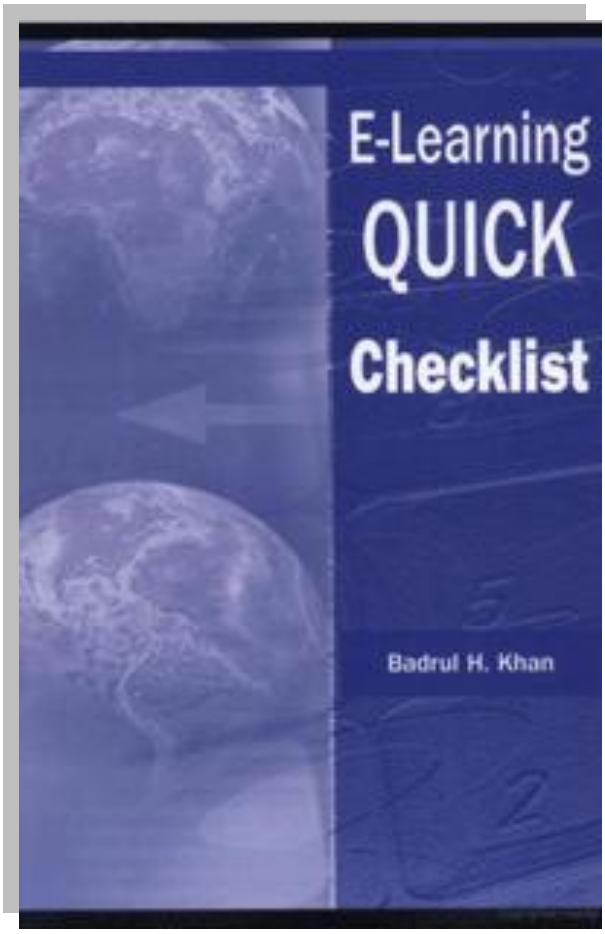
Role of Technology in Blended e-Learning



(Source: E-learning Quick Checklist by Badrul Huda Khan)

Infrastructure Planning

Does the institution have a technology plan that clearly describes the process of acquiring, maintaining, and upgrading hardware and software required for e-learning?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Check if the institution's networks system has any of the following characteristics of a stable, long-lived, and widely available technology infrastructure? (check all that apply):

- ❑ Scalable
- ❑ Sustainable
- ❑ Reliable
- ❑ Consistently available
- ❑ Other (specify)

Does the course have orientation programs that provide technical training to students before starting the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the institution have personnel who can assist learners in setting up their computers before starting the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Is the course Website hosted on course provider's own system?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *no*, check all that apply

- ❑ Hosted on a commercial system (with monthly fee)
- ❑ Hosted on an outside system (free of charge)
- ❑ Other (specify)

Does the course provide the following information about its institution's networks to learners?

- ❑ Bandwidth capacity
- ❑ Limitations of its networks
- ❑ Not applicable
- ❑ Other (specify)

Is there a "buddy system" established in the course so that learners will have at least one person who they can call to do some preliminary troubleshooting or just ask advice?

- ❑ Yes
- ❑ No
- ❑ Other (specify)

What happens to a pre-scheduled exam or chat when the server is down?

- ❑ Exam or chat is rescheduled
- ❑ Exam or chat is postponed until the server is up and running
- ❑ Exam is done offline
- ❑ Not applicable
- ❑ Not sure
- ❑ Other(specify)

How efficient was the course server in offering access to the course Web pages?

- ❑ Very efficient
- ❑ Efficient
- ❑ Fair
- ❑ Good
- ❑ Poor
- ❑ Not applicable
- ❑ Other (specify)

Does the course provide alternative off-line learning activities if the course server goes down?

- ❑ Yes
- ❑ No

Does the course provide toll-free numbers where students can dial to connect to the Internet/Web free of charge?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the course provide a list of Internet Service Providers (ISPs) that learners reported having encountered problems in accessing and using the course Website? (Note: An institution cannot recommend, endorse, or promote any specific ISP

best suited to the course requirement. Therefore, it cannot provide a list of Internet Service Providers best suited to the course requirement.)

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

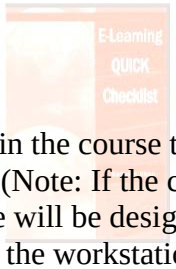
Does the course provide e-mail accounts to students?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, specify the storage space or disk quota per student:

If some students do not have enough computer expertise or skills to participate in the course, does the course offer any training sessions or direct students to appropriate resources so that they can get the necessary skills to fully participate in the various activities of the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)



Is a learner's full participation in the course tied to accessing the technological components at specific times? (Note: If the course requires students to participate in synchronous activities, there will be designated times when students need to be at their course workstations. If the workstation is at home and the student is at his/her office during those times, this becomes an issue. In some circumstances, it may be cost effective for students to use PDAs, tablet PCs or other devices. However, students should check whether PDAs and other devices can use the course if it is only designed for regular PCs.)

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are the minimum capabilities (e.g., browser, software compatibility, data transfer speeds) for an adequate Internet service provider specified in the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Is there any financial aid available for students to purchase the necessary technology required for the course?

- ❑ Yes
- ❑ No

❑ Not applicable

Check if any of the following individuals have any of the following digital literacy skills. Check all that apply:

Role of Individuals	Digital Technology Skills																							
	Browser			Search Engines			File Transfer (ftp)			Scanner			Digital Camera			Creating CDs			Terms and Jargon			Other		
	Yes	*No*	*NA*	*Yes*	*No*	*NA*	*Yes*	*No*	*NA*	*Yes*	*No*	*NA*	*Yes*	*No*	*NA*	*Yes*	*No*	*NA*	*Yes*	*No*	*NA*	*Yes*	*No*	*NA*
Learner																								
Instructor (full-time)																								
Instructor (part-time)																								
Trainer																								
Trainer Assistant																								
Tutor																								
Technical Support																								
Help Desk																								
Librarian																								
Counselor																								
Graduate Assistant																								
Administrator																								
Other (specify)																								

Has the institution created any reusable and shareable learning objects (LOs)?

❑ Yes
❑ No
❑ Not applicable

If *yes*, check all that apply

- ❑ Individuals within institution can use without permission (free of charge)
- ❑ Individuals within institution can use with permission (free of charge)
- ❑ Individuals outside the institution can use without permission (free of charge)
- ❑ Individuals outside the institution can use with permission (free of charge)
- ❑ Individuals outside the institution can use (with fees)
- ❑ Other (specify)

Are learning objects created following international interoperability standards?

❑ Yes
❑ No
❑ Not applicable

If *yes*, specify the standards (e.g. SCORM)

If appropriate, are all learning objects (i.e., smallest pieces of learning contents) available in the course reusable?

❑ Yes

- ❑ No
- ❑ Not applicable

Is there a search facility to search for various learning objects within the institution?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Can learning objects available in the institution be used by its own students for their projects?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, check all that apply:

- ❑ Can use without the permission from the institution
- ❑ Cannot use without the permission of the institution
- ❑ Can use with a fee
- ❑ Other
- ❑ Not applicable

Can learning objects available in the institution be used by outsiders?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, check all that apply:

- ❑ Anyone can use without the permission from the institution
- ❑ Cannot use without the permission of the institution
- ❑ Can use with a fee
- ❑ Other
- ❑ Not applicable

Is the cost of required hardware, software and the types of Internet connection (e.g., T1, DSL, cable modem, etc.) a deterrent to taking this course?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the institution have special arrangement with vendors to offer students with special prices for hardware and/or software?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, list below:

Hardware and Software	Vendor Name	Price

Are any disk quotas allocated for students in their accounts on the institution's server?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, can student request for increased disk quotas for special projects?

- ❑ Yes
- ❑ No
- ❑ Other (specify)

Are students given specific guidelines on how much computer expertise they need to have to participate in the course? (For example, a list of things they should know how to do on the Internet)

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are there time limits for how long learners can be logged on to the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Hardware

Are the hardware requirements clearly stated in the course?

- ❑ Yes
- ❑ No

Check for all hardware requirements. If appropriate, note the specifications for each component. (Note: In the specifications section of the table, you can add as much information as possible for each component. For example, for hard disk's *space*, specify how many gigabyte is required or recommended; for CD-ROM, specify the required or recommended *speed* 24x or 32x; for RAM, specify the required or recommended *memory size,* 32, 64, 128 or 256 MB; for monitor, specify the required or recommended *resolution* 640X480, 800X600 or 1024X768, etc.)

Hardware	Check if Required	Check if Recommended	Specifications
Computer and Peripherals			
CPU			
RAM			
ROM			
Hard disk			
Monitor			
Disk drive			
CD-ROM			
CD burner			
Sound card			
Speaker			
Microphone			
Camera			
Video card			
Modem			
DVD (Digital Versatile Disc)			
Ink-jet printer			
Laser printer			
Other (specify)			
Internet Connection			
Dial-in			
DSL (Digital Subscriber Line)			
Cable modem			
T1*			
T3*			
Ethernet			
Wireless connection			
Other (specify)			
Conferencing Tools			
Digital camera			
Video camera			
Other (specify)			
Other Tools			
Cell Phone			
Pager			
PDA (Personal Digital Assistant)			
eBook reader			
Screen reader			
Other (specify)			

* T1 (DS-1): High-speed digital data channel that is a high-volume carrier of voice and/or data. Often used for compressed video teleconferencing. T-1 has 24 voice channels. T-3 (DS-3): A digital channel that communicates at a significantly faster rate than T-1. A screen reader is a computer software that speaks text on the screen. Often used by individuals who are visually impaired (http://www.learningcircuits.org/glossary.html).

Does the course require learners to use any new hardware not originally listed in the technology requirement for the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, are the learners informed?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other

Check if learners receive training in any of the following. Check all that apply:

- ❑ How to operate a microphone
- ❑ How to talk on the microphone
- ❑ How to do audio conferencing on a PC
- ❑ How to do video conferencing on a PC
- ❑ Other (specify)
- ❑ Not applicable

Does the course provide for desktop videoconferencing or any other type of real-time interaction?

- ❑ Yes
- ❑ No
- ❑ Other (specify)
- ❑ Not applicable

Does the course provide links to resources where learners can learn more about required hardware and their pricing?

- ❑ Yes
- ❑ No
- ❑ Other (specify)
- ❑ Not applicable

Does the course provide any recommendations on best place(s) to buy various hardware components required for the course? (Note: Any such recommendations must be done without any bias or preference. A survey of learners on such issues can be conducted and the results can be posted on the course Website. Also, reviews of hardware from magazines can be useful in this regard. Neither the instructor nor the institution should endorse or promote any particular product. However, if a hardware company is a sponsor or has special arrangement with the institution to offer special prices for students, then it is a different issue.)

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course inform students about the video clips or streaming media[1] (if any) used in the course may not run effectively with a slow modem?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course allow learners to choose any of the following connection speeds for any streaming media used in the course? (Note: With most production software, one can output for different connection speeds. However, if various connection speed options are not provided, Powell (2001) recommends that designers stream media at a low data rate so that individuals with low connection speed can view it).

- ❑ 28.8 K
- ❑ 56K
- ❑ T1
- ❑ Not applicable

Software

Are the software requirements for the course clearly stated?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, indicate specific software name and check all that apply:

Software	**Software Name**	**Required For**			**Recommended For**			**NA**
		Learner	*Instructor*	*Other*	*Learner*	*Instructor*	*Other*	
Word Processor								
Email Package								
Presentation Program								
Spreadsheets								
Database								
Graphic Software								
eBook Reader Software								
Audio Video Editing Software								
Operating System								
Plug-ins								
Browsers								
Other (specify)								

[1] Streaming media (streaming audio or video): Audio or video files played as they are being downloaded over the Internet instead of users having to wait for the entire file to download first. Requires a media player program. (Source: http://www.learningcircuits.org/glossary.html#S)

Does the course add any new software not originally listed in the technology requirement for the course? (Note: Sometimes, instructor may add a new software after the course is started. This may not be well received by some students as it was not listed before.)

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, are the learners informed?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other

Are any browser "plug-ins" needed to use the pages?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, are they commonly used and free (such as Acrobat)?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If plug-ins are necessary, is there a link to download them?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the course provide links to resources where learners can learn more about required software and their pricing?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course provide any recommendation on the best place(s) to buy the required software for the course? (Note: Any such recommendations must be done without any bias or preference. A survey of learners on such issues can be conducted and the results can be posted on the course Website. Also, reviews of software from magazines can be useful in this regard. Neither the instructor nor the institution should endorse or promote any particular product. However, if a software company is a sponsor or has special arrangement with the institution to offer special prices for students, then it is a different issue.)

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course provide links to resources where all necessary software can be downloaded or purchased?

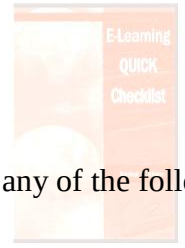
- ❑ Yes
- ❑ No
- ❑ Not applicable

If there are applets or other software to download, does the course specify operating system, memory, CPU and bandwidth requirements?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Check if the course provides any of the following interaction or communication mechanisms for students. (check all that apply):

- ❑ Chat
- ❑ E-mail
- ❑ MUD (Multi-User Dungeon or Dimension)[2]
- ❑ MOO (Mud, Object Oriented)
- ❑ Discussion Forum
- ❑ Newsgroup
- ❑ Whiteboard
- ❑ Other (describe below)



Is the course developed using any of the following software? (check all that apply):

- ❑ LMS
- ❑ LCMS
- ❑ Authoring software
- ❑ Other (specify)

If *yes*, check if the software is in compliance with any of the following standards. (check all that apply):

- ❑ Institute for Electrical and Electronic Engineers (IEEE)
- ❑ Instructional Management Systems (IMS)
- ❑ AICC (Aviation Industry CBT Committee)
- ❑ SCORM (Sharable Courseware Object Reference Model)
- ❑ All of the above
- ❑ Other (describe below)

Are there any criteria used to select LMS, LCMS or the authoring tool? (Note: An article entitled “Selecting a Learning Management System” is available at: http://www.e-learninghub.com/articles/learning_management_system.html. Also, a resources site entitled ”Selecting and Using Tools” is available at: http://www.e-

[2] http://www.pit.ktu.lt/HP/coper/kiev.new/cit/gloslz.htm#MUD

learningcentre.co.uk/eclipse/Resources/default-selecting.htm provides information about LMS, LCMS and authoring tools.).

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

If appropriate, check the functionality of LMS used at the institution. (Note: adopted from http://www.bctechnology.com/statics/pstacey-oct2601.html. Check all that apply:

- ❑ Schedules and registers learners into online and offline courses
- ❑ Keeps learner profile data
- ❑ Launches e-learning courses
- ❑ Tracks learner progress through courses
- ❑ Manages classroom based learning
- ❑ Provides learning administrators with the ability to manage learning resources including labs and classrooms (resource management)
- ❑ Supports learner collaboration
- ❑ Automates use of competency maps to define career development and performance paths (skills gap analysis)
- ❑ Creation of test questions and administration of test
- ❑ Performance reporting learning results
- ❑ Interconnectivity with Virtual Classroom (VC), LCMS and enterprise applications
- ❑ Other (specify)

If appropriate, check the functionality of LMS used at the institution. (Note: adopted from http://www.bctechnology.com/statics/pstacey-oct2601.html. Check all that apply:

- ❑ Content migration and management
- ❑ Content creation tools
- ❑ Workflow tools to manage content development process
- ❑ Learning object repository
- ❑ Organizing reusable content
- ❑ Content reuse and adaptive individualized learning paths based on learning objects
- ❑ Asynchronous collaborative learning including discussion groups
- ❑ Testing and certification
- ❑ Reporting of results
- ❑ Delivering content in multiple formats (online, print, PDA, CD-ROM, etc.)
- ❑ Providing content navigational controls (look and feel)
- ❑ Interconnectivity with Virtual Classroom, LMS and enterprise applications

Does the LMS, LCMS or other software used in creating the course work with newer versions of variety browsers?

- ❑ Yes
- ❑ No

- ❑ Not applicable
- ❑ Other (specify)

Does the institution use enterprise application software?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

If *yes*, can LMS, LCMS or authoring tool used for e-learning be integrated with the institution's enterprise software?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify

Instructional Strategies

A variety of instructional strategies can be used in e-learning to facilitate learning and help students achieve their own learning goals and objectives. The strategies used in an e-learning are based in part on the philosophical approach of the course. However, learners' preferences for specific instructional methods are influenced by their learning styles**.** Using multiple instructional activities can facilitate learning, and the technical and structural attributes of the Internet and digital technologies can be used to support these activities.

In this section, I discuss instructional strategies in terms of their usefulness in e-learning activities[3]. I also look at the Internet and digital technologies that can support these activities.

The instructional approaches and strategies included here are applicable to e-learning. However their use may depend on the type of learning domain (well-defined or ill-defined), the goals and objectives of the course, and the philosophical orientation of the course designers. One can argue that *debates* may make more sense in social sciences than in chemistry. Leshin, Pollock and Reigeluth (1992) stated, "Many instructional strategies may work; that is, they may eventually result in the desired learning. Our interest is in selecting optimal strategies—that is, strategies that work better than any others of which we are aware. To select methods, we must have some basis for selection" (p. 3). In an open, flexible and distributed environment, it is critical to provide learning materials in ways that are accessible to learners with a variety of learning styles.

The e-learning strategies presented in this chapter are not intended to be exhaustive. Instead, my intention is to provide some examples of learning strategies that can be incorporated into e-learning. The following e-learning strategies are discussed in the chapter:

- presentation
- exhibits
- demonstration
- drill and practice
- tutorials
- storytelling
- games
- simulations
- role-playing

[3] Please note that I maintain a resource Website entitled "E-Learning Methods and Strategies" at **http://BooksToRead.com/elearning/strategies.htm** which provides links to relevant Websites dealing with various strategies included in this section.

- discussion
- interaction
- modeling
- facilitation
- collaboration
- debate
- field trips
- apprenticeship
- case studies
- generative learning
- motivation

Presentation
A set of techniques for presenting facts, concepts, procedures, and principles. An e-learning presentation can be created using one or more online presentation modes such as text, graphics, photographs, audio clips, video clips, animations, PowerPoint slides, and video-conferencing. Supplemental (offline) materials such as print-based materials, audio, videotapes, CD-ROM, DVD, etc. can be mailed to learners. Online presentations should follow design principles such as keeping things simple, avoiding overcrowding the screen with text and other multimedia components, and ensuring that any presentations made with presentation software run smoothly in different hardware and software configurations.

Exhibits
Display objects and visuals for instructional purposes (Heinich, Molenda & Russell, 1993). In e-learning, digital exhibits can be aligned with instruction goals and objectives. Students can use digital exhibits in their projects, which can be an exciting and motivating learning experience for them.

National Gallery of Art Website at http://www.nga.gov/exhibitions/exhibits.htm hosts virtual art exhibits. The Library of Congress international gallery also hosts virtual exhibits at http://www.loc.gov/exhibits/world/earth.html

Demonstration
A method of showing or simulating how something works. Demonstrations can be used in e-learning in areas such as teaching procedures, indicating how to operate equipment, illustrating principles, and demonstrating interpersonal skills. Many illustrated demonstrations can be found at the popular Web site, ExploreScience.com (www.explorescience.com).

Drill and Practice
A learning activity that helps learners master basic skills or memorize facts through repetitive practice. It is most commonly used in teaching math facts, foreign languages, vocabulary (Heinich, Molenda & Russell, 1993), reading comprehension, basic science, middle-school history and geography (Newby, Russel, Stepich & Lehman, 1996). A Web-based drill-and-practice program can provide immediate feedback to learners'

responses to various problems presented to them. HTML, Javascript and other scripting languages can be used to create Web-based drill and practice.

Tutorial
A presentation-response-feedback format often used for presenting how-to procedures in the context of a worked example. Web-based tutorials tend to present content, pose questions or problems, ask learners to respond, and finally provide appropriate feedback. For example, Free Desktop & Office Tutorials on the Web can be found at: http://www.intelinfo.com/office.html, and a set of programming tutorials can be found at http://www.eng.uc.edu/~jtilley/tutorial.html.

Storytelling
A narrative technique that can be used effectively in e-learning for all cultures. In many cultures, storytelling is used as an educational learning strategy. Stories provide a memorable, compelling format for transferring information and discoveries (Brown, Collins & Duguid, 1989). McLellan (1999) states that stories are a form of "expert system" for remembering and integrating what we learn. Digital storytelling has become a common technique in e-learning. Mellon (1999) reports, "A growing literature on digital storytelling provides a broad definition of the term that incorporates all available multimedia tools—graphics, audio, video, animation, and Web publishing-into the telling of stories" (p. 46). The Center for Digital Storytelling (http://www.storycenter.org/) provides a clearinghouse of information about resources on storytelling and new media.

Games
Highly motivational instructional device to help learners improve various skills such as decision-making, problem-solving, interpersonal communication, leadership, and teamwork (Newby, Russel, Stepich & Lehman, 1996). In a game, learners follow prescribed rules to attain a challenging and compelling goal. Various Internet and digital technology tools can be used to create games. Thiagarajan & Thiagarajan (2001) uses Internet tools such as e-mail, chat-room, and discussion list to create Web-based games. The Play for Performance site (http://thiagi.com/pfp/IE4H/january2003.html) provides useful information about online games. Examples of game-based learning approach in e-learning can also be found at Games2Train.com (http://www.games2train.com).

Simulations
Artificial recreations of real-life situations (Gordon, 1994; Newby, *et al.,* 1996). In a simulated environment, learners can practice and make realistic decisions and explore the consequences of their decisions. E-learning can use simulations to improve learners' cognitive, affective, decision-making, and interpersonal skills. Pappo (2001) examines various aspects of design consideration of Web-based simulations.

Examples: The Website Medical Simulations site (http://www.medicalsimulations.com) provides online interactive continuing medical education case studies for physicians and nurses. The Website Rover Ranch: K-12 Experiments in Robotic Software (http://prime.jsc.nasa.gov/ROV/) is an interactive tool that allows students to design and test their own virtual robots.

Role Playing
Can be used to represent real situations that provide learners the opportunity to practice situations they face in the real world (Rothwell & Kazanas, 1992) or to empathize with decision makers, historical figures, and others. Learners can imagine that they are other people in different situations, then make decisions as situations change (Heinich, Molenda & Russell, 1993). Role-playing allows learners to learn social skills such as communication and interpersonal skills. In Web-based learning, simulated role portrayal can be facilitated through Multi-User Dialogue (MUD) environments where instructors create a multi-user space with a central theme, characters and artifacts (Bannan & Milheim, 1997).

The Website http://www.roleplaysim.org/demos/default.htm provides several examples of role play simulation.

Discussion
Allows learners to analyze information, explore ideas, and share feelings among themselves and their instructors. They can establish communication on the basis of shared interest, not merely shared geography (Harasim, 1993). A well-designed discussion forum in an e-learning course can create an active, interactive, and participatory learning environment. Participants in a discussion forum experience multiple perspectives on issues that encourage them to analyze and appreciate alternative ways of thinking. Therefore, participants in a well-designed discussion forum have the potential to become better critical thinkers.

Online discussions can be either *asynchronous* (communications are sent and received at different times) and *synchronous* (communications are sent and received at virtually the same time). Asynchronous text communication tools include e-mail, mailing lists, and newsgroups. Synchronous communication tools include messaging tools and audio- and videoconferencing tools.

In e-learning, learners can be engaged in asynchronous discussions in three different formats: moderated discussion forums, unmoderated discussion forums, and subject-related outside professional discussion forums.

In both synchronous and asynchronous discussions, students not only learn from their instructors, who provide content expertise and feedback during ongoing discussions, but also from each other's comments and feedback. Questions designed to generate and facilitate effective online discussion for instructional purpose should be planned (Berge & Muilenburg, 2000). The online environment designed in a way that promotes open communication while preventing abusive and other non-constructive criticism (Hill & Raven, 2000).

Learners should be reminded of the "code of civility for online discussions." The University of Maryland - University College maintains a useful Website on “Code of Civility and Advisor Confidentiality" (http://www.umuc.edu/studserv/civility.html).

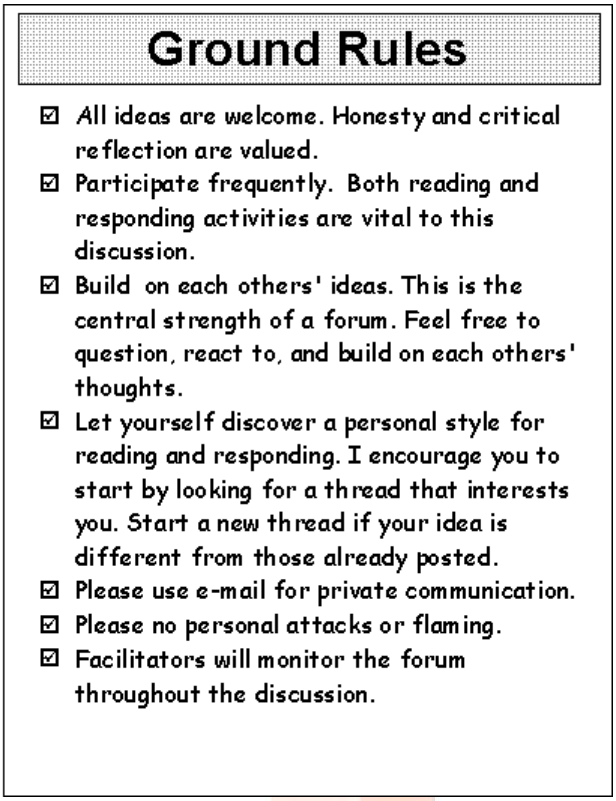
Without body language and eye contact in online text-based discussions, it is very easy for learners to feel isolated and become concerned about what others are thinking

(Boehle, 2000). Sometimes, miscommunication in the discussion forums can occur based on how one interprets the meaning of a particular communication. Communication is more open to misinterpretation. It is truism that people from diverse backgrounds will draw different conclusions from the same message. According to Lewis (2000), "Two people can receive the same communication and, as a function of coming from very different backgrounds, can reach two very different conclusions about the meaning of a particular communication" (p. 214).

Instructors/facilitators should be aware of the fact that there are some learners who may take a longer time to post or respond to a message on a discussion forum. Some students who cannot write clearly or quickly may thus be unable to participate actively in online discussion. Non-native speakers in particular may take longer than other students in posting and responding. However, all participants in the discussion forum should develop mutual respect and patience. Layton Montgomery (2000) at the University of Wollongong in Australia shares his observation about non-native speakers' in online asynchronous discussions:

> For instance, in English-medium classes, I keep hearing that non-native speakers are less likely to participate in face-to-face discussions, and especially Asian students. It is not that they have less to say, though. The medium is not as conducive to many of them to express their views. When discussion is online and asynchronous, though, these students have the time to consider what is being said more carefully, and respond without feeling embarrassed about their spoken English not being sufficient, and/or not having to worry about speaking out of turn or inappropriately interrupting somebody else. (eModerators discussion forum, Sub: public dialogue & learning, Dec.11, 2000)

Bailey and Luetkehans (2001) provide the following ground rules for a threaded discussion (both Bailey and Luetkehans have experience in facilitating online discussions in their academic courses at Northern Illinois University):



Many discussion forum members suggest that it is always a good idea to either link or add list etiquette and unsubscribe instructions at the end of each message posted. Muilenburg and Berge (2001) in their article, A framework for designing questions for online learning, provide a framework for designing the initial questions for starting online discussions and the follow-up questions for maintaining them. Discussion questions gathered from experienced online instructors are presented with the goal of preparing students and teachers to participate effectively in online discussions (http://www.emoderators.com/moderators/muilenburg.html).

Thiagarajan (2000) recommends, "Much of the feedback on learner assignments can be standardized and reprocessed. Facilitators can post general feedback on a Web page to reduce the time spent in providing individual feedback. Such feedback may include a list of major misconceptions revealed, sample answers with exemplary characteristics, and FAQs" (eModerators discussion forum, Sub: Class size, Dec 3, 2000).

If the learners are not familiar with how a discussion forum works, then a considerable proportion of both learners' and moderators' time will be spent on troubleshooting and technical problems instead of actual discussions of course topics. Therefore, it is necessary for all discussion participants to receive orientation on how to get ready for online discussions.

Interaction

Engagement theory based on online learning suggests that students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks (Kearsley & Shneiderman, 1999). Students can interact with each other, with instructors, and with online resources. Instructors and experts may act as facilitators. They can provide support, feedback, and guidance via synchronous communication (e.g., e-mail and mailing lists) and asynchronous communications tools (e.g., conferencing and messaging tools). Asynchronous communication allows for time-independent interaction whereas synchronous communication tools allows for live interaction (Khan, 1997a, 1998).

Depending on the pedagogical philosophy of the course design, both asynchronous and synchronous communication methods can be employed. However, course designers should consider their logistical, instructional and economic advantage and disadvantages (Hannum, 2001; Berge, Collins & Fitzsimmons, 2001). Instructors should develop skills for promoting online discussion, devising learning activities that work at a distance and encouraging interaction among the participants (Romiszowski & Chang, 2001). For both asynchronous and synchronous discussions, the instructor or moderator should gently enforce rules and decorum of the discussion forum while encouraging students to engage in vigorous discussions on their own.

Modeling
Instructional method through which learners improve their skills by observing and emulating a role model. Modeling provides learners with an example of the desired performance (Jonassen, 1999). It can help learners reach a desired level of performance, deeper understanding, and better grasp of the concept.

Various modeled performances can be used for e-learning activities, ranging from modeling behavior in electronic communication environments to providing samples of relevant coursework. In a Web-based course, posting by instructor of sample interactions, assignments, and projects can provide the necessary modeling for expectations of course requirements (Bannan & Milheim, 1997). "Expert modeling" involves an expert showing how particular problems are solved or how particular situations are handled.

Facilitation
Mentors' and instructors' activities that serve to guide students, direct discussions, suggest possible resources, and field questions (Bannan & Milheim, 1997). In e-learning, facilitation can be provided using various tools such as e-mail, mailing lists, discussion forums, and conferencing tools. Frequent and consistent feedback in the online learning can stimulate active engagement by techniques such as questioning assumptions, disagreeing with certain points, and pointing out well-analyzed points (Bischoff, 2000). In the online discussion, the facilitator can ask students questions, suggest alternative perspectives to consider and extend their ideas.

We should not confuse "facilitator" with "moderator." A *moderator* follows the guidelines established by the institution (see *etiquette* and *legal issues* sections in Chapter 6). The following excerpts posted by DiannaMB on the eModerator mailing list distinguish moderators and facilitators:

> My background has been in building and maintaining communities. As such, I've acted as a facilitator, not a moderator. The difference, in my experience, is this: facilitators nurture and grow a community, while moderators police it. To take this one step further – facilitators work for the community (as a servant-leader) and let the community members themselves take ownership of the community under established guidelines (even trusting the community to help establish those guidelines). Moderators, on the other hand, take ownership of the community and act as the overseer – establishing guidelines and expecting them to be followed in a very structured way. (eModerators@egroups.com, Sat, 30 Dec 2000)

Williams, Watkins, Daley, Courtenay, Davis & Dymock (2001) conducted a research study with five faculty members who were part of a cohort research group and who facilitated in an online cross-cultural (cross-international and cross-cultural diversity) environment. Their research noted that, when the instructors facilitated in a cross-cultural online environment, challenges were intensified and expanded beyond the general issues of cultural context.

Collaboration

Allows learners to work and learn together to accomplish a common learning goal. In a collaborative environment, learners can develop social, communication, critical thinking, leadership, negotiation, interpersonal, and cooperative skills by experiencing the perspectives of other group members. The Web offers extensive opportunities for collaborative learning (Harasim, 1990).

Two types of collaboration can be implemented on the Internet: *inside collaboration* and *outside collaboration*. Inside collaboration provides a supportive environment for asking questions, clarifying directions, suggesting or contributing resources, and working on joint projects with class members. Outside collaboration provides for the integration of external personnel and resources, such as speakers, guest lecturers, and Websites, in course activities (Bannan & Milheim, 1997). E-mail, discussion forums, and conferencing tools can be used to facilitate either kind of collaboration.

Debate

Can be used in e-learning to create an authentic learning environment. Debates on controversial issues can help learners engage in a meaningful learning experience. Debate requires that learners select a position and develop an argument to defend it. Debate topics should be based on issues closely related to course content. Debates in e-learning should be designed to promote an open, tolerant, honest exchange of ideas. In debates, arguments should be carried out in accordance with the agreed-upon rules set by the course. Graphics, photographs, audio, video, and discussions can be integrated into debates. Learners can write their own opinions and learn about others'.
A Website entitled "Cultural Debates" (http://www.teachtsp2.com/users/temp/cdonline/index.html) allows students to discover connections and differences between a rainforest society, their own culture, and other communities of students.

Field Trips
An activity that allow learners to explore places or things to which they would otherwise not have access (Khan, 1997a). Field trips through the Web allows the instructor to provide students with a guided tour to a city, park, or business Website as if the instructor were taking students on a field trip (Badger, 2000). In e-learning, students should be provided with themes and objectives for the field trips so that they can gather appropriate information as part of their assigned tasks.

Tramline Virtual Field Trips (http://www.field-trips.org) site has created a range of field trips on nature topics. These trips are particularly well suited to classroom use, and provide teacher's objectives and resources for each trip.

Apprenticeship
Apprenticeship offers learners the chance to observe, model, and interact with mentors or experts for particular learning tasks. The conferencing and collaboration technologies of the Web bring students into contact with authentic learning and apprenticing situations (Bonk & Reynolds, 1997). The apprenticeship method in e-learning can help create an ongoing dialogue between mentors and learners that in turn can help learners gain greater knowledge and skill in the area of their interests.

GLOBE, for example, a worldwide education and science program for primary and secondary schools, makes use of the apprenticeship approach (http://www.globe.gov/) using various Internet tools and digital technologies.

Case Studies
Real or hypothetical situations developed in depth for use in an e-learning course in order to engage learners in realistic problem-solving tasks. Cases can encourage discussion about best practices and problem-solving strategies, and can be based on the actual situations that learners are likely to encounter when they become practitioners (Brown, Collins, and Duguid, 1989). These cases should, of course, be aligned with the learning goal(s) of the course in order for learners to benefit from them.

Links to various case study sites on the Internet can be found at Case Studies in Science (http://ublib.buffalo.edu/libraries/projects/cases/webcase.htm).

Generative Learning
Originally designed to improve reading comprehension, the generative-learning model suggests that students achieve comprehension of new material in two phases. First, they create relationships within new material. Second, they build connections between the new information and their existing knowledge, restructuring their knowledge in the process "Generative" refers to the generation of new understanding, and in the generative-learning model, learning is always active. Generative-learning is most effective when students have intrinsic motivation, use metacognitive (self-regulating) skills to monitor their progress, and attribute learning to their own effort (Peal, in press).

The model informs a large set of practical techniques for comprehending and integrating new information. To comprehend new information, students can identify text features (title, headings), make predictions, ask questions, draw diagrams, write summaries, and

elaborate upon what they read. To aid the integration of this new information into the memory structures that make up their prior knowledge, students can think of examples, make inferences, devise applications (uses of the new material), demonstrate their new knowledge, and create metaphors and analogies that capture the gist of the new material and relate it to prior, or common, knowledge.

Generative learning requires opportunities for students to use new information actively. These opportunities can take the form of a teacher's prompts for a student to generate connections within new information and between new information and prior knowledge, or they can take the form of questions and activities developed as part of Web-based lessons. Designing for generative learning requires that students be given, for example, the opportunity to ask themselves questions before, during, and after study; to summarize and elaborate upon what they read; and represent the new knowledge through metaphors, analogies, and diagrams.

For a review of the extensive literature on generative learning, see Grabowski (1996). For Web resources, see Martin Ryder's collection of helpful links at http://carbon.cudenver.edu/~mryder/itc_data/idmodels.html#generative.

Motivation

E-learning courses should be designed to motivate students so that they can enjoy their learning experience on the Web and complete their assignments on time. Motivation can be encouraged within any instructional method discussed above. Cornell and Martin (1997) advise course designers to provide a variety of stimuli, varied strategies, and diverse sources of media formats. The e-learning environment should create a positive first impression, be readable, use graphics and pictures that are relevant and useful, provide cues to the learners, and stimulate early interest so that students will be more likely to complete the course. In online asynchronous discussions, an instructor's timely feedback assures learners that they are focusing on their learning, which in turn serves as motivational and beneficial factors to their learning processes (Bischoff, 2000). Also, when the course does not require students to participate on frequent and scheduled online discussions and other online activities (e.g., quizzes), they may procrastinate, which in turn may affect their motivation.

In a pair of national surveys on the state of online leaning, Bonk (2001, 2002) found that most courses are pedagogically void. Fairly high attrition rates are due to the lack of motivating and engaging materials. There is thus a dire need to create online materials and courses that engage learners in interactive and meaningful learning activities instead of merely turning the electronic pages (Dennen, 2001). Based on a series of research studies, practical experience, and a review of the literature on motivation, Dennen and Bonk (in press) identified ten key elements for motivating online learners:

1. *Tone/Climate*, which is set at the beginning of the course and should engage students and explain expectations as well as enable students to share ideas and personal information.

2. *Feedback*, which helps students know if they are meeting course expectations and to relate alternative points of view.
3. *Engagement,* which involves making learners active participants and contributors and excites them into the online environment.
4. *Meaningfulness,* which can be achieved through use of real-world examples and making connections between course material and students lives.
5. *Choice,* which involves providing learners with options or alternatives and a sense of control over the learning environment, such as conference tracks for discussions.
6. *Variety,* which typically is related to providing different learning activities to keep learners interested and attentive.
7. *Curiosity,* which should be cultivated through elements of surprise, novelty, and intrigue and is encouraged by course extensions and outside perspectives.
8. *Tension*, a positive term here, which can encourage debate, dissonance, conflict, and the sharing of multiple perspectives; in effect, there is a sense of not knowing something or having a difference of opinion.
9. *Peer interaction*, which is a method to encourage students to exchange ideas, provide feedback, participate in the course, and review each other's work through which students frequently judge their own progress and come to feel a part of a learning community.
10. *Goal-driven*, which refers to a student's motivation to participate in a course in order to complete a task, activity, product, or problem and thus feel a sense of accomplishment and personal pride; as a result, the learning activities should be clearly aligned to the course goals.

The discussion of various e-learning methods and strategies in this chapter can help us select appropriate strategies for various parts of an e-learning course. It is always important to identify appropriate methods to enhance learning. We may find several methods appropriate for a specific e-learning content, but we should select the method that best serves our target audience (i.e., learners) within our technological and financial capabilities.

Learning Strategies[4]

Does the course have online presentation(s)?

[4] Please note that I maintain a resource Website entitled "E-Learning Methods and Strategies" at **http://BooksToRead.com/elearning/strategies.htm** which provides links to relevant Websites dealing with various methods and strategies included in this section.

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were online presentations (check all that apply)?

Role of Individual	Performance Level				
	Excellent	*Good*	*Fair*	*Poor*	*NA*
Instructor					
Guest Speaker					
Students					
Other (specify)					

Are any of the following multimedia components, Internet tools, and supplementary materials used in presentations? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in presentations.(check all that apply):

Presentation	Instructional Effectiveness					Technical Effectiveness				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course have virtual exhibits?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were virtual exhibits used in the course?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are all visuals and objects used in the digital exhibits organized with the clear description?

- ❑ Yes
- ❑ No

- ❑ Not applicable
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in exhibits? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-User dialogues
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books, articles, etc.)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the instructional exhibits. (check all that apply):

Exhibits	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										

Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide online demonstrations sessions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the demonstration sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in instructional demonstrations? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail

- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books, articles, etc.)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the demonstration sessions. (check all that apply):

Demonstration	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer Conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										

Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide online drill and practice sessions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the drill and practice sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following Multimedia components, Internet tools, supplementary materials used in drill and practice? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books, articles, etc.)

❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the drill and practice sessions. (check all that apply):

Drill and Practice	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide online tutorial sessions?

❑ Yes

❑ No

❑ Not applicable

If *yes*, how effective were the tutorial sessions?

❑ Very effective

- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in tutorial? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in tutorials. (check all that apply):

Tutorial	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										

Animation											
Video											
Other (specify)											
Internet tools											
E-mail											
Mailing lists											
Newsgroups											
Bulletin boards											
Chat											
Messaging											
Multi-user dialogues											
Computer conferencing											
Outside Website links											
Weblog (Blog)											
Wiki											
Podcasting											
Microblog (Twitter)											
Other (specify)											
Other (specify)											
Supplementary materials											
CD-ROM											
DVD											
Videotape											
eBook											
Print (books/articles)											
Other (specify)											

Does the course use story-telling technique?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective was the story-telling technique?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in storytelling? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail

- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in instructional storytelling. (check all that apply):

Storytelling	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										

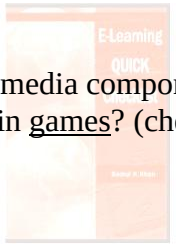
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Blog										
Wiki										
Other (specify)										

Does the course use online games?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the games sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)



Are any of the following multimedia components, Internet tools, and supplementary materials used in games? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape

- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the game sessions. (check all that apply):

Game	Instructional Effectiveness					Technical Effectiveness				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Blog										
Wiki										
Other (specify)										

Does the course use online simulation?

- ❑ Yes
- ❑ No

❑ Not applicable

If *yes*, how effective were the simulations sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in simulations? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in simulations. (check all that apply):

Simulation	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										

Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide role-playing sessions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If yes, where simulated role portrayals are facilitated through:

- ❑ Multi-User Dialogue (MUD) environments, in which instructors create an virtual space with a central theme, characters, and artifacts.
- ❑ Problem-based case studies
- ❑ Other (specify below)

How effective were the role-playing sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Not applicable
- ❑ Other (specify below)

Are any of the following multimedia components, Internet tools, and supplementary materials used in role-playing? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the role-playing. (check all that apply):

Role-Playing	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										

Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide online asynchronous discussion sessions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the online asynchronous discussion sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Does the course provide online synchronous discussion sessions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the online synchronous discussion sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in discussions? (check all that apply):

I. Multimedia components

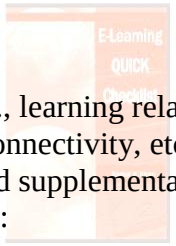
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation

- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)



Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the discussion sessions. (check all that apply):

Discussions	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										

Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course instructor/facilitator post ground rules for discussion forum?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course instructor/facilitator intervene when conflicts get personal in the discussion forum?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the instructor or facilitator start the synchronous discussion session on time? (Note: if facilitator is late, learners may log off. In face-to-face classes learners may wait few a minutes or look for the instructor around the building, but online that may not happen. It should be noted that synchronous sessions sometimes may not start on time due to technical difficulties).

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are asynchronous discussion topics used in the course relevant to the goals and objectives of the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are synchronous discussion topics used in the course relevant to the goals and objectives of the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course require students to participate in scheduled online discussion?

- ❑ Yes

- ❑ No
- ❑ Not applicable

Does the course give students an opportunity to serve as online discussion leaders?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the instructor/facilitator send private e-mail to those who are not participating in ongoing discussions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the instructor/facilitator send private e-mails to those whose messages appear to flame others on the list?

- ❑ Yes
- ❑ No
- ❑ Not applicable

How does instructor/facilitator communicate with individuals whose messages appear to flame others on the list? (check all that apply):

- ❑ Private e-mail
- ❑ Telephone
- ❑ Online chat
- ❑ Online discussion
- ❑ Letter
- ❑ Other (specify)

Does the instructor/facilitator send private e-mails to those whose writings on the list may be improved?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the instructor/facilitator posts encouraging messages on the list for students whose posts were thoughtful and relevant to the topic?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are learners advised to use a word processor in preparing their postings for discussion forums? (Note: I encourage my students to use the word processor for

preparing their discussion form responses and save them in their hard drives. This way they can check spelling errors and grammar before posting on the discussion forum. In case of server failures, they can always retrieve their postings from their hard drives. However, some might argue that worrying about errors and typos can greatly inhibit students and waste their time.)

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Do students receive guidance on writing and online behavior on the discussion forums?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If yes, check all that apply:

- ❑ How to write effective posting on the discussion forums
- ❑ How to compose a response
- ❑ How to behave (netiquette) on the discussion forum
- ❑ Other

Are students encouraged to read and comment on each others' postings on online discussion?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the instructor respond to students' postings on the forum?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, check all that apply:

- ❑ Instructor responds to each student's posting.
- ❑ Instructor only responds to those postings where students ask for instructor/s attention.
- ❑ Instructor only responds to those postings to which response seems appropriate, in the instructor's judgment.
- ❑ Instructor does not respond to students posting on the discussion forums.

Does the instructor post online discussion topics on set dates (or scheduled time)?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are students required to submit discussion topics for class discussion?

- ❑ Yes
- ❑ No
- ❑ Recommended not required
- ❑ Not applicable
- ❑ Other

Are students expected to assume a leadership role in moderating specific discussion topics at some time during the course?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the instructor summarize and analyze the discussion at the end of each discussion topic?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the instructor intervene appropriately when online discussions go in the wrong direction?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the instructor/moderator encourage students to keep their posts brief and relevant to the discussion topic?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Is the course discussion forum easy to use?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Do students receive training in the use of the discussion forum?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course require or recommend students to subscribe to course relevant discussion forums?

- ❑ Yes
- ❑ No

❑ Not applicable
If *yes*, check all that apply:

Subscription	Required	Recommended
Class listserv		
Professional organizations' discussion lists		
Other (specify)		

Does the course instructor (or facilitator) signal the end of the on-going discussion by summarizing the discussion?
❑ Yes
❑ No
❑ Not applicable

Is the instructor (or facilitator) sensitive about potential information overload from the large flow of text generated from discussion forum?
❑ Yes
❑ No
❑ Not applicable
If *yes*, any preventive measures considered (please specify)

Does the course have a system of archiving synchronous discussions? (Note: This type of archive will be useful for students who cannot participate in live chats or who missed the live online discussion sessions. There are software that allow both voice and chat to be archived: http://www.horizonlive.com)
❑ Yes
❑ No
❑ Not applicable

Do the synchronous online discussion sessions provide for breaks (e.g., lunch breaks and periodical breaks)?
❑ Yes
❑ No
❑ Not applicable
If *yes*, are they time zone sensitive?

How many participants are allowed to chat at the same time in synchronous environments? (It can be difficult to create effective live discussion sessions with too many learners actively participating.)
❑ Less than 10
❑ 10 – 20
❑ 21 – 30
❑ 31 – 40
❑ 41 – 50
❑ Not applicable

- ❑ Other

Are learners expected to do any asynchronous homework assignment before participating in a synchronous online discussion sessions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are learners expected to have any specific materials in front of them during synchronous online discussion sessions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, check all that apply:

- ❑ Reading materials
- ❑ Calculator
- ❑ PowerPoint slides
- ❑ Notebook
- ❑ Not applicable
- ❑ Other (specify)

Does the course incorporate interaction as an instructional method?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the interactive sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in interactive sessions? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards

- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in discussion sessions. (check all that apply):

Interaction	Instructional Effectiveness					Technical Effectiveness				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course encourage students to make comments on each other's assignments in the online discussion?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course encourage students to set up their own peer study groups?

- ❑ Yes
- ❑ No

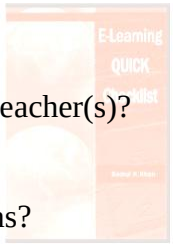
- ❑ Not applicable

Is learner-learner interaction encouraged in the course?
- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course supports interactions through use of any of the following (check all that apply)?
- ❑ Peer evaluation
- ❑ Help sessions
- ❑ Collaborative projects
- ❑ Online study groups
- ❑ Not applicable
- ❑ Other (specify)

Is the course interactive?
- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, check all that apply:
- ❑ Among students?
- ❑ Between students and teacher(s)?
- ❑ With online resources?



How effective were interactions?
- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Not applicable

Does the course incorporate <u>modeling</u> as an instructional method?
- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, <u>modeling</u> is facilitated by:
- ❑ modeling behavior in electronic communication environments
- ❑ providing samples of relevant coursework
- ❑ providing guidance for interactions in simulated environments such as MUDs (Multi-User Dialogues)
- ❑ Other (specify below)

How effective were the <u>modeling</u> sessions?
- ❑ Very effective
- ❑ Moderately effective

- ❑ Not effective
- ❑ Not applicable
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in modeling? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in modeling sessions. (check all that apply):

Modeling	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										

Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
eBook										
Print (books/articles)										
Other (specify)										

Does the course use the instructional method of facilitation by providing guidance to students, directing discussion, suggesting possible resources, fielding questions, etc?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, please check all that apply:

Through asynchronous communication tools such as:

- ❑ E-mail
- ❑ Discussion forums
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Web-based threaded discussions
- ❑ Not applicable
- ❑ Other (specify below)

Through synchronous communication tools such as:

- ❑ Chat room
- ❑ Multi-user dialogues (MUDs)
- ❑ Audio conferencing
- ❑ Video conferencing
- ❑ Not applicable
- ❑ Other (specify below)

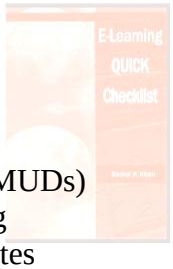
How effective were the facilitation sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Not applicable
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in facilitation? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)



III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials used in the service of course facilitation. (check all that apply):

Facilitation	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										

Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
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Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the facilitator help learners focus on relevant issues in the discussion forums?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the facilitator encourage learners to ask questions?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the facilitator arouse interest and curiosity among learners?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the facilitator encourage learners to elaborate their responses on issues discussed on the discussion forum?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the facilitator encourage learners to reflect and self-evaluate?
- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the facilitator provide a list of experts with whom learner can communicate via e-mail to solicit expert opinions on issues related to their course projects?
- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the facilitator provide customized responses for individual inquiries?
- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course provide a list of Frequently Asked Questions (FAQs) to handle questions that are asked over and over again?
- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course direct learners to explore external sites where they can analyze and compare materials? (Note: Such exploratory activities allow learners to make the materials relevant to their own needs, and increase their motivation level.)
- ❑ Yes
- ❑ No
- ❑ Not applicable

Indicate the facilitator's level of involvement in facilitating online learning activities throughout the course?
- ❑ High-level involvement
- ❑ Middle-level involvement
- ❑ Low-level involvement
- ❑ Not applicable

Does the course promote inside collaboration by providing a supportive environment for asking questions, clarifying directions, suggesting or contributing resources, and working on joint projects with class members?
- ❑ Yes

- ❑ No
- ❑ Not applicable

If *yes*, please check all that apply:

Through asynchronous communication tools such as:

- ❑ E-mail
- ❑ Discussion forums
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Web-based threaded discussions
- ❑ Collaborative work tools that allow for shared screens
- ❑ Not applicable
- ❑ Other (specify below)

Through synchronous communication tools such as:

- ❑ Chat room
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Other (specify below)

How effective were the <u>inside collaboration</u> techniques?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Not applicable
- ❑ Other (specify)

Does the course promote <u>outside collaboration</u> by involving external personnel and resources (speakers, guest lecturers, web sites, etc.) to participate in course activities?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, please check all that apply:

Through asynchronous communication tools such as:

- ❑ E-mail
- ❑ Discussion forum
- ❑ Newsgroup
- ❑ Bulletin board
- ❑ Other (specify below)

Through synchronous communication tools such as:

- ❑ Chat room
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Other (specify below)

Does the course have guest speakers? (Note: The course instructor or facilitator should ask learners to prepare their questions in advance and limit the number of questions so that the guest is not overwhelmed with questions.)

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, please check all that apply:

- ❑ Information is provided for the number of times for each occasion on which the guest speaker(s) will be available for synchronous discussion
- ❑ Information is provided for the period that the guest speaker(s) will be available for synchronous discussion
- ❑ Information about the guest speakers' contribution is clearly indicated
- ❑ Other (specify)

How effective were the outside collaboration techniques?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Not applicable

Are any of the following multimedia components, Internet tools, and supplementary materials used in <u>collaborative</u> sessions? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)

❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in collaborative sessions. (check all that apply):

Collaboration	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course use debates as instructional activities?

❑ Yes

❑ No

❑ Not applicable

If *yes*, how effective were the online debate sessions?

❑ Very effective

- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in debates? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the debate sessions. (check all that apply):

Debate	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										

Animation											
Video											
Other (specify)											
Internet tools											
E-mail											
Mailing lists											
Newsgroups											
Bulletin boards											
Chat											
Messaging											
Multi-user dialogues											
Computer conferencing											
Outside Website links											
Weblog (Blog)											
Wiki											
Podcasting											
Microblog (Twitter)											
Other (specify)											
Other (specify)											
Supplementary materials											
CD-ROM											
DVD											
Videotape											
eBook											
Print (books/articles)											
Other (specify)											

Do learners receive any guidelines in any of the following critical elements of debates? Check all that apply?

- ❑ How to engage in an open, honest exchange of ideas
- ❑ How to engage in group interaction
- ❑ How to think critically
- ❑ How to express personal views effectively
- ❑ How to be tolerant
- ❑ How to resolve conflicts among debate participants
- ❑ Other (specify)

Does the course use virtual field trips as an instructional method?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the online field trips?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Does the course provide students with a travel agenda and timetable for their online field trip?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are any of the following multimedia components, Internet tools, and supplementary materials used in field trips? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Blog
- ❑ Wiki
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the field trip sessions. (check all that apply):

Field Trips	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										

Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide students with specific guidelines for what they should accomplish through their field trip experience?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course require students to submit summaries of their field trip report?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Are students required to discuss their field trip experience on the discussion forum?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course use apprenticeship as an instructional method (i.e., guidance by an outside expert for a particular learning task)?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, please check all that apply:

Through asynchronous communication tools such as:

- ❑ E-mail
- ❑ Discussion forums
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Web-based threaded discussions
- ❑ Not applicable
- ❑ Other (specify below)

Through synchronous communication tools such as:

- ❑ Chat room
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Blog
- ❑ Wiki
- ❑ Other (specify below)

How effective were the apprenticeship sessions?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Not applicable
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in apprenticeship activities? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging

- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Blog
- ❑ Wiki
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials used to create in the apprenticeship sessions. (check all that apply):

Apprenticeship	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										

DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course use case studies?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the case studies?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in case studies? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Blog
- ❑ Wiki
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in the case study sessions. (check all that apply):

Case Studies	Instructional Effectiveness					Technical Effectiveness				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide activities through which learners can generate understandings of course content? (Note: Generative learning can be supported by many different learning strategies.)

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, for a course or unit, check the generative strategies used (check all that apply):

- ❑ Demonstrate comprehension of the facts, concepts, etc.
- ❑ Make predictions
- ❑ Paraphrase
- ❑ Summarize
- ❑ Elaborate
- ❑ Make inferences
- ❑ Devise applications (uses)
- ❑ Create metaphors or analogies
- ❑ Think of examples
- ❑ Diagram or visualize the structure of the new content
- ❑ Other (specify)

Does the course present the learner with authentic problem-solving activities in which the learner must make decisions and experience consequences?

- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, please describe how problems are presented and solved:

How effective were the generative learning methods?

- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Not applicable
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used in generative learning? (check all that apply):

I. Multimedia components

- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools

- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)

- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Blog
- ❑ Wiki
- ❑ Other (specify)

III. Supplementary materials

- ❑ CD-ROM
- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials in any activities that involve generative learning sessions. (check all that apply):

Generative Learning	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										

Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course provide stimulating recall of prior knowledge?
- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course incorporate motivation as an instructional method?
- ❑ Yes
- ❑ No
- ❑ Not applicable

If *yes*, how effective were the motivation sessions?
- ❑ Very effective
- ❑ Moderately effective
- ❑ Not effective
- ❑ Other (specify)

Are any of the following multimedia components, Internet tools, and supplementary materials used to motivate students? (check all that apply):

I. Multimedia components
- ❑ Text
- ❑ Graphics
- ❑ Audio
- ❑ Animation
- ❑ Video
- ❑ Other (specify)

II. Internet tools
- ❑ E-mail
- ❑ Mailing lists
- ❑ Newsgroups
- ❑ Bulletin boards
- ❑ Chat
- ❑ Messaging
- ❑ Multi-user dialogues (MUDs)
- ❑ Computer conferencing
- ❑ Links to outside Websites
- ❑ Blog
- ❑ Wiki
- ❑ Other (specify)

III. Supplementary materials
- ❑ CD-ROM

- ❑ DVD
- ❑ Videotape
- ❑ eBook
- ❑ Print (books/articles)
- ❑ Other (specify)

IV. Other (specify below)

Evaluate the *instructional* (e.g., learning related) and *technical* (e.g., bandwidth, file size, production quality, connectivity, etc.) effectiveness of the multimedia components, Internet tools, and supplementary materials used in motivating students. (check all that apply):

Motivation	**Instructional Effectiveness**					**Technical Effectiveness**				
	Excellent	*Good*	*Fair*	*Poor*	*NA*	*Excellent*	*Good*	*Fair*	*Poor*	*NA*
Multimedia components										
Text										
Graphics										
Photographs										
Audio										
Narration										
Animation										
Video										
Other (specify)										
Internet tools										
E-mail										
Mailing lists										
Newsgroups										
Bulletin boards										
Chat										
Messaging										
Multi-user dialogues										
Computer conferencing										
Outside Website links										
Weblog (Blog)										
Wiki										
Podcasting										
Microblog (Twitter)										
Other (specify)										
Other (specify)										
Supplementary materials										
CD-ROM										
DVD										
Videotape										
eBook										
Print (books/articles)										
Other (specify)										

Does the course address the concern for learner dissonance or anxiety? (Note: Learners' anxiety can be caused by the conflict between their beginner role, their lack of experience with Internet learning technologies, and their view of traditional learning systems, as indicated by Aggarwal, 2000. It is always good to discuss learner dissonance issues during orientation or introductory session of the course.)

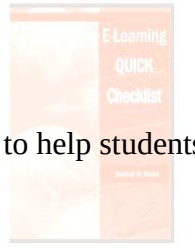
- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the course provide for the motivational factors such as fantasy and challenge, where appropriate?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course consider the situational and topical interest factors of cognitive motivation?

- ❑ Yes
- ❑ No
- ❑ Not applicable



Does the course provide ways to help students who are unmotivated about e-learning?

- ❑ Yes
- ❑ No
- ❑ Not applicable

At the beginning, does the course set appropriate tone/climate in order for students to feel comfortable in sharing their ideas and personal information?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Do students receive ongoing feedback on their performance in various learning activities?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course encourage students to actively participate and contribute in online learning activities?

- ❑ Yes
- ❑ No

- ❑ Not applicable
- ❑ Other (specify)

Does the course use real world examples for students to make connections between course material and their lives?

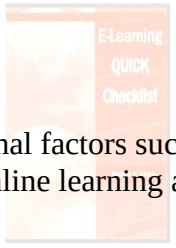
- ❑ Yes
- ❑ No
- ❑ Not applicable

Does the course provide students with choice (such as options or alternatives and a sense of control over the learning environment)?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the course provide students with variety of learning activities to keep them interested and attentive?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)



Does the course use motivational factors such as surprise, novelty, and intrigue to keep students curious about online learning activities?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the course encourage students to exchange ideas, provide feedback on each other's work?

- ❑ Yes
- ❑ No
- ❑ Not applicable
- ❑ Other (specify)

Does the course provide examples and non-examples of new concepts and principles for the learners to make comparisons?

- ❑ Yes
- ❑ No
- ❑ Not applicable

Identify appropriate methods for various lessons or units of the course. Check all apply:

Strategy	Lesson Name	Content Description
Presentation		
Exhibits		
Demonstration		
Drill and Practice		
Tutorials		
Storytelling		
Games		
Simulations		
Role-playing		
Discussion		
Interaction		
Modeling		
Facilitation		
Collaboration		
Debate		
Field Trips		
Apprenticeship		
Case Studies		
Generative learning		
Motivation		
Other (specify)