Glossary of Terms

**3 x 4 Aspect Ratio**
A horizontal format three units high and four units wide that is required for television. This is the way that the television lens “sees” an object.

**A/V**
Audiovisual presentation devices such as overhead projectors and slide projectors.

**Access Control**
The ability to selectively control how to get at or manipulate information in, for example, a Web server.

**Accessibility**
The art of ensuring that, to as large an extent as possible, facilities (such as, for example, Web access) are available to people whether or not they have impairments of one sort or another.

**Acoustic Echo Canceller**
A form of adaptive echo canceller that produces an electronic replica of the potential echo to subtract from the transmit audio. The goal of the acoustic echo canceller is to reduce the amount of direct and reverberant loudspeaker coupling to the microphone to prevent echo. To achieve this, the Digital Signal Processor algorithms used in today’s devices require an audio system that is feedback stable.

**ACSS (Audio Cassette Style Sheets)**
A language for telling a computer how to read a Web page aloud. This is now part of CSS2.
**Active Classroom**
A classroom environment in which the student is engaged in his or her learning through cooperative efforts.

**Active Involvement**
The student participates in learning events rather than sitting passively.

**Ad Lib**
An unplanned part of a presentation or script. It consists of words and gestures.

**ADA**
The 1990 Americans with Disabilities Act. Review before developing telecourses. (2) Activity/Discussion/Application. The student is asked to do something and then to think about what he or she has done.

**ADC**
Analog to digital converter. A special device that converts an analog signal to an equivalent digital signal.

**Address**
A special identification tag that identifies an Internet site or World Wide Web site. Examples include e-mail for the Internet and URLs for the WWW.

**Adult Learner**
A person who is responsible for decisions that affect his or her life and the resulting consequences. Could be legal-age designated as 18 or 21.

**Advanced Organizer**
A brief overview of new material to be introduced into a telelesson. It is presented before the teleclass begins.
Advanced Research Projects Administration Network (ARPANET)
A worldwide data communications network established by the U.S. Department of Defense in the 1960s that evolved into the Internet.

ALN
See Asynchronous Learning Network.

Amaya
An open source Web browser editor from W3C and friends, used to push leading-edge ideas in Web client design.

Analog
A general term used to refer to any continuous physical property such as voltage, current, fluid pressure, rotation, and so on. (1) Continuously varying in frequency and amplitude. Televisions and telephones have traditionally used analog technology to re-create voices and pictures. Analog is much slower and has poorer quality than does the digital technology that is rapidly replacing it. (2) Representations that bear some physical relationship to the original quantity, usually a continuous representation (electromagnetic wave) where information is encoded in direct relationship to the power of the original light or sound source, as compared to digital representations where information is presented as discrete numbers, steps, or time intervals. (See Digital). (3) Information represented and transmitted in the form of a continuous electromagnetic wave (contrast with digital).

Analog Transmission
Transmission of a continuously variable signal as opposed to a discretely variable signal. Physical quantities such as temperature are continuously variable and so are describes as “analog.”

Andragogy
Refers to adult learning. Made popular by Malcolm Knowles in his theory of andragogy or adult learning.
Anecdote
A very short, entertaining account of an incident, usually personal or biographical. An anecdote is a short narrative, story, or yarn.

Animation
A production technique that uses cartoon-like figures to create the illusion of movement. The use of sequences of cartoons, drawings, graphics, and models to simulate real life characters in apparent motion.

ANSI (American National Standards Institute)
This group is responsible for setting standards for most computer and audiovisual equipment.

Apache
An open source Web server originally formed by taking all the “patches” (fixes) to the NCSA Web server and making a new server out of it.

Application
A function or task that is carried out by the computer. Examples include mailing lists, spread sheets, etc. (2) The third level of the cognitive taxonomy. At this level students are expected to apply rules and procedures to new data or problems.

Application sharing
A feature supported by many desktop videoconferencing systems that allow the participants at both ends of a videoconference to view and edit the same computer application or document.

Applications software
These are programs that are designed to conduct specific tasks or functions such as a spreadsheet or word-processing.

Arbitrary Graphic
The use of geometric and free form shapes, lines, and arrows, coupled with key words and phrases for the purpose of show-
ing visual spatial relationships among ideas. There is no intrinsic meaning to any shape. The meaning is derived from whatever the instructor designates it to be.

**Architecture**  
This refers to how a computer or other electronic devices are physically constructed. It is the internal structure.

**ARPANET**  
See Advanced Research Projects Administration Network.

**Artifact**  
A physical device used in teleteaching, especially on interactive television. It is used to visualize and reinforce ideas, often with an analogy. Examples include toys, fishing rods, hats, etc.

**Artificial Intelligence (AI)**  
The computer attempts to simulate certain characteristics of the human brain. (2) Computer programs which perform functions, often by imitation, normally associated with human reasoning and learning.

**ASCII**  
An acronym for American Standard Code for Information Interchange. It is a coding scheme that represents letters of the alphabet, numerals, and special characters as a series of binary digits or numbers.

**Aspect Ratio**  
The horizontal and vertical ratio of a graphic in any presentation format. For instructional television this is equal to three vertical units high by four horizontal units wide. This is how a television lens views people, objects, and graphics. Also referred to as 3 x 4 aspect ratio.

**Assessment**  
Determination of a learner’s ability to perform a task, as defined by a performance objective, to a minimum set of criteria. (2) The ability to determine to what degree the specified
learning performance objectives have been learned. Assessment involves traditional tests as well as direct observation or product criteria.

**Asynchronous**
Happening at different times. Asynchronous communications, for instance, is characterized by time/independence, that is, the sender and receiver do not communicate at the same time; an example is electronic mail. (2) Not at the same time. (3) Communications in which interaction between sender and receiver does not take place simultaneously (e.g., e-mail or fax). (4) A type of two-way communication that occurs with a time delay, allowing participants to respond at their own convenience. (5) A term that refers to communication in which interaction between the sender and the receiver does not take place simultaneously. (6) A type of communication that can occur at any time and at irregular intervals, meaning that people can communicate online without a pattern of interaction. It is the predominant mode of communication used in e-mail, in Usenet group, and on bulletin boards and websites.

**Asynchronous Communication**
Interaction between two or more people that is time-delayed, that is, separated by minutes, hours, or even days. Correspondence courses and e-mail are asynchronous forms of distance learning. The opposite is synchronous communication, such as talking in the phone or videoconferencing. Good distance learning programs typically use both synchronous and asynchronous communication. (2) A time-delayed communication through some type of recording device. It is replayed at the convenience of the user. Examples include e-mail and voice-mail.

**Asynchronous Learning Network (ALN)**
A form of distance learning that uses computer-networking technology, especially the Internet, for instructional activities.
**Audience**
The specific group(s) for which a telecourse is designed. Populations include adults, children, teenagers, firemen, etc. Each of these groups is also subdivided.

**Audience Participation**
Getting audience participants involved beyond just sitting and listening. This includes discussions, raised hands, games, simulations, and small group activities.

**Audience Response System**
Each participant has an electronic pad with numbers and letters. As questions and opinions are asked, the participants push the appropriate button and the instructor is given an average response by the group.

**Audio Bridge**
A black box with multiple telephone connections. Allows three or more people to hold an audio conference from any location. (See also Bridge.) (2) Specialized equipment that permits several telephone lines to be joined together in a conference call. (3) A device used in audioconferencing that connects and controls multiple telephone lines to create a conference call.

**Audio Cart**
A cartridge holding magnetic audio tape. This contains the opening and closing music of a video production.

**Audio Mixing**
Several different sound sources are synthesized onto an original single master audio tape.

**Audioconferencing**
The use of telephone message handling equipment to connect multiple parties simultaneously as is done in a conference telephone call. (2) Voice communications, traditionally accomplished by using standard telephone lines, although new technologies such as the Internet telephony are gaining a portion of the market. When more than one person is in a single
location, speakerphones or special audio conference terminal equipment is employed. When more than two locations are involved, multipoint bridging equipment or Internet-based software is used. (3) Voice-only communications linking three or more people at two or more sites by standard telephone lines. Speakerphones are often used to allow several people to participate at the same location; a bridge is often used to link three or more sites. Also called audio teleconferencing. (4) An electronic meeting in which participants in different locations use telephone or audioconferencing equipment (e.g., microphones and conveners) to interactively communicate with each other in real time.

**Audiographic**
A teleconference system that makes use of narrow band communication channels such as telephone lines to transmit audio, graphics, and computer text files. (2) Transmission of images as well as audio over ordinary telephone lines (includes electronic whiteboards, still video, and computer-based systems).

**Audiographic Conferencing**
Audio teleconferencing supplemented with visual display. Graphics can include slides, computer images, documents, fax, graphic objects, still-frame video images, etc. (2) The use of a telephone bridge to connect a group of students at multiple locations. All students hear the instructor who can dialogue among any of the individual sites. Speakerphones are used to allow a number of students to talk at will.

**Audiographics**
A form of audioconferencing that allows for limited graphics capability as might be provided by an electronic blackboard or document camera. (2) Teleconferencing that interconnects graphic display devices, such as computer monitors, located at sites separated by a distance. The technology generally allows the participants to view the same high-resolution [Video Graphic Array (VGA) or better] still-frame visual at each site. Some systems allow annotation, writing, or drawing on the screen. (3) A synthesis of telephone, television, computer and

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print capability. It uses narrow band signals like telephone to transmit audio and graphic signals. (4) A sophisticated computer application relying on graphic computer interaction augmented by two-way, real-time audio communication. Audio, data, and graphics are shared over telephone lines, allowing users in different locations to simultaneously work on the same application.

**Audio-Only Conference**
A type of conference in which communication takes place by voice only.

**Audiovisual**
Information recorded as non-print audio sounds and visual images such as audio cassette, video, graphics, and 16 mm films.

**Authoring Language**
A user-friendly programming language used to develop specific applications such as teaching presentations, computer-assisted instruction, and multimedia. Examples include HyperCard, Astound, ToolBook, PowerPoint, and Authorware.

**Authoring System**
See Authoring Language.

**Backbone**
The National Science Foundation originally funded a series of high-speed electronic links that became known as the Internet. This also refers to the National Information Superhighway. These are trunks of telecommunication lines, such as fiber optic, that connect multiple networks at any location. (2) A primary communication path, usually a multi-conductor wire cable or multi-strand optic cable, from which other communication paths branch to customers.
**Backlight**
Lighting used behind or over the head of the instructor to provide highlights of key features such as hair, head, or shoulders. Backlights add depth to a picture.

**Backup**
A copy of data, print, or graphic in case the original is destroyed. (2) A copy of an electronic file, retained in case the original is damaged or rendered unusable.

**Balance**
The correct intensity between the bass and treble of an audio signal. (2) Balance also refers to the composition of a graphic.

**Band**
A range of frequencies between defined upper and lower limits. For example, the Medium Frequency (MF) band, as designated by the International Telecommunication Union (ITU), is 300–3,000 kHz.

**Bandwidth**
In communications, the frequencies within which signals can be transmitted and received. Bandwidth directly relates to data transfer speed. The greater the bandwidth, the faster the data transmission speed. (2) How much data can be transferred from one computer to another per second defines the bandwidth. (3) The amount and rate of transmission capability that an electronic device can handle to transmit information. The larger the bandwidth, the more information can be transmitted. This is the transmitted signal in different ranges of frequencies (highest to lowest), measured in cycles per second (bauds) for digital signals. Television requires a wide band circuit and uses up an inordinate amount of available bandwidth which will severely limit the growth of newer technologies such as the cellular phone. Wires and cables are used mostly for voice communication, which require a fairly narrow bandwidth. Today the transmissions that go over the air and need the most bandwidth (television) is the medium with the least available space. The signals that need the least bandwidth are sent through...
wires and fiber optic, the medium with the greatest space available. This flip-flop will have to change. One video channel can provide 1200 voice telephone channels (Newton, 1991). The prefix “kilo” equals one million, “giga” one billion and “tera” is one trillion. A T-1 transmission is 1.5 mbps and a T-3 transmission is 45 mbps. (4) The width of an electronic transmission path or circuit, in terms of the range of frequencies it can pass without distortion. The wider or greater the bandwidth the more information can be carried by the medium of transmission. Typically measured in Hertz, but may be expressed in bits per second; a TV channel requires about 6 megahertz. (5) The range of frequencies that can be carried by a telecommunications carrier (e.g, telephone lines, satellite transmissions). Measured in Hertz (Hz). (6) The frequency width needed to transmit a communication signal without excessive distortion. The more information contained in a signal, the more bandwidth is required for distortion-free transmission.

**Bar Code**
A series of vertical lines of different widths that can be read by a scanner. It is used to scan prices on merchandise or food; it is also used to store tests. (2) A type of code used on labels and read by wand or bar code scanner. The main application is in labeling products and documents in libraries. Also used to input programming code to devices such as videodisc players and CD-ROM players.

**Barcode Reader**
An infrared scanning device that interprets barcoded commands for videodisc and CD-ROM players.

**Basic Rate Interface (BRI)**
A digital communications circuit with 128 Kbit/s of bandwidth. Integrated Services Digital Network (ISDN) BRI circuits can send three digital signals over a single pair of copper wires: two voice (B) channels and one signal (D) channel. (2) One of two “interfaces” defined in ISDN. Basic rate Interface provides two B-channels at 64 kbps and a data D-channel at 16 kbps.
Baud
A unit for measuring the digital transmission speed of any data. One baud equals one bit per second. 300 baud is low while 33,600 baud is fast. (2) The transmission rate at which data flows between computers. It is synonymous with bits per second (bps).

BBS
See Bulletin Board System. (2) A form of computer conferencing system that usually runs on a personal computer.

B-channel
A “bearer” channel that is a functional component of Integrated Services Digital Network and B-Integrated Services Digital Network interfaces. It carries 64 kbps in either direction, is circuit switched, and can carry either digitized voice or data bits.

Binary Language
Developed on two letter alphabets, e.g., “on,” “off”; “X,” “O”; “1,” “2”; and so forth.

Binary Digit
In the binary number system, the binary digit is either 0 or 1. See also Bit. (2) Having only two states: on and off, values 0 and 1, yes or no, signal or no signal.

Biographical Sketch
A one-page brief resume of an individual highlighting key biographical points such as education, experience, honors and recognition, and personal hobbies or use of leisure time. It is used for introductions or newspaper releases.

Bit
A binary digit. In the binary number system, the bit is either 0 or 1. In electronic storage, it represents the smallest unit of data and is characterized as being either “on” or “off”. Groups of eight bits are combined to represent characters of data that are referred to as bytes. (2) A contraction of binary digit. The binary digit, or bit, has two values: one or zero. An analog signal
can be converted into a continuous stream of digital bits and transmitted over copper or fiber optic. A bit is the smallest unit of data that a computer can recognize. (3) The abbreviation for a single binary digit. (See Binary.)

**Bits Per Second (BPS)**
The number of bits transmitted per second.

**Black Box**
An electronic device that can alter input or output signals of electronic equipment in a specified way. The technical operation is irrelevant to the instructor.

**Blocking**
How stage space is used. This includes props, equipment, and movement from one position to another, and change of position as a transition to an important point.

**Body Language**
The use of nonverbal communication to reinforce key ideas while teaching on television.

**Body Text**
Text that forms the bulk (or body) of a document.

**Boldface**
A darker type print font used to cue or highlight headings from a text.

**Bookmark**
A URL WWW address that is kept for immediate use.

**Boot**
To start or restart a computer.

**BPS**
See Bits Per Second.
Breakout Session
Participants are placed into small groups of 3–8 participants for the purpose of discussion, problem solving, competition, or clarification.

Bridge
A device for linking three or more channels of voice or data. Also, a computer that connects two or more networks and forwards packets among them. (2) A black box that links three or more channels for voice or data transmission. (3) (a) A device for interconnecting communication devices such as telephones and computers or two or more local area networks (LANS). (b) A telephone bridge is an electronic device that links three or more telephone lines together so that individuals can hold a teleconference. Advanced bridges automatically connect, announce those who join and those who leave a conference, and provide a constant volume for all conference participants. (4) A system that allows two or more telephone or videoconferencing lines/sites to be interconnected. (See also Audio Bridge.)

Broadband
A high capacity communications circuit that is capable of transmitting data at speeds up to millions of bits per second. (2) Refers to high-capacity communications circuit, usually with speed greater than 1.544 Mbit/s. (3) A communication system with a bandwidth greater than voice band. Broadbands are capable of high-speed data transmission and usually use coaxial, microwave, or optical transmission. Used to describe high-speed data channels, or one or more video channels. Used to describe digital technologies that provide integrated voice, data, and interactive communication services to businesses and households.

Broadband Signal
This is a term applied to the transmission of data with a wide range of frequencies. Describes transmission facilities capable of handling frequencies above voice grade such as microwave, fiber optics, laser beam, and broadcast television. These very
fast signals will be used for personal communication services (PCS) such as portable fax and telephones.

**Broadcast Quality**
Meets National Television System Committee standards. (See also NTSC.)

**Broadcast Television**
The transmission of audio and video signals over the standard UHF and VHF television channels. It is known as full motion video.

**Broadcasting**
A radio wave communication service in which the transmissions are intended for direct reception by a wide spectrum of receivers such as the general public. Broadcast service may include voice, television, or data transmissions. (2) The one-way transmission of information (i.e., conventional radio and television).

**Browser**
A Web client that allows a human to read information on the Web.

**Browser software (web browser)**
Software that provides facilities for accessing Uniform Resource Locators (URLs) on the World Wide Web. Examples of Web browsers include Netscape Navigator and Microsoft’s Internet Explorer. (2) A special graphically based tool to allow users to view documents in hypertext over the World Wide Web with the click of a mouse. Examples are Microsoft Explorer, Mosaic, or Netscape Navigator.

**BTV (Business Television)**
Private television networks used by organizations for training and other communication purposes.

**BTW**
Acronym for “by the way.”
Bug
A random or nonrandom malfunction in hardware or software functions.

Build-Up
Physically construct an idea on a magnetic board with cards and magnets or on cards with Velcro.

Bullet
The character “.” (2) Small graphic symbols (circles, triangles, and dashes) used to introduce items or data.

Bulletin Board System (BBS)
This is an on-line bulletin board service that uses asynchronous communication with participants who share an interest in a subject area. Participants can leave messages for each other at any time and respond at any time. Files can be uploaded or downloaded at any time. (2) A personal computer with an auto-answer modem used to access a “host” computer for the purpose of reading and posting electronic messages.

Bundle
A single purchase price for a number of different products such as a computer and selected peripherals and services.

Business Television (BTV)
A technology that employs one-way motion-video from an origination site to multiple receiving sites. Used when it is not important to the content or message to see participants at the receiving sites. Receiving sites generally are provided with a way to respond to the origination site, usually by audio conference (voice), a response system, or facsimile. Common transmission systems include satellites and Instructional Television Fixed Service (ITFS). (2) Usually live satellite broadcasts for meetings or training in a corporate environment.

Byte
The minimum amount of primary storage or memory needed to store a character (letter, numeral, special character) of infor-
information. It usually is eight binary digits or bits. (2) A unit of computer memory measured in thousands (K), millions (M), or billions (G). (3) A single computer word, usually eight bits. (See Bit.) (4) A group (usually 8 or 16) of binary digits (1 and 0) that a computer processes as a unit of information such as a letter, character, or number.

C
Centi or one hundred.

Cable
The physical channel by which television and data signals are transmitted. Coaxial cable is made up of copper wires. Fiber optic cable is made up of high quality glass fibers.

Cable Television
A coaxial cable analog television transmission system used primarily by local cable companies. The cable connects local subscribers to a central community antenna that picks up signals from a satellite. There are also “wireless” cable systems that distribute television signal via antenna. (2) Broadband radio-frequency transmission of video signals over coaxial cable or optical fiber directly to television sets in the home as opposed to broadcast television. Video signals may be transmitted in one or more directions, thereby enabling viewers to input data. Cable television also makes possible pay services and video conferencing.

CAD
Computer-aided design for computer-assisted production of drawings and graphics.

CAI
See Computer-Assisted Instruction.

Camcorder
A small television camera which uses 1/2” videotape. It is highly portable.
Canned
A prepared presentation that is used repetitively.

Capacity
The amount or volume of information that can be physically stored in a computer.

Caption
A title, graphic, or spoken comment about a graphic or something else on a TV screen.

Capture
To capture data in order to save a disk. The data captured can be viewed at a later time.

Carrier
The frequency within a given bandwidth upon which an information-carrying signal can be impressed or modulated with another information carrying signal. (2) An organization, company, or business (vendor) authorized by a government regulatory agency to provide a specific communication service. (3) A carrier system using one of many modulation processes in order to receive more than one channel from a single path.

CATV (Community Antenna Television or Cable Television Delivery System)
The delivery of television signals via coaxial or fiber-optic cable connections, managed by commercial or nonprofit organizations.

CAV (Constant Angular Velocity).
A CAV videodisc revolves continuously at 1800 rpm, one revolution per frame, making each frame of a CAV disc addressable, a basic requirement for interactive videodiscs.

C-Band
A special bandwidth to send (uplink) a television signal to a transponder on a satellite. The television signal is then distributed (downlink) to C-band satellite receive dishes also called
earth stations. (2) The original frequency in the 4–6 GigaHertz range used for satellite transmission that uses large receiving dishes (3 meter). (3) A type of satellite transmission with less path loss than other satellite standards such as Ku Band. C-Band, however, requires a relatively large antenna. C-Band frequencies are shared with terrestrial microwave transmissions, which can cause interference with weaker satellite signals in certain areas. (4) A radio frequency band allocated to transmit satellite television or telephone signals. Signals in the C-Band are transmitted at 6 Gigahertz and received at 4 Gigahertz. (See also Ku-Band).

CBI
See Computer-Assisted Instruction.

CBT
Any training and/or education that uses a computer. This includes Computer Learning Centers, simulators, and networked computers.

CCTV (Closed Circuit Television)
The signal is scrambled so that it may be received by groups that have a descrambling device. (See also Closed Circuit Television.) (2) A system for transmitting television signals over a private cable network.

CD (Compact Disc)
A format that records digital data on 12 cm optical discs.

CD-I (Compact Disc-Interactive)
The student interacts with the instruction presented through the computer in the form of still images, computer graphics, audio, and computer data. (2) A compact disc format that includes audio, video, and program data.

CD-ROM
An acronym for compact disc-read only memory. It is a form of high-capacity optical storage that uses laser technology. (2) Compact disc-read only memory. Used for audio, graphic, and
video playback. Up to 640 million bytes of data can be stored on a single disc. (3) The form of CDs that can store information in digital form and can be read by computers. (4) Compact disc-read only memory. A format for recording data on compact disc, permitting virtual storage of a large amount of information in a small format.

**CD-Rom XA**
Compact disc-read only memory extended architecture. A format for integrating audio and data within a basic CD-ROM format.

**Center of Interest**
That point in a graphic that the eye is drawn to. (See also Rule of Thirds.)

**Centering**
The position of the instructor on a television screen. The instructor should be centered in the middle of the screen if sitting or standing.

**Central File Server**
The central or host computer in a network that provides files and programs to other computers.

**Central Processing Unit (CPU)**
The part of a computer hardware system that directs all processing activities. It consists of electronic circuitry and includes a control unit, an arithmetic-logic unit, and a primary storage or memory unit. On large computers, the term is used to refer to the entire main computer console. On some microcomputers, it refers only to the control unit and the arithmetic-logic unit. (2) The electronic circuitry that executes a stored program of instructions. The CPU is made up of the control unit and the arithmetic/logic unit. The main chip or processing engine of a computer. (3) A computer system’s central processor. Contains main storage, arithmetic unit, and registers (Sippl, 1990).
CERN
The European Particle Physics Laboratory, located on the French-Swiss border near Geneva, Switzerland.

Channel
A transmission path between two points. It is also called a line, a circuit, or a link. The segment of a bandwidth that provides a pathway or a communication link between sending and receiving points.

Character
Any piece of data such as letters, numbers, symbols, or blank spaces stored and/or processed by a computer.

Character Generator
An alphanumeric, typewriter-like device that electronically creates graphics and text on a television monitor without using a television camera. This is also called a caption generator.

Chat
A real time conversation among computer users, similar to the telephone.

Chat/IRC (Internet Relay Chat)
A chat system that was developed by Jarkko Oikarinen in Finland in the late 1980s. IRC allows people connected anywhere on the Internet to join live discussion that is not limited to just two people. In order to participate in an IRC chat, participants need IRC Client software and Internet access. The Client software runs on the participant’s computer and sends and receives messages from an IRC server. The IRC server, in turn, broadcasts all messages to everyone participating in the discussion.

Chip
The building block of a computer that performs many functions such as memory and computations. These contain a great many circuits and transistors. A thin silicon wafer containing integrated circuits, it is the basis of all digital systems.
Circuit switching
Coding/decoding equipment used to convert and compress analog video signals into digital formats and vice versa.

Click-Stream
Information collected about where a Web user has been in the Web.

Client
Any program that uses the service of another program. On the Web, a Web client is a program, such as a browser, editor, or search robot, that reads or writes information on the Web.

Client Server System
A distributed data communications system in which computers perform two important functions either as “clients” or “servers” that locate the data on the data communications system and process the request for the client.

Client-Server Application
A network architecture in which each computer or process on the network is either a client or a server. Servers are computers or processes dedicated to managing disk drivers (file servers), printers (print servers), network traffic (network servers), or other processing services. Clients are PCS or workstations on which users run applications. Clients rely on servers for resources such as files, devices, communications, or processing power. Client-server architectures are sometimes called two-tier architectures.

Clip
A short piece of audio or video source material stored on tape.

Clip Art
Copyright free graphic line art that uses line drawing (black and white only) and halftone (shades of gray). It is available in hard copy (print) and on computer discs. Increasingly available in color.
Clip Media
Digital files or libraries containing images, video, sounds, and other media that can be readily incorporated into a multimedia program.

Clone
A computer or other product that is an exact copy of the original.

Closed Circuit Television (CCTV)
A television system capable of producing, distributing, and receiving television programs. It is designed for a restricted area such as a single building of a whole campus. Signals are not distributed outside of this area unless desired.

Close-up Shot
A television shot that shows the head and shoulders only or fills the television screen with an object.

CLV (Constant Linear Velocity)
A CLV or extended-play videodisc maintains a consistent length for each frame, thus enabling longer playing time per side but sacrificing individual frame access in most players. Reference to locations on CLV discs is limited to time in minutes and seconds.

CMC
Computer-mediated communications for the purpose of teaching at a distance in synchronous or asynchronous time.

CMI
An abbreviation for computer-managed instruction. The computer is used to record data and to prescribe a learning sequence.

CMS
See Course Management System.
Coaxial Cable
A metal carrier (single copper cable) of broadband and baseband signals. These cables can be used to transmit television, telephone, and telegraph signals.

Codec
Coding/decoding equipment used to convert and compress analog video signals into digital formats and vice versa. (2) (code and decode) An analog signal, such as television, is converted to a digital signal, transmitted by any electronic means, and then converted back to an analog signal when received. The codec is the electronic black box needed to do this. (3) A device used to convert analog signals to digital form (and vice versa), primarily used in video transmissions. (4) Coding-decoding equipment used to convert and compress analog video signals into a digital format for transmission, then convert them back to analog signals upon reaching their destination.

Coder-Decoder (CODEC)
Videoconferencing hardware that codes the outgoing video and audio signals and decodes the incoming signals. Before transmission, a CODEC converts analog signals to digital signals and compresses the digital signals. Incoming audio and video signals must be decompressed and converted from digital back to analog. (2) A coder-decoder (analog-to-digital and digital-to-analog converter) is used to convert analog signals, such as television, to digital form for transmission and back again to the original analog form for viewing.

Cognitive
The means by which a student obtains new knowledge. It can be memory, reasoning, or evaluation. This is usually referred to as the cognitive outcomes of learning.

Color Bars
A television test signal that is electronically generated and appears as colored vertical bands. This allows the engineer to test for the correct color resolution and make adjustments accordingly.

Distance Education
Color Separations
Printing color pictures requires the preparation of four separate printing plates (one each for black, yellow, cyan, and magenta). The negatives for each plate, called separations, are made by photographing the original color pictures through different-colored filters. Analogously, in computer-generated graphics, separations are those “pictures” which, when combined, provide a full-color representation.

Communications Control Program
See Communications Controller.

Communications Controller
A data communications device that is used to send and receive messages from multiple sources. A multiplexor is an example of a communications controller. In some networks, communications controlling is performed by computer programs that also are referred to as communications controllers.

Communications Satellite
An earth satellite designed to act as a telecommunications radio frequency relay that is positioned in geosynchronous orbit 22,300 miles above the equator so that it appears from earth to be stationary in space.

Compact
An agreement among a group of states, referred to in Article 1 of the U.S. Constitution, that limits the sovereign power of the states. In the U.S., interstate or regional compacts have been formed in the area of higher education, water, energy, interstate parks, etc. Typically, interests compacts require approval by the U.S. Congress and the President.

Compact Disc Interactive
See CD-I
Compact Video
One of several devices used for storing large quantities of digital information for access by computers (about the size of an audio compact disc).

Compressed Video
A computer software technique used to reduce the number of bits or bytes needed to store or transmit a video file. Formulae or algorithms are used to replace empty or duplicate bits or bytes in a video file with coded bits and bytes that are then used to reconstruct the original video file. Compressed video is used most frequently when data transmissions are slow or limited due to narrow bandwidth communications. (2) When the vast amount of information in a normal television transmission is squeezed into a fraction of its former bandwidth by a CODEC, the resulting compressed video can be transmitted more economically over a smaller carrier. Some information is sacrificed in the process, and this may result in diminished picture and sound quality. (3) A method of reducing the size of digital video files. It is often accomplished by removing redundant portions of frames and by saving only those portions of images that change from frame to frame. (4) Video images in digital form that allow redundant information to be eliminated, thereby reducing the amount of bandwidth needed for their transmission. The amount of compression (i.e., bandwidth) determines the picture quality. (5) A digital transmission process used to transmit a video channel. While compressed video requires less bandwidth, signal quality is reduced. As a result, picture quality is generally not as good as full-motion, with quick motions often appearing somewhat blurred.

Compression
Methods used to substantially reduce the amount of information sent in a video, audio, or data signal.

Computer
An electronic device that accepts input, processes it according to a set of instructions, and produces the results as output. Computers can be classified as supercomputers, mainframes,
minicomputers, laptop computers, and so forth, depending on physical size, speed, and peripheral devices.

**Computer Assisted Instruction**
Computer-assisted instruction uses the computer as an instructional medium that is similar to other media such as slide/tape, video, or textbooks.

**Computer Conferencing**
Three or more computers are interconnected via telephone lines or microwave (usually on a listserv). Users communicate with the keyboard. Video clips, telephone and fax could also be used. Communicating is conducted through a computer network.

**Computer Interface**
The black box that is used to connect peripheral equipment to a computer or a computer with other devices such as a television.

**Computer Learning Center**
Traditional classroom augmented by computers or different time/same place tutorials that people can log in according to time availability.

**Computer Managed Instruction (CMI)**
Computer use encompassing broad management of curriculum. It includes discrete learning objectives but also administrative matters of guidance, evaluation, and referral to instructional aids.

**Computer Network**
A number of interconnected computers that are physically separated at any distance.

**Computer-Assisted Instruction (CAI)**
The use of the computer in an instructional process in which students’ progress is monitored and recorded for subsequent instructions and review. Most CMI applications also are able to adjust material to each individual student’s level of understanding. (2) Computer use designed to enable students to gain
mastery of a discrete learning objective (such as a spelling list) as one part of a larger teacher-centered curriculum.

**Computer-Based Examination**
An examination conducted on a computer. An example of this is an examination that is created by the computer where each student receives a different subset of questions that are randomly generated by the computer from a question pool.

**Computer-Based Instruction**
Instruction delivered via the computer. Computer-based instruction takes advantage of the interactive nature of the computer. It is an inherently active mode of learning.

**Computer-Conferencing**
Conducting a conference between two or more participants at different sites by using networks to transmit any combination of text, static pictures, audio, and/or motion video. Multipoint conferencing allows three or more participants to sit in a virtual conference room and communicate as if they were sitting next to each other.

**Computer-Managed Instruction (CMI)**
The use of the computer to assist in the instructional process, One of the earliest used terms to refer generically to computer applications in education, it is also used to refer to tutor-type applications such as drill and practice and to tutorials.

**Computer-Mediated Communications (CMC)**
The use of computer systems that incorporate communications software such as e-mail or LISTSERVs to enhance distance learning and computer-managed instruction applications.

**Concept File**
A collection of visual materials grouped by single idea or concept.
Concept Graphic
An abstract, yet recognizable, graphic with minimal detail such as a symbol, stick figure, or silhouette.

Cone of Experience
Edgar Dale (1946) put forth a theory of learning referred to as “Dale’s Cone of Experience.” In Dale’s theory children have to learn by direct exposure and experience because they have no previous knowledge base. Adults, on the other hand, have the benefit of previous experience to learn new information. This can be done by the use of analogy. As learners grow older and have more experiences, it is possible to understand events that are less realistic and more abstract.

Conferencing Interactions
Communications among people via computer, video, or audio delivery. It has been described as “many-to-many” communication. Communications can be in synchronous or asynchronous time.

Connect Time
The amount of time it takes to connect to an on-line service such as America Online, CompuServe, or Prodigy.

Connectivity
Refers to the communications facilities (i.e., coaxial or fiber optic cable, telephone systems, computer equipment) that enable users to connect to computer networks.

Connector
A term used in constructing an analogy. It is the statement that joins the known and unknown components, such as “is like . . .,” “resembles,” or “is compared to . . .”

Constraints
The limitations that must be taken as “given” in a planning situation, i.e., limits that are realistic within the current situation. These limitations include resources such as personnel time.
money, energy, as well as time required to complete, cultural imperatives, and the like.

**Constructivism**  
Theory of learning that stresses the importance of experiences, experimentation, problem solving, and the construction of knowledge.

**Consumer Assessment**  
Student or trainers evaluation of the value and desirability of a product such as teleslesson or telecourse. The collected data is usually made public.

**Content Expert**  
The instructor who designs a telecourse. Usually possesses a terminal degree in the field of specialty. (See also Subject Matter Expert.)

**Continuous Presence**  
An industry term applied to multipoint videoconferences in which multiple video images are active on the same screen at the same time.

**Convergence**  
Combinations of independent technologies such as telephone, television, computer, fax, and voice.

**Cookbook**  
Step-by-step procedures to accomplish a task.

**Copper Wire**  
A standard transmission method for telephone and television signals. Rapidly being replaced with glass fiber optic.

**Copyright**  
The legal right of ownership of intellectual property. Everything is legally copyrighted at the moment of creation. To protect against infringement, a work should be submitted to and
Corner Insert
The instructor’s head appears in the upper right hand corner or any other corner of the television monitor as he or she speaks to a picture or graphic. (See also Picture-in-Picture.)

Correspondence Course
This is the simplest and oldest form of distance education. Assignments are mailed to the learner. The learner completes the assignment and returns it to the instructor for grading. Feedback is provided via mail and the next assignment is mailed to the learner. The cycle repeats until the course is completed. This form of education is inexpensive, can be completed anywhere, and has been proven effective.

Course Authoring Software
Software specifically designed to assemble and electronically publish educational and training courses. The courses may be interactive in nature, wherein several students can interact, or may involve only the interaction of the student and computer.

Course Management System (CMS)
A set of computer software tools designed to enable users to create Web-based courses, Examples include WEBCT, TopClass, and LearningSpace.

Courseware
Instructional materials in a completely mediated format. May refer to a signal instructional component, such as computer assisted instruction program, or a multiple instructional entity, such as guidebooks, videodiscs, and computer-assisted instruction. (2) Software that is designed to be used in some type of educational process.

Covert Behavior
A behavior that is not directly observed. A mental activity.
CPU (Central Processing Unit)
The component of a microcomputer in which the data processing takes place.

Crash
A computer software error or hardware malfunction that causes a stoppage of work. It is either a human or machine error.

Crawl
An electronic reading aid for instructors on interactive television. Electronically generated words crawl across the bottom of a television screen and are read or paraphrased by the instructor.

Creativity
The ability to identify the parts and relationships of known objects and then to reassemble these parts with new and unique relationships. It is the ability to see new connections and relationships. The ability to change perspective and to make the ordinary extraordinary and the unusual commonplace.

Crop
To adjust, cut, or trim a graphic or picture to eliminate unwanted parts in order to fit within a 3 x 4 aspect ratio for the television or computer screen.

CRT
A cathode-ray tube or video monitor at a computer terminal.

CSS (Cascading Style Sheets)
A W3C recommendation: a language for writing style sheets. (See also Style Sheet.)

CUE
The attention of the student is directed towards an important idea. Cues include such things as color, underlining, italics, fill-ins, verbal directions or intonations, or nonverbal gestures.

CUL
Acronym for “See you later.”
CU-SeeMe
Audio and video communication transmitted over the Internet. It is a highly compressed format. A software package that allows videoconferencing over a network.

CUT
A single frame transition between two video clips.

Cut-In
A noncritical movie or television shot used to break up or transition sections of the principal action.

Cybernetics
The science of communications and control in animals and machines. (2) A theory of communications and control that accounts for the operation of systems in terms of feedback effects.

Cyberspace
Descriptive term for the Internet. (2) Consists of “virtual” space or the place where individuals correspond over the Internet. The concept was introduced in 1985 by William Gibson in “Neuromancer,” a science fiction story that describes the Internet. It is like a black hole where time, distance, and identity all collapse. There is no form and few conventions.

Cyc
A knowledge-representation project in which a tree of definitions attempts to express real-world facts in a machine-readable fashion. (Now a trademark of Cycorp Inc.)

Data
“The formalized representation of facts or concepts suitable for communication, interpretation, or processing by people or by automatic means.” (Spencer, D. [Ed.]. Webster’s New World Dictionary of Computer Terms, 1994)
Data Communications
The methods and media used to transfer data from one computer device to another. Common data communications media include coaxial cable, telephone, fiber optics, and satellite systems.

Data Conferencing
Refers to a communication session in which two or more participants are sharing computer-based data in real time. The keyboard/mouse can control either screen. Voice communication can be out-of-band via a totally separate voice connection or in-band using any one of the simultaneous voice and data technologies.

Database
A clearly defined set of information or data for a specified purpose. Examples could include a general or special dictionary or a collection of addresses.

Database
The generic name for software designed to enter, manage, search, and retrieve information from multiple lists.

DBS
A satellite capable of uplinking/downlinking directly to small diameter dishes (1 to 2 feet) at user sites (i.e., offices, homes). (See Direct Broadcast Satellite.)

Debug
To remove mistakes (bugs) from a computer program or telelesson.

Decompression
Undoing a state of compression. A software operation that returns a compressed signal to a state that can be shown on a display screen.
Dedicated System or Connection
Any telecommunication system designed for and used by an institution for 24 hours a day, seven days a week.

Definition
The clarity or resolution of the detail of a picture on a television or computer screen ranging from fuzzy to sharp.

Degauss
The demagnetizing of magnetic audio or video tape, or television monitors.

Delivery Medium
The physical means of providing a telecourse. The delivery medium could include audio, video, computer, print, and combinations of all.

Delivery Options (Telecommunications)
The means to electronically deliver a telecourse to students at field sites. Options include audio, video, computing, print, and combinations.

Delivery System
The total system of electronically originating, distributing, and receiving a telecourse program. It refers principally to the physical delivery system or hardware.

Depth of Field
The area of the teaching stage in a teleclassroom that is sharply in focus.

Design
Frequently used as an abbreviation for graphic design.

Desk Top Two-way Audio/Visual
Progress is being made towards “desk top” 2-way A/V through the use of Personal Computers. This will reduce the need for special equipment and special networking.
Desktop Camera
A small television camera that is placed on a desk next to the instructor. It is also called a visualizer. It is used to transmit graphics and pictures placed under it. (See also Document Camera.)

Desktop Publishing
The use of computer equipment to develop text and graphics. It usually refers to software that provides enhanced facilities for displaying characters, pictures, and color.

Desktop Video
A small television camera is installed on top of a computer. The users can conference via audio or video as in a videophone with one or more sites. (2) Videoconferencing on a computer.

Desktop Video Conferencing
A videoconference that occurs between two or more participants located at different sites by using personal computers to transmit and receive audio and video.

Desktop Videoconferencing
Videoconferencing on a personal computer; most appropriate for small groups or individuals. Many desktop videoconferencing systems support document sharing.

Different Time/Different Place
This is what most people think of as distance education. The old correspondence courses were an example of this form of education. The newest form of this is the use of the web and programs such as Web CT, Blackboard, Embanet, etc. Learners and instructors can post assignments and study guides on the web, provide comments, and conduct asynchronous conversations.

Different Time/Same Place
Often thought of as independent study, this is self-paced study. It is still guided by an instructor. However, instructors may be available only during certain hours. Computer Learning Cen-
ters are an example of this concept. Learners still have to travel to a central learning facility.

**Digerati**
Persons knowledgeable about the digital age. It is the electronic equivalent of literati.

**Digital**
Related to digits. Computers are considered digital because all data and instructions are represented as binary digits. (2) Refers to information stored in a binary language of ones and zeros. Computer technology is digital. Audio/video signals are represented by discrete variations (in voltage, frequency, amplitude, location, etc.). In general, digital signals can be transmitted faster and more accurately than can analog signals. For example, music from digital CDs is usually more clear than music from analog records. (3) Information stored in the form of bits (on/off signals) and which can be stored and transmitted via electronic media. Data is represented as discrete units (on/off) rather than continuous as in analog signals. All information encoded as bits (1s and 0s) that represent on and off states. Digital signals are always in a state of on/off. They are less susceptible to interference and noise and can be stored and manipulated by a computer. It is contrasted with analog. Once data is digitized, it can be stored and changed. A method of processing, transmitting, and storing data that operates in discrete electronic or optical steps as contrasted to a continuous or analog method. Digital communications/switching is the transmission of information using discontinuous, discrete sequences of electrical or electromagnetic signals that change frequency, polarity, or amplitude to represent or encode for transmission on digital communications systems. (See Analog.)

**Digital Signature**
A very large number created in such a way that it can be shown to have been done only by somebody in possession of a secret key and only by processing a document with a particular content. It can be used for the same purposes as a person’s handwritten signature on a physical document. Something a
user can do with public key cryptography. W3C work addresses the digital signature of XML documents.

**Digital Video (DV)**
Videotape in digital format as opposed to analog. Video signals that have been encoded as a series of binary digits. In this format signals can be accessed and manipulated in a computer program.

**Digitizer**
Any device used to convert analog (continuous physical property such as voltage or current) signals into binary or digital format.

**Digitizer**
A generic term for a scanner or video digitizer.

**Direct Broadcast Satellite (DBS)**
Transmission of video and audio signals directly to homes through small 18” rooftop receiver systems that are locked onto one satellite program source. Services are by subscription. (2) A satellite system designed with sufficient power to transmit signals directly from orbit to small inexpensive earth stations for direct residential or community reception. This eliminated the need for a local cable loop by allowing use of receiving disks with a diameter of a meter or less mounted directly on a building.

**Directory**
A grouping or catalog of file names that reside on a secondary storage device such as a disk. A directory is also referred to as a folder. A special list of files on a selected topic located on another computer at an Internet site.

**Dish**
This is also called an earth station. A mechanical device, a parabolic antenna, used for transmitting or receiving signals from a satellite transponder.
**Disk Drive**
A data storage device in a computer that contains a magnetic coating to store the data.

**Disk Operating System**
A generic term used to refer to any operating system that resides on a disk device and is loaded as needed into primary storage. (2) The system that operates all of the control functions of a computer.

**Disk Operating System**
See DOS.

**Diskette**
A magnetic disk measuring 5\(\frac{1}{4}\)" or 3\(\frac{1}{2}\)". Data is recorded on the disk as magnetic spots.

**Display**
A “chunk” of information similar to a written paragraph. Displays consist of word pictures, graphics, pictures, exercises and activities, directions, etc. There are usually two or three displays per page as found in an interactive study guide. A display could cover two or three pages if it is a reprint of a short article, case study, or simulation.

**Dissolve**
A transition television picture that appears as if one picture fades into another from side to side or from top to bottom.

**Distance Education**
A generic, all-inclusive term used to refer to the physical separation of teachers and learners. (2) [Distance Education, Distance Learning, Distributed Learning] The application of information technology (and infrastructure) to educational and student-related activities linking teachers and students in differing places. (3) The student and instructor are physically separated by any distance. All communications are mediated by some type of electronic means in real or delayed time. Location is of no significance. (4) The organizational framework and
process of providing instruction at a distance. Distance education takes place when a teacher and student(s) are physically separated, and technology (i.e., audio, video, computers, print) is used to bridge the instructional gap. (5) The organizational framework and process of providing instruction at a distance. Distance education takes place when a teacher and student(s) are physically separated, and technology (i.e., voice, video, data, or print) is used to bridge the instructional gap. (See Distance Learning.)

**Distance Instruction Planning**

When planning for instruction at a distance, the focus shifts to more visual presentation, engaging the learners (learner centered versus instructor centered), and the timing of the presentation of material. Traditional materials are often revised to illustrate key points and concepts using tables, figures, and other visual imagery. Activities that encourage interactivity need to be incorporated. Student group work activities need to be well planned. (This helps construct a supportive social environment.) Plans must be made for alternative delivery because equipment failures occur. Contingencies must be discussed beforehand. Other considerations include: lack of eye contact and body language (informal feedback), increased time constraints, the necessity of established milestones, and increased time and/or complexity for distribution of materials.

**Distance Learning**

A term for the physical separation of teachers and learners that has become popular in recent years, particularly in the United States. While used interchangeably with distance education, distance learning puts the emphasis on the learner and is especially appropriate when students take on greater responsibility for their learning as is frequently the case when doing so from a distance. (2) A system and a process of committing learners with distributed learning resources. This definition is from the American Council on Education (ACE). (3) The desired outcome of distance education, i.e., learning at a distance. (See Distance Education.)

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Distance Learning System
An integrated combination of technologies designed to support interactive teaching and learning among persons not physically present in the same location. Such systems often emphasize one technology but draw on others for increased flexibility. For example, a system built on video as the primary method of delivery may use voice mail, e-mail, Internet multimedia databases, and fax technologies to provide additional interaction between and support for the participants.

Distributed System
A form of computer processing that distributes and links hardware over some geographic area as in a network. It assumes that the local hardware can perform some tasks as well as expand its capabilities by connecting to other hardware.

Distributed Disks/CD ROM
Stand-alone training distributed via computer disks (of various sizes) and/or Compact Disk (read only memory). A USCG R&D study showed equipment training based on CD ROM was effective and reduced the time required to train the equipment by 70% versus traditional classroom/lab training. CD ROM is popular because it carries 75 MB of information. DVD is emerging technology.

Distributed Learning
“. . . an instructional model that allows instructor, students, and content to be located in different, non-centralized locations so that instruction and learning can occur independent of time and place. The distributed learning model can be used in combination with traditional classroom-based courses, with traditional distance learning courses, or it can be used to create wholly virtual classrooms” (Saltzberg & Polyson, 1996).

Distributed Network
A system whose databases are spread among many computers worldwide rather than clustered in a single location.
Document
A computer data file such as a single Web page, a text file, a database file, a graphic file, etc.

Document Camera
A small television camera placed on a table that is capable of capturing the pictures, graphics, or documents placed under it. Also called a desktop visualizer. These images can be broadcast in a one- or two-way video system and interchanged with the picture of the instructor.

DOM (Document Object Mode)
Within a computer, information is often organized as a set of “objects.” When transmitted, it is sent as a “document.” The DOM is a W3C specification that gives a common way for programs to access a document as a set of objects.

Domain Name
A name (such as “w3c.org”) of a service, Web site, computer, and so on, in a hierarchical system of delegated authority. The Domain Name System.

DOS
An acronym for Disk Operating System, the most popular operating system for Intel-based microcomputers. It is also referred to as Microsoft or MS-DOS after the company that developed it. (See Disc Operating System.)

Double-Page Layout
A format that involves printing on both sides of the page, so that most of the time the reader sees both a left-handed and a right-handed page.

Downlink
The transmission of data from a communications satellite to an earth station. (2) A television dish used to capture signals off of a satellite transponder for distribution in a local area. (3) The transmission of signals from a satellite to an earth station (i.e.,

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receiving dish). (4) A dish-shaped antenna used to receive signals transmitted from a satellite.

**Downlink Dish**
The dish and other associated electronic equipment needed to receive a signal from a satellite. The dish is either fixed on one satellite or electronically moveable for any satellite. Also called an earth station.

**Download**
In a computer network, the process of transferring a copy of a file from one computer, generally referred to as a central file server, to another requesting computer. (2) The process of transferring (copying) data files from a main host computer to a smaller computer. It is the opposite of upload. (3) A procedure for transferring or retrieving a file from a distant computer and storing it on your own. (4) Opposite of an upload.

**Downtime**
The time that telecommunications equipment is inoperable due to some type of malfunction.

**Dramatic Incident**
A role-play (usually short and to the point) that portrays some type of incident. It can involve the use of theatrics. One group provides the dramatic incident while another group observes and rates. Discussion follows.

**Dropout**
The loss of a signal (picture) during an audio- or videotaped playback due to some type of imperfection on the tape.

**DTD**
In the SGML world, a DTD is a metadocument containing information about how a given set of SGML tags can be used. In the XML world this role will be taken over by a schema. Sometimes, but arguably, “document type definition.” (See also Schema.)
Dual Band
Used to denote equipment and antennas capable of using both C-band and Ku-band signals.

Dub
To copy an audio or videotape from a master. It is also called a “dupe.”

Dublin Core
A set of basic metadata properties (such as title, etc.) for classifying Web resources.

Duplex Video
Two-way video communication capable of simultaneous origination and reception.

DV
See Digital Video.

DVI (Digital Video Interactive).
A proprietary format for placing digital video on a compact disc. Compressed files can provide full-motion video.

DYAD
Interactions between a pair of students.

Earth Station
A receive (downlink) or send (uplink) dish to distribute a television or data signal to or from a satellite transponder. (2) A ground-placed antenna used to transmit or receive signals to or from satellites, typically located in geostationary orbit.

EBT (Electronic Book Technology)
A company started by Andries Van Dam and others to develop hypertext systems.

Echo Canceller
A device that blocks echo reflections during a conference while maintaining (apparent) full-duplex audio.
Economy of Scale
A population large enough that generates enough money to cover the actual costs of a telecourse.

EDI (Electronic Data Interchange)
A pre-Web standard for the electronic exchange of commercial documents.

Edit
To correct the accuracy of data found in audio, video, or computer data. To change the order or sequence of the data to more accurately reflect the intended message. Data can also be removed.

Education Quadrants
Education is categorized in four quadrants according to the time/place relationship of the instructor and the learner. The four quadrants are Same Time/Same Place, Same Time/Different Place, Different Time/Same Place, and Different Time/Different Place.

Educational Television (ETV)
Programs dealing with educational topics. Usually passive, they teach about special interest areas. These can be broadcast live or distributed on videotape.

Edutainment
A synthesis of the interactive and entertainment capabilities of video games and direct instruction. It is highly interactive multimedia that synthesizes audio, video, and computing.

Electronic Blackboard
A pressure sensitive blackboard-like device through which writing is transmitted by telephone lines to distant sites and which can be annotated by participants at those sites.

Electronic Bulletin Board
A group e-mail or mailing list that allows all participants to post and read messages.
Electronic Learning
The student interacts with electronic media to learn a skill or topic. Examples include videodisc, compact disc, videotape, audiotape, etc.

Electronic Mail (E-mail)
The transmission of messages over a data communications network. (2) Computer terminals are used to add emotional expression to a text-based statement. (See also Smiley.) (3) A general term referring to the electronic transmission, distribution, and delivery of messages. E-mail is characterized by storage of a message at an electronic address that can be received by the recipient via a telecommunication-equipped personal computer. Facsimile (FAX) transmission of messages operates in a similar manner, but is received directly rather than stored in a “host” computer until requested. (4) Messages stored and sent via a computer system.

Electronics
A signal produced through the movement of electrons through a gas, vacuum, or semiconductor.

E-mail
See Electronic Mail.

Emoticons
Also known as Smileys. These are symbols used to add emotional expression to a text-based statement. (See also Smiley.)

Encryption
Making a message unreadable through distortion. A receiver must have a code to restore the signal to a form that is readable. This applies to computers and television signals.

Enquire
A 1980 program named after the Victorian book Enquire Within Upon Everything.
**Enthusiasm**  
An excited, passionate, animated presentation that inspires and motivates.

**Entry Level Skills**  
The skills and competencies brought to a course by a student. Material previously learned. Prerequisites needed prior to starting a course.

**Environmental Scanning**  
A term used in planning that means engaging in activities to provide information outside of an organization or on the external environment.

**Ergonomics**  
The study of people and their characteristics in relation to their working environment (furnishings, equipment, lighting, etc.). The objective of ergonomics is to develop comfortable and safe conditions so as to improve worker morale and efficiency. Ergonomics is especially important in designing facilities such as electronic classrooms. (2) The relationship between man and machines. It relates to operation, convenience, and physical well being of the operator, and it is designed to minimize discomfort and fatigue.

**Eudora**  
A world-wide e-mail program that allows a computer user to send and receive messages.

**Evaluation**  
The process of determining the merit, worth, or value of something or the product of that process. The special features of evaluation, as a special form of investigation (distinguished, e.g., from traditional empirical research in the social sciences), include a characteristic concern with cost dimensions and with the supporting and making of sound value judgments, rather than hypothesis testing.
**Expectations**
The learning performance objectives that a student is expected to master.

**Export**
Data is sent from one system (terrestrial or satellite) to another system located anywhere.

**Extended Syllabus**
A collection of course materials intended for student use, usually several chapters long, providing course objectives, assignments, instructions, readings, etc., that allows students to work through the course as independently as possible.

**External Disc**
An information storage unit housed outside of the computer.

**Extranet**
A secure network that allows for the exchange of information between a group and its customers. An extranet might be set up, for example, as a means by which to register students for courses and provide them with ongoing information.

**Extreme Close-Up**
A video shot of the head only showing the head from the chin up.

**Extreme Long Shot**
A video shot in which the background is dominant. The instructor is barely seen against the background.

**Extrinsic Motivation**
Rewards are provided for student behavior that is desirable. The student is moved more for the reward than the value of learning. These external motivators include grades, money, prizes, recognition, etc.
Eye Contact
The ability of an instructor to look at a television lens and non-verbally communicate with field-site students.

F2F
Acronym for “Face to face.”

Facsimile (FAX)
A system used to transmit text and graphics over telecommunication channels. The original image is scanned at the transmitter, reconstructed at the receiving end, and duplicated on paper or stored on a personal computer. Facsimile transmission rates vary from analog Group 1, 2, and 3 faxes requiring five minutes, two minutes, and 20–40 seconds respectively, to transmit a page to digital Group 4 faxes, which transmit one page in three to six seconds. (2) A photocopy device transmitting printed material to distant sites through the use of telephone lines.

Faculty Development
The process of improving the instructional effectiveness of faculty through training and an enhanced institutional support structure.

Fair Use
Fair use is a principle that provides for limited reproduction of copyrighted materials for purposes such as criticism, comment, news reporting, teaching, scholarship, and research. It is a limitation on the copyright owner’s monopoly and may be applied only in certain circumstances.

FAQ
See Frequently Asked Questions.

FCC
See Federal Communications Commission

Federal Communications Commission (FCC)
The Federal Communications Commission was established in 1934 to regulate the growing broadcast industry. It assigns and
regulates broadcast frequencies and regulates interstate communications.

Feedback
Data is provided (fed back) to a student and instructor to inform them as to how much the student learned. These data also show how effective the teaching strategies and learning activities were in assisting the student to master the learning performance objectives.

Fiber Optic Cable
Thin filaments of glass or other transparent materials through which coded light pulses representing data, image, and sound can be transmitted for long distances by means of multiple internal reflections. Fiber optic transmission is characterized by extremely high transmission speeds and bandwidth. (2) Bundled glass rods that are extremely thin and flexible and are capable of transmitting voice, video, and data signals in either analog or digital formats. This is accomplished with very little loss in signal quality.

Fiber Optic System
Light beams such as laser that transmit huge amounts of digital messages over strands of high purity glass (fiberglass) or plastic at the speed of light (186,300 miles per second). Each fiber can carry from 90–150 megabits of digital information per second or 1,000 voice channels more than copper.

Fiber Optics
A term used to describe the method of transmitting and receiving light beams along an optical fiber that is usually made of a thin strand of glass. Fiber optics are destined to change radically the speed and nature of communications throughout the world. (2) The transmission of audio, video, and computer information in digital form using pulses of light through glass fibers.

Field Production
Television production made on location away from the television studio.

Distance Education
Field Site
Any location physically separated from the instructor’s station for the purpose of receiving live or videotaped instruction.

File Server
A special computer that stores dedicated data such as pictures, slides, or video clips. It can be accessed by other computers to retrieve these data.

File Transfer Protocol (FTP)
A popular protocol used for transferring data files on the World Wide Web. (2) A major feature of the Internet. It is a means of accessing files that are stored on remote computer systems and downloading them onto your computer. This includes text, graphics, sounds, video, and multimedia.

Fill-In
The student writes key words and phrases in blank spaces as the instructor lectures. Used as heavy cues for the most important ideas.

Filtering
The setting up of criteria to select a subset from a broad stream of data. Filtering information is essential for everyone in daily life. Filtering by parents of small children may be wise. Filtering by others (ISPs or governments) is called censorship and is bad.

Fire Wall
A security hardware/software package that separates a local area network into components; it is mainly used to prevent outsiders from gaining access to secured material/information. The firewall acts as a buffer between public and private networks to ensure the security of the private networks; furthermore, it may be used within private networks.

Flaming
An angry response to a written statement over the Internet.
**Flip Chart**
An easel with bound paper that is flipped forward or back to record or reveal key teaching points. Most flip charts are not in the proper aspect ratio (3 x 4) for television presentation. If a flip chart is used, only the top half should be shown.

**Flop**
Calculation per second.

**Floppy Disk**
A thin plastic plate, commonly 3.5 inches or 5.25 inches in diameter, used for storing digital information to be read by a computer. (2) A non-rigid magnetic disk on which data are stored.

**Floppy Drive**
A device in a computer that reads information from a floppy disk. (See Floppy Disk.)

**FO (Fiber Optics)**
This system uses laser transmissions for audio, video, and computing over glass or fiber cable. (See also Fiber Optic System.)

**Foamboard**
Sheets of lightweight mounting board (1/4” – 5/8”, 4” x 12”) consisting of a lightweight sheet of open-cell foam sandwiched between two thick sheets of paper. It is very rigid yet easy to cut.

**Focus**
Sharpest possible focus in a lens.

**Folder**
A grouping or cataloging of file names that reside on a secondary storage device such as a disk. It is the same as a directory.

**Folder**
The ability to save e-mail messages to identified locations automatically. An instructor can set up a folder for a class and save all messages to and from students.
Font
A special typeface for numbers, letters, and symbols of any type. It is set in one weight and style of typeface. Examples are Helvetica, Palatino, Roman, etc. Strictly speaking, the collection of all characters making up a particular typeface, typestyle (e.g., roman, italic, bold, bold italic), and size. Increasingly, in colloquial use, font is synonymous with typeface.

Footer
Information placed within the bottom margin of each page of a document (with the possible exception of the first page).

Footprint
The terrestrial area capable of receiving a satellite signal. (2) The area of the earth’s surface that can receive the signal of a given satellite.

Formative Evaluation
Evaluation conducted during the development or improvement of a program or product (or person, etc.). It is an evaluation that is conducted for the in-house staff or the program and normally remains in-house; it may be done by an internal or external evaluator or (preferably) a combination.

Formative Evaluation Measures
Measures that provide information to help refine, improve, or extend a program or process. The way data is specifically arranged on a document or in a file.

Frame
Refers to one complete video image of 525 horizontal lines that takes 1/30th of a second to show.

Frame Rate
The number of frames or images per second displayed on a video device. Thirty frames per second is the full-motion video standard. (2) The rate of speed that images are displayed per second on a video screen. Full motion video is displayed at the rate of 30 frames per second in the NTSC format.
Frame Store
A single frame of video is digitized and stored in computer memory for later retrieval. It has a very high resolution.

Frames Per Second
Also called Frame Rate. The frequency with which video images or frames appear on the television monitor. Broadcast quality NTSC television consists of about 30 frames per second. Full motion video conferencing television is usually 1015 frames per second. At very low bandwidth such as T-1 (56 or 112 kilobits per second), there is not quite full motion and the picture can appear slightly out of sync.

Freeze Frame
The action of one frame of video is stopped and saved for later use.

Frequently Asked Questions (FAQ)
These are special files on any variety of topics where answers to questions are archived. This is used on the Internet and the World Wide Web.

FTP (File Transfer Protocol)
Provides the ability to transfer files to and from remote computer systems on the Internet.

Full Duplex
Two-way simultaneous communication as opposed to simplex (one-way) or half-duplex (alternating) communication. In a two-site full-duplex videoconference, both parties can send and receive video, audio, and perhaps data simultaneously.

Full Duplex
A telecommunications channel that allows two-way conversation simultaneously without one of the parties being cut off.

Full-Motion Video
Equivalent to broadcast television video with a frame rate of 30 frames per second. Images are sent in real time, and motion is
continuous. (2) Television images are sent and displayed in real time and motion is continuous. This is what is seen on home television sets. It is not compressed (15–20 frames per second). Viewers are seeing a standard video signal of 30 frames per second. A standard video signal capable of reproducing a full range of motion. (3) Unlike compressed video signals (which tend to be blurry), full-motion video refers to high-quality signals, similar to that received over a television set. (See Compressed Video.)

FYI
Acronym for “for your information.”

Garbage In/Garbage Out
See GIGO.

Gateway
A specialized computer that connects two networks and translates addresses of one network so they can be read by the other network.

Genlock
A device that brings together (synchronizes) signals from a variety of sources for the purpose of mixing and recording video and computer signals.

Geostationary Orbit
An earth orbit located directly above the equator, approximately 22,300 miles above the earth’s surface. Satellites in this orbit rotate at the same relative speed as the earth itself. This allows earth antennas to remain fixed.

Gesticulate
Emphatic and expressive gestures with the whole body, hands, arms, or legs. It is done in an animated and excited manner.

GIF (Graphics Interchange Format)
A format for pictures transmitted pixel by pixel over the Net. Created by CompuServe, the GIF specification was put into the
public domain, but Unisys found that it had a patent in the compression technology used. This stimulated the development of PNG.

GIGA
One billion.

GIGO
An acronym for garbage in/garbage out. Reference is to data input and output of a computer.

GILC (Global Internet Liberty Campaign)
A group that has been laudably vocal in support of individual rights on the Net (though it occasionally tends to throw out the baby with the bathwater).

Glitch
Problems in an electronic device that is sudden and often unexplained.

Glossary
In a document, a list of new or unfamiliar terms (often technical), with their definitions. (2) In some word processing programs, a function that permits the storage and easy recall of frequently used text or graphic material.

Gopher
A database communications protocol used for locating data files on the World Wide Web.

Grabbers
Attention-getting techniques at the beginning of a teleclass. These can include newspaper headlines, news clips, statements, or pictures.

Graphic Analogy
A visually reinforced analogy. These use artifacts, magic tricks, puppets, etc.
Graphical User Interface (GUI)
The graphic display of software options in the form of icons and pictures that can be selected, usually by a pointing device such as a mouse. It is considered a feature of user-friendly software such as that provided with the Macintosh operating system, Microsoft Windows, and many application software packages.

Graphics
Two- or three-dimensional images, typically drawings or photographs. (See also GIF, PNG, SVG, and VRML.)

Groupware
Software designed to allow groups of colleagues to organize their activities. The group must be connected electronically, whether it be through the Internet, an intranet, or an extranet. The software usually facilitates such things as scheduling meetings and allocating resources; it also facilitates e-mail, telephone utilities, file distribution, and password protection for shared documents.

GUI
See Graphical User Interface.

H.320 Standard
A widely used video compression standard that allows a variety of videoconferencing systems to communicate. This standard was approved by the International Telecommunications Union (ITU).

Hacker
A user who illegally enters another computer or network with the intent to do some type of harm.

Hairy Arm Teaching
A male arm writing notes under a document or overhead television camera. The arm tends to be the focal point. The students blindly copy notes.
Half-Duplex
A communications method where one end transmits while the other end receives, then the process is reversed. A communications channel over which transmission and reception are possible, but only in one direction at a time.

Hand-Held Computer
A small portable computer capable of being used (held) in one hand.

Handout
Information ancillary to regular class text material that is provided to a student. It includes activities, exercises, word pictures, pictures, and graphics.

Hands-On
The process of directly manipulating equipment to learn special functions. This refers to a real-life experience rather than a didactic experience.

Hang-Up
Posters, sayings, anecdotes, pictures, statements, or graphic word pictures hung on the wall and referred to throughout the telelesson. If used on interactive television, it must be in a 3 x 4 aspect ratio.

Hard Copy
A printed output in readable form. It can be in black and white or color.

Hard Disk
An inflexible disk sealed in a module. Used to store electronic data.

Hard Drive
A rigid non-removable disk in a computer and the drive that houses it. Hard disks store much more data and access it much more quickly than floppy disks.
Hardware
The physical components of a system used to transmit, store, and receive information. Examples include the physical components of computer and communication systems.

Headend
The electronic control center that receives and transmits all electronic signals for an institution.

Header
The initial opening of a video or film that contains essential information and credits. (2) Information placed within the top margin of each page of a document (with the possible exception of the first page).

Headroom
The amount of room from the top of the instructor’s head to the top of the television monitor.

Hertz (Hz)
A unit of frequency equal to one cycle per second.

High Definition Television (HDTV)
A new television technology that will provide viewers with a much clearer picture of 525 horizontal lines. It will have the quality of 35mm slides. A new television viewing set will be required by the user.

High Sierra
A name for a popular data format for CD-ROM.

Highlight
To stand out by using CAPITALS, underlining, italics, or color.

Hologram
A three-dimensional graphic.
**Home Page**
This is also known as a Web Page. This is a first contact with an individual or organization on the Web, this is the specific Web page that loads when a browser is started. It is a collection of data that promotes and describes the capabilities of the individual or group. The WWW consists of millions of these pages. It can include text, graphics, video clips, and sound.

**Horizontal**
Opposite of vertical. Units of length across rather than top to bottom. Refers to 3 x 4 aspect ratio required for television graphics.

**Host**
A computer on a network that can receive information from another computer. (9) A large computer (mainframe) that stores and relays information from other computers in a network.

**Host System**
This is a public-access system that provides Internet access to people outside the research and government community.

**Hot Text**
Another term for anchors.

**HTML (Hypertext Markup Language)**
Used to access the World Wide Web. All documents must be written in this language for transmission over the WWW. (2) A computer language for representing the contents of a page of hypertext; the language that most Web pages are currently written in. (See Hypertext Markup Language.)

**HTTP**
A computer protocol for transferring information across the Net in such a way as to meet the demands of a global hypertext system. (2) Part of the original design of the Web, continued in a W3C activity, and now a HTTP 1.1. ETF draft standard. (See Hypertext Transfer Control Protocol.)
Hue
The basic color of light in varying combinations. These include red, green, and blue.

HyperCard
Course authoring software developed and distributed by Apple Computer, Inc.

Hyperlearning
A term coined in Perelman’s book, *School’s Out: Hyperlearning, the New Technology, and the End of Education* (1992), which means that teaching and learning are fused and transformed into the concept of hyperlearning. Machines help humans to learn and humans help machines to learn. There is no “school.” This idea goes beyond artificial intelligence.

Hyperlink
A connection among documents in a hypermedia or hypertext format.

Hypermedia
A computer-based information retrieval system for accessing sound, text, images, graphics, or video in a nonsequential or nonlinear format. (2) “An early version (hypertext), provided the ability for multidimensional cross-referencing and indexing of word-based information libraries. Add multimedia pictures, movies, sounds of speech, music, and so forth to the library and hypertext becomes hypermedia.” (Perelman, 1992.) (3) An approach to information storage and retrieval that provides multiple linkages among elements. In interactive multimedia instruction, it allows the learner to navigate easily from one piece of information to another. (4) The storage and retrieval of text, images, audio, and video in computer (digital) form. (See also Multimedia.)

Hypertext
A computer-based text and document retrieval system that can be accessed in a nonsequential or nonlinear format. (2) Nonse-
sequential writing. Today hypertext includes other media apart from text and is sometimes called hypermedia.

**Hypertext**
The linking of information together by highlighting key words that have been marked up creating paths through related material from different sources such as footnotes and encyclopedias. (2) The ability to present connected documents. The word was coined by Ted Nelson, a guru and visionary.

**Hypertext Markup Language (HTML)**
Software language used to establish data files for access in the World Wide Web. (2) A special formatting language that tells a Web browser how to show the various parts of a Web document.

**Hypertext Transfer Control Protocol (HTTP)**
The most commonly used protocol on the World Wide Web. It runs in conjunction with TCP/IP.

**Hz (Hertz)**
A unit of frequency equal to one cycle per second.

**I/O (Input/Output)**
This refers to the entry and retrieval of data rather than to processing it.

**Icebreaker**
An activity or device used at the beginning of a teleclass to allow the students to get to know each other both at the origination site and at each of the field sites.

**Icon**
A small on-screen graphic that represents a group of actions. An example is a wastebasket used to represent the deletion of a file. (2) A small simple graphic that is imbued with an assigned specific meaning.

**ILS**
See Integrated Learning System.
**Image Bank**
This is a local, regional, or wide area network resource of compressed digital still pictures, graphics, and video clips, available for a small cost to download and store or print at the receiver’s site.

**Image Graphic**
A detailed line or halftone (shades of gray) graphic. These can be found in general magazine graphics and hard copy or electronic clip art.

**Imaging**
A reflection on how an instructor wants to be perceived and the actions that can be taken to move oneself towards this image.

**Indention**
Text laid out so that the first line of each paragraph begins to the right of the remainder of the lines in the paragraph; opposite of outdention.

**Inference**
A conclusion drawn from known data.

**Information Highway (The Internet)**
The interconnection of computers worldwide with the capacity of transporting audio, video, and data.

**Information Service**
Generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information in electromagnetic, digital, or optical form that may be conveyed via telecommunications technologies.

**Information Space**

**Information Superhighway**
Descriptive term for the Internet.
Information Technology
The merger of high speed computers, television, telephone, and fax.

Inload
Part of an instructor’s regular teaching load. This is usually 9 hours (3 courses) for graduate faculty and 12 hours (4 courses) for undergraduate faculty.

Input/Output (I/O)
Information is put into something and acted upon in some way. The modified data is then output.

INRIA (Institut National de Recherche en Informatique et Automatique)
The French national research laboratory for computer science and control. Co-host of W3C and developer of Amaya.

Insert Edit
A short segment of video that is “inserted” into a live or videotaped production.

Instructional Design (ID)
A systematic approach to developing instruction both live and mediated. This includes a statement of course and lesson terminal learning performance objectives; assessment if these objectives by any means; selection of teaching/learning strategies based on the objectives; and feedback to both the student and instructor to determine to what degree the objectives were mastered and how well the selected teaching and learning strategies worked.

Instructional Designer
A highly trained specialist who takes subject matter and designs it around measurable objectives. Usually requires a terminal degree.
**Instructional Development**
The cyclical and systematic process of designing, developing, evaluating, and revising instruction.

**Instructional Strategy**
This is a teaching strategy that includes how the instruction is delivered (the physical delivery: lecture, correspondence, television, computer, etc.). It also includes the means by which the instructor communicates in the classroom, such as active, passive, questioning, etc.

**Instructional Systems Approach to Teaching (ISAT)**
This procedure is composed of terminal and intermediate learning performance objectives, assessment, feedback, teaching strategies, and learning activities.

**Instructional Television (ITV)**
Television that is used for direct classroom instruction (both live and videotaped). It is highly visualized and interactive. A student handout should be provided for each telelesson. Also called interactive television.

**Instructional Television Fixed Service (ITFS)**
Instructional television service that operates over a limited or fixed geographic area using a microwave transmitter. Special receiver antennae are required by the students to access the microwave transmission. (2) A narrowcast television channel given to nonprofit institutions such as colleges and universities. These require special send/receive dishes. (3) Microwave-based, very high frequency television used primarily in education. Receive sites must have a converter to change signals to those used by the television receiver. Capable of full-motion video and one-way audio over distances of up to 35 kilometers.

**Instructor-Centered**
The focus in a teleclassroom is on the instructor while teaching. This takes place between instructor and student(s) and media such as programmed instruction or computer-assisted instruction.
Integrated Learning System (ILS)
A single computer package for delivering instruction that combines hardware, software, curriculum, and management components. It is usually supplied by a single vendor.

Integrated Services Digital Network (ISDN)
A high-speed (128 kilobits per second) data communications network evolving from existing telephone services. (2) A digital network that provides communications of voice, video, and data between desktop videoconferencing systems and computers. (3) An ITU recommendation for providing an internationally accepted standard for voice, data, and signaling over the public switched telephone network (PSTN). ISDN lets telephone companies provide services to homes over already-existing telephone wires, thereby conserving their extensive investment in wiring to the home. Bandwidths include BRI (144 kbps) and Primary Rate PRI (1.544 and 2.048 Mbps). ISDN requires central switch hardware and software upgrades and doesn’t run on all existing wiring. (4) Telecommunication networks that are capable of accepting all types of information (i.e., voice, data, facsimile, full-motion video, videotext) in a common digital code and transmitting it as if it were one signal. Provides end-to-end digital connectivity for simultaneous transmission of all types of information according to accepted international standards. Often referred to as a “universal network,” it is able to support any device for transfer of information.

Interaction
The communication or dialogue that occurs between instructors and learners or among learners. May be time-delayed (asynchronous) or real-time (synchronous). Examples of asynchronous interaction include correspondence, voice mail, and computer e-mail. Synchronous interaction can occur by telephone, audioconferencing, videoconferencing, and Internet telephony.

Interaction
The mutual reaction of the learner to the computer’s actions and vice versa.
Interactive
Operating in an interactive or back-and-forth mode. It refers to user and machine dialogue or interaction in which both are active participants in a process.

Interactive Educational Telecommunications System
Two-way synchronous communication such as audio, video, computing, print, and combinations of these.

Interactive Study Guide (ISG)
A special student guide composed of displays. It is a teleclassroom student-learning management tool. Word pictures within individual displays provide a conceptual structure of the presentation. In many instances students are required to fill in key words and phrases. The ISG can be used before, during, and after class activities.

Interactive Television
Instructional television that is highly visualized and interactive (teacher/student, student/teacher, student/media) and requires students to participate in specially designed activities. It is highly student-centered.

Interactive Video
Combining computer and video technologies to provide for an active video environment in which users can control and select options based on a given application. Interactive video is a major advancement over other video technologies such as film and television, which are considered passive.

Interactivity
The property of requiring active participation by the learner for instruction to proceed.

Interface
The point at which two components meet. With computers, it is used for both hardware, when two physical devices connect to one another, and software, when two programs work with one another. It is also used to refer to points where people connect.

Distance Education
to computer devices, such as with graphical user interfaces. (2) A connection between a user and a piece of equipment or between two pieces of equipment.

Internet
The networks of networks that provides the basic protocol standard for allowing data communications systems to link themselves together throughout the world. (2) the name for the network connecting education and research networks throughout the world. (3) A global network of networks through which computers communicate by sending information in packets. Each network consists of computers connected by cables or wireless links. (4) The global computer network that interconnects all other networks using a common telecommunications protocol (TCP/IP).

Internet Relay Chat (IRC)
Computer software that allows multiple parties to participate in synchronous (same-time) communications on the Internet.

Intranet
In data communications, the adoption of the standard Internet protocol and software tools for a local network or establishing a mini-Internet within a local system. (2) A private network within an organization that uses a common password. (3) A part of the Internet or part of the Web used internally within a company or organization. (4) A private Internet operating within an organization. Both require the same network protocols and both use e-mail and World Wide Web standards for communication.

IP (Internet Protocol)
The TCP/IP standard protocol that defines the IP datagram as the unit of information passed across an Internet and provides the basis for connectionless, best-effort packet delivery service. IP includes the ICMP control and error message protocol as an integral part. The entire protocol suite is often referred to as TCP/IP because TCP and IP are the two most fundamental protocols. (2) The protocol that governs how computers send
packets across the Internet. Designed by Vint Cerf and Bob Khan. (IP may also stand for Intellectual Property; see IPR).

**IPR (Intellectual Property Rights)**
The conditions under which the information created by one party may be appropriated by another party.

**IRC**
See Internet Relay Chat.

**ISAT**
See Instructional Systems Approach to Teaching/Training.

**ISDN (Integrated Services Digital Network)**
A set of standards to establish a common architecture for the transmission of digital signals including audio, video, and computing over existing telephone lines. (2) A digital telecommunications channel that allows for the integration of voice, video, and data using a signal line. (See Integrated Services Digital Network.)

**ISG**
See Interactive study guide.

**ISO (International Standards Organization)**
An international group of national standards bodies.

**ISO-9660**
The most commonly used format for recording data on CD-ROM discs.

**ISP (Internet Service Provider)**
The party providing one with connectivity to the Internet. Some users have a cable or some sort of wireless link to their ISP. For others, their computer may dial an ISP by phone and send and receive Internet packages over the phone line; the ISP then forwards the packets over the Internet. (2) A company that provides access to the Internet for a monthly fee.
Iterate
To repeat a series of steps in an operation until the desired results are more and more closely approximated.

ITFS (Instructional Television Fixed Services)
Transmission of a television signal up to a twenty-five mile radius. It operates on microwave usually for educational purposes. (2) Television channels that use high frequency channels and microwave transmission to broadcast over a 20–30 mile distance (line of sight). (3) A band of low-power microwave frequencies set aside by the Federal Communications Commission (FCC) exclusively for the transmission of educational programming, and licensed to public institutions. ITFS is typically used in urban area and requires a specialized antenna. Receiving sites require a converter capable of changing signals to those used by a standard television set. (See Instructional Television Fixed Services.)

ITV
Instructional or interactive television. (See also Instructional Television.)

Java
An object-oriented programming language that attempts to operate across software platforms. (2) A programming language developed (originally as “Oak”) by James Gosling of Sun Microsystems. Designed for portability and usability embedded in small devices, Java took off as a language for small applications (“applets”) that ran within a Web browser.

Javascript
A programming language similar to Java that generally operates with World Wide Web browser software.

Jigsaw
Open source Web server of great modularity, written in Java. From W3C and friends.

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JPEG (Joint Photographic Expert Group)
This is a means of compressing and storing video and high-resolution color pictures. It is the standard for data compression of all still images. (2) This group defined a format for encoding photographs that uses fewer bytes than the pixel-by-pixel approaches of GIF and PNG without too much visible degradation in quality. The format (JFIF) is casually referred to as JPEG. (See also MPEG.)

K
Kilo or 1000.

Kb
The abbreviation for kilobyte or 1024 bytes.

Keio University
Near Tokyo, Japan. Cohost W3C.

Key Word
A main or key idea presented as part of a telelesson. These are usually single words or phrases used by the instructor in a word picture format. They are reduced to small black and white graphics and placed in a display in an interactive study guide.

Kilohertz (kHz)
One thousand cycles per second by which data is transmitted.

Knowbot
These are knowledge robots capable of searching for new information based on the criteria set by a user.

Ku-Band
A special way to transmit (uplink) a television signal to a transponder in a satellite for the purpose of distribution to multiple downlink sites. They are less expensive and more available than C-band. (2) The band of microwave uplink frequencies from 12 to 18 GHZ. Band of satellite communication frequencies from 11.7 to 12.2 GHZ. Ku-Band transmission requires one meter satellite receiving dish whereas the C-band
dish spans a minimum of three meters. (3) A relatively new transmission frequency in the 12–18 GigaHertz range used for satellite transmission that uses smaller diameter receiving dishes (one meter). (4) A type of satellite transmission of a higher frequency than C-Band transmissions, and requiring smaller antennas. (See also C-Band.)

**KWIC (Keyword-In-Context)**
Preselected words are used as the basis of categorizing information. The context in which the word is used is taken into consideration.

**LAN (Local Area Network)**
Computers within a defined area are interconnected so that they can communicate with each other and share databases. The computers are physically interconnected. (2) Two or more computers connected by means of a physical connection (wire, line-of-sight radio signal, or fiber-optic cable). (3) Computer networks in a single building or campus connected via coaxial or fiber-optic cable. (See Local Area Network.)

**Laptop**
A type of portable computer that can easily be used by resting it on one’s lap. (2) A small, under 6 pounds, computer about 2 inches thick. Highly portable.

**Laserdisc**
An optical disc used to store video images and associated audio or sound information in analog format. Same as videodisc.

**LATA (Local Access and Transport Area)**
A geographic region in which a regional Bell Operator company is allowed to provide long distance services. Long distance calls placed between two or more LATAs require the involvement of an interexchange, long distance carrier, such as Sprint, AT&T, MCI, or GTE.
Lavaliere Microphone
A small microphone on a chain or clip. It is wired or wireless. The purpose is to free the hands of the speaker.

Layout
The design or layout of a television graphic in the proper 3 x 4 aspect ratio. The visual plan for a poster, display, montage, or publication. (2) The arrangement of text and non-text elements on a page.

LCD
See Liquid Crystal Display.

LCS (Laboratory for Computer Science)
A laboratory at the Massachusetts Institute of Technology. Cohost of W3C.

LEAD (Live Early Adoption and Demonstration)
A W3C policy to eat our own cooking to find out how it can be better.

Leading (Rhymes with Wedding)
The vertical space between lines of text. Typefaces are designed so that there is a certain amount of vertical space between adjacent lines. The amount of space between lines can be increased by increasing the leading (literally, in days of lead type, by inserting strips of lead between lines) to increase legibility when lines are long.

Learner-Centered
The type of teleteaching that focuses first on learning objectives and then on how they will be taught. This is highly interactive learning.

Learning
The observable change of behavior or attitude in a student that is a result of a learning experience. Good teaching causes learning.
Learning Activity
Ways in which students are involved in their own learning either alone or with small groups.

Learning Contract
An agreement between a student and instructor of what and how to master learning performance objective(s). The contract is either given to a student, negotiated, or developed by the student and approved by the instructor.

Learning Performance Objective (LPO)
Clear and precise statement of exactly what the student is expected to learn and do at the completion of a course and at the end of each class.

Learning Resource Center (LRC)
An area housing multimedia instructional materials.

Lectern
A small stand that is slightly angled from which a lecture is given. It may contain a microphone.

Lecture
A discourse on an academic topic given before a student audience. It is usually passive on the part of the students.

Lecture Organizational Patterns
The ways that an instructor organizes his/her lecture presentation. Approximately 17 different patterns may be used, such as description, definition, information, cause/effect, etc.

Legibility
Ease by which letters and numbers can be read.

LEO
See Low-Earth Orbit Satellite
**Letter Size**  
The size of upper case and lower case referred to as points. The minimal point size for television is 24.

**Letter Style**  
The variations of a typeface in weight or slant-regular, italics, outlines, or bold.

**Levels of Learning**  
Intellectual levels of cognitive learning performance objectives. The levels are hierarchical and cumulative, moving from lowest to highest level of learning. These levels include recall of data; comprehension; application of individual principles; and critical thinking in which appropriate rules and principles are selected to solve a problem.

**libwww**  
The library (collection) of WWW-related program modules available for free use by anyone since the start of the Web.

**Light Table**  
An area that is backlighted in order to illuminate 35mm slide or overhead transparencies. The light table is under the document of desktop camera.

**Line-Mode**  
In high and far-off times, people did not see computer programs through windows. They typed commands on a terminal, and the computer replied with text, which was displayed on the screen (or printed on a roll of paper) interleaved with the commands, much as though the person were in a chat session with the computer program. If you have seen a “DOS window” then you have some idea of how people did their communicating with computers in those days, before they learned how to drag and drop. Line-mode is still a very respectable way to communicate with a computer.
**Line-Mode Browser**
A Web client that communicated with the user in line-mode and could run all kinds of computers that did not have windows or mice.

**Line-Of-Site**
Point-to-point transmission with nothing in between (such as hills, buildings, etc.) to block the signal.

**Link**
These are connections of links to additional information in a document or file at different locations on the Internet worldwide. A link lets you arrange pages in a Web site nonsequentially. Links can be underlines, colorized, or may use simple graphics. When you click on a link, the Web browser jumps to that page as the link’s destination. Links are the foundation for hypertext.

**Link**
A reference from one document to another (external link), or from one location in the same document to another (internal link), that can be followed efficiently using a computer. The unit of connection in hypertext.

**Liquid Crystal Display (LCD)**
A way to make letters and numbers appear on a crystal display surface as seen in pocket calculators and computers. The LCD can also project video images from an overhead projector.

**Listserv**
An e-mail program that allows multiple computer users to send and receive messages on a single system. Listserv software is frequently used to administer electronic bulletin boards.

**Listserv**
A special interest discussion group that corresponds via e-mail. A predetermined group exchanges messages in an area of shared interest. A message is posted on a list server and is automatically sent to all members of the group. A listserv is differ-
ent from newsgroups in that an individual must subscribe (sign up) to participate in a listserv group.

**Live Video**
Interactive television that is conducted in real or actual time rather than through videotape. It can be in full motion or compressed.

**Local Area Network (LAN)**
Connecting computer equipment using data communications over a limited geographic area such as a room, building, or campus. (2) Computers within a defined area such as a single building or a campus are interconnected for conferencing. (See also Wide Area Network)

**Log**
A high-level programming language developed by Seymour Papert in 1968. It is a very popular programming language for teaching young children to use a computer.

**Log On/Log In**
This is a connection to some type of host system.

**Logging On**
Connecting to a computer network, typically through the use of a personalized identification code.

**Logistics**
Moving instructional materials, such as handouts and homework, between the instructor or an origination site and students or field-sites.

**Logo**
Computer language developed by Seymour Papert, described as a tool for developmental cognitive learning.

**LOL**
Acronym for “Laughing out loud.”
Long Shot
A video camera shot that shows the entire instructor against the background. The background is prominent.

Loose-Leaf Binding
A method of “binding” that involves placing pages into rings (often three) fastened between covers.

Low-Earth Orbit Satellite (LEO)
A non-geostationary satellite that orbits the earth at a height ranging between 400 to 800 miles. Termed a Smallsat, LEOs weigh from 75 to 400 lbs; due to their proximity to earth, their receive and transmit terminals require relatively little power. Since LEOs orbit close to the earth, they cover only a small area of the earth’s surface, and many satellites are required to provide global coverage. Present systems propose from 12 to 77 low-earth satellites for seamless worldwide coverage.

Lumen
A unit of light that describes its brightness.

Mainframe
Large computer systems capable of processing extensive amounts of data and of controlling many peripheral devices. (2) A large computer with a lot of storage and processing power.

Mainframe Computer
A large, relatively complex computer. Its capacity exceeds that of minicomputers and microcomputers. (2) A large, relatively complex computer. Its capacity exceeds that of minicomputers and microcomputers.

MARC Record
A standard for machine-readable library catalogue cards.

Market Analysis
An essential part of the strategic planning process. It considers the basic assessment of the general educational market as well as a more specific course and curriculum market analysis.
Demographic and social factors for each geographic area are gathered and analyzed as to their impact on the proposed distance education project.

**Market Niche**
A specific segment of a well defined market that needs and is willing to purchase a product.

**Marketing**
The ability to identify a specific target market for a product and to sell to that market.

**Master**
The original source of data including audio, video, computing, print, and combinations of these. Duplicates are made from the master.

**Materials Evaluation (Instructional Products)**
Evaluations that assess the merit or worth of content-related physical items, including books, curricular guides, films, tapes, and other tangible instructional products.

**Media**
The plural of medium. Defined as the symbol systems used to communicate and convey messages and information, including the text in books and newspapers, sound in radio transmissions, and images on television or in a film. A means by which an instructor communicates by sending messages. These include audio, video, computing, print, and combinations of these. Media are mechanical, human, and electronic.

**Media Distribution System**
A computer-based system that integrates several media sources (videotape, videodisc, computer, document camera, etc.) and is able to distribute them to selected output devices.

**Medium Shot**
A television shot with most of an object or person in the picture. In the case of television, the shot would be from the waist up.
Meet-Me Bridge
A device that links callers together in an audioconference. A single telephone number is provided to the callers; participants can call this number from anywhere to join the conference.

Mega (M)
One million.

Megabyte
One million bytes or one thousand kilobytes. (See also Byte.)

Megahertz (MHz)
One million cycles per second.

Memory
The capacity of a computer to store data internally and externally.

Menu
A presentation of options available that a user can select or request from a program. Menu-driven software anticipates user options and presents them in the form of lists or icons. A term used in computing. A list of available functions to be selected by a cursor.

Merge
To bring together different sets of data into one file.

Meta-
A prefix to indicate something applied to itself; for example, a metameeting is a meeting about meetings.

Metaphor
A figure of speech in which one thing is compared to another as if it were the other object. The comparison is intrinsic as opposed to an analogy in which the comparison is extrinsic. An example of a metaphor is, “He was a lion in battle.” An analogy would be, “He is like a lion when he approaches the enemy.”

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MEU (Mind Extension University)
A distance education offering of Jones Intercable, a cable television company. MEU provides courses offered by 24 participating universities and colleges via satellite to more than 600 cable networks.

MHz
Megahertz or one million cycles.

Micro Teaching
A short 5-to-15 minute lesson that is videotaped. It exemplifies a specific teaching strategy such as silence, nonverbal communication, or questioning. After taping, the instructor, with an instructional consultant, reviews the tape and critiques the success of the teaching strategy. The lesson is then retaught, retaped, and re-reviewed with the consultant.

Microchip
A silicon wafer or chip with thousands and tens of thousands of electronic components and circuit patterns.

Microcomputer
A small computer system that usually utilizes one central processing unit. The Apple Macintosh and IBM PC/PS are among the most popular microcomputers ever manufactured. (2) A computer based on a microprocessor (an integrated circuit or chip) and intended for one user; includes IBM and IBM clones, Apple and Macintosh, and Tandy products, among others. (3) A computer with a microprocessor chip-based processing unit. Microcomputers are the original personal computers that many people use at home and at work.

Microcosm
“The exploding capacity to create, transmit, and transform with technologies that become exponentially smaller and smaller, faster and faster, cheaper and cheaper, and ever more prolific and universal.” (A term used by George Glider and quoted by Perelman.)
Micropayments
Technology allowing one to pay for Web site access in very small amounts as one browses.

Microprocessor
A central processing unit used for most microcomputer systems that is capable of being integrated on a single chip. (2) A silicon chip (integrated circuit) with a pattern of transistors and related devices that do the basic work of computing.

Microsoft Explorer TM
A graphical interface used to surf the WWW.

Microwave
An electromagnetic wave used in telecommunications transmissions. It includes telephone, fax, video, and computing. Microwave signals only travel in straight lines for about 30 miles at which time they must be amplified. This is the primary frequency type for sending and receiving data from satellites. (2) High-frequency radio waves used for point-to-point and omnidirectional communication of audio, data, and video signals. Microwave frequencies require direct line of sight to operate. Obstructions in the path usually distort or block the signal.

Mid-Level Networks
Also called regional networks; network service providers (many created by the National Science Foundation) distribute network services to universities, research laboratories, colleges, and schools in their service areas.

Mindcraft
The creation and marketing of knowledge. It is the intellectual property or software created for use in making knowledge out of data. “The mindcraft economy will replace degrees and diplomas with precise instruments that certify attainment of competency.” (Perelman, 1992)
**Minicomputer**
A computer designed to support multiple users like mainframes, but with less capacity. (2) A small digital computer typically relying on more than a single processor chip. A minicomputer is larger than a microcomputer but smaller than a mainframe.

**Minimal Constraint**
The principal that engineering or other designs should define only what they have to, learning other aspects of the system and other systems as unconstrained as possible.

**Miniaturization**
Reduction of electronic equipment in physical size but with the same efficiency.

**Mips**
Millions in instructions per second. This is a measure of the speed of computer performance.

**Mission**
A self-imposed goal or purpose of an institution from which all administrative objectives and goals are derived.

**Mission Statement**
A short, yet comprehensive statement of the purpose of the project. It allows all team members, customers, administrators, etc., to know what ultimate intent or result is intended. Normally, a mission statement is further explained and supported by goals and objectives that address specific areas of focus with time and qualitative achievement expectations. These anticipated accomplishments can then be compared to actual levels of achievement.

**MIT (Massachusetts Institute of Technology)**
Cohost of W3C. (See LCS.)
Mixed Methodologies
Courses that combine media and delivery methods. This could be an “on-line” course that uses textbooks with assigned reading, online chat sessions, web references, sites with self-paced tutorials, and audio bridges. Work assignments are usually submitted by e-mail and/or posting to a web page that is created by the learner and maintained on the school’s server. There may even be face-to-face components via video and/or physical presence.

Mixer
Used to bring together many wired or wireless audio microphones and smooth the sound out so that it is heard at the same auditory level.

Mobile Devices
Pagers, phones, handheld computers, and so on. All are potentially mobile Internet devices and Web clients.

Modem
An abbreviation for computer-managed instruction. The computer is used to record data and prescribe a learning sequence. (2) An abbreviation for modular-demodulator. The transmission of digital data, usually computer, over copper or fiber optic lines. It allows digital data to be transmitted over analog transmission facilities like standard telephone lines. (3) A modulator/demodulator that translates a computer’s digital information into analog for transmission on a telephone line. (4) A device that allows computers to send and receive information over conventional (analog) telephone lines. (5) Equipment that converts digital signals into analog signals for purpose of transmission. Modems are typically used to link computers via telephone lines. (See Modulator-demodulator.)

Modulator-Demodulator
A data communications device used to convert computer digital signals into a telephone frequency or analog signal and vice versa.

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Montage
A picture composed of many different pictures or parts of pictures, sayings, words, graphics, and poems. It is composed around a single theme.

MOOs (Muds Object-Oriented)
This allows for live synchronous interaction through a host site where students log on simultaneously. It allows for immediate and spontaneous interactions.

Morphing
One clear image is transformed (morphed) into another in front of the viewer’s eyes through the use of digital technology.

Mosaic
A Web browser developed by Marc Anderson, Eric Bina, and their colleagues at NCSA. A mouse-driven graphical browser interface used to surf the WWW.

Mouse
A hand-held input device electronically connected to an on-screen pointer used to communicate with a computer.

Moving-Hand Teaching
When teaching over interactive television, the instructor selects a passive teaching strategy and writes notes under the television camera for most of the telelesson. The student sees primarily a hand writing words and numbers that must be copied.

MPEG (Moving Pictures Experts Group)
Motion JPEG. An internationally recognized multimedia digital video compression standard designed to save bandwidth. (See also JPEG.)

MPEG-1
The standard of compression for moderate quality pictures. It has moderate transmission speed. This is becoming the standard for CD-ROM and low-end television applications.
MPEG-2
The compression standard for high-quality pictures with fast transmission speed. This is becoming the standard for high definition television (HDTV) applications.

MPEG-3
A separate compression standard for HDTV that has now been folded into the MPEG-2 standard.

MPEG-4
The compression standard for low-quality pictures (slow transmission speed), being developed for portable computing and other applications where picture quality is not of paramount importance.

MUD (Multi-Use Dungeons/Domains).
This is a virtual world in which you can interact with other participants in real time. Although it is generally text-based, more and more visual material is being used.

Multicast
To transmit information to a group of recipients via a single transmission by the source.

Multimedia
Combining sound, text, images, animation, and video. With computers, it refers to a variety of applications that utilize CD-ROM, videodisc, and audio equipment. (2) Refers to a combination of audio, video, and/or computer technologies that provide a range of expression and experience. (3) Evolved from hypertext and hypermedia. It is the synthesis of computer, television, telephone, and/or fax through the computer. The integrated use and display of visual images, motion, sound, data, graphics, and text, with the user being able to interact creatively with the display. (See also Hypermedia.)
**Multiplex**
The act of combining input signals from many sources onto a single communications path, or the use of a single path for transmitting signals from several sources. (Sippl, 1990)

**Multiplexor**
A data communications device used to control many or multiple messages by funneling them into a smaller number of communication lines or ports. (2) A device used to combine telephone or video signals from different sources into a single channel.

**Multipoint**
An audioconference, data conference, or videoconference among more than two parties; videoconferences are usually voice activated, which means that only the speaker’s video is presented.

**Multipoint**
A telecommunications signal (audio, video, computing, and print) is distributed to a number of field sites simultaneously. It can be delivered live or packaged as self-contained videotapes and study guides.

**Multipoint Conferencing Unit (MCU)**
A device that allows three or more sites to interact actively during a video teleconference. Each site must connect to an audio bridge.

**Multipoint Control Unit (MCU)**
A device used to link remote sites into a single conference call or to manage several simultaneous, independent conferences (segmenting). Typically used in videoconferencing.

**Multipoint Videoconferencing**
See Videoconferencing.

**Mute**
Remove or stop sound.
Nano
One billion.

Nanosecond
One billionth of a second.

Narration
The verbal part of a presentation from which visuals/graphics are derived. The narration is accompanied by visual materials.

Narrowband
A low-capacity communications circuit that is capable of transmitting data at speeds of up to 56,000 bits per second. (2) Refers to a low-capacity communications circuit that usually has a speed of 56 Kbit/s or less. (3) Lower level frequency signals such as the telephone (3000Hz) or radio signals (15,000 Hz). It implies a speed of 56 Kbps.

Narrowcast
A scrambled signal distributed to a target audience which must have special equipment to receive and descramble it. (2) Video signal delivery to a targeted audience at pre-determined receive sites, in contrast to open-air broadcast signal transmission to the general viewing public.

NCSA (National Center for Supercomputing Applications)
A center at the University of Illinois at Urbana-Champaign whose software development group created Mosaic.

Needs Assessment
The process or technique by which it is determined that telecourses or programs are needed, desirable, and fiscally viable in a clearly defined geographic area. New distance education programs are sponsored based on the data derived from this needs assessment.

Nelson, Ted
Coiner of the word “hypertext”; a guru and visionary.
Net
Another way of referencing the Internet. (2) Short for Internet.

Net Surfer
Any user who browses around the Internet.

Netiquette
This is the etiquette used during communications on the Internet. (2) Contraction meaning Internet Etiquette. These are the guidelines for etiquette in the posting and sending of messages to online services and to Internet news groups. Netiquette not only covers rules for maintaining civility in interactions but also guidelines unique to the electronic nature of forum messages. For example, the special formatting of text is discouraged because some people would not be able to see the special formatting.

Netscape Navigator TM
A graphical interface used to surf the WWW. Probably the most popular browser.

Network
A group of computer devices connected by a data communications system. Two major types of networks are local area networks (LANs) and wide area networks (WANs).

Network
Computers are electronically grouped for the purpose of data exchange. (2) A series of points connected by communication channels in different geographic locations. (3) The switched telephone network is the network of telephone lines normally used for dialed telephone calls. (4) A private network is a network of communication channels confined to the use of one customer. (5) A group of two or more computers linked together electronically. (6) A configuration of two or more computers linked to share information and resources.
Networked (Web-based)
Currently limited by bandwidth. Can be mitigated by use of distributed disks that hold memory-intensive files. Live video is the biggest problem in networked synchronous training.

Networked Virtual Learning Environment
Simulated educational activities and structures that so closely match the real event that they seem almost real or give students the feeling of actually “being there.” For example, instructors and students who meet and collaborate only electronically are not really in a classroom together. However, a well-designed virtual learning environment can use the power and flexibility of communications technologies to simulate or substitute for many of the aspects of classroom instruction.

Networking
The connection of multiple sites for the transfer and/or exchange of information via computers.

Neutral Networks
Neutral nets are systems with recognition capabilities sufficient to learn from experience and to examine patterns (Heterick & Gehl, 1995). “These ‘thinking machines’ made of silicon and wire are the simplest brain’s architecture of nerve connections. (They) promise to further increase the power of computers to recognize visual, sound, and other complex patterns in the way that living sensory organs—like eyes and ears—do” (Perelman, 1992).

Newsgroup
This is a discussion group on Usenet. There are thousands of topics available. A newsgroup is similar to the listserv but is open to the public worldwide, rather than by subscription as in a listserv.

NeXT
Name of the company started by Steve Jobs, and of the computer it manufactured, that integrated many novelties such as the Mach kernel, Unix, NeXTStep, Objective-C, drag-and-drop application builders, optical discs, and digital signal processors.
NNTP (Network News Transfer Protocol)
A protocol that defines how news articles are passed around between computers. Each computer passes an article to any of its neighbors that has not yet received it.

Node
The main idea or key word/phrase of a presentation that is shown in a geometric shape as a graphic. (2) Any terminal or station within a computer network. (3) An origination or reception site. Thing joined by links. In the Web, a node is a Web page, any resource with a URI. (See also Word Picture.)

Noise
Electronic interference on a transmitted signal. It is exemplified by a snowlike pattern or picture break on a television set or as static in an audio signal.

Non-traditional Education
Education that is other than instructor centered, instructor led, face-to-face education.

Notebooks
A very lightweight portable computer, usually weighing less than ten pounds, that can be easily carried under one’s arm.

Notecopying
The student spends most of the class time copying words and numbers from a television screen. It is associated with a talking head, moving hand, or shiny ring teaching. There is little or no visualization or interactivity.

Notetaking
The student takes notes by filling in key words or phrases shown in word pictures. Copying and extensive writing are minimized. Most important ideas are cued and prompted through the fill-in.
NTSC (National Television System Committee)
One of several technical format standards developed for television transmission and reception.

NTU (National Technology University)
A graduate level and technical seminar program headquartered in Fort Collins, Colorado. NTU transmits engineering and technical courses from more than 45 colleges and universities via satellite facilities.

OIC
Acronym for “Oh, I see.”

Omnidirectional Microphone
A microphone that can pick up voice over a range of 360 degrees.

On line
Being in direct communication and/or transfer or exchange of information.

On-Demand Telecommunications System
Used only when required. This is opposed to the idea of a totally dedicated system that is available 24 hours a day.

One-Way Live Video
This is often referred to as “broadcast distance education.” This was popularized in the 1950s by programs such as Sunset Semester. This form of education is used primarily by Public TV and can also be augmented by other forms of pre-recorded media.

One-Way Video
A video signal is received at a field-site. The student can see the instructor but the instructor cannot see the student. There is two-way audio (telephone) between the instructor and the students at field sites. Students can communicate via a telephone bridge among the sites and between the instructor and sites. (2) An interactive conference class or meeting in which the distant
participants view the conference leader through a video link. Two-way audioconferencing is used for real-time verbal interaction.

**Online**
The ability of computers to communicate with one another through a modem, usually over a telephone line (copper or fiber optic).

**On-Site**
Refers to the origination site where the instructor is located and from which the television signal is distributed to all field-sites.

**Open Source**
Software whose source code is freely distributed and modifiable by anyone. W3C sample code is open source software. A trademark of Opensource.com.

**Optical Disc**
A video or audio laser disc. (2) A videodisc or compact disc that reflects a light beam to read information from the surface of the disc.

**Optical Scanner**
An input device for reading a page or photographic image into a computer.

**Optical Scanning Device**
An input device that uses light sensors to scan paper documents and convert images into digital format. Optical mark readers and optical character readers are types of optical scanning devices.

**Originating Site**
The location from which a teleconference originates. (2) The site initiating the telecommunicated conference or meeting.

**Origination Site**
Read-only memory that cannot be changed or erased.
Outdention
Text laid out so that the first line of each paragraph begins to the left of the remainder of the lines in the paragraph; opposite of indentation.

Overhead Television Camera
The television camera that picks up the graphics and any notes written in real time by the instructor. The camera can be located in the ceiling or connected to a platen situated at the instructor’s desk.

Overload
A teaching load in addition to the regularly assigned teaching load.

Ownership
Refers to the ownership of a telecourse. This could include either the instructor or sponsoring institution. It also refers to ownership of the copyright of the telecourse.

Pacing
The speed by which the instructor speaks during a telepresentation. This usually means fast for review and slower as new information is introduced.

Packaged Telecourse
A course made available completely on videotape, audiotape, CDs, and print material. It is self-contained, self-directed, and self-correcting. The student(s) work independently of the instructor.

Packaging
To develop a self-contained telecourse that is self-paced, self-directing, and self-correcting. The student completes the course at any location off the main campus. Students can interact with the instructor through telephone conference calls, e-mail, and voice mail or by visitations to the main campus.
Packet
A grouping of data, typically up to 512 characters in size, that usually represents one transaction. A packet is always associated with a header and control information. The term “packet” is usually used to refer to a Layer 3 data unit in X.25. An “envelope” of digital information sent as a single unit on a wide area network (WAN). A unit into which information is divided for transmission across the Internet.

Packet Switching
A communications data transmission method that breaks down messages into smaller units called packets which are individually addressed and routed through a network; the network link is occupied only during packet transmission. Packet switching increases efficiency in transport. Contrast with circuit switching.

PAL
The European standard for scanning television signals. A PAL videocassette cannot be played on American video recorders.

Palmcorders
The smallest 1/2” video recorder that can fit in the palm of your hand. The maximum length of video recording is 20 minutes. It requires an adaptor for VCR playback.

Pan
Television camera movement from left to right. Short for panorama.

PANS
“Pretty amazing new stuff.”

Parabolic Dish
A bowl-shaped antenna that focuses incoming signals on a single point for ground transmission.

Paradigm
A way of looking at things; a point of view; a model of how to go about solving and implementing something.
Partial Understanding
The ability to understand part of the import of a document that uses multiple vocabularies, some but not all of which are understood.

Passive Learning
The student is viewed as a receptor or vessel ready to be filled with knowledge. The instructor speaks as the student listens and takes notes. Students frequently miss the key points of a lecture.

PC
Personal computer. (2) An affordable desktop or laptop computer used at home, office, or school.

PDA
See Personal Digital Assistant.

Performance-Based Instruction
Designed to develop specific skills and learning outcomes that are specified before the instruction begins.

Peripheral
Any device external to the main computer in use but capable of input or output to it. Examples include printers, plotters, CD-ROMs, hard drives, etc.

Personal Digital Assistant (PDA)
A combination of computer, telephone, fax, and computer (probably wireless) that is carried by a person.

Personal Signature
The presentation image of the instructor. The persona of the instructor when teaching over television.

PGP (Pretty Good Privacy)
An e-mail security system that uses public key cryptography and has the philosophy that individuals can choose whom they trust for what purpose. The “web of trust.”
Physical Delivery
The electronic equipment used to deliver instruction and other data. Examples include the Internet and the Information Superhighway.

Physical Involvement
The student is asked to do something physical, such as stand up, put the right hand up, take out a wallet, etc. This is meant to make a point and create a more relaxed environment.

PICS (Platform for Internet Content Selection)
A very neat bit of mathematics on which is based a security system where there is no need to exchange secret keys; instead, people each have one “private” key that only they know and one “public” key that everyone knows.

Picture Phone
Telephone equipment that can send and receive slow-cam pictures via standard voice grade telephone circuits.

Picture-In-Picture (PIP)
A small picture of something appears on the television monitor. (See also Corner Insert.)

Pixel
Short for picture element. A point on a grid such as a video screen that represents a single dot of light. Text and images are developed by manipulating many pixels. The picture cell that is the smallest single displayable video dot that can be addressed on a computer display screen. A display screen is divided into rows and columns that are made up of small dots, cells, or pixels. The quality of the resolution of a picture is determined by the number of pixels in the display.

PKI (Public Key Infrastructure)
A hierarchy of “certification authorities” to allow individuals and organizations to identify each other for the purpose (principally) of doing business electronically.
Planning Models
Conceptual structures that provide a means for the comprehensive development and understanding of relationships associated with a distance education project. Such models often include a graphic depiction of key components and their relationships.

Plant
A student at a field site is asked to respond to a question prior to a teleclass. The student has been given the answer. The purpose is to motivate other students to respond.

Platform
The computer operating system.

Playback
The replay of a video or audiotape.

Plug-in
A dynamic computer code module that performs a specific task that generally is made available or functions with World Wide Web browser software.

PNG (Portable Network Graphics)
A format for encoding a picture pixel by pixel and sending it over the Net. A recommendation of the W3C, replacing GIF.

Point
A measurement of length used in typography equal to 1/72”.

Point Form
A method of laying out vertically lists of text items in outdent ed form and usually preceded by a bullet.

Point-to-Point Protocol
Transmission of a television signal via microwave from point A to point B line-of-sight. There cannot be any blockage of the signal between the origination and receive sites.
Point-to-Point Videoconferencing
See Videoconferencing.

Port
Access to a computer for the input or output of signals. (2) A jack on the back of a computer to connect peripherals.

Portable Computer
Any computer designed to be carried and moved about. Laptop, notebook, and hand-held computers are examples of portable computers.

Portfolio Assessment
An alternative to traditional testing that requires students to compile a portfolio of material (papers written, creative works developed, log of relevant activities, etc.) which is used to assess student accomplishment in a course of study.

Positive Image
An instructor’s view of how he or she looks, sounds, and moves during television teaching. A positive image of oneself creates high self-esteem and personal confidence.

Post
Putting a message up on a Usenet and then sending it for others to review.

Post Production
After a master videotape is made, graphics, visuals, music, or captions are added. This becomes the edited master tape.

POTS (Plain Old Telephone System)
The analog public switched telephone system. (5) Plain Old Telephone Service that is analog.

PowerPoint™
A presentation graphics package in wide use produced by Microsoft™.
PPP
Acronym for Point-to-Point Protocol. Provides router-to-router and host-to-network connections over synchronous or asynchronous circuits.

Pre-Recorded Media
As media developed, so did the use of media in correspondence courses. Printed material was augmented with pictures, audio recordings, and videotapes. The latest form of media transfer is the compact disc.

Pre-Test
An assessment of student capability before instruction begins to determine to what degree the learning performance objectives have already been met.

Primary Rate Interface
The ISDN equivalent of a T-1 circuit, delivers 23B channels and a D channel (North America) or 30B channels and a D channel (Europe) running at 1.544 Mbps per second and 2.048 Mbps per second respectively.

Proctored Examination
An examination whereby the learner is supervised by a proctor. In distance application, proctors could be teachers or administrators who are selected by the learner and approved by the distance education institution. An alternative is for the learner to travel to a regional site sponsored by the distance education institution to take the final examination.

Professional Inventory
An inventory of instructor support services to design quality telelessons.

Program Evaluations
Evaluations to assess activities that are funded for a defined period of time to perform a specific task. Some examples are a three-day workshop on behavioral objectives or a three-year career educational demonstration project. A key distinction
between a program and a project is that the former is expected to continue for an indefinite period of time, whereas the latter is usually expected to be short lived. Projects that become institutionalized in effect become programs.

Project Report
Students complete a project and draft a report based on a research study or solution of a problem presented to them instead of a final examination.

Prompt
The student is cued to a correct response by pointing, nodding, or the use of other body language.

Prop
Any type of portable device or artifact that is shown with the instructor teaching on television. These could include artificial flowers on the desk, a ficus tree in the background, or background of 35mm slides.

Protocol
A general term for a set of rules, procedures, or standards used to exchange information in data communications. Examples of these rules include a code or signal indicating the beginning of a message, or a code or signal indicating that a device is busy with another task. Computer manufacturers have established various protocols for exchanging information on their equipment. (2) A formal set of rules or procedures by which computers communicate with each other and transfer information. Standard protocols allow different types of computers and software programs to communicate with each other. For example, HTTP (hypertext transfer protocol) is the system used by the WWW to transfer data. (3) A language and a set of rules that allow computers to interact in a well-defined way. Examples are FTP, HTTP, and NNTP.
Psychomotor
Manipulative skills of fine and gross motor coordination. One of the three domains of learning. The other two domains are cognitive and affective.

Public Domain
Unprotected intellectual property that was never registered with the U.S. Copyright Office. Intellectual property for which the copyright has run out. Anyone can use this material without permission.

Public Policy
Values that broadly define the social climate in which public opinion prevails in the form of laws, executive orders, and judicial decrees. It operationally describes such intellectual abstractions as social responsibility, diversity, privacy, and freedom of speech.

Public Television (PBS)
Nonprofit educational and special interest television. Public financial support for programming is provided.

Pull Cards
Printed in TV format, they contain graphics, word pictures, or statements. Cards are placed on a tripod and pulled to reveal the next card as the telelesson progresses.

Radio
Communications over a distance by converting sounds into electromagnetic waves and radiating them through space. In Webster’s dictionary: the wireless transmission and reception of electrical impulses or signals by means of electromagnetic waves.

Radio Frequency (RF)
A carrier wave on which radio, television, and data signals can be superimposed for transmission from one location to another. Also called RF and carrier wave.
RAM
An acronym for random access memory. The RAM provides temporary storage for data and program instructions. It is operating memory as opposed to storage memory. (2) The memory component of a computer (measured in bytes) that is used to temporarily store data and programs during processing. Volatile memory used by a microprocessor.

RBOC
Regional Bell Operating Company.

RDF (Resource Description Framework)
A framework for constructing logical languages that can work together in the Semantic Web. A way of using XML for data rather than just documents.

Real-Time
To transmit a telecommunications signal live to multiple receive sites. Real time also refers to any type of computing device that can collect and analyze data about an event as quickly as an event occurs. (2) The condition in which communication is synchronous, i.e., live. (3) Audio and video that are broadcast and received with very little time delay. (4) An application in which information is received and immediately responded to.

Receive Site
The location at which a teleconference is received. (2) All sites, other than the originating site, participating in a telecommunicated conference or meeting.

Receive-Site Equipment
The equipment at any location designed to receive a telecourse. This equipment usually includes a color television monitor, videotape recorder, fax, telephone(s) or an audioconferencing unit, telephone lines, and a downlink dish.

Reconfiguration Guidelines
Used to modify a traditional course for delivery via telecommunications. This primarily involves the use of correlated
handouts, high levels of visualization, and student involvement activities at field sites.

**Redundancy**
Duplication of key equipment components at an origination or receive site for immediate and automatic replacement in case of breakdown. The purpose of redundancy is to reduce the possibility of system shutdown.

**Reflective Practitioner**
Someone who is aware of the key issues in his or her professional area, who continues to inquire into the policies and practices that shape working experiences, and who recognizes that by reflecting on practice he or she can improve and develop professional competence.

**Regulations**
Laws, executive orders, and judicial decisions coming from legislative actions at the local, state, and federal levels, from decisions made by government officials empowered to make such decisions, or from municipal, state, or district level court decisions.

**Reliability**
The consistency of a response or output.

**Remote**
An on-location production away from the main studio or teleclassroom.

**Repurposing**
Using graphics, pictures, or video that has already been produced for another program. Reusing existing content.

**Resolution**
Sharpness and clarity of a television picture on the monitor.
Resource-Based Learning
“The use of educational resources (films, videos, textbooks, CBT software packages, computer databases, etc.) to facilitate learning, especially of a self-directed nature. In order that resources are available electronically, a massive amount of digitization has to take place . . .” (Mason, 1994).

Response System
Individual students can respond electronically to comments and questions proposed by an instructor by pushing a number or letter on a small handheld device that is wired or wireless. The resulting data is compiled and presented to the instructor as an average of the student responses.

RF
Radio frequency.

RGB
Red, green, and blue. The primary colors mixed on a television and computer screen to create a full color image.

Role of Media in Distance Education
Media permit the educator to bring the sights and sounds of the real world into the learning environment. It is important to be as realistic as possible when new information is presented.

ROM
Read-only memory that cannot be changed or erased.

Room System
A videoconferencing system designed to be used by multiple people at one time. Also referred to as a group system. Contrast with personal conferencing system.

Router
An intermediary device in a communications network that accepts and routes messages from one link (i.e., LAN) on the network to other links. This is a special purpose software package that connects two or more networks. The computer hous-
ing the router looks at the destination addresses of the packets and routes them. (2) A specialized computer used on a network for storing addresses of network hosts, communicating with other routers, and passing packets.

**Royalty Sharing**
Money is accrued through the sale or lease of telecourses. These monies can be shared with the instructor and institution or all monies may go to the institution as a condition of employment.

**RPC (Remote Procedure Call)**
When one part of a program calls on another part to do some work, the action is called a procedure call. RPC is a set of tools that allow you to write a program while different parts are on different computers without having to worry about how the communication happens. A generic technique, not a specific product.

**RS-232**
Standard interface for a serial connection to a computer (usually used to connect modems).

**RSA**
A public key encryption system invented by Ron Rivest, Adi Shamir, and Leonard Adleman. RSA algorithms have been patented, and so its inventors have licensed its deployment.

**Rule of Thirds**
Refers to the layout of television graphics. A graphic is divided vertically and horizontally with two lines each. The points of intersection of each line is one-third. These are the points of greatest visual interest. (See also Center of Interest.)

**Runaround**
Inserting a graphic (sometimes irregularly shaped) in the midst of text, requiring that the lines of text be laid out around the graphic. Hence the graphic is called a runaround.
**Same Time/Different Place**
The instructor and classroom are “wired” for transmission to other locations. The most effective form of this education is full use of audio and visual multi-media. However, it can be just audio (such as phone-bridge) or conducted via web (using “chat rooms”). Interaction and feedback does occur between instructor and the learners. The amount and type of interaction and feedback that occurs depends on the link used. (i.e., It is tough to read “body language” of the learners over an audio link.)

**Same Time/Same Place**
Traditional Education. The instructor and learner are located in the same place at the same time. Multi-media and computer-based learning can occur in this quadrant of education. However, this is most often thought of as face-to-face, didactic learning. The number of hours spent in this type of learning are often referred to as “contact hours.” An advantage to this type of education is that communication and feedback are immediate and personal. A disadvantage to this type of education is that the instructor and learners have to travel to a central learning place at the same time.

**Sans-serif**
Without serifs.

**Satellite**
An earth orbiting device capable of receiving and delivering telecommunications (audio, video, and computing) signals through a transponder to and from a designated area over long distances called a footprint. (2) An earth-orbiting device used for receiving and transmitting signals. (See also Telecommunications.)

**Satellite Footprint**
A geographic area covered by signals transmitted from a satellite.
**Satellite Ground Receiver**
A downlink dish designed to capture (receive) a signal from an orbiting satellite.

**Scanner**
A device that converts graphic or text material (on paper or similar medium) into an electronic equivalent suitable for manipulation by a computer.

**Schema (pl., schemata)**
A document that describes an XML or RDF vocabulary.

**Search Engine**
Software that provides keyword and other search facilities for locating information on the World Wide Web. (Examples include Yahoo, Lycos, and Alta Vista.) A tool used to search the Internet for information. It searches a defined database. A word or phrase is entered on a search engine and a number of “hits” will appear. Different search engines use different search strategies. By clicking on the term, the user will be brought to that Web page.

**Self-Assessment**
The student checks his or her own progress towards mastery of the stated learning performance objectives. The student accepts responsibility for his or her own learning, participates in what and how to learn, and determines when he or she should be assessed. This could be in the form of a learning contract.

**Semantic Web**
The Web of data with meaning in the sense that a computer program can learn enough about what the data means to process it.

**Semiconductor**
Usually made of silicon (sand) for the purpose of moving electrons in some way.
Separation of Form from Content
The principle that one should represent separately the essence of a document and the style with which it is presented. An important element in the drive for accessibility on the Web.

Serif
Perpendicular finishing strokes in the ends of lines forming characters.

Server
A regional repository for specialized electronic information in audio, video, and computing formats and for e-mail. It is accessed by client computers within a region. (2) A computer with a special service function on a network, for example, receiving and connecting incoming telephone calls or managing traffic from more than one computer to a printer or modem. (3) A program that provides a service (typically information) to another program, called the client. A Web server holds Web pages and allows client programs to read and write them. (4) A computer or device on a network that manages network resources. For example, a file server is a computer and storage device dedicated to storing files. Any user on the network can store files on the server. A print server is a computer that manages one or more printers, and a network server is a computer that manages network traffic. A database server is a computer system that processes database queries. Servers are often dedicated, meaning that they perform no tasks other than their server tasks. On multiprocessing operating systems, however, a single computer can execute several programs at once. A server in this case could refer to the program that is managing resources rather than the entire computer. (5) A computer in a network that serves the role of handling transmissions among other computers in the network.

SGML (Standard Generalized Markup Language)
An international standard in markup language, a basis for HTML and a precursor to XML.
**Shelf-Life**
The longevity of a telecourse in terms of semesters or years before it is discontinued, erased, or modified. This is determined by individual faculty or at the department level. Two important variables are production cost and validity of the subject matter over time.

**Shiny Ring Teaching**
Finger rings worn by an instructor when writing notes under a television camera. These notes are then copied by students. The rings shine into the lens and are the visual focus of the picture. Often too distracting.

**Shtick**
A Yiddish word for prank. An attention-getting technique.

**SIG**
See Special Interest Group.

**Signal**
The transmission of analog or digital data by any means.

**Silence**
After a question is asked, the instructor should remain silent for 3–5 seconds. (See also Wait Time.)

**Silicon Chip**
This is a silicon wafer used for the storage of electronic circuits.

**Simile**
A figure of speech in which two things are briefly and explicitly compared. A short analogy.

**Simplex Video**
One-way video communication capable of origination and reception, though not simultaneously.
Simulation Software
A form of software used to represent a real-life situation on a computer.

Simulators
Simulators range from part task to high-end “full mission” simulators. DNV has recommended standards for classification. Fidelity and realism are factors in determining usefulness of simulators in training and competency assessment. Simulators are relatively high cost. However, simulation provides experimental learning.

Single-Page Layout
A format that involves printing on only one side of a page. The reader sees only a series of right-hand pages.

Site
These are related pages on a Web server. A site is entered through a home page.

Site Facilitator/Coordinator
The person located at an off-campus field site. Levels of responsibility include clerical only, administrative, audiovisual coordinator, or instructional aide with an undergraduate degree in the area taught.

SLIP
Serial Link Internet Protocol. This along with PPP is a protocol that makes the computer active on the Internet and WWW.

Slow-Scan
A method of sending visual data, (e.g., graphs or picture images) over phone lines. Picture quality is adequate for some education uses but not comparable to commercial TV. (2) A method for transmitting video images over telephone lines. Also referred to as freeze frame or still video transmission.
Slow-Scan Video
A method of capturing and transmitting a still video image through standard telephone lines. Also referred to as a freeze frame or still video.

Small Group Facilities
Groups of 4–7 students who both work together at the origination site and attempt to solve a problem or complete a task as assigned by the instructor. These activities are accomplished synchronously or prescribed in a videotape.

Smart Environment
Everything that you touch or that touches you is endowed with intelligence. The embedded computers not only help people to learn but also participate in the learning process (Perelman, 1992).

SME
See Subject Matter Expert.

SMIL (Synchronized Multimedia Integration Language)
A language for creating a multimedia presentation by specifying the spatial and temporal relationships between its components. A W3C recommendation.

Smiley
Also known as emoticons, these are graphic symbols used in place of the voice to add emotion to words. Examples include : -) = happy, : -( = unhappy, :-< = upset, : 0 = shocked, :'-( = crying, :-/ = skeptical ; - ) = wink, :- X = speechless, :- & = tongue-tied, :-@ = laughing, :- D = laugh, :-/ = smirk, : > = grin, : < = very sad, : O = surprised.

Socratic Method
A method of critical inquiry and instruction used by the Greek philosopher Socrates that relies on the instructor’s ability to develop questions and elicit responses from students to arrive at conclusions.
Software
Computer programs and instructions that direct the physical components (hardware) of a computer system to perform tasks.
(2) The logic programs that run a computer to carry out specified functions.

Sound Bite
A short audio only or audio-video piece that is catchy and is designed to grab the attention of the viewer or listener.

Sound Capture
Term used for converting analog sound into a digital file.

Speakerphone
A special voice-activated telephone with built in speakers that allow a number of people to speak with participants at several other sites.

Special Effects
Graphic effects that can be created by a computer or special effects generator to create a television image that cannot be shot by standard methods. Examples include fades, wipes, dissolves, and animation.

Special Effects Generator
An electronic device to produce wipes, inserts, split screens, corner inserts, etc.

Special Interest Group (SIG)
Individuals get together in synchronous or asynchronous time to share mutual interests in a topic.

Speech Synthesis
Producing spoken words from computer-generated or controlled equipment.

Spreadsheet
The generic name for software designed to enter, edit, label, and manipulate arithmetic data in columns.
**Stage Fright**
Excessive fear of speaking before an audience. It is expressed as extreme nervousness in the form of shaking, becoming ill, sweating, or diarrhea.

**Still-Frame Storage Device**
An electronic unit that isolates and digitally stores a single frame of video for later use.

**Stimulus Variation**
Changing teaching strategies periodically (10–15 minutes) to maintain interest of the students. An example would be to conduct a lecturette with an overhead projector and blackboard, ask questions, and prescribe small group activities.

**Storyboard**
A detailed outline if the visual and auditory part of a video production. It is like the telelesson plan.

**Storyette**
A very short story.

**Storyline**
This is the theme of a story that has a transition to a key teaching point. All of the detail of a story is built around the storyline.

**Storytelling**
Use of a story or anecdote to introduce, reinforce, or summarize a key teaching point. There must be a transition from the story to the key teaching point that can be immediately identified by the student.

**Strategic Planning Process**
A comprehensive and structured process for planning the design and accomplishment of a particular mission or project.
Structured Notes
A detailed traditional narrative outline of a lecture. Key words and phrases are left blank to be filled in by the student as the presentation progresses.

Student Reference Manual
A student learning guide that provides directions to the student as he or she progresses through a telecourse. It is similar to a traditional course syllabus but contains more detail.

Student Study Guide
See Study Guide.

Student-Centered Learning
An approach to teaching and learning that puts the student in the center of the instructional process.

Study Guide
A student handout that is a learning management tool. It can be used by a student before, during, and after a teleclass. Copies of all graphics are shown on the television screen with each graphic numbered in a display for reference by the student.

Style
An abbreviation for typestyle. Common typestyles include roman (or plain), italic, bold, bold italic, outline, and shadow.

Style Sheet
Originally, a sheet containing all specifications for type and layout of a given document. (2) An electronic equivalent of the original definition, incorporated as part of a word processing or page layout program on a computer. (3) A document that describes to a computer program (such as a browser) how to translate the document markup into a particular presentation (fonts, colors, spacing, etc.) on the screen or in print. (See also CSS, XSL, Separation of Form from Content.)

Subject
That which is familiar in an analogy.
**Subject Matter**
The content or body of knowledge, attitudes, and values that makes up a course and is to be learned by the students.

**Subject Matter Expert (SME)**
The instructor-of-record in a telecourse. (See also Content Expert.)

**Subnode**
A key word in a word picture that is part of an attribute of a main node.

**Subordinate Heading**
An inferior heading; one that comes below (is a subset of) a superior heading.

**Summative Evaluation**
The end of course or program assessment of teaching and learning. Evaluation conducted after project completion for the benefit of some external audience or decision-maker (e.g., funding agency or future possible user), though it may be done by either internal or external evaluators or a mixture. For reasons of credibility, it is much more likely to involve external evaluators than is a formative evaluation. (See Formative Evaluation.)

**Summative Evaluation Measures**
Measures that provide information that tallies or sums up what has occurred in a program or process.

**Super Video Graphic Adapter**
A top-level screen standard with 800 by 600 pixels. Resolution can go as high as 1024 by 768 pixels.

**Supercomputer**
The name for the largest and fastest computers.

**Superhighway**
The Internet. The transmission of audio, video, and computing electronically in any combination and anywhere in the world.
Superordinate Heading
A superior heading; one that comes above (is a superset of) an inferior heading.

Support Services
This is assistance provided to faculty in the design and development of telecourses for distance learning. Examples include instructional design, graphic services, secretarial assistance, logistic support, editorial, photography, and television production.

Surfing
Wandering through or changing different television channels or stations or visiting various Web pages on the Internet.

SVG (Scalable Vector Graphics)
A language for describing drawings in terms of their shapes so that these can be rendered as accurately as possible.

SVGA
See Super Video Graphics Adapter.

S-VHS/Super VHS
This is higher quality videotape with better resolution and less noise than the standard VHS.

Switched Circuit
A circuit that may be temporarily established at the request of one or more stations.

Switched Network
A network that allows any site connected to it to communicate temporarily with any other site connected to the same network. When a videoconference is conducted over a switched network, connections are made by “dialing” the other parties in a manner similar to that in which normal phone calls are made.

Synchronous
A communication in real time that is not time-delayed. This includes live television, telephone, and radio. Happening at the
same time. Synchronous communication, for instance, is characterized by time-dependence, that is, the sender and receiver communicate at the same time. An example is a telephone conversation. (2) At the same time. (3) Communication in which interaction between sender and receiver takes place simultaneously (e.g., telephone or teleconferencing). (4) A system in which regularly occurring events in timed intervals are kept in step using some form of electronic clocking mechanism. A term that refers to communication in which interaction between the sender and the receiver is not delayed. (5) A type of communication in which those communicating do so at the same time. An example is a chat room where people are all typing at the same time.

**Synchronous Communication**
An interaction between individuals or groups that occurs at the same time, that is, with no appreciable delay between the end of one message and the beginning of another. Face-to-face, telephone, and video teleconference conversations are synchronous.

**System**
A group of interrelated parts assembled to achieve some common goal or end. The three major components of most systems are input, process, and output. Examples of systems include computer systems, ecological systems, economic systems, political systems, and school systems.

**System Speed**
Analog, or “twisted pair” networks are limited to thousands of feet. High speed systems are defined as capable of exchanging millions of bits per second (BPS). Medium Speed systems are defined as capable of exchanging 128,000 to 256,000 BPS. Low speed systems are capable of exchanging 56K BPS or less (typical of modems).

**Systematic Process**
Instructional Systems Design (ISD) is generally accepted as the systematic process that should be used in the design of instruction. The Coast Guard requires that Train-the-Trainer courses
be based on ISD. There are generally accepted to be five phases in the ISD process (Dick & Carey, 1996). Those phases are: Analysis, Design, Development, Implementation, and Evaluation (ADDIE). This is often referred to as the “ADDIE” model. The factors considered during the analysis and design phases include: learners, content, methods and media, environment, available technology available, and the context in which it (content) will be taught.

**T.120 Standard**
A standard that supports audiographics and desktop conferencing between platforms. Standards-based systems support desktop conferencing, application and document sharing, and collaboration. (2) A family of proposed international standards for audiographics conferencing. T.120 includes standards for multipoint as well.

**T1**
A dedicated digital circuit that uses broadband data communications to provide high-speed transmissions of data at the rate of up to 1.5 million bits per second.

**T-1 Transport**
A digital signal that transmits 1.54 megabits/seconds of data, equal to 24 telephone lines (copper). This is a stage of compressed (partial motion) video. It is used for very high quality videoconferencing.

**T-3 Transport**
This is full-motion video as seen on your home television receiver.

**Talking Head**
A close-up (shoulder-up) view of an instructor who talks at the student audience with minimal interaction. There is no or minimal use of visualization.

**Tangle**
The concept of information as consisting only of connections.

*Distance Education*
Target Population
The specific group of students with somewhat similar backgrounds and needs for which a course is designed.

Taxonomy
A cumulative and hierarchical intellectual classification scheme. It moves from lowest to highest levels of cognitive complexity. Usually refers to Benjamin Bloom’s Taxonomy of Education Objectives.

TBC
See Time-Based Corrector.

TCP (Transmission Control Protocol)
A computer protocol that allows one computer to send another a continuous stream of information by breaking it into packets and reassembling it at the other end, resending any packets that get lost in the Internet. TCP uses IP to send the packets, and the two together are referred to as TCP/IP.

TCP/IP

Teaching Strategy
The methods to both deliver the instruction physically and the techniques of communication used by the instructor such as active or passive learning.

Team Effort
The instructional support personnel that work with an instructor to produce a high quality telecourse. Team members usually include the instructor and support in instructional design, graphics, photography, editorial, and secretarial areas. Librarians functioning as team experts on the World Wide Web are also emerging.

Technobabble
Using words and phrases with a technology base. Such language is often ponderous, pompous, and frequently inaccurate.
Technology
This is the hardware or physical delivery system by which messages are transmitted and distributed. The technology is the pipeline through which messages are sent in a variety of media. Technologies include such things as radio broadcasting, television broadcasting, telephone companies, cable television companies, etc. Technology is different from media. The media, or messages, are in the form of books, graphics, video, or audio.

Technology Infrastructure
The digital networking facilities needed to deliver data, audio, and video signals at high speed and high capacity reliably throughout an organization or defined area.

Teleclass Teaching
Teaching electronically by audio (telephone or radio), video, computing, or print and in combinations of all four. The students are physically separated from the instructor by any distance.

Teleclassroom
The origination point for a telecourse. This area can contain computers, television, audio, and print support. The teleclassroom usually contains some students.

Telecommunications
The electronic transfer of data from one location to another. This includes audio, video, computing, print, and combinations such as voice (telephone) and fax, computer, telephone, etc. (2) The process of transmitting or receiving information over a distance by any electrical or electromagnetic medium. Information may take the form of voice, video, or data.

Telecommuting
Working at home and connected to work anywhere in the world by computer.

Telecomputer
A digital synthesis of television, graphic, computer, and voice capabilities.

Distance Education
Teleconferencing
The use of electronic channels to facilitate communication among groups of people at two or more locations. Teleconferencing is a generic term that refers to a variety of technologies and applications. Technologies include but are not limited to POTS (plain old telephone service), ISDN, satellite, Internet local area network/wide area network (LAN/WAN), T1, and DS-3. Applications include but are not limited to telemetings, telecollaboration, telecommuting, distance education, and teletraining. This definition is from the International Teleconferencing Association (ITCA). (2) Two or more people at two or more locations to visually and/or aurally interact with each other through the use of electronic communication. (3) A meeting of participants who are physically separated by any distance. They are joined electronically by means of one- or two-way satellite transmitted video, telephone, computers, fax, or combinations of all of these. It saves time and money. (4) Bringing people together by electronic means (audio, audiographics, video, and computer). Audio teleconferencing permits different individuals in the conference to speak to one another. Video teleconferencing can be one-way video with two-way audio or fully interactive with two-way video and two-way audio. Computer teleconferencing connects individuals’ computers to a host computer for asynchronous conferencing (not in real time) or synchronous conferencing that connects computers and users to each other in real time. (5) Interactive communication among people at two or more locations using telecommunication. May involve audio, graphics, computer, or video communication.

Telecourse
A course designed to be delivered in real-time or packaged electronically via audio, video, computing, print, or in any combination of these. (2) Courses in video format that are delivered via television or videotape.

Telelecture
An instructor conducts a lecture through an oral presentation that is electronically mediated and the student, physically separated, takes notes.
Telelesson Plan (TLP)
This is a special lesson plan prepared for a teleclass. The TLP includes: a detailed presentation outline or full narrative; timing of all segments; production notes for the television camera operator if television is used; a description of what will appear on the television screen as well as what the instructor will be doing; a description of what students will do at the field sites; and what type of handout will be used. (See also Storyboard.)

Telemedicine
The application of information technology (and infrastructure) in the healthcare industry in support of patient care and patient-related activities. Usually used to let a physician in a remote location assist with a medical procedure or diagnosis or consultation.

Telephony
The art and science of sound transmission over a distance by changing sounds into electrical signals for transmission through communication equipment.

Teleprompter
A script is shown on a television screen that is placed next to a television camera lens. Although appearing to speak from memory, the instructor actually “reads” the script.

Teleputing
Combination of television and computing in a single instrument.

Telesophy
“. . . the potential ability to make all knowledge available to anyone, anywhere, anytime.” (Perelman, 1992)

Telesyllabus
A detailed syllabus prepared for a telecourse. This is also called a Student Reference Manual. It should provide all information that a student enrolled in a telecourse will need.
Teleteaching
A teaching situation in which the instructor and student are physically separated and linked electronically for all communications. This could be in synchronous or asynchronous time. In case of the latter, packaged learning materials are provided for the student and then followed up with two-way communications.

Television Format
Refers to the 3 x 4 aspect ratio by which a television lens sees everything. All pictures and graphics must be formatted as three units high and four units wide.

Telnet
This is a service that allows the user to log into a remote computer and act as a terminal on that computer. Examples include library catalogues, databases, bulletin boards, journals, and scholarly papers.

Template
A standard form to be used repetitively for communications such as a standard reply on a specific topic. A learning contract uses a template. (2) (template document) An electronic document that is “empty” (devoid of content) or in which dummy content exists. In the former case, new information is placed into the document; in the latter case, the dummy content is replaced with new information.

Tera
One trillion.

Terabyte (tb)
One trillion bytes or 1000gb.

Teraflops
One trillion calculations per second.
Terminal Learning Performance Objective (TLPO)
The end-of-telecourse or end-of-telelesson statement of knowledge and skill that is expected of a student. All teaching and learning activities focus on the student’s achievement of these objectives. The TLPOs are stated in precise observable language that is capable of measurement.

Theatrics
Techniques borrowed from the theatre to enhance a telelesson. This could include the use of hats, costumes, or other theatrical artifacts and devices.

TIA
Acronym for “Thanks in advance.”

Tight Shot
This is a television shot that fills the screen. For an instructor it would be from the shoulders up.

Time-Based Corrector (TBC)
A black box used to synchronize and make stable two or more television signals.

Timing
This refers to the instructor’s ability to use presentation and activity time within a 50- or 75-minute teleclass.

TLP
See Telelesson Plan.

Touch Pad
A small electronic pad or device that students use to respond to questions or express attitudes. It is composed of numbers and letters that are pressed by the student upon request. The instructor receives a numerical average of responses.
Train the Trainer
An approach to staff development that relies on developing a cadre of well-trained individuals in an organization who in turn train other staff.

Transfer Rate
The time it takes to transfer data from one location (device) to another. In computer hardware evaluation, transfer rate would be used to measure the performance of input and output devices.

Transistor
Made of a special semiconducting material that functions like a vacuum tube but is much smaller, generates less heat, and requires significantly less energy. A microchip is made up of many transistors.

Transition
The movement or flow of a program from one video clip to the next. The most frequently used and simplest transition is the cut. Fades and dissolves are also popular.

Transition Statement
The ability of the instructor to move from a key point in a story or anecdote to a teaching point. This also applies to the ability of the instructor to move from a live or videotaped presentation to a student activity at a field site.

Transmission Control Protocol/Internet Protocol (TCP/IP)
The standard protocol used on the Internet. Originally developed by the U.S. Department of Defense for ARPANET.

Transponder
One television channel of many on a satellite that can receive and transmit television, audio, and computer signals. Each transponder can carry one color television channel with sound or 1200 voice channels. (2) A satellite’s receiver and transmitter that receives and amplifies a signal prior to its re-transmission to an earth station. (3) The component of a satellite that sends
and receives the transmissions. (4) A single section of a satellite used to transmit and receive signals.

**Trigger Video**
A two- to four-minute video segment of video either produced or edited from commercial videos. It is designed or selected to elicit an emotional response to a situation from students rather than a rational response. It is a short visual case study. (See also Video Clip and Video Scenario.)

**Tripod**
A three-legged stand to hold pictures and graphics as well as pull cards. A tripod is also used for a television camera.

**Twisted Pair**
Two copper wires twisted around each other in transmission circuits. They can be shielded or not.

**Two-Way Audio**
This is a synchronous form of education. It was the first widely used form of distance education. Instructors can lecture, ask questions, and lead discussions. Students can listen, ask questions, and participate in the discussions. Modeled after the traditional classroom, this form is often augmented by pre-printed texts that are mailed prior to the lesson. A disadvantage is that instructors and learners can only hear each other.

**Two-Way Audio with Graphics**
This is two-way audio enhanced by graphic information sent synchronously to learners, usually by graphics boards that are connected in several different locations. It can also be accomplished via simultaneous use of telephones and personal computers linked by the web or special software.

**Two-way Audio, One-Way Video**
Courses offered synchronously from 2 to 100s of locations. The audio can be hard wired or have an “800” number for students’ use.
Two-Way Audio/Video
Most two-way audio/video is conducted through specially wired and designed “smart classrooms.” An example is Iowa Communications Network (ICN). Iowa has a goal of at least one “point of presence” (wired classroom for two-way audio/visual) in each of its 99 counties. These specially wired classrooms could be in schools, universities, or libraries. (2) Interactive video in which all sites are in visual contact with one another. Some form of audioconferencing is used for real-time verbal interaction.

Two-Way Television
This consists of two-way video and two-way audio. The instructor and students can see and hear each other. Any field site can originate a program.

Typeface
The characteristic, distinctive outline or shape of a collection of characters comprising all the letters of the alphabet, the numerals, and associated characters.

Typestyle
A variation of the basic, or roman, font. Common variants include italic, bold, bold italic, outline, and shadow.

UHF (Ultra High Frequency)
This frequency is used for channels that range from 14–69.

Uniform Resource Locator (URL)
An electronic address that identifies a unique location of a data file on the World Wide Web. (2) These are Internet or WWW addresses. A standard format for locating any type of resource on the Internet. An example would look like this:

http://eduweb.nmsu.edu

Universal Service
Availability of telephone service in every home in the United States.
UNIX
A powerful multitasking operating system developed at Bell Laboratories in 1969 and written in the C programming language. Variations of UNIX exist that enable it to run on IBM, Apple, and other manufacturers’ computers. The UNIX operating system is especially popular for supporting the “server” function in client-server environments such as the Internet.

Uplink
The transmission of data from an earth station to a communications satellite. (2) The capability of sending an electronic signal to a transponder on a satellite. There are two types: Ku-band and C-band. (3) The communication link from the transmitting earth station to the satellite. Consists of a large directional antenna and high power transmitters. (4) The transmission of signals from an earth station to the satellite. (5) A satellite dish used to transmit an electromagnetic signal up to a satellite transponder.

Upload
In a computer network, the process of transmitting a copy of a file from a computer to a central file server. (2) The process of transferring (copying) data files to a main host computer from a smaller computer. It is the opposite of download. (3) The transfer of copies of a program or file from the user’s own terminal to a remote database or other computer. The reverse of downloading (Sippl, 1990).

URL (Uniform Resource Locator)
A term used sometimes for certain URLs to indicate that they might change.

URL
The global Internet address of documents and other resources on the World Wide Web. The first part of the address (ftp or http) indicates the protocol to use, and the second part specifies the Internet Protocol (IP) address or the domain name where the resource is located. (See Uniform Resource Locator.)
Usenet
A discussion global newsgroup. Messages and comments are automatically sent to members. All postings that a member makes have his or her e-mail address. (2) A service available on the Internet that supports ongoing discussions called news groups. (3) Groups formed around numerous topics that are located or housed on the Internet. The usenet is a worldwide bulletin board system that can be accessed through the Internet or the online server.

Valid
Used to refer to something that achieves what it was purported to achieve.

VCR (Video Cassette Recorder)
Usually used in education in a 1/2” format. (2) A device for playing and recording videotapes in Beta, VHS, or 8mm format.

Vertical
Top to bottom. Opposite of horizontal. Television cameras “see” in a horizontal format.

VGA
See Video Graphics Adapter.

VHF
Very High Frequency television channels from 2–13.

VHS
Video Home System. The standard 1/2” video format.

Video Board
A CPU component capable of accepting and generating video.

Video Bridge
A computerized video switching system that allows many people to participate in synchronous time in a videoconference. Also called Multipoint Video Conferencing.
**Video Capture**
Term used for converting analog video into a digital video file.

**Video Clip**
A short segment of videotape taken from a movie or produced locally. It is usually 3–5 minutes in length. (See also Trigger Video and Video Scenario.)

**Video Digitizer**
A device that converts a television picture into an electronic equivalent for manipulation by a computer.

**Video Graphics Adapter (VGA)**
A screen standard with 640 by 480 pixels.

**Video Scenario**
A short video clip copied from commercial videotape or produced by the instructor. It presents a scene of a “happening.” The students are asked to respond to what they have seen and discuss it.

**Video, Full Motion**
This is broadcast quality video played at 30 frames per second.

**Videocassette Recorder**
One-half inch videotape recording device with the capability to record up to six or eight hours on one cassette. There are also three-quarter-inch and one-inch videotape recorders.

**Videoconferencing**
The use of analog or digital video technology to connect multiple parties simultaneously in a conference where participants can see and hear each other. Point-to-point videoconferencing refers to a two-party conference. Multipoint videoconferencing refers to a multiple (more than two) party conference. (2) Similar in concept to audioconferencing but employs both voice and motion-video communications. Participants are able to see participants at other locations if allowed by the chairperson or instructor. Uses digital transmission systems such as ISDN.
switched 56 services, or dedicated channels such as DS-3 and fiber optics. (3) The practice of connecting people at two or more locations through analog or digital video transmission. Videoconferencing stations can be connected in point-to-point or multipoint configurations. (4) An interactive one- or two-way video and audio conference among three or more designated sites. Conferences can be conducted via telephone lines (compressed) or satellite. (5) Conducting a conference between two or more computers at different locations by the use of networks to transmit and receive audio and video data. (6) A meeting, instructional session, or conversation between people at different locations relying on video technology as the primary communication link.

**Videodisc**
An optical disc used to store video images and associated audio or sound information in analog format. Same as laserdisc. (2) An optical or laserdisc that stores full-motion videos (one hour) or up to 54,000 still photos, graphics, and text. These discs are about the size of a 33 1/3 RPM record. (3) Optical storage medium that allows random access of information when connected to a computer.

**Videodisc**
A reflective disc that contains video and audio information and is designed for playback on a television screen. Optical videodiscs are based on a system in which the tracks on the disc are monitored by an optical laser.

**Videotape Master**
The original videotape on which a telecourse is recorded.

**Viewfinder**
The eyepiece on a television camera through which an operator looks to see the action as it is seen by the camera.

**Vignette**
A short literary composition that is compact, subtle, and delicate.
Voice-Activated
A sound-sensitive microphone that is activated when a person speaks.

Viola
An interpreted computer language (like Java). Also, a Web browser built using Viola.

Virtual
Being functional and effective without existing in a traditional mode. Virtual learning, for example, is learning that can functionally and effectively occur in the absence of traditional classroom environments. (2) A reference to something whose existence is emulated with a software package rather than actually existing in any type of physical form. This is a completely computer-generated environment.

Virtual Hypertext
Hypertext that is generated from its URI by a program, rather than by recourse to a stored file.

Virtual Reality (VR)
Appearing to be real while not actually being real. A surrogate reality. The highest level of 3-D computer simulations that create the illusion of being inside a computer-generated environment. It “allows the user to transcend the barrier of keyboard and screen and enter the synthetic universe inside the computer” (Perelman, 1992).

Vision, Clarity Of
The merging of goals, values, and guiding principles to form an identity.

Visual Indicator
Words that can be transferred into or suggest a graphic image. Examples include such concepts as: owl, woman, secretary, etc. Words that suggest visualization include direction, speed, small, large, etc.
Visual Literacy
The ability of an instructor or student to think, understand, and use images in a communication. Verbalism is minimized.

Visual Thinking
The ability to see, image, and design as one develops a tele-lesson.

V-Mail
See Voice Mail.

Voice Mail
Voice messages that can be stored and transmitted from one electronic mailbox to any number of others.

Voice Over
An audio soundtrack that is played over graphics or other visual material.

VRML
Virtual Reality Modeling Language. Allows for multiple participants in interactive simulations over the WWW. (2) An idea for 3D compositional graphics on the Web, proposed by Dave Raggett as “Virtual Reality Markup Language,” and implemented by Mark Pesce as a variant of Silicon Graphics’ “Inventor” format; later managed by the VRML consortium, now “Web 3D” consortium.

VSAT (Very Small Aperture Terminals)
Small satellite receiving dishes usually 4 to 6 inches in diameter used for digital transmission.

W3C (World Wide Web Consortium)
A neutral meeting of those to whom the Web is important with the mission of leading the Web to its full potential.

WAI (Web Accessibility Initiative)
A domain of W3C that attempts to ensure the use of the Web by anyone regardless of disability.
WAIS (Wide Area Information Servers)
A distributed information system designed by Brewster Kahle while at Thinking Machines. WAIS was like a Web of search engines, but without hypertext.

Wait Time
The amount of time that elapses between the asking of a question and the response of the student. It is usually 3–5 seconds. (See also Silence.)

WAN
Two or more computers connected over long distances by means of telephone or radio circuits. (See Wide Area Network.)

Wave Format
Digital file format used to store sounds as a pattern of oscillatory periodic electronic signals.

Web
Short for World Wide Web.

Web-Based Application
Software that is designed specifically to be used with the Internet. Frequently, this term is used to describe software through which courses might be delivered, wherein a student interacts only with the computer and not with other participants.

Web Browser
A search tool used to navigate around the Internet. It uses a graphical interface for ease of use. The most popular browsers are Mosaic™, Microsoft Explorer™, and Netscape Navigator™. (See also Browser.)

Web Lesson
Similar to an interactive electronic text page. Many other online resources are available to a student dealing with the subject of the page. Key ideas on which additional information is available are underlined or highlighted in such a way that the student has only to click on the cued word.
Web Page
Information contained on a single page displayed on the WWW. All data has been converted to HTML that is transparent to the viewer. Each web page should be displayed with the same consistent format.

Web Site
A location on the World Wide Web that is accessed by instructing the computer to find and connect to the site’s specific Internet address, known as its uniform resource locator (URL). Web sites are repositories of information about a specific topic, institution, organization, person, place, or thing. (2) A specific location or address on the WWW. A site can have one or more pages.

WebQuest
A WebQuest is an “inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet. It is occasionally supplemented with video conferencing” (Dodge, 1997).

White Space
Space in which nothing is printed in a deliberate attempt to unify continuous elements and separate them from disparate elements.

Whiteboard
This is document-conferencing strategy that allows multiple users to view and mark on a document simultaneously with pens, highlighters, and drawing tools.

Whiteboard/Whiteboarding
An area on a display screen upon which multiple users can write or draw and which other remote users can see simultaneously. Whiteboards are often a principal component of computer conferencing applications because they enable shared visual communication.
Wide Area Network (WAN)
Connecting computer equipment using data communications over a widespread geographic area such as a town, city, or country. (2) A network that is regional; it covers an area larger than single building or campus. (See also Local Area Network.)

Wideband
A medium capacity communications path. It has a speed of 64 Kbps to 1.544 Mbps.

Wipe
A transition effect that appears to push a new screen onto the existing screen. It can be from left to right or from top to bottom.

Word Picture (WP)
Key words and phrases encased in geometric shapes or free forms and connected with lines or arrows to show visual spatial relationships. (See also Node.)

Word Processor
The generic name for software designed to enter, edit, and manage text documents.

Workbook
A handout provided for the student that incorporates lesson outlines, readings, exercises, and activities.

World Wide Web
The protocol and file format software incorporating hypertext and multimedia capabilities for use on the Internet. (2) Also known as the Web. A virtual library of video, audio, and textual data and information stored in the computers of the Internet. These data are accessible to anyone with a modem, a personal computer, a way of connecting to the Internet (through a private or public Internet Service Provider), and a computer application program, or “software” (called a browser) designed to allow a person to explore Web resources. (3) WWW. Distributed instructional resources and information on the Internet. It is a worldwide, hypermedia, and hypertext-based method of
obtaining information in any format. The WWW is a by-product of the Internet. It is not THE Internet. It allows us to find, view, and use the vast amounts of information available on the Internet in print, graphic, video, and audio formats. (4) (Three words; also known as WWW.) The set of all information accessible using computers and networking, each unit of information identified by a URI.

**WorldWideWeb**
(One word; no spaces) The name of the first Web client, a browser/editor that ran on a NeXT machine.

**Writing Tablet**
An electronic device through which information that is written or drawn with a stylus or light pen is transmitted to and reproduced on a monitor. Also referred to as a graphics tablet or pad.

**WWW**

**X**
The X Window system; a standard interface between a program and a screen that was ubiquitous on Unix systems. Unlike Microsoft’s Windows, X allowed programs running on one machine to display one another across the Internet from the beginning.

**Xanadu**
Ted Nelson’s planned global hypertext project.

**XML (Extensible Markup Language)**
A simplified successor to SGML. W3C’s generic language for creating new markup languages. Markup languages (such as HTML) are used to represent documents with a nested, treelike structure. XML is a product of W3C and a trademark of MIT.
**XSL (Extensible Style Sheet Language)**
A style sheet language, like CSS, that also allows document transformation.

**YGWYS**
Acronym for “You get what you see.”

**Zoom**
A television lens that holds the focus while moving from a close up to a long shot (full body) or in reverse.

**Zoom Lens**
A variable focus lens.
First the term "distance education" must be defined. Simonson, Smaldino, Albright, & Zvacek (2003) cite Keegan’s (1986) definition of distance education. They stated that Keegan identified five main elements of distance education that compose a comprehensive and modern definition of distance education. Keegan defined distance education as:

- The quasi-permanent separation of teacher and learner throughout the length of the learning process. (This distinguishes it from conventional face-to-face education.)

- The influence of an educational organization both in the planning and preparation of learning materials and in the provision of student support services. (This distinguishes distance education from private study and teach-yourself programs.)

- The use of media (print, audio, video, or computer) to unite teacher and learner and to carry the content of the course.

- The provision of two-way communication so that the student may benefit from or even initiate dialogue. (This distinguishes it from other uses of technology in education.)

- The quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialization purposes.