THE VIDEOCONFERENCE IN EDUCATION

LA VIDEOCONFERENCIA EN EDUCACIÓN

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Resumen

La globalización de la economía y por ende de la educación exige nuevas habilidades y un nuevo modelo educativo como lo es la educación virtual la cual surge desde el momento en que el Sistema Educativo se ve en la necesidad en cambiar u ofrecer nuevas formas de enseñanza. Así pues, es a partir de los años 1960, cuando la universidad tradicional, las instituciones de educación de adultos, las empresas dedicadas a la actualización profesional, etc., no logran establecer una infraestructura y organización que pueda atender con agilidad y eficacia a la explosiva demanda de la nueva clientela de esta sociedad industrial y esto condujo a un descenso de la calidad de la enseñanza y la imposibilidad de reciclar a todos los trabajadores en servicio. De la misma manera, el docente no debe olvidar que el alumno tiene varios estilos de enseñar y aprender: los cuales pueden ser el escrito, multimedia como (audio casetes, dispositivas, videocasetes, teléfono) y telemática en donde la integración de las telecomunicaciones con otros medios educativos. Esta última se apoya en el uso cada vez más generalizado del ordenador personal y de las relaciones realizadas en programas flexibles de enseñanza asistida por ordenador (EAO) y de sistemas multimedia (hipertexto, hipermedia, etc.) se potencian en esta generación las emisiones de radio y televisión, la audioteleconferencia y la videoconferencia. Es en este sentido que la videoconferencia es una herramienta que permite que la educación virtual se convierta en educación presencial extendida vía palabras clave: videoconferencia, educación, virtualmedios, lo que permite que no cambie la forma de enseñar sino que cambia el medio con el que se imparte.

Palabras clave: videoconferencia, educación, virtual

Abstract

The globalization of the economy and therefore of education requires new skills and a new model of education such as the virtual education which arises from the time that the education system is the need to change or offer new ways of teaching. So it is from the 1960s, when traditional college, adult education institutions, companies engaged in professional development, etc.., Fail to establish an infrastructure and organization that can quickly and effectively respond to explosive demand for new clients of this industrial society and this led to a decline in the quality of education and the inability to recycle all workers in service. Similarly, the teacher must not forget that the student has several styles of teaching and learning: which can be written as Multimedia (audio cassettes, slides, videotapes, telephone) and telematics where the integration of telecommunications with other educational media. The latter is based on the increasingly widespread use of the personal computer and the relations programs carried out in flexible computer-assisted instruction (CAI) and multimedia systems (hypertext, hypermedia, etc.) Are enhanced in this generation emissions radio and television, and videoconferencing audioteleconference. Is in this sense that videoconferencing is a tool that allows the virtual education becomes widespread classroom education via media, allowing you not to

change the way we teach it changes the means by which this education takes place.

keywords: videoconference, education, virtual

Introduction

The education at distance arises from the moment in that the Educational System need to change or to offer new teaching forms. Therefore, it is starting from the years 1960, when the traditional university need to give educational services to adults, the companies dedicated to the professional upgrade didn´t have an infrastructure and organization that it can be used with agility and effectiveness that the people demands, this new kind of clienteles were principally persons working at the industrial and this led to a descent of the quality of the teaching and the impossibility of recycling all the workers in service.

The demographic explosion of these years and the exit of the abrupt social changes caused by the recent world wars, factors that also impelled to the society to the search of new educational, economic, accessible and effective roads were.

This education type is vastly favored at the present time as a new style of learnings-significant, because the new challenges in education are demanding, and it becomes necessary a permanent education.

The necessity exists in people of adapting to the constant cultural, social and technological changes of today's world; the necessity exists of adapting to the new productive requirements, of getting ready to carry out diverse activities for those that had not been prepared.

The current problems and making in front of the new challenges, he/she requests another formation modality that doesn't demand the permanency in the classroom.

Technological changes that reduce the distance have been an unsuspected constant for Teaching Advancement / not face learning; this way, the students, through the independent and cooperative study, learn efficiently. The technological resources facilitate by means of the appropriate methodology to replace, and even to overcome, the present education.

The 3 initial stages (that has already been surpassed) corresponding to the last 150 years in that millions of people have achieved learnings with this style of to teach and to learn they are: correspondence, telecommunication and telematic.

Making a reflection, we will have to accept that the technology has not been applied to the formative processes with the same agility and effectiveness that it has been made in other fields. In the educational environments the technologies have been used in a not very systematic way and in not few cases a clear rejection has existed to the installation of the same ones.

The teaching for correspondence:

Born you tune them of the XIX century and principles of the XX one supported in the development of the printing and of the postal services. They consisted on rudimentary written texts (and few appropriate for the independent study of the students), initially hand written, and the postal services of mail, quite effective although slow, became the materials and communication roads in the initiation distance education. Methodologically any didactic specificity didn't exist in those years in this type of texts. It was simply to reproduce a traditional present class in writing.

The only form of communication between the teacher and student had a textual and asynchronous nature. Neither the possibility of a communication existed among even, that is to say, that of horizontal character.

The teaching multimedia

The stage of the teaching multimedia at distance, (that makes reference to the use of multiple means like resources for the acquisition of the learnings) it began to emerge in the decade of 1960. I radiate and TV, they are the badges of this stage. The written text begins to be supported by other audiovisual resources (audio cassettes, dispositive, videocassettes).

The telephone incorporates to connect the tutor with the students. The design, production and generation of materials, they are objective basic, leaving in second place the interaction with the students, and of these among if.
The methodology leans on in the pragmatism of Dewey, the method directive behaviorist inspired by skinner and the instruction of Tyler.

The telematics teaching:

Their beginning is located by the middle of the decade of 1980. The integration of the telecommunications with other educational means, by means of the computer science defines this third stage. He/she leans on in the use every time but widespread of the personal computer and of the relationships carried out in flexible programs of on-line attended teaching (EAO) and of systems multimedia (hypertext, hypermedia, etc.) can enhance in this generation the radio emissions and television, the audioteleconference and the videoconference.

Something like that settles down as a ring or mesh of communications to which each actor of the educational fact consents from an own place to the rest of the sectors with those that he should be related. The immediate and the agility, the uprightness and the horizontality become present in the traffic of the communications.

The integration to that we mentioned allows to pass of the classic conception from the education to distance to an education centered in the student. Its main difference with the second generation is the that in this, professor and student and these to each other, they can communicate so much in a synchronous way (in real time) as asynchronous (in having differed), through the diverse means.

The teaching via internet:

Also denominated “I model of flexible learning” and that it calculates in the use of the interactive multimedia, the communication mediated by computer (CMC) and, in synthesis, the educational communication through Internet. Their beginnings could locate them by the middle of the last decade of last century. To this phase we could also define it as that of the virtual campus, virtual teaching that tries to base the education on nets of on-line conferences and park of work multimedia or, simply, in the conjunction of systems of supports of electronic operation and delivery systems supported in Internet, in way, well be synchronous or asynchronous through communications for audio, video, text or graphics. This technology guarantees the overcome of one of big obstacles and defects that permanently one has come attributing to the education at distance, the slowness of the feedback, the feedback of the process of the students' learning carried out until these dates, in a generally urgent way.

History of the videoconference

The interest in the communication using video has grown with the readiness of commercial television begun in 1940. Today's adults has grown using to the television like a means of information and of entertainment, they have gotten used to have a visual access to the most outstanding world events in the moment in that these they happen. Quickly we have become in visual communicators. It is this way that from the invention of the telephone, the users have had the idea that the video possibly could be incorporate to this.

AT&T presented in 1964 in the fair of the world trade of New York a videophone prototype which required of quite expensive communication lines to transmit video in movement, with costs of about a thousand dollars per minute. The dilemma was the quantity and type of information required to deploy the video images.

The video signs include much higher frequencies that those that the phone net could support (particularly those of the years 60's). The only possible method to transmit the video sign through long distances was through satellite. The industry of the satellite was then in its childhood, and the cost of the team terrestrial cocktail with the rent of time of satellite exceeded with a lot the benefits that could be obtained when having small communicated groups of people using this means.

Through the years 70's were carried out substantial progresses in many key areas, the different suppliers of phone nets began a transition toward digital transmission methods. The industry of the computers also advanced vastly in the power and speed of prosecution of data and they were discovered and they improved the sampling methods and conversion of analogical signs significantly (as those of audio and video) in digital bits.

The prosecution of digital signs also offered certain advantages, firstly in the areas of quality and analysis of the sign; the storage and transmission still presents significant obstacles. Indeed, a digital representation of an analogical sign requires of bigger storage capacity and transmission that the original one. For example, the methods of digital video common of ends of the years 70 and

principles of the 80 required of relationships of transfer of 90 megabits per second. The standard sign of video was digitized using the common method PCM (Modulation for code of pulses) of 8 bits, with 780 pixels for line, 480 active lines for square of 525 o'clock for NTSC (Netware Transmission System Codification) and with 30 squares per second.

The necessity of a reliable compression of digital data was critical. The data of digital video are a natural candidate to compress, because many inherent redundancies exist in the original analogical sign; redundancies that are of the original specifications for the video transmission and which were required so that the first televisions could receive and to deploy the image appropriately.

good portion of analogical video sign this dedicated to the synchronization and timing of the television monito. Certain methods of compression of data were discovered, which eliminated this redundant portion of information entirely in the sign, with that which a reduction of the quantity of used data of 50% was obtained approximately, that is to say, 45 mbps, a reason of compression of 2:1. The phone nets in their transition to digital, they have used different transfer relationships, the first one was 56 necessary Kbps for a telephone call (using current sampling methods), at once groups of channels of 56 Kbps were gathered to form a channel of more information which ran to 1.5 mbps (commonly called channel T1). Several groups of channels T1, was gathered to form a channel that he/she ran to 45 mbps (or a "T3"). Using compressed video to 45 mbps was this way finally possible, but still extremely expensive, to transmit video in movement through the public phone net. It was clear that it was necessary compressing even more the digital video to end up making use of a channel T1 (with a reason of compression of 60:1), which was required to be able to begin the market. Then at the beginning of the 80's some compression methods made their premiere, these methods were beyond the elimination of the timing and synchronization of the sign, carrying out an analysis of the content of the image to eliminate redundancies. This new generation of video codecs (COdificador/DECodificador), he/she didn't only take advantages of the redundancies, if not also of the system of the human vision. The reason of images presented in the video in North America is of 30 squares per second; however, this exceeds the requirements of the system visual human to perceive movement. Most of the film movies show a sequence of 24 squares per second. The perception of the continuous movement can be obtained between 15 and 20 squares per second, therefore a reduction of 30 squares to 15 squares per second for itself achieves a percentage of compression of 50%. A relationship of 4:1 is possible to obtain this way, but the objective is not still reached of achieving a reason of compression of 60:1.

The codecs of principles of the 80's used a well-known technology as code of the one Transformed Discreet of the Cosine (abbreviated DCT for their name in English). Using this technology DCT the video images can be analyzed to find space redundancy and storm. The space redundancy is that that can be opposing inside a simple square of video, "areas of the image that look like each other enough that they can be represented with oneself sequence." Temporary redundancy is that that can be opposing of a square from the image to another areas of the image that don't change in successive" squares.

Combining all the methods mentioned previously, it was possible to obtain a reason of compression of 60:1.

The first codec was introduced to the market by the company Compression Labs Inc. (CLI) and it was known as the VTS 1.5, the VTS meant Video Teleconference System, and the 1.5 toward reference to 1.5 mbps or T-1. In less than one year CLI the VTS improved 1.5 to obtain a reason of compression of 117:1 (768 Kbps), and it renamed the product to VTS 1.5E. The British corporation GEC and the Japanese corporation NEC entered to the market codecs that operated with a T-1 rushing (and under a T-1 if the image non hadmuch movement). None of these codecs was cheap, the VTS 1.5E were sold in an average of $180.000 dollars, without including the video team and audio necessary to complete the conference system, which was acquired by an approximate cost of $70000 dollars, neither included access costs to transmission nets, the cost of use of a T-1 was of approximately $1000 dollars the hour.

By the middle of the 80's a dramatic improvement was observed in the technology used in the codecs in a similar way, a substantial drop was observed in the costs of the transmission means. CLI (Compression Labs Inc) it introduced the system of denominated video Rembrandt which already used a reason of compression of 235:1 (384 Kbps). Then a new company, Picture Tel (originally PicTel Communications), it introduced a new codec that used a relationship of compression of 1600:1 (56 Kbps). PictureTel was the pioneer in the use of a new method of code denominated hierarchical Quantification of vectors (abbreviated HVQ for its name in English). CLI threw the denominated codec soon after Rembrandt 56 which also operated 56 Kbps using a new technique denominated compensation of the movement. At the same time the suppliers of nets of communications used new technologies that reduced the cost from the access to the nets of communications. The price of the codecs fell almost so quick as they increased the compression percentages.

The concept of videoconference

As it happens to all the new technologies, the terms that are used are not perfectly defined. The word "Teleconference" this formed by the prefix "tele" that means distance, and the word "confers" that he/she refers to encounter, in such a way that combined they establish an encounter at distance.

According to (Roblyer, Edwards and Havriluk,1997) they pointed out that the well-known Teleconference also as video Teleconference it uses a system of video of a single road and their participant interact through the telephone.

Videoconference is a system of communication closed point to point. Anyone that possesses the necessary means (a satellite antenna) he/she can see the sign and to see the teleconference, but nobody, except the participants, he/she can see the videoconference transmissions.

We can define a videoconference like the interaction between two in real time or more participant remote that exchange signs of audio and video (Hendricks and Steer, 1996), he/she also understands each other for videoconference the hardware group and software that it allows the simultaneous connection in real time by means of images and sounds that

make to be related and to exchange information in an interactive way to people that are geographically distant, as if they were in oneself meeting place (Goatherd, 2002). Although the word is ambiguous, in general we use it to refer to the talkative interaction based physically on the image in movement and the sound of two or more distant people, but coincident in the time, and that they use diverse technological resources. The satellites of communications, the optic fiber, the microwaves, the computer nets, the phone lines, etc. is channels habitually associated to the videoconferences. Cameras and videotape reproducers, microphones, computers, etc. is usually used to take place and to code the sign of a videoconference among remote places. However, in the last times and with the coming of the computer nets, every day it is spoken more than desk videoconference, that that can be carried out from two computers interconnected by a telematic net, a couple of cameras and microphones of low cost and the appropriate software. Also, although not necessarily, in the desk videoconference other support tools can be used, as electronic whiteboard, editors of net text, environments of on-line supported collaborative work, clients World Wide Web synchronized for guided visits, etc.

The video, the image in movement, adds a new dimension for audioconference (Rettinger, 1995):

The communication increases creating a sense of physically distant presence of the other one;

- It facilitates us the perception of non-verbal elements of the communication like the expressions of the face and our communicant's expressions, improving the context of the communication;
- It allows to include complementary audiovisual information in the communication (as video clips or static images);
- It facilitates the understanding of the environment and the situation of the other participants.
- Even, in the case of conferences or lessons, it facilitates the understanding when centering the attention of the assistants in the speech and when facilitating the instructor 'to show' that of what is speaking.

To carry out a videoconference it is necessary to digitize audio and video and to transmit it quickly at distance, to be possible in real time or with minimum retards that don't hinder the fluency of the conversation. So far, the techniques and didactic resources used in **teaching/learning** environments based on the communication mediated by computer have leaned on in two dimensions: the text and the asynchronous communication. That is to say, the limitations of the infrastructure of communications, so much at hardware level, as of software, existent it has favored the development and widespread use of applications with drops demands as regards wide of band prosecution of the information. The electronic mail, the news of the net, the forums, the remote sessions, the transfer of files, etc. is examples of this type of applications. All they follow an asynchronous communication model, in which the accuracy prevails about the speed. The synchronous applications, as the chat, they are

based on the text; therefore, they consume scarce band width. However the videoconference if it consumes a width of quite big band if he/she wants to improve the quality, because when the band width is scarce, the image quality can it turns as mere presentation of pictures with audio.

Typical scenarios of videoconference

Personal communication

Two people, using personal computers and the necessary peripherals (usually a video camera and a microphone), they exchange through the net sound and dynamic image. Located before the camera they speak to each other alternative or simultaneously. The applications of this scenario related with the education are: tutorship and consultantship at distance, sessions of individualized address of projects, coordination, etc.

He/she confers or delivery of classes

A speaker or teacher, using diverse resources as cameras for documents, electronic whiteboard, etc., speaks to one or several groups of people located in an or several distant localizations. The image and the speaker's sound are meetly amplified in the reception rooms in function of the size of the group. The speaker can receive in a monitor the image of the diverse groups and the sound of the group that he wants. With the use of this important means of communication the assistants can carry out questions to the speaker. The applications of this scenario related with the education are: seminars and work sessions in small group, conference of groups, etc.

Work meetings

Two or more work groups exchange audio (for shifts) and video (simultaneously). Audio and video is meetly amplified for a vision and appropriate audition. Usually, each person or participant group receives the image of the other groups and the sound from which you/they want.
The videoconference is used in academic environments for diverse purposes (Butters et to the., 1994):

- Personal communication (more or less formal).
- I work collaborative (including distributed seminars and control of projects among distant headquarters).
- Presentations, chats, conferences, etc.
- Investigation.
- Education and formation (activities virtual face).

All these scenarios can be used advantageously in formation activities and integrated in teaching/learning environments based on communication mediated by computer. If the electronic mail, the discussion groups, the

servants of information, etc. contributes temporary flexibility to the formative processes (the students interact to each other, with the professors and with the didactic material in an asynchronous way), the videoconference introduces the possibility to carry out synchronous activities, much more personalized and interactive among the participants. The videoconference can be used advantageously in formation activities to those that all more accustomed ones are: to give a chat or conference, to carry out a debate, a panel of experts, a personalized tutorship, etc. The communication face to face reinforces the aspects motivational and it contributes warmth and it personalizes the interaction. The wide range of video conferencing expands the possible communication forms in distance education. Used in combination with other means, it increases the quality of the interaction among the participants in the process.

Technical elements of the videoconference

Technology

To store, to send, to receive and to process signs of audio and video is necessary to capture them and to digitize them. Usually, given the great size that you/they occupy, is also necessary to compress them before to send them for any means of transport and to decompress them when arriving to destination. This whole process is carried out through codecs (codifier-decoder), a hardware piece or software that it converts among analogical and digital signs and vice versa, and it should happen the quickly most possible thing, since the users expect face to face from the videoconference the interactivity of the communication. Two basic architectures exist to confront these processes: to carry out them with special hardware outside of the computer or to carry out them inside the computer by means of software. The first one offers better results at the moment, but their cost is much higher. The designed products of agreement with the second alternative begin to offer the enough quality.

Audio

The sign of audio usually captures by means of connected microphones to the computer. A digital sign of audio can be described with three parameters: sampling frequency, sample bits and number of channels. The analogical wave is sampled and transformed into discreet values that are processed later on. As much as adult is the sampling frequency, adult it will be the fidelity between the digitized sound and original analogical sound. As much as adults are the sample bits, bigger quantity of levels will be able to be distinguished and, therefore, bigger quality of audio. A single channel is needed for sound monkey, two for stereo, etc.

Video

The movement sensation, like in the cinema or in the video, it is product of a sequence of fixed images presented to a speed of between 24 and 30 per second. The same as in the case of the sound, in a videoconference the video sign is used as input (usually by means of a camcorder, a video reproducer or any other apparatus). This analogical sign (NTSC or PAL, usually), it is necessary to digitize it and, given the size of the result, to compress it before being a correspondent to their destination. A television sign PAL, for example, has a resolution of 625 you line for image and it requires 25 images for second or 50 crisscross images (even and odd lines). Given they are necessary 24 bits to store the sign of luminance and chrominance of each pixel, the size of a file that stores some seconds of video is enormous, mainly if it is necessary to send it for a computer net with the width of available band at the moment. For everything it is necessary to compress the video sign (multiple algorithms exist: MPEG, H.261, CellB, Indeo, etc.) and, in many occasions, to give up the 24-30 images per second and to limit the video sign to 4 or 5 images per second. This measure is the causing of some typical phenomena (and annoying) of the videoconferences: syncopated movements and not very natural, coordination lack between the sound and the movement of the lips, screen soda for squares, etc.

Data

As support to the videoconference activities, applications that allow to exchange information in formats different to the audio one and video exist. For example: electronic board in those that the participants can draw and to write or to carry out graphic presentations, applications to be transferred files among the rooms or the personal computers that participate in the videoconference, clipboard or cameras of documents, work spaces in group, group applications, etc. If the videoconference is carried out integrated in an on-line supported environment of collaboration, the users have all the facilities of communication of the computer nets simultaneously.

Communications

The most habitual channels through those that are sent and they receive the signs of audio, video and data can be divided in two main types: of commutation of circuits and of commutation of packages. Each one has advantages and inconveniences to carry out videoconferences. The first ones assure a width of constant band between two distant places, for what the yield of the channel is predictable. On the other hand, the communication multipoint requires very expensive equipment (MCU or Multi-Conferencing Units).

The commutation of packages implies that the width of band of the net is shared with other users and applications. When being shared it is difficult to predict the yield that we will obtain during the videoconference exactly. On the other hand, the division of the information in packages and the process of its routing from origin to destination can cause losses, delays and reception of

packages disordered under discharge conditions it loads. Among the advantages it fits to mention that it is much easier the realizations of conferences multipoint and the ubiquity and under price of nets of packages like the Internet.

The solution to the problems of both systems, according to the experts, will be the RDSI (Net of Integrated Services) of wide band on ATM (Asynchronous Transfer Mode) that combines the advantages of both systems. But while he/she improves the infrastructure of communications and they lower the prices of this type of channels, it is necessary to adopt decisions regarding the most appropriate channels to our purposes.

Educational models

Two educational models exist to develop through this means; a model that reproduces or it adapts the traditional or masterful class (instructive perspective) and another that gives importance to the interaction focuses (constructivist, collaborator or investigator).

I model masterful

The videoconference is it that more he/she resembles the present teaching and what requires the smallest number of changes in the traditional methods. This supposes the use of the videoconference like half of conferences or masterful classes following the traditional present teaching and that it bears few changes in the pedagogic methods.

The ideal of this model is that bureaucratic procedures don't exist on the part of the institution that a professor can be presented in the videoconference room and to develop the sessions at the time that manages the panel of control of the system and that the conference is excellent for its content and for its development the shortcomings in a not very appropriate exhibition will be since accented through The videoconference.

The videoconference can be considered as an equivalent one to the present teaching but it is something more complex than it demands coordination, time and allotment of functions.

Independently of the quality of a conference and of the ideal situation previously described about the simplicity of the use procedures, the reality is that a present institution that invests in this technology commits with the education at distance in an enough number of courses, programming of the same ones and of the sessions, in the equipment of rooms, in a technical support, participation of the educational departments, in specific formation, in materials and in evaluation systems and administrative administration.

Asynchronous as: Commission, clinic of the humor, Debates directed or guided discussion, Acting of lists, Dialogue or debate public, Small discussion group, Interviews or public consultation, Interviews collective, Study of cases, Forum, Rain of ideas, round Table, Panel, Phillips 66, Seminar, Symposium.

I model interactive

The videoconference like a new technology has enormous educational possibilities presently and in the future, being still it's very limited use in the field of the education. It is a system of easy use that doesn't require of big technical knowledge for their manipulation, their handling it is simple; however it is pertinent that the professors are formed in the handling of this technology.

The interactive videoconference is a half didactic one that allows to exchange audio, video and data between two or more receiving points in an interactive, simultaneous and symmetrical way. The distant points are linked through phone lines (optic fiber) or technology RDSI and the exchange is carried out by means of a specialized team that is located in the places that establish the connection.

The interactive videoconference is a system of bidirectional and virtual communication in the one which the professor and the students of all the places see each other and they converse as if they were in the same room of meetings, at the same time they can exchange data, fax, graphic and audiovisual information (Oliver, 2001).

This premise on the use of the videoconference like he/she replies of the present instruction it has evolved because it doesn't interest the similarity but taking advantage of one of the essential characteristics of the videoconference; the possibility of a bidirectional communication in real time.

The learning at distance through this technology believes a new context inside which takes place an educational process and the interaction professor-student. Traditional styles of teaching-learning are not the most appropriate or troops when the technologies mediate; in the courses at distance have to be new forms to restructure the personal interactivity and of content.

Nevertheless, new teaching-learning situations can be designed at distance with the use of the videoconference where it is generated, facilitate it reinforces or I enlarged the knowledge in an individual or collective way; where an emotional aspect is added that helps to bring near, to know people that intervene in the educational process; and that it supplements other didactic means.

The videoconference in the education

In the context of the expensive education - to - face (by means of interactive videoconference), the teaching situation - learning understands six elements: 1. A professor or professors, 2. A student or students, 3. An academic coordinator and another technician, 4. Respective technicians, 5. A system or communication way and 6. Contents for teaching and learning. In the precedent paragraphs it has been described concerning aspects to the videoconference, as a communication system or educational technology; therefore in the following paragraphs the process teaching is described - learning generated with the use of the videoconference and the elements involved in this process.

To understand the element of contents to be taught and learned, it is necessary to approach the designs of structures: to) it Structures didactics, b) Structure of plan of classes and the c) Structure of contingency plan.

to. It structures didactics: although the videoconference allows to take advantage of the advantage of the present education in the education, its effectiveness and quality in the teaching process it doesn't depend exclusively on its nature like didactic resource, it is pertinent that the professor teaches using the videoconference well, for that which should be qualified in the use of the means and formed to impart classes through a camera, also he should carry out a planeación and class organization in the methodological, instrumental aspects and technicians. In general the didactic design to develop a class with interactive videoconference understands the following elements: 1) objectives, 2) contents, 3) strategies, 4) auxiliary means and 5) evaluation.

b. Structure of class plan: to prepare a class with interactive videoconference it should be kept in mind the following aspects: 1) characteristic of the teaching - learning using videoconference, 2) characteristic of the audiovisual materials of support, 3) dynamic of group and 4) class organization.

Characteristic of the teaching - learning using Videoconference:

- The interactive videoconference is the means that provides the possibility to carry out education at distance in the most similar environment to a living room of classes and it includes all the audiovisual helps that can be had in the same one.
- The receiver becomes originator and he/she gives him a value added to the team.
- The professor is real, it is possible the personal interaction. (I half-close affective).
- One student (he / she) may have teachers in different places.
- I design instructional based on the interactivity.
- Possibility to transmit and to receive audio and video.
- I design instructional based on the combination with other asynchronous means.
- It is not for massive audiences.
- It requires organization and systematizing of contents. (Adaptation to the means).
- The professor requires training to face the technological barrier.
- It allows the use of dynamic of group.
- It requires former elaboration of materials - I profess.
- Narrow interaction with the academic coordinator and coordinating technician.
- It requires the elaboration of contingency plans for preview technical aspects.

Conclusions

With the adoption of the technological tools for the information and communication you they integrate educational, students, programs, resources and systems of help, in different places to the facilities of the institution, increasing the flexibility of the learning in terms of space, time, offers of

contents, didactic resources and the access in equality to those education systems.

The videoconference like it was shown previously, he/she has one of their main applications in the educational models and this as other media, it is not automatically a didactic resource, because for he/she should be integrated elements that make it applicable in education. This work analyzes mainly aspects that can be outstanding for the application of the videoconference like a half educational one. They take so much into account concepts of the communication like of the educational practice.

In common terms, the videoconference is a means of communication that allows us to see and to hear another person, at the time that he/she can see us and to also hear.

To arrive to outstanding proposals of use of the videoconference, it is necessary to understand as much their operation as the way of integrating the educational applications according to their characteristic. This implies to manage a work methodology that doesn't stay in one merely technical planning. A first task is to describe its origins and evolution.

A videoconference is a bidirectional and synchronous communication of image, sound and data, between two or more points.

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