hours that means you cannot like you know like rest watch or you can say this is which a kind of tool that you attach to your body keep it yourself it's kind of in separable tool that you keep it in yourself.

So that is why with the internet connectivity you can use it across the time across the location in which of the mode you want to use it so it is ubiquitous access to learning resources if both only can have the online data and offline data you can save the offline data through the storage capacity through the sd card and you can have the online opportunity to have the easy access with resources of the level so it can give you the access to both online and offline and data in compass both the physical and the digital world physically suppose for example when you are travelling to a new place you can use all kinds of Google maps, Google you know Google communal you know all kinds of terms for tacking the trains.

And the vehicles or the you know for airplanes or flight it is kind of connect to anything any you know like now you can call different kinds of taxi services would be rent all kinds of a then you can call them you can call for the even for the food also you can use through your earlier phone for the home delivery kind of things for travel for food for health facilities for emergency facilities for even calling for police.

So for all kinds of day to day activities you can use it in all so it encompass both the physical and digital world so it also fulfills your needs in the physical world in the real world as well as the digital world combine the use of multiple devices so it combine the use of multiple you can connect it to the desktop or you can use it for the mobile phone tablets white boards are connected here all kinds of devices.

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✓ **Characteristics of MSL** – contd....
7. Seamless switching between multiple learning tasks (data analysis & communication);

8. Knowledge synthesis (involves multiple levels of thinking skills & learning);

9. Encompass multiple pedagogical & learning activity models;

10. Students learn more effectively, build their own understanding, make learning choices & better experience more personalized learning

So seamless switching between multiple learning tasks data analysis and communication so these kind of MSL helps us in switching between you can switch over and move from one move to another mode like right now you can engage yourself in that analysis next mode you can switch about to communication next mode you can switch about completing the assignment next mode you can switch over to you know knowing your health record.

So everywhere for knowledge synthesis also you can involve the multiple levels of thinking analyze if you want to analyze some of the things you can use various tools and techniques available in the Google play store or the gazette store etc you can use it for analytical thinking and analytical purpose or synthesizing something or discovering or identifying something new some innovative ideas if you want to verify it you can start to get feedback so in these ways.

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10. Students learn more effectively, build their own understanding, make learning choices & better experience more personalized learning

This mobile seamless learning it encompass the multiple pedagogical learning activity models so students learn more effectively build their own understanding make the learning choices better experience more personalized learning so when the students take extensible use it they can use it flexibly for different purposes sometime they use it for the personalize kind of sometime they use for collaborating learning they want to collaborate with others you know other group members to complete an assignment or they can collect through the teachers directly for clarifying their doubts they can connect to anybody and everybody within this world so this mobile seamless learning and experience the whole learning situation in a different way.

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✓ **Flipped Classroom**-
1. The Khan Academy's YouTube instructional videos popularized the notion of "**Flipped Classroom**"

2. Students watch videotaped lectures at home & then use class time for peer collaboration , hands on , interactive learning & discussion (with the help of tutor as well);

3. In some cases students could be provided with study materials prior to the class & are instructed to come to the class with prior preparation for further discussion & hands-on activities;

So next another mode another mode of a innovative called as flipped classroom so flipped classroom is again combined these kinds of digital platform as well as face to face communication so this flipped classroom is a pedagogical method pedagogical technique which have been popularized by the specially whether it academy or actually popularized this concept of actually saying digital concept the innovative pedagogical concept and the khan academy has popularized this concept.

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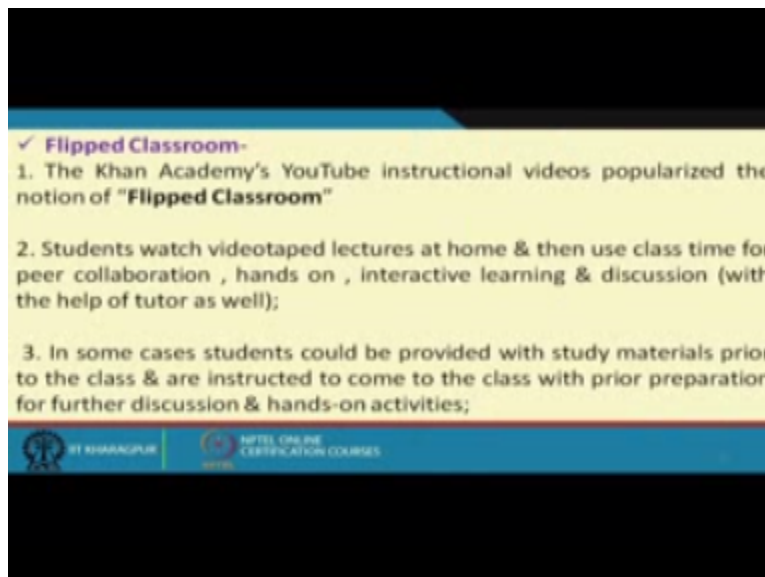
By introducing its you tube instructional videos popularized the notion of flipped classroom when we are talking about though having assessment 24/7 access to source of learning materials so this has introduced this flip classroom method like if you have the access then you go through the learning materials beforehand then come to the classroom physical classroom for the more discussion and had some activities so that is actually the that means the reverse classroom the reverse teaching is the concept of this flipped classroom the students watch the video tips lectures at home.
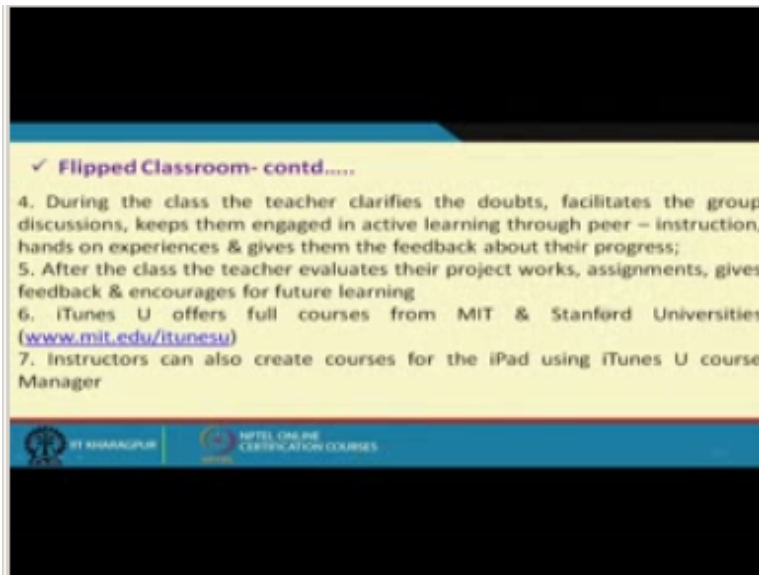
So whatever interactive learning resources are available the khan academy has already uploaded so many you tube videos on the different subject context higher secondary syllabus school subject context on different topics and different of any student can have an access to this context so they can easily go through this context that wont not work free time and when they come to the classroom so the students watch the video lecture at home they use the class for the discussion for prior collaboration for enchase activity for interacting learning for discussion or they may ask to ask us many questions the teacher can also ask many questions for the making the classroom more interactive.

And enhance the learning skills this is not just what is given in the video tapes of the prescribe my study material but they can go beyond so it is also fascinate the constructive learning since that not only they are confirmed to the content which is has been given to them but they go beyond it they start thinking critically they start thinking creatively imaging and adding something new so that is the it fascinates the constructive learning online not only the students they go to the source of learning but they Also create and also generate the knowledge they also construct the learning reconstruct and construct the generate the learning and determined the knowledge among the students.

So in some classes what happens some cases students could be provided with the study material like suppose for example for the children those who do not have the access to this suppose internet connectivity and some tools those who do not have the access to internet connectivity in that case also we can use it flipped classroom like by providing them the study materials flipped materials you know pre materials specially designed by the tutorial and the mentor with the new concepts new ideas additional or supplementary things and some of the diagrams graphs etc.

So this blink materials can also be prepared by the tutorial mentor it can be given to children before hand so that they can go through it at home and like in hard copy in hard copy material and then instructed to come to the class with prior preparation this study materials and they can continue for the discussion and handsome activity in the real classroom situation for enchasing that subject knowledge is said to be analyze.

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So during the class what happens the teacher clarifies the doubts so here again this flipped classroom method is a best method for the enchasing students engagement because otherwise in the directive method in a lecture method or even though the teacher is making effort to listen them to listen to her and to that because their attention to understand the material but we cannot the teacher cannot control their attentions man because after ten minutes the students attentions switches to something else some other topics.

So in order to control their attention or to control that is to regulate their attention or perception or which is very important to engage them which is the best method of engaging this engaging the children for active learning but however one accepts are we have to motivate them to go through the metals difference so what happens actually you have a children they are not too responsible or very much self motivated to go through the materials at home but for that reason for the young children the teacher is to motivate them.

And to grow through their material but otherwise it is very successful method of e learning and engagement for the students as well in the school level so the teacher in order to engage them the teacher ask them the question fascinated to the group discussion the whole class can be divided

into sub groups different small groups 5 to 6 members that can be given as assignment or any topic to be discussed and any kind of problem to be solved so keep them engaged in the active learning to peer instruction sometime the good student they can clarify it they can twitter that is peer twittering can also be into do so peer twittering peer instruction the students the weak students the weaker student they can also be improve or they can be better learn the things better in the better way.

So with peer instruction peer twittering can be concept can also be added sometimes they can be provided some kind handsome experiences and from time to time they can be given the feedback so peer the teacher the student access the first literary you just move on an supervisors what each group are doing how they are engaging and monitors and written the feedback fascinated the learning so in this process they can be moved to self dependent self reliant so in order to motivate the students to go through the material beforehand.

And to make them self motivated or independently learner this is the best for writing for the even for the school children and for the other learner it is also there so after the class the teacher evaluates the project works so project work assignment whatever the teacher as given them in terms of group assignment problem solving task or that topics etc evaluates the project assignment give them the feedback and encourage them for future learning may be that in continuous of that subject content or topics we can give them the future things which are some ideas that you go through this material.

So these are the open source of things these are the things you will go and further you go beyond this topic and or you can thing of some of the other application oriented things in to things to go beyond that thing so some platforms are already available like ITunes U it offers the full courses from MIT and Stanford university's on the flipped contend so instructors can also create courses for the iPod using iTunes U course manager like if you like to develop the course content for the flipped classroom more for special category of target rules like US students while your children for every one also design this content flipped content.

So these platforms through so with the help of these software with help of this digital platform the tutors the mentors the subject teachers then can also develop the flipped material on their own in the alter resources and design it and use for the children or for the for their students.

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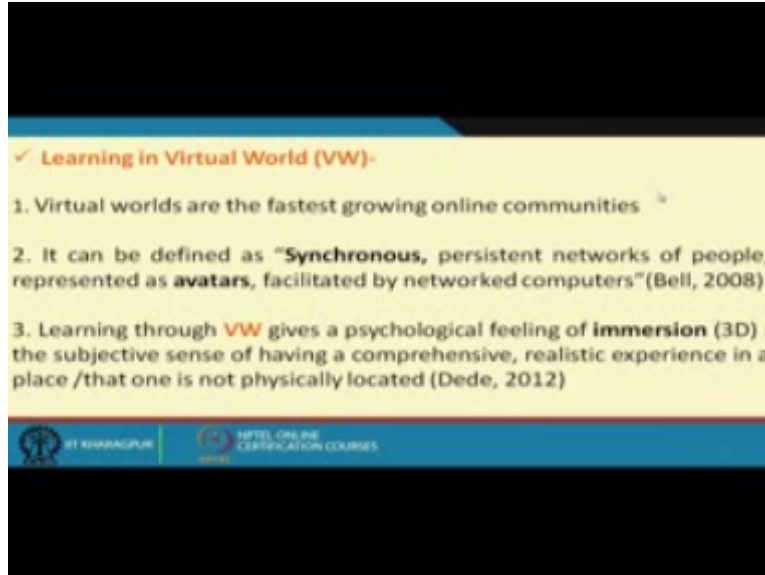
Another concept is that learning through virtual world virtual which is the you can say it is you can talk about similar when we talk about artificial intelligent like how we can create the virtual wall which is very much similar to physical world but it is different in the simulated mode it is in the virtual set of but it is very much like physical so that is the learning through virtual nowadays all kinds of movies are there 3d movies dimension movies who gives us a kind of experiences since feeling of you know as if you are part of that movie as if you are a character of that movie and you not only seeing it visualizing it and hearing it but accurately immersing that in environment experiencing it.

So that is the leaning through virtual manner being the part of that world virtual world how are we learning how do you learn so that is immersion process which is through the immersion process so virtual worlds are the fastest growing online communities most are the computed games video games are now in design to give that this video only gives the experience of this virtual world 3d dimensions virtual experiences through the immersion technique etc so this can also be used for the learning purpose also like virtual of it themselves comes under different kinds of experiments in the virtual war true by crictising by having the access through different kinds of component laboratory component.

So they can really demonstrate they can really perform they can really see and observe how the teach is doing and they can themselves experiment on the virtual lab so virtual labs are the fastest

growing online communities and then it can be defined as synchronous persistent networks of people it synchronous as text simultaneously and it is the result of the persistence networking of the people you might have seen some of the movies like how the 3d dimensions movies so here the characters are been call of the avatars like which facilitated by networked computers it is the result of set of number of computers networks and it is the result of the computer network that represents that kind of you know virtual world where people are connected.

So the network and they are called the represented by the various characters by the avatars so learning through virtual world gives the psychological feeling of immersion 3d not only the personal experiences in the 2dimesional feeling but the 3dimesional feeling of immersion the subjective sense of having the compressive realistic experiences you are you are deeply experiencing but what is actually happening in this situation.

So that is in most of the you know in this excel world games it is drizzling world games and different kinds of movies 3d movies it gives us same feelings of immersion of realistic experiences that we are going through that phase other to that computers network to virtual world experiences that one is not physical even though one is not physically located but it can you experience this immersion.

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✓ **Learning in Virtual World (VW)-contd...**

4. These are either multiplayer videogames (e.g. World of Warcraft) or are designed to help sell physical products and to increase brand loyalty (e.g. Club Penguin, Neo Pets, Web Kinz of Disney company)

5. The VWs are having educational potential as well like — ECOMUVE, Quest Atlantis, River City etc.

6. It enable participants to simulate social & economic phenomena as well as run experiments to manipulate micro worlds

So learning in the virtual world it again there are different kinds of multiplier video games so for example this kind some of the examples are world of war craft are designed to help sell physical products and similarly through this virtual world this some kind of you know games can also be designed like world of war crafts which is the game it is designed to sell the physical products and to increase the brand loyalty similarly other games are all having at these club penguin neo pets web kind of Disney company.

So some of the multiplier video games have been designed in this 3d mode and have been popularized for selling the product as well the virtual words are also having the educational potential as well like you know ECOMUVE, Quest Atlantis, River City etc these are also some of the this virtual world of India multiplier video games which as the educational content of which enchased the knowledge and information.

So it enables the participants to simulate social economic phenomena as well as ru8n experiments to manipulate micro words so this games have been designed not only to give you 3d experience serial realistic experience but it can also manipulate we can also manipulate some of the features and observes it out come we can so you can also manipulate some of the components in the micro world as well as having the experience of idealistic one so some of the social economy phenomena can be you know can be well thought well educated through this kind of multiplier video games.

So it enormous the participants to simulate the social economy phenomena as well as run experiments to and the features of simulation and visualization can potentially support a form of experiential learning in the digital mode so the stimulation this kind of stimulation in visualization and these two components have been embedded at to give a realistic experience or it is a to make this experiences in more effective.

So the immersive nature of the virtual world support the social interaction and the identity exploration as a form of a legitimate participation in communities so in the participants when the students are engaged in the virtual world so this immersive nature of this games it helps them not only in social interactions but to explode they own identity explode they legitimate participation in the learning comminute how do they corroborate so they also explode their own identity and to get the legitimate participation in the learning community among the world members.

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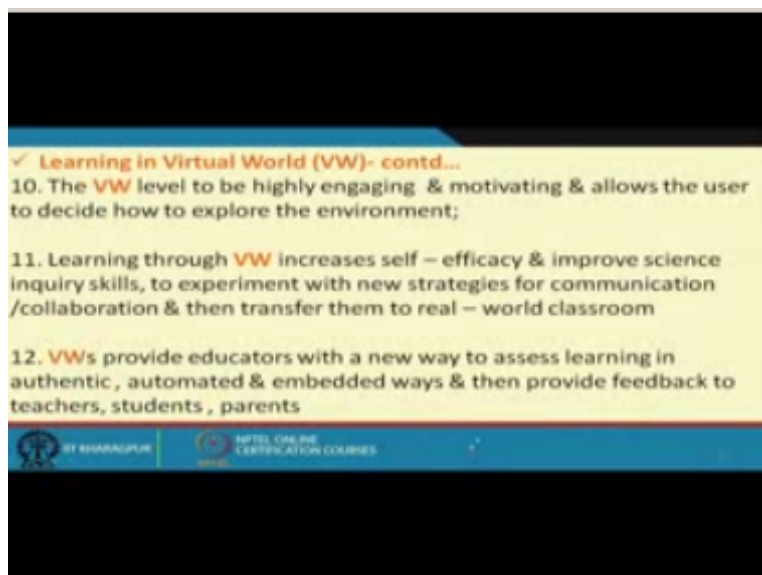
So the similar the virtual level to be high engaging and motivating and to allow the user to decide how to explore this kind of learning that the player has immersion you know they has the freedom and opportunity to explode its own identity so it is highly engaging and it is highly motivating and allows the explore the environment that means to go on to explode the curiously what makes what it happens how it happens why it happens all kinds of the questions like that verify the learning through these mode also increases self affiance not only they become very self sufficient let me say we are very that digital fluency increases.

But it also improves the science of enquiry skills that means the skills science always they are they are curious to explode the answers for different kind of questions implicative mind set to experiment within new strategies to experiments with new strategies for communication and collaboration and then transfer them to real world classrooms so they just they gone experiments implementing with new technique strategies new strategies to explode what happens and they just want to simulate.

The whole thing similar thing in the real world context also so it not only actively engage them in learning but it also helps them in enhancing the cognitive skills like terms of you know higher order thinking or in order in terms of the creative imagination fantasy and to again to verify test it examine in the real life context so this kind of worlds also virtual world also provide the educators with the new way of assessing the lesson way to access learning in authentic, automated and embedded ways then it also engage the challenge and opportunity to verify to evaluate the learning process whether it is authentic or not embedded in the way then provide the feedback to the students to the parents so they can also assess the performance from different dimension and also with them most accurate feedback to the stake holders.

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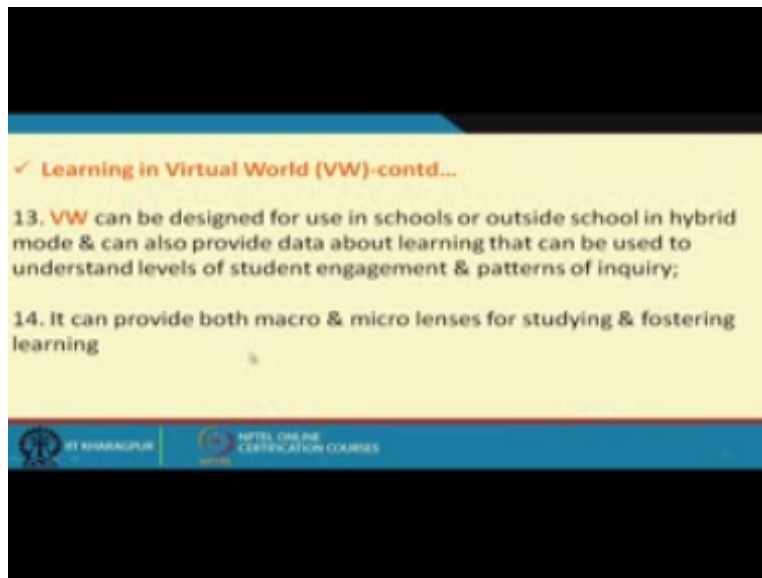
So it can designed for use in schools or outside in the hybrid mode again in the blending mode in the hybrid mode which can provide the data about learning that can be used to understand the levels of student engagement patterns of inquiry like even though it is in the hybrid mode you can blend it this virtual world with the real life real physical classroom situation so you can verify the level of engagement of the students if we verify the level of the enquiry skills like at what level what type of questions are asking what type of things that trying to examine.

So you can understand this student levels of understanding enquiry skills and that level of engagement so from which you can also identify you can also predict motivation that you know they are engagement they are self dependent and they are weekend also diagnose that problem in may be in attention to focusing the attention or the sticking to the assignments or the patients the tolerance or the gratification all kinds of things.

So it can provide both the micro and the macro lenses for studying fostering learning so it also like you know like cricket games are all kinds of outdoor games when that was when the highlights goes on when the flash as they analyses it different dimensions from different angles going through the flash back similarly this virtual world also this kind of mode of learning can also gives us both the access to micro and the macro lenses and so that we can verify the learning behavior the study habits as well it can also forced to the children learning behavior and learning skills here we start over right now in the next section we will start another method now thank you very much for patiently listening to this thank you.