Pearson New International Edition

Integrating Educational Technology
into Teaching
M. D. Roblyer   Aaron H. Doering
Sixth Edition

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Table of Contents

GLOSSARY

accelerometer—A device that assists with analyzing and monitoring physical fitness levels by counting calories

Acceptable Use Policy (AUP)—An agreement created by a school or other educational organization that describes the risks involved in Internet use; outlines appropriate, safe student behavior on the Internet; asks students if they agree to use the Internet under these conditions; and asks what information about themselves, if any, may be posted on the school's website

accommodation—Piagetian view of how children change their views of the world by incorporating new experiences

ActionScript—In Adobe® Flash®, an advanced authoring environment for creating content for the web, a mobile, or virtually any digital platform

Adequate Yearly Progress (AYP)—(See No Child Left Behind (NCLB) Act of 2001.)

adventure learning (AL)—A hybrid (online and in-person) distance education approach that provides students with opportunities to explore real-world issues through authentic learning experiences within collaborative learning environments

alternative keyboard—Customized keyboards created for users with special needs (e.g., enlarging the keys to provide more space for the student to press a key; removing keys that are not relevant for a given software; programming multi-step functions like save, print, quit into a single key press)

app—Abbreviation for application, software that normally has an extension of .app and refers to any Internet application specifically designed to run on mobile devices such as smartphones

applications programs—Computer software written to support tasks that are useful to a computer user (e.g., word processing) in contrast with systems software

applications software—(See applications programs.)

aptitude-treatment interaction (ATI)—Research finding that formats that are beneficial for one group have a negative impact on a group with the opposite characteristic

ARPAnet—A network created in 1969 by the U.S. government–funded Advanced Research Projects Agency (ARPA) to enable communications among important defense sites in the event of a worldwide catastrophe such as a nuclear attack; later became the Internet

artificial intelligence (AI)—Computer programs that try to emulate the decision-making capabilities of the human mind

ASP.NET—First released in 2002, a scripting language that must be installed on a server to be used in web development; a scripting language that generates HTML source code to create dynamic web pages (See also PHP.)

assimilation—Piagetian view of how children learn by fitting new experiences into their existing view of the world

assistive technology—Devices that extend the abilities of an individual in ways that provide physical access (i.e., wheelchairs, braces) and sensory access (i.e., Braille, closed captioning)

asynchronous—Form of distance communications in which information and messages are left for the receiver to read later; contrasts with synchronous communications, in which information and messages are sent and received immediately (See also synchronous.)

Audio Video Interleave (AVI) format—One of several digital formats for video that are able to be used with video editing software

augmented reality—Coined by a Boeing researcher in 1990, it refers to a computer-generated environment in which a real-life scene is overlaid with information that enhances our understanding and uses of it

autocorrect—A built-in feature of word-processing software that automatically detects and corrects misspelled words and incorrect capitalization

automaticity—A level of skill that allows a person to respond immediately (i.e., automatically) with the correct answer to a problem

auto-tuning—A unique vocal distortion technique made possible with vocal-editing software

avatar—A graphic representation of a real person in cyberspace; a three-dimensional image that a person can choose to represent himself or herself in a virtual reality environment

avatar spaces—Online environments in which users can interact through their graphic representations (i.e., avatars)

Blended Intercultural Collaborations—In language learning, "international class-to-class partnerships in which projects and tasks are developed by the partner teachers in the collaborating institutions" (O'Dowd, 2011, p. 3); students work with students of other cultures to provide authentic writing and research experiences

blended learning—(See hybrid learning.)

blog—Short for "web log," a web page that serves as a publicly accessible location for discussing a topic or issue; began as personal journals and expanded to become public discussion forums in which anyone can give opinions on a topic

blood pressure devices—Devices that assist with analyzing and monitoring physical fitness levels by monitoring and reporting blood pressure

BMP—Stands for "bitmapped." Developed originally for use on Disk Operating System (DOS) and Windows-compatible computers, an image format used for drawn images, illustrations, clip art, or animations

body composition analyzer—A device that assists with analyzing and monitoring physical fitness levels by determining the percent of body fat

bookmarks file—In a browser, a set of Internet locations or URLs organized so that a user can return to them quickly (See also favorites file.)

browser—Also known as a web browser, software designed to allow a computer user to go to Internet web sites that are connected to each other via the World Wide Web (WWW)

bulletin board (BB)—A computer system set up to allow notices to be posted and viewed by anyone who has access to the network

calculator-based lab (CBL)—Calculator with probes or sensors connected to it to allow gathering of numerical data

cell—In a spreadsheet, a row–column location that may contain numerical values, words, or character data, and formulas or calculation commands

charting/graphing tools—Software tools that automatically draw and print desired charts or graphs from data entered by users

chatroom—A location on the Internet set up to allow people to converse in real time by typing in messages or allowing their avatars to meet and "talk" to each other

classical conditioning—Pavlovian view of learning as involuntary physical responses to outside stimuli (e.g., dogs salivate automatically at the sight of a dog food can)

clickers—(See student response systems or SRS).

clip art—One or more pieces of professionally prepared art work, stored as files and designed to be inserted into a document or web page

closed circuit television (CCTV)—A magnification system in which a video camera is mounted on a frame with a television monitor. Users

place materials on the desktop below the camera, set the desired magnification level, move the materials around as necessary, and information appears on the monitor in a size that can be read comfortably by an individual with visual impairments

cloud computing—The practice of storing software on servers that are accessed through the Internet

Cloze exercises—Comprehension exercises with certain words removed to require students to fill in the blanks

cognitive load—The amount of working memory that is available to a learner to process new information and that is taken up at a given time by a learning task

Common Gateway Interface (CGI)—An authoring specification on the Internet for how data will be collected at a website; CGI programs are written in a language such as PERL

compensation—Using technology to accommodate difficulties individuals have with performing specific tasks, e.g., providing speech recognition software to those with physical disabilities that limit their use of a pencil or a keyboard

computer adaptive testing (CAT)—Computer software that continuously analyzes a student's test responses and presents more or less difficult questions based on the student's performance (See also computer-assisted testing.)

computer algebra system (CAS)—Either software or devices with software that help carry out complex numeric calculations involved in higher-level math problems (e.g., Maple)

computer-assisted design (CAD)—Software used by architects and others to aid in the design of structures such as houses and cars

computer-assisted instruction (CAI)—Software designed to help teach information and/or skills related to a topic; also known as instructional software or courseware, computer-based instruction (CBI), computer-based learning (CBL), computer-assisted learning (CAL), or generic terms such as software learning tools

computer-assisted language learning (CALL)—For learners of English and foreign languages, activities in which they use computers in language testing, teaching, and learning in and out of class

computer-assisted testing (CAT)—Using a computer system to administer and score assessment measures; also, computer adaptive testing, computer-based testing

computerized kiln—Oven for firing ceramic products that uses computers to perform automatically several operations: set required temperature, monitor length of firing time, and begin the process of cooling down and shutting off

computer-managed instruction (CMI)—Computer software systems designed to keep track of student performance data, either as part of CAI programs or by themselves

computer platforms—Types of computer systems identified by their operating systems, e.g., PCs with Windows operating systems or Macintoshes with Mac-OS operating systems

computer programs—(See software.)

concept-mapping software—Tools designed to help people think through and explore ideas or topics by developing concept maps (i.e., visual outlines of ideas)

constructivism—The belief system that holds that humans construct all knowledge in their minds by participating in certain experiences; knowledge is the result of constructing both mechanisms for learning and one's own unique version of the knowledge, colored by background, experiences, and aptitudes

constructivist learning—Teaching/learning model based on cognitive learning theory; holds that learners should generate their own knowledge through experience-based activities rather than being taught it by teachers (See also directed instruction.)

contingencies of reinforcement—According to learning theorist B. F. Skinner, experiences (positive reinforcement, negative reinforcement, punishment) that shape desired behavioral responses

cookie—A small text file transferred to a web browser through an Internet server for the purpose of tracking the Internet usage habits of the person using the browser

course management system (CMS)—An online system of web course design and delivery tools; Desire-to-Learn and BlackBoard are examples

courseware—(See computer-assisted instruction or CAI.)

crowdsourcing—A type of outsourcing in which many people are asked to give their input online to solve a problem that has proven resistant to efforts of single individuals or organizations

cyberbullying—Growing problem of online harassment in social networks

cybercheating—In education, academic dishonesty in which someone uses another's work obtained from the Internet as his/her own, also known as online cheating

cyberporn—General term for any pornographic Internet site

database—A collection of information systematized by computer software to allow storage and easy retrieval through keyword searching; the program designed to accomplish these tasks

data loggers—Devices that record data over time with sensors

data mining—The practice of collecting data from all the information available and searching it to see relationships among the data elements

design—A first step in web development that involves planning what the website will look like. (See also storyboard.)

desktop publishing—Term coined in 1984 by the president of the Aldus Corporation to refer to the activity of using software to produce documents with elaborate control of the form and appearance of individual pages

Digital Divide—Term coined by Lloyd Morrisett, former president of the Markle Foundation, to mean a discrepancy in access to technology resources among socioeconomic groups

digital literacy—Originally, the ability to use computer devices and software to locate and use information; now refers to skills in using the information that technological devices carry, in addition to skills in using the devices themselves

digital storytelling—Using digitally-produced images and audio to tell the stories of lives, events, or eras

directed instruction—A teaching and learning model based on behavioral and cognitive theories; students receive information from teachers and do teacher-directed activities (See also constructivist learning.)

disability—Condition that occurs when an impairment limits an individual from performing an activity in a manner normally expected for human beings (communicating with others, hearing, movement, manipulating objects, etc.) (See also handicap and impairment.)

discovery learning—According to learning theorist Jerome Bruner, a more effective way of children learning concepts by discovering them during their interaction with the environment

disequilibrium—Piagetian view of condition children experience when they confront new and unfamiliar features of their environment that do not fit with their current views of the world

distance education—A form of education in which some means, electronic or otherwise, is used to connect people with instructors and/or resources that can help them acquire knowledge and skills. According to Holden & Westfall (2010), "structured learning that takes place without the physical presence of the instructor" (p. 3). Sometimes used as synonymous with "distance learning"

domain designator—Also referred to as a domain name, a required part of a Uniform Resource Locator (URL) on the Internet that indicates what kind of group owns the server; examples include ".edu," ".com," and ".org"

domain name—(See domain designator.)

download—To bring information (e.g., text files, images) to a computer from the Internet or other network or from a computer to a disc

drill and practice—An instructional software function that presents items for students to work on (usually one at a time) and gives feedback on correctness; designed to help users remember isolated facts or concepts and recall them quickly

e-books (ebooks)—Texts in digital form that may be read on a computer or e-book readers; becoming a popular alternative to printed texts

educational technology—A combination of the processes and tools involved in addressing educational needs and problems, with an emphasis on applying the most current digital and information tools

electronic field trip—(See virtual field trip.)

electronic gradebook—Software designed to maintain and calculate student grades

electronic mentor—Subject matter expert who volunteers to work closely with students online

electronic outliner—(See outlining tools.)

electronic portfolio—A collection of a person's work products over time, arranged so that he or she and others can see how skills have developed and progressed, and presented in an electronic format such as a website or multimedia product (See also portfolio.)

electronic publishing—Activity when students submit their written or artistic products to a website

electronic slide shows—Sequences of frames shown in a linear way with presentation software (e.g., *PowerPoint*)

electronic storybooks—Stories that can be read from a computer screen, on mobile devices, or as print books with interactive buttons; also known as interactive storybooks

enactive learning—Proposed by learning theorist Albert Bandura as learning that occurs through actions, rather than by observation

English as a Second Language (ESL)—Designates a type of learning of English that occurs after a student achieves some level of proficiency in another, native language; more commonly-used term is now English Language Learning or ELL

English Language Learners (ELL)—Individuals who are learning English as their majority language for everyday uses, employment, and educational purposes. ELL also stands for English Language Learning

e-portfolio—Websites created by students to showcase their work and organize, revise, and store digital assets that they have created inside and outside the classroom

EPS (Encapsulated PostScript)—An image format that allows transfer of artwork between any software packages that use PostScript printing files

essential processing—In cognitive load theory, cognitive processes that are required for making sense of material a person is trying to learn can overwhelm learner's cognitive capacity unless strategies are in place to handle it by learning theorist Robert Gagné as being involved in teaching and learning

exergaming—"Video games that provide physical activity or exercise through interactive play" (Mears and Hansen, 2009, p. 29)

EXtensible Mark-up Language—(See XML.)

extraneous processing—In cognitive load theory, mental activity uses cognitive capacity but does not help the learner learn

favorites file—In a browser, a set of Internet locations or URLs organized so that a user can return to them quickly (See also bookmarks file.)

field—The smallest unit of information in a database

files—The products created by a database program; any collection of data stored in a computer or on a computer medium

File Transfer Protocol (FTP)—On the Internet, a way of transferring files from one computer to another using common settings and transmission procedures; also, to transfer files

filtering software—Program stored on individual computers or on the school or district network in order to prevent access to Internet sites with inappropriate materials

firewall—Software that protects a school's or company's entire computer system from attempts by others to gain unauthorized access to it and also prevents access by users to certain sites

firewall software—Programs set up to prevent someone from going to certain locations on the Internet; prevention may be by keyword or by site name

Flash—A type of hypermedia authoring software from Adobe that has become commonly used to create interactive web-based animations

FM amplification system—Resource for students with hearing impairments in which the teacher wears a wireless microphone and students with auditory processing learning disabilities wear receivers that amplify the teacher's voice and serve to focus attention

font—Typeface used in word processing or desktop publishing

foreign language (FL)—A target language, or language of study, when the language being studied is spoken mainly in other countries

foreign language dictionaries—Online sites that function like other dictionaries in that they give definitions for words and phrases in common usage, but provide the additional capability of looking up the word or phrase in one language (e.g., French or German) and get the definition and/or synonyms for it in another language (e.g., English)

forms makers—Software tools that create documents and web pages with "fillable" forms

formula—In a spreadsheet, a command inserted in a cell and used to do calculations on data

frame—Sections programmed to display on a web page; the contents of each frame are actually different web pages displayed on one screen

full immersion systems—Type of virtual reality (VR) system in which a user places a headset (e.g., goggles or a helmet) over the eyes to provide a channel through which the wearer "sees" (i.e., is immersed in) a computer-generated environment

generative processing—In cognitive load theory, the use of working memory that results in productive, engaged learning

geocaching—An online activity in which students look at a database of caches listed at a geocaching website (e.g., http://www.geocaching .com), decide on a cache to hunt for, use GPSs to help them locate it, and share their experiences with others involved in the hunt

Geographic Information System (GIS)—A computer system that stores and manipulates a database of information about geographic locations; users see data pertaining to a geographic location overlaid on a map of the area

geospatial technologies—Systems that allow individuals to view and examine the world through multiple layering of geographic data within a spatial environment; use of technology for visualization, analysis, and measurement of features and phenomena

gesture-recognition system—System in which a camera or sensor reads body movements and communicates them to a computer, which processes the gestures as commands and uses them to control devices or displays

GIF (Graphics Interchange Format)—An image format used for drawn images, illustrations, clip art, or animations

Global Positioning System (GPS)—A worldwide radio-navigation system made possible by a bank of orbiting satellites and their ground stations to pinpoint exact geographic locations on earth; a device that cross-references a GPS signal with mapping software and shows the location to a user

Google Docs—Tools offered through a special Google site that provide users access to online programs for word processing, spreadsheets, and presentations; the site offers storage of documents on a Google server and allows for sharing of documents among multiple users

graphic document makers—Software tools that simplify the activity of making highly graphic materials such as awards certificates and greeting cards by offering sets of clip art and pre-designed templates to which people add their own content

graphing calculator—Advanced calculators that can graph equations, as well as perform calculation functions involved in higher-level math and science problems; allows users to enter equations and shows graphs that result from those equations

group product development—Learning activities in which students write papers, develop concept maps, and develop presentations collaboratively online using tools such as Google Docs

hacker—Computer user who engages in unauthorized use of a computer system

hacking—Use of online systems to access personal data in order to accomplish identity theft and do other malicious acts

handheld technologies—Small, multi-purpose devices such as cellphones, e-books, and "smart" pens that make it easy to view, communicate, and share information, regardless of location (See also mobile device.)

handicap—A condition that arises when an individual is unable to fulfill a role due to an impairment or disability (See also impairment and disability.)

hands-on/minds-on science—A common term in science education reform, synonymous with immersing students in authentic learning experiences

haptic interface—One of the devices (e.g., a data glove) that allow users to experience a full immersion virtual reality system by providing tactile or touch input

hardware—The devices or equipment in a computer system (in contrast with software or computer programs)

hash tag—A term used on the Twitter system for a prefix to a message (Tweet) consisting of a pound sign (#) and a topic name (e.g., #ripstevejobs). Users begin a Tweet with a hash tag to allow others to identify posts and create their own messages on that topic.

head-mounted display (HMD)—In a full immersion virtual reality (VR) system, a headset that provides the sensory channel through which the wearer "sees" a computer-generated environment

heart rate monitor—Device consisting of a transmitter, which senses the heartbeat from the heart's electrical impulses, and a wristwatch receiver, which receives and records each beat through radio transmission from the transmitter

hits—Pages or items listed as results of an Internet or database search

HTML—(See Hypertext Markup Language.)

HTML 5—A revision of the HTML standard that provides many of the features of a Flash environment without using Flash (See also Flash.)

hybrid learning—In distance education, opportunities that allow students to blend online and face-to-face learning; also referred to as blended learning

hypermedia—Software that allows information stored in various media or various parts of media to be connected (often via the Internet)

hypertext—On the Internet, texts that contain links to other texts

Hypertext Markup Language (HTML)—The primary authoring language used to develop web pages

i-dosing (idosing)—Going to sites that allegedly induce a state of ecstasy from listening to music

IEP generator—Software that assists teachers in preparing individual educational plans (IEPs) required by law for students with special needs; automates the process by providing on-screen prompts that remind teachers of the required components in the plan

image editing programs—Software tools used to enhance and format photos that are then imported into desktop publishing systems or web page products

image formats—Ways of storing digitized images for use in web pages and multimedia products, e.g., GIF, JPEG

impairment—An abnormality or loss of function in a physical, anatomical, or psychological structure; may be congenital (present at birth) or acquired through accident or disease (See also handicap and disability.)

inclusion—Activity in which students with disabilities are included in the general education classroom; often used interchangeably with "mainstreaming," though the terms originally had different meanings (See also mainstreaming.)

individualized educational program (IEP)—The educational program required by law to be designed for each student with a disability

inert knowledge—A term introduced by Whitehead in 1929 to mean skills that students learn in isolation but do not know to transfer later to problems that require them

information and communication technology (ICT)—New term for information technology or educational technology; refers to all technologies used in education and training, as well as strategies for using them; originally in more common use outside the U.S., but becoming more popular worldwide due to UNESCO's ICT standards for education

information literacy—According to the American Library Association (ALA), "a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (2000, p. 2)

information visualization—Also known as information design, "uses pictures, symbols, colors, and words to communicate ideas, illustrate information, or express relationships visually" (Emerson, 2008, p. 4)

inquiry-based learning—(See constructivist learning.)

instant messaging (IM)—A communications service that allows users to create a private chat room which only members of a mutually agreed-upon list may enter; the system alerts a user when someone from the IM list is online; IM also designates the act of instant messaging, as in "to IM"

instructional game—Type of software function designed to increase motivation by adding game rules to a learning activity

instructional software—Applications software that is designed specifically to deliver or assist with student instruction on a topic (See also courseware.)

instructional technology—The subset of educational technology that deals directly with teaching and learning applications (as opposed to educational administrative applications)

integrated learning system (ILS)—Networked or online system that provides both computer-based instruction and summary reports of student progress

integrated packages—Software products (e.g., Microsoft Works and AppleWorks) that have several applications in a single package (e.g., word processing, spreadsheet, presentation functions, database programs)

integrating educational technology—The process of determining which digital tools and which methods for implementing them are the most appropriate responses to given educational needs and problems

intelligent tutoring systems—Sophisticated kinds of branching tutorial software that adapt the sequence of instruction to the needs of each learner

interactive or dynamic geometry software—Programs that allow users to create and manipulate geometric constructions and provide environments in which to make discoveries and conjectures related to geometry concepts and objects

interactive storybooks—(See electronic storybooks.)

interactive whiteboard—A device that includes a display screen connected to a computer and digital projector; allows information projected on the screen to be manipulated with special pens or one's hands and also allows drawings or notes from a given session to be saved and brought back later. Sometimes referred to as an electronic whiteboard.

interactive whiteboard activity software—Programs that allow teachers to author and display lessons for use with interactive whiteboard systems

Internet—A worldwide collection of computer networks that can exchange information by using a common software standard; sometimes referred to (erroneously) as synonymous with the World Wide Web (WWW), which is actually a subset of the Internet

intranet—An internal network or a subset of the Internet, usually available only to the members of the organization that set it up

Java—Originally called OAK, a high-level programming language developed by Sun Microsystems. An object-oriented language similar to C++, it has become popular for its ability to do interactive graphic and animation activities on web pages

Java applets—Pre-developed applications created with the Java programming language; make possible web page features such as animations and special effects, graphics and buttons, interactive displays, web data collection forms, and chatrooms

Javascript—An object-oriented scripting language that, like Java, is used to create dynamic websites

joystick—Input device, used primarily with games, that moves on-screen figures or a cursor with a handle that moves in all directions

JPEG (also JPG)—Stands for "Joint Photographic Experts Group," an image format used for photographs

language translators (machine translation)—Online sites that allow users to input sentences and paragraphs of text in one language and get a translation into another language

laptop computer—Small, stand-alone, portable personal computer system

learning communities—Groups of people who "meet," usually via email, web pages, or other electronic means, to support each other's learning; in distance education, strategic, ongoing efforts by the instructor to encourage student-to-student interaction, as well as student-to-instructor interaction

learning hierarchies—According to learning theorist Robert Gagné, a sequenced set of building block skills a student must learn in order to learn a higher-order skill

Likert scale—An assessment instrument consisting of a series of statements with which students indicate their degree of agreement or disagreement; created by psychologist Rensis Likert

link—Also known as a hot link or hot spot. On the Internet, a piece of text or an image that has been programmed into a web page to send the browser to another Internet location; in a multimedia product, a piece of text or an image that has been programmed to send the user to another location in the product

listserv (list)—On the Internet, a program that stores and maintains mailing lists and allows a message to be sent simultaneously to everyone on the list

logic bomb—A type of computer virus that is set to "go off" (i.e., carry out its program) at a certain time

Logo—A high-level programming language originally designed as an artificial intelligence (AI) language but later popularized by Seymour Papert as an environment to allow children to learn problem-solving behaviors and skills

long-term memory (LTM)—According to information-processing learning theorists, one of the three kinds of memory or "stores" the brain uses to process information, much like a computer; LTM can hold information indefinitely after it is linked to prior knowledge already in LTM

machine translation—(See language translators.)

mainstreaming—An activity in which students with disabilities participate in one or more selected classes in general education; often used interchangeably with "inclusion," though the terms originally had different meanings (See also inclusion.)

malware—Short for malicious software, any software specifically designed to damage, destroy, disrupt operations, or spy on the operation of computers

mastery learning—According to learning theorists Benjamin Bloom and B. F. Skinner, an instructional approach in which students learn a sequence of objectives that define mastery of the subject; students pass tests on each objective to demonstrate they have mastered a skill before proceeding to the next one

meta-analysis—A statistical method designed by Gene V Glass (1976) to summarize results across studies and measure the size of the effect a "treatment" such as technology-based methods has over and above traditional methods

microcomputer—Also called a personal computer, a stand-alone, desktop, or laptop computer that uses a microprocessor and is designed for use by an individual

microcomputer-based lab (MBL)—A type of instructional software tool consisting of hardware devices (probes) and software (probeware) to allow scientific data to be gathered and processed by a computer

mobile device—General category of portable computer devices such as smart phones and tablets (e.g., iPads) (See also handhelds.)

morphing—Short for metamorphosing; refers to an animation technique in which one image gradually turns into another; also known as tweening

Mosaic—One of the first browser programs designed to allow Internet resources to be displayed graphically rather than just in text

Moving Picture Experts Group (MPEG) format—A file format for storing and sending video sequences on a network

MUD—Multiuser dungeon (or dimension or domain); a location on the Internet where several users at a time can interact with each other's avatars (graphic representations of each other); also known as a MUD Object Oriented or MOO

multimedia—Literally "multiple media" or "a combination of media," a software product or system that incorporates combinations of graphics and photographs, sound, motion video, animation, and/or text items for the purpose of communicating information in multiple ways

multiple intelligences theory—According to learning theorist Howard Gardner, nine different and relatively independent types of intelligence that may be fostered by differentiated instruction and assessment

Musical Educators National Conference (MENC)—Professional organization for music educators

Musical Instrument Digital Interface (MIDI)—A standard adopted by the electronic music industry for controlling devices that play music

music editor—Software that provides on-screen blank musical bars on which the user enters the musical key, time, and individual notes that constitute a piece of sheet music

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music literacy—The ability to read standard music notation

music sequencer—Can be either software that supports the on-screen creation of music scores with several parts or tracks, or a hardware component of a music synthesizer workstation (See also sequencer.)

music synthesizer—Music-making equipment controlled by a Musical Instrument Digital Interface (MIDI) device

National Education Technology Standards (NETS)—Benchmark technology skills created by the International Society for Technology in Education (ISTE) for teachers (NETS-T), students (NETS-S), and educational administrators (NETS-A)

netbook—A handheld computer that is like a notebook computer but with fewer features

netiquette—A contraction of Internet and etiquette, refers to guidelines for posting messages to online services (e.g., email or discussion boards) to demonstrate courtesy and regard for other users

new literacies—The new skills, strategies, and insights necessary to utilize the rapidly changing and emerging technologies in the world

No Child Left Behind (NCLB) Act of 2001—Federal law that put in place accountability measures of all U.S. students, teachers, and schools; requires schools to demonstrate adequate yearly progress (AYP) toward target goals, as demonstrated by test scores, attendance, and other quality indicators

notation software—Software that facilitates music making in the visual domain by allowing flexibility in music score and page setup, part extraction, text formatting, and other print-related issues

nutritional analysis program—Software that analyzes calorie intake and monitors portions of required food groups

objectivism—A belief system that views knowledge as objective truths that have been established by scientific observation and testing and have a real and separate existence outside human perception; instructional strategies based on objectivist learning theories (i.e., behavioral, cognitive-behavioral, and information processing theories) hold that these objective truths must be transmitted through teacher-directed instructional methods and that learners must demonstrate their knowledge of them

objectivists—People who believe that knowledge has a separate existence outside human perception and that it must be transmitted through directed instructional methods, based on behavioral, cognitive-behavioral, and information processing theories

one-to-one computing—The practice of allocating a school computer for each student

open source software—Computer software available online in which the source code is made available in the public domain and permits users to use, change, and improve the software, and to redistribute it in modified or unmodified form

operant conditioning—According to learning theorist B. F. Skinner, a way of shaping human behavior in which the consequences of people's past actions can act as stimuli to shape future behaviors

optical character recognition (OCR)—Software that allows text to be scanned and placed in a word processing file

outlining tools—Software designed to prompt writers as they develop outlines to structure documents they plan to write

pedometer—Device that assists with analyzing and monitoring physical fitness levels by monitoring the number of steps one takes

phishing—E-mails that falsely claim to be a legitimate business or user in order to glean private information to be used for identity theft

PHP—Like ASP.NET, an application that must be installed on a server to be used in web development; originally stood for personal home page and is a scripting language that generates HTML source code to create dynamic web pages (See also ASP.NET.)

PICT (picture)—An image format developed originally for use on Macintosh computers

plug-in—A program that adds a specific feature or service to a computer system; many types of audio and video messages are played through plug-ins

podcast—A term that combines "iPod" and "broadcast" and coined by British journalist Ben Hammersley in 2005; originally meant digitized audio files saved in a format that can be shared over the Internet for playback on the computer or personal media devices; now can also mean posting video on a site (See also vodcast.)

portable document format (PDF)—Format that allows documents to be seen and sent with all the formatting and design elements (e.g., margins, graphics) of the original document without requiring the desktop publishing or word processing software used to create it

portfolio—A collection of work products that demonstrate achievement of skills over time; for students, collection arranged so that they and others can see how their skills have developed and progressed (See also electronic portfolio.)

presentation software—Type of software that allows a display of information organized as a set of slides (See also electronic slide show.)

probeware—(See microcomputer-based laboratory or MBL.)

problem-based learning (PBL)—According to Sage (2000), learning organized around the investigation and resolution of an authentic, ill-structured problem

problem solving—A complex intellectual function where the learner uses high-order cognitive processes to solve problems and issues that require using a combination of rules

problem-solving software—Instructional software function that either teaches specific steps for solving certain problems (e.g., math word problems) or helps the student learn general problem-solving behaviors for a class of problems

programmed instruction—Techniques for training and instruction based on learning theorist B. F. Skinner's reinforcement principles

puzzle generator—Software tool that automatically formats and creates crossword puzzles, word search puzzles, and similar game-like activities, based on content entered by a user

Quick Response (QR) code—A two-dimensional, square-shaped code that may be scanned using a QR code-scanning app on a smartphone. When scanned, the code sends the user to a web site with information, materials, or data.

QuickTime® movie format (.mov)—Video sequences that may be viewed on a computer screen by a program designed by Apple Computer Company (i.e., QuickTime)

QuickTime VR Authoring Studio®—Software that creates a type of virtual reality (VR) environment by using a series of photographs taken at 360 degrees around a pivotal point and "stitching" them together into a seamless panorama view

QWERTY keyboard—Traditional typewriter-like keyboard, so named because of the first six letters in the first line of a typewriter keyboard

radio frequency identification (RFID)—An electronic monitoring system that tracks the location of a person or object with an embedded computer chip and can update information on the chip; RFID devices are being field-tested to track student attendance, increase school security, and monitor the location of library resources

record—In a database file, several related fields (e.g., all the information on one person)

relative advantage—Term coined by Everett Rogers to refer to the perception by potential adopters of how much better an innovative method or resource is than the old one; one of five factors that largely determines whether or not an innovation is adopted

remediation—In special education, helping an individual with performance deficits learn or improve through education, training, and therapy

rubric—An assessment instrument designed to measure complex behaviors such as writing; for each of several elements in the performance, it gives a set of descriptions of various levels of quality

sans serif typeface—Typeface in which letters have no small curves (serifs or "hands and feet") at the ends of the lines that make them up; usually used for short titles rather than the main text of a document

scaffolding—Term associated with learning theorist Vygotsky's belief that teachers can provide good instruction by finding out where each child is in his or her development and building on the child's experiences

scientific inquiry—The processes of approaching problems scientifically; "the diverse ways in which scientists study the natural world and propose explanations based on the evidence derived from their work…activities through which students develop knowledge and understanding of scientific ideas, as well as an understanding of how scientists study the natural world" (NSTA National Science Education Standards, p. 23)

screenagers—Young people who are…living visually and virtually from handheld screens, smart phones, and computers…(and who) increasingly need multiple forms of literacy, especially visual literacy" (Rushkoff, 2006, p. 48)

screen reader—Utility software that operates in the background of the computer operating system, reading aloud any text that appears on the screen (e.g., menus, text, web pages)

search engine—A program designed to search documents, either on one's computer or on the Internet, for keywords, and list the locations of documents where the keywords were found; often used to refer only to programs for Internet searches such as Google

self-efficacy—According to learning theorist Albert Bandura, students' belief in their abilities to accomplish the actions necessary to learn

semantic differential—Type of assessment instrument in which students respond to a topic or question by checking a line between each of several sets of bipolar adjectives to indicate their level of feeling about the topic

sensory disabilities—Impairments associated with the loss of hearing or vision

sensory registers—According to information-processing learning theorists, the parts of the brain that receive information a person senses through receptors (i.e., eyes, ears, nose, mouth, and/or hands) and, after a second or so, is either lost or transferred to short-term memory (STM) or working memory

sequencer—A device that facilitates music making in the aural domain by allowing users to record, edit, and play back digital audio and MIDI data (See also music sequencer.)

serif typeface—Typeface in which letters have small curves (serifs or "hands and feet") at the ends of the lines that make them up; usually used for the main text of a document

sexting—The practice of sending explicit photos or text messages using cell phones or the Internet

short-term memory (STM)—According to information-processing learning theorists, one of the three kinds of memory or "stores" the brain uses to process information, much like a computer; STM can hold information for about 5–20 seconds, after which it is either transferred to long-term memory (LTM) or lost

simulation—Type of software that allows users to work with a computerized model of a real or imagined system in order to learn how the system works

site map—An at-a-glance guide to the contents of a website

situated cognition—According to constructivist learning theorists, instruction anchored in experiences that learners considered authentic because they emulate the behavior of adults

SMART Table Interactive Learning Center—An electronic device produced by the Prometheus company that consists of a table with a touch-screen surface and that allows several students to give input to it at the same time

social action project—Web-based project in which students are responsible for learning about and addressing important global social, economic, political, or environmental conditions

social activism theory—Characteristic agenda of renowned educator John Dewey that shaped his views about teaching and learning; resulted in the belief that social consciousness was the ultimate aim of all education, and learning was useful only in the context of social experience

social networking site (SNS)—Sites that focus on building communities; individually designed web pages that allow users to upload their content, meet and connect with friends from around the world, and share media and interests in an online, easy-to-use website environment

social studies—According to the National Council for the Social Studies (NCSS, 2010), the integrated study of the social sciences and humanities to promote civic competence

software—Programs written in a computer language (in contrast with hardware or equipment) to perform various functions

software piracy—Illegally copying and using a copyrighted software package without buying it

software suite—A set of programs that perform different functions but are placed in the same package and designed to work well together (e.g., Microsoft Office) (See also integrated packages.)

spam—Any unsolicited e-mail message or website posting, usually sent for the purpose of advertising products or services or soliciting funds

spirometer—A device that assists with analyzing and monitoring physical fitness levels by measuring lung volume

spreadsheet—Software designed to store data (usually, but not always, numeric) by row–column positions known as cells; can also do calculations on the data

spyware—Software placed on a computer without the user's knowledge for the purpose of gathering information about them (usually to sell to marketing firms)

statistical software packages—Software tools that help with qualitative data collection and analysis of student performance on tests by performing the calculations involved in any of these kinds of procedures

storage media—Materials such as flash drives, CDs, and DVDs that are used to store programs and data outside the computer's hardware.

storyboard—A frame that serves as part of a planning blueprint from which a multimedia product or web page can be designed

streaming (or streamed) video/audio—A way of transmitting video or audio on the Internet so that it can be seen or heard as the file downloads

student information systems (SIS)—Networked software systems that help educators keep track of student, class, and school data (e.g., attendance, test scores) in order to maintain records and support decision making

student response systems (SRS)—(a.k.a., personal response systems, classroom response systems, or clickers) a combination of handheld hardware and software that permits each student in the classroom to answer a question simultaneously and lets the teacher see and display a summary of results immediately

switches—In a network, equipment to compress data in order for information to be transmitted at higher speeds [e.g., Asynchronous Transfer Mode (ATM) switches]; in special education, devices that allow a person with a disability an alternative to the typical keyboard and thus allow easier input to the computer

synchronous—Form of distance communications in which messages are sent and received immediately; contrasts with asynchronous communications, in which information and messages are left for the receiver to read later (See also asynchronous.)

systems approaches to instructional design—Methods originated by educational psychologists such as Robert Gagné and Leslie Briggs, who applied principles from military and industrial training to developing curriculum and instruction for schools; methods used to create a carefully designed system of instruction or instructional design

talking word processor—A software package that reads typed words aloud

Technological Pedagogical Content Knowledge (TPCK, TPACK, or Tech-PACK)—A framework that identifies a combination of essential skills/knowledge in three areas (content, pedagogy, and technology) that are required if teachers are to integrate technology to greatest effect in their teaching; termed Tech-PACK in this text.

technology education—A view of technology in education that originated with industry trainers and vocational educators in the 1980s and is currently represented by the International Technology Education Association (ITEA); holds that (1) school learning should prepare students for the world of work in which they will use technology, and (2) vocational training can help teach all content areas such as math, science, and language

Tech-PACK—(See Technological Pedagogical Content Knowledge.)

telecourses—A type of distance education where instruction is delivered via video, usually as a broadcast from one site to many sites

test generator—Software designed to help teachers prepare and/or administer tests

test item bank—Pre-made pools of questions that can be used by test generator software to create various versions of the same test

text messaging—An instant form of communications carried out on cell phones and can allow sending images and short videos, as well as text

TIF (Tagged Image File)—An image format designed to allow exchange of image files among various software applications and computers

track changes—An editing command in word-processing software that can be turned on from one of the program's drop-down menus to show changes as they are made to an original document; changes can either be accepted or rejected

Trojan horse—A type of computer virus offered to users as a helpful program but which is actually destructive; named after the giant wooden horse, ostensibly given as a gift from the Greeks to the Trojans (during the Trojan War), and in which Greek soldiers hid to enter the Trojan fortress under cover

tutorial—Type of instructional software that offers a complete sequence of instruction on a given topic, including explanation, examples, embedded practice and feedback, and usually, also assessment

tweening—(See morphing.)

universal app—App that that work on all platforms (e.g., on a Droid, iPad, iPod, and iPhone) (See also app.)

universal design—Adjustments made to physical environments as a result of understanding the special needs of individuals with disabilities, e.g., curb cuts in sidewalks to allow wheelchair access

URL (Uniform Resource Locator)—A series of letters and/or symbols that acts as an address for a site on the Internet

vicarious learning—Proposed by learning theorist Albert Bandura as learning that occurs through observation, rather than by actions

videoconferencing—An online "meeting" between two or more participants at different sites using: a computer or network with appropriate software; video cameras, microphone, and speakers; and telephone lines or other cabling to transmit audio and video signals

video editing software—Programs that allow a user to make additions and changes to a selection of digital video (e.g., iMovie)

video sharing—(See vodcast.)

virtual field trip—Online activities in which students explore unique locations around the world and/or communicate with learners at those sites; also known as electronic field trip

virtual manipulative—Software replicas of real objects often used in learning mathematics; are accessed via the Internet and can be manipulated through a keyboard or other input device

virtual reality (VR)—A computer-generated environment designed to provide a lifelike simulation of actual settings; often uses a data glove and/or headgear that covers the eyes in order to immerse the user in the simulated environment; representation of real or imaginary worlds in which the user interacts through multiple senses

virtual reality modeling language (VRML)—A programming language that allows the creation and display of three-dimensional objects on a computer screen and allows users to have the illusion of moving around the objects

virtual schooling—"Instruction in which (K-12) students and teachers are separated by time and/or location and interact via computers and/or telecommunications technologies" (National Forum on Education Statistics, 2006, p. 1)

virus—A program written with the purpose of doing harm or mischief to programs, data, and/or hardware components of a computer system (See logic bomb, Trojan Horse, worm.)

virus protection software—Software put into place to protect computers from hackers and virus attacks (See hacker, virus.)

vlog—A combination of the terms video and blogging, a video version of the blog in which posts are video clips instead of text entries

vocal processing software—Programs that are to voice audio what word processing software is to text; allows users to make changes to the pitch and create interesting vocal distortions with recorded voice tracks

vodcast—A term that combines "iPod," "video," and "broadcast," refers to digitized video files saved in a format that can be shared over the Internet on sites such as YouTube for playback on the computer or personal media devices site (See also podcast.)

Voice EXtensible Markup Language (VXML)—Programming language that helps create environments where a user interacts with the Internet through voice-recognition technology

VRML (Virtual Reality Modeling Language)—An authoring specification for displaying three-dimensional objects on the Internet

web accessibility—The level to which a website is designed following a set of criteria that make it usable by people with various disabilities

web-based learning (or lessons)—General terms for learning or learning activities that take place via the Internet

web-based programs—Completely online (on the Internet) courses and curriculum

web browser—(See browser.)

webcam—A video camera that is connected to a computer in order to gather local video for viewing at other locations

webcast—A live video broadcast of an event sent over the Internet

web design software—(See web page editors.)

web page editors—Authoring programs that allow creation of web pages in the same way word processing is used to create to create documents

webquest—A curriculum project in which students explore websites to find and analyze information on a topic

Web 2.0 authoring tools—Authoring tools that are freely available to anyone with an Internet connection and provide users with the powerful capabilities of generating and sharing online content, creating online portfolios, social networking, and tagging or rating other user-generated content

wiki—A collection of web pages located in an online community that encourage collaboration and communication of ideas by having users contribute or modify content; contain the ongoing work of many authors

wireframing—A stage of creating web pages or websites in which one draws on paper how the web site will appear, including tables, navigation, photos, and other details

word atlas—Electronic dictionaries and thesauruses that give pronunciations, definitions, and example uses for each word entry, and offer search and multimedia features similar to those of encyclopedias and atlases

worksheet—Another name besides "spreadsheet" for the product of a spreadsheet program

worksheet generator—Software tool that helps teachers produce exercises for practice (rather than for assessment) by prompting them to enter questions of various kinds

World Wide Web (WWW)—On the Internet, a system that connects sites through hypertext links; now often used synonymously with "Internet"

worm—A type of virus that makes copies of itself in order to use up a computer's resources and slow down or shut down the system

XML—Acronym for Extensible Mark-up Language, a language that describes the geometry and behavior of a virtual world or scene

zombie—A computer implanted with a program that puts it under the control of a someone without the knowledge of the computer user; usually used in combination with other, similar-infected computers to attack an organization's computer system and slow it down or shut it down

zone of proximal development (ZPD)—Term coined by learning theorist Vygotsky to refer to the difference between two levels of cognitive functioning: adult or expert and child or novice