Connecticut
Community
Colleges

Distance Education Course Design: Guidelines for Student Success

This document is to be used as a guide by individuals who are developing <u>online</u>, <u>hybrid,</u> or <u>web-enhanced</u> courses or redesigning existing courses.

Project Introduction

This document was developed by the Connecticut Community College System's **Teaching & Learning Team**, which is principally concerned with ensuring that instructors using Blackboard are cognizant of instructional best practices concerning online teaching and learning guidelines. The T&L team is charged with the following tasks:

- Defining best practices in online instruction that align with the system's mission and strategic goals.[1]

- Determining ways to deploy and support these practices system-wide.

The T&L team includes members of all relevant stakeholder groups, including academic deans, faculty members, distance learning managers from both the System Office and the colleges, members of the Center for Teaching, and other academically oriented groups in our system. The team's focus is on creating opportunities and resources that emphasize the ways in which Blackboard can be used to enhance learning, teaching, and collaboration that will benefit both students and faculty.

The best practice strategies in the document have been reviewed and recommended for integration into all Blackboard training by the Academic Deans Council, the Distance Learning Council, and the Center for Teaching.

Evidence-Based Principles of Teaching and Learning

The term "[pedagogy](#)" encompasses the approach, the methods and strategies, and the underlying epistemology of an approach to teaching. The skills, training, and commitment of the instructor are critical to the implementation of an effective online pedagogy. Courses that make use of online instructional technologies require different strategies to present content, interact with students, and assess course outcomes. Ultimately, however, the specific strategies selected for use by an instructor depend on his or her personal philosophical beliefs about teaching and learning. **The guidelines in this document are equally relevant for instructors regardless of whether their course delivery will be in a "web-enhanced" on-ground course section, a "hybrid" course (a course that is taught partially online and partially in a classroom), or a fully-online course.**

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[1] (Online instruction may be defined as any educational process in which Internet technology is used to facilitate a student's ability to access course content and activities, and to communicate--asynchronously or synchronously--with the instructor and other students.)

In 1987, the AAHE Bulletin first published "Seven Principles for Good Practice in Undergraduate Education," followed by a book, "Applying the Seven Principles for Good Practice in Undergraduate Education" by Chickering and Gamson (1991). Recently, an updated set of evidence-based principles has emerged (Ambrose, et. al., 2010) that in some cases clarify and in other respects expand upon Chickering and Gamson's principles. The guidelines in this document have been evaluated against these principles, and include many specific strategies that align with each of them. The following seven research-based principles focus on best practices of teaching (adapted from the originals, which focus on the learner's perspective):

1. **Recognize that learners' prior knowledge can help or hinder learning.**
2. **Structure course content in ways that help learners organize knowledge, which influences how they learn and helps them apply what they know.**
3. **Stimulate learners' motivation to generate, direct, and sustain what they do to learn.**
4. **For learners to develop mastery (expertise) in a subject, they need opportunities to acquire, practice, integrate, and apply the skills they have learned.**
5. **Provide *goal-directed* practice coupled with *targeted* feedback to enhance the quality of student learning.**
6. **Recognize that learners' current level of development interacts with the social, emotional, and intellectual climate to impact learning.**
7. **To become self-directed, instructors must help learners develop the skills to monitor and adjust their approaches to learning. Specifically, students must learn to:**
   o Assess the *demands* of the task
   o *Evaluate* their own knowledge and skills
   o *Plan* their approach
   o *Monitor* their progress
   o *Adjust* their strategies as needed

Pre- and Post-Course Planning

- Review your course design with your college's Director of Educational Technology.
- Decide if your online course will require on-ground orientation and/or assessments.
- Decide which course materials (if any) are available, since students get access to the course shell two weeks prior to the official Start Date.
- Make a course backup at the beginning and the end of the semester.
- Have an alternate plan in case Blackboard is unavailable.
- Check all availability, adaptive release, and due dates for accuracy.
- Reflect on your experience teaching your courses last semester: What went well? What could be improved? What changes to

your course shell could enhance student success?

Course Design Checklist

Each instructor should determine which of these recommended practices is appropriate to his or her discipline and teaching preferences. Additionally, each instructor should determine the extent to which these recommendations apply individually or collectively to the online component of the course. In the tables below, you can indicate in the checkboxes in the left-hand columns whether you already have the item in your course **(Had it!)** or wish to include new items, activities or information **(Add it!).** The checkboxes in this document are interactive, so you can modify the document electronically and save it if you wish. To "check" a box (☒**)** just double click on it and change the Default value to "checked". **Strategies that the guidelines development team deemed particularly important are bolded.**

		Establishing Expectations	Ideas/Resources
Had it!	**Add it!**	**Academic Expectations (Independent of Course Delivery Method)**	
		The Syllabus contains:	
☐	☐	**Clearly defined course goals, outcomes, and activities, which are aligned with course level assessments** (gradable activities such as tests, discussions, and assignments).	
☐	☐	**Clearly defined grading criteria and due dates.** These may also be listed in tables, schedule, the calendar tool, or other document.	
☐	☐	**Course policies** including grading, academic honesty, plagiarism (copyright), students with disabilities (ADA).	
☐	☐	**Clear directions on purchase of textbook and/or any required software or access codes** for external publisher resources and course materials.	
Had it!	**Add it!**	**Online Expectations (Specific to the Course Delivery Environment)**	
☐	☐	Accepted online standards of behavior ("netiquette"). These may also be listed on the home page or as a stand-alone document.	
☐	☐	Guidelines specifying instructor response time to student emails/questions, typically within 24-48 hours excluding weekends.	
☐	☐	Policies regarding late work (particularly in cases of technical difficulties)	
☐	☐	Format for discussion board postings—subject headings, dates, deadlines.	
☐	☐	Rubric for quality and quantity of discussion postings.	
☐	☐	Very detailed and clear assignments. Online instructors do not have in-class opportunities to expand on assignments. Instructions may need to be rewritten to include details you would	

		have covered "in class."	

		Assessment Design and Feedback Strategies	Ideas/Resources
		In the section on **Establishing Expectations**, instructors are encouraged to create a syllabus that includes clearly defined course goals, outcomes, and activities, which are aligned with course level assessments (gradable activities such as tests, discussions, and assignments). Once the desired learning outcomes for a course have been established, the next step is to design assessments that enable the learners to demonstrate their level of proficiency. It's also essential to promote the belief that students' success is a direct result of the amount of effort they have put forth (i.e. an internal locus of control).	
Had it!	**Add it!**	**ASSESSMENT DESIGN**	
☐	☐	**Align instructional and assessment activities with learning objectives.**	
☐	☐	**Design assessments to be frequent, varied, and authentic to the application of learning, using multiple assessment techniques.** Interactive discussions, writing assignments, quizzes, capstone projects, group work and online exams are suggested.	
☐	☐	**Provide students with assessment choices, where possible.**	
☐	☐	**Provide detailed and constructive feedback through the use of rubrics, comments, and suggestions for improvement in addition to grades.**	
☐	☐	**Promote critical thinking and higher-order analytical skills through diverse methods of assessment.**	
☐	☐	**Break large projects, such as research papers, into smaller component assignments (such as topic list, annotated bibliography, outline, rough draft, final draft).**	
☐	☐	Modify assessments from semester to semester.	
☐	☐	When possible, become familiar with students' writing styles through online discussions, so you have a benchmark of their writing abilities.	
☐	☐	When creating tests, consider using publisher test banks, and also consider the number of attempts, test duration, date availability, and randomization of questions and answers.	
		NOTE: This section particularly addresses the *Higher Education Reauthorization Act*, which includes language in the section related to Regional Accrediting Agencies directing them to ensure that their institutions have processes (pedagogical) to *"establish that the student who registers in a distance education course or program is the same student who participates and completes the program and receives academic credit."*	

Had it!	Add it!	ASSESSMENT FEEDBACK	
☐	☐	**Use e-mail only (NEVER a public discussion board!) to communicate with students about personal topics such as student performance, family or health issues that arise, etc.**	
☐	☐	**Allow students the necessary time for active reflection, practice, and self-assessment <u>before</u> providing feedback.**	
☐	☐	Use formal and informal student feedback in an ongoing basis to help plan instruction and assessments of student learning throughout the semester.	
☐	☐	Alert students about when/where feedback on assessments will be provided so that students can easily access instructor comments and grades.	

		Getting Started	**Ideas/Resources**
Had it!	**Add it!**	Students may have a wide range of technical literacy. Links to tutorials about Blackboard, troubleshooting information, and technical specifications for your course should be included.	
☐	☐	**Provide weekly expectations and clear, concise directions on how to navigate through the course.**	
☐	☐	**Information about and/or a link to the college's Student Orientation course or website.**	
☐	☐	**Technology and technical literacy requirements** (web browser, software, hardware), **contingency plans** (alternate contacts, phone, external email addresses), **links to free plug-ins and downloads, etc.**	
☐	☐	**Links to student resources (24/7 myCommnet and Blackboard Online Support, third-party publisher tech support, counseling/advising, tutoring, library, bookstore, etc.)**	
☐	☐	**Links to student preparedness for successful online learning resources** (both college and system level websites, tools, and/or websites).	
☐	☐	Pre-tests that will help identify gaps in critical prior knowledge.	
☐	☐	Student and instructor contracts.	
☐	☐	Sample assignments, quizzes, and/or discussions, to ensure students know how to successfully accomplish these tasks and identify those who need further assistance.	
☐	☐	Use Adaptive Release settings to limit access to course materials until the student has completed specific "getting started" tasks.	

Had it!	Add it!	Course & Lesson Organization	Ideas/Resources
		Now it's time to organize your learning materials and activities clearly and cohesively, connecting them to the assessments, thus preparing your students for success. Your course should be easy for a first time user to navigate. In a fully-online course (ONLN), students should know where to begin as soon as they log into the course. Incorporating s*caffolding* strategies helps students find material, understand deadlines, answer their own questions, and organize their approach learning. CHUNKING, SEQUENCING, and CONSISTENCY are course design strategies that can help your students navigate and comprehend the information in your course. Universal Design and ADA strategies enable ALL learners to interact with your materials.	
Had it!	**Add it!**	**CHUNKING: Material should be broken down into short, manageable segments, which supports the learners' ability to organize and remember new information and experiences.**	
☐	☐	**Text**: Minimize the need to scroll down the page vertically—one screen is ideal. Break large blocks of text into smaller chunks with hyperlinks, and include graphics, pictures, or symbols.	
☐	☐	**Audio and Video**: 5-10 minute clips (that you create yourself or link to, such as podcasts), which corresponds to the average attention span of adults.	
☐	☐	**Activities**: Consider including short, interactive learning activities such as games, puzzles, "*SCORM*" modules, etc.	
☐	☐	**Presentations (PowerPoints, etc.)**: Consider appropriate length as well as the option of saving presentations as PDFs with 2-3 slides per page (which makes them easier and shorter to print).	
☐	☐	**Use the 3-click rule:** Course materials should be found within 3 clicks.	
Had it!	**Add it!**	**SEQUENCING: Present content in a logical progression to help learners structure and "make meaning" of the information being presented.**	
☐	☐	Provide an introduction or overview of the content to be learned in each module.	
☐	☐	Include an "attention-grabbing" exercise such as a scenario, case study, story, etc.	
☐	☐	Help learners access prior knowledge or identify knowledge gaps in preparation for the new concepts and content to be presented, through analogies, flowcharts, diagrams, graphic organizers, video reviews, pre-tests, etc.	
☐	☐	Use learning activities and practice exercises that correspond to course objectives and assessments, to promote knowledge of course content.	
☐	☐	Provide students with opportunities for active reflection throughout each module, through the use of discussions, journals, blogs, group work, etc.	

Had it!	Add it!	CONSISTENCY: A systematic, uniform approach to information design provides a sense of coherence to the course, and lessens learner anxiety by enhancing their confidence in their ability to navigate to precisely what they need.	
☐	☐	The sequencing and internal structure (i.e., the number and names of subfolders within each learning module) remains the same in ALL learning modules.	
☐	☐	The formatting of items/documents (i.e., type size, heading styles, and other page elements) is consistent.	
☐	☐	A consistent naming convention is used for both documents and icons, and if a document or item is referred to in one part of the course, the correct title or terminology is used so the student knows exactly what they are looking for.	
Had it!	**Add it!**	**UNIVERSAL DESIGN AND ADA GUIDELINES:** UD principles can help instructors create educational content that can be used equally well by students who may be coping with various learning and/or physical disabilities.	
☐	☐	**Present course content in a variety of ways that would make it accessible to individuals with diverse abilities.** For example, could a student with a visual impairment use a screen reading device to listen to the text-based content files in your course? Are there transcripts provided of audio files? Are there alternate descriptions included of diagrams, flowcharts or other graphics? If you create HTML content, did you "Alt Tag" the graphics, so a person using a screen reader knows what is represented by that graphic. If you create video tutorials, are they equally accessible to those who can hear them but cannot see them, or see them but not hear them?	
☐	☐	**Try to make activities, learning objects, and assessments "multi-modal".** In other words, *where possible and appropriate*, the course should provide learners with a variety of ways to explore concepts and to express or demonstrate their new knowledge in a way that is congruent with their own interests and abilities.	
☐	☐	**Make sure hyperlink text clearly defines where the link leads** (i.e., instead of labeling a link "click here" include the name of the website where the link will take the user.)	
☐	☐	**Make sure that menu items and text are readable** by ensuring that there is appropriate level of contrast between background color and text (i.e., very light text with dark background or vice versa), that font size is appropriate for legibility, etc.	
☐	☐	**Don't depend on color alone to distinguish import text elements or visual cues** (since those with color blindness will not discern color differences). Instead use color in combination with other cues such as bold, italic, or underlined text—and use these cues *consistently*.	

		Communication and Collaboration	Ideas/Resources
		Interaction and collaboration between the instructor and students are important components of online teaching and learning, yet are often overlooked. Instructors need to create a "social presence" in their online courses not just to answer questions, but to establish community and rapport with students as they would in an on-ground class. Merely posting material in the course shell is like putting books or self-paced tapes on reserve in the library—that's providing resources, but it's not teaching. Instructors can establish presence in an online delivery mode by communicating their own style and personality in a variety of ways.	
Had it!	**Add it!**	**SOCIAL PRESENCE**	
☐	☐	**Post a personal welcome, written in your own "voice," rather than just the "policy-speak" of the syllabus.** This could include a bio, photo, audio, or video of yourself, etc.). This can help establish a friendly, informal tone for the online class environment.	
☐	☐	**Actively involve yourself in discussion** by posting follow-up questions, challenging students to delve deeper into issues, etc.	
☐	☐	**Model expected behavior in discussion boards,** following the "netiquette" guidelines you have provided (as noted in the section on *Establishing Expectations*).	
☐	☐	**Participate regularly in threaded discussions and respond to student questions within the discussion board.**	
Had it!	**Add it!**	**INTERACTION**	
☐	☐	**Provide opportunities and support for peer to peer feedback and review, and encourage students to help fellow students.**	
☐	☐	**Use discussion boards as a way for students to share their progress on homework, assignments, or projects.**	
☐	☐	**Design thought-provoking questions that inspire in-depth responses as well as exchanges among students and enable students to demonstrate their understanding of the material.**	
☐	☐	**Use journals as a tool for self-reflection and/or private interactions between student and instructor.**	
Had it!	**Add it!**	**COLLABORATION AND GROUPWORK**	
☐	☐	Incorporate group projects or problem-based learning assignments that require collaboration.	
☐	☐	Use group-oriented tools (such as wikis, blogs, discussion boards, chat rooms) so groups of students can work together on projects.	

Had it!	Add it!		Ideas/Resources
☐	☐	Provide specific guidelines for group work such as defining roles, responsibilities, and expectations for group members, as well as timelines and grading criteria (e.g. group grade, individual grade, or blended grade based on degree of participation).	
		Classroom Management Strategies	**Ideas/Resources**
Had it!	**Add it!**	**Many of the same features that are essential to the success of a traditional classroom management also apply in the online classroom.** However, in an online class, it is especially important to have both resources and processes in place that will establish your expectations for your students, help get them off to a good start, and help them learn how to navigate the course. You will find that the more consistent and well-organized your course design is, the less questions you will have to answer as the course progresses, since students will soon "learn how to learn" from your course.	
☐	☐	**Assure that all learners are 'on board' throughout the course (e.g, by checking Last Access dates, ensuring participation in discussion boards, early warning system rules, etc.)**	
☐	☐	**Create an ungraded "Water Cooler" or "Course Questions" discussion board** to cut down on individual e-mails, preserve a record of exchanges, allow all students to see responses to common questions, and enable students to help each other by answering each other's questions.	
☐	☐	**Create and maintain a course "Frequently Asked Questions" page.** This helps cut down on individual emails, can save both instructors and students time, and (as long as the instructor consistently points students to the FAQs) can also prompt students to look for the answers to their question before posting or emailing.	

REFERENCES

Note: Retrieval dates for many of the original reference articles URLs listed below were updated with the revised version of this document in July 2011.

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GLOSSARY OF COMMON TERMS IN ONLINE TEACHING AND LEARNING

Active learning   In traditional or pedagogical education, material to be learned is often transmitted to students by teachers. That is, learning is passive. In active learning, students are much more actively engaged in their own learning while educators take a more guiding role. This approach is thought to promote processing of skills/knowledge to a much deeper level than passive learning. Related terms/concepts include: experiential learning, hands on learning. Taken from: Herod, L. (2002).Adult learning from theory to practice. Retrieved March 15, 2006 from http://www.nald.ca/adultlearningcourse/glossary.htm

ADA (Americans with Disabilities Act)   When Congress passed the Rehabilitation Act of 1973, it included Section 504 which forbade discrimination against persons with disabilities by programs and activities receiving federal financial assistance, which included virtually every institution of higher education, except the U.S. military academies and a few small religious schools. The Americans with Disabilities Act of 1990 (ADA) was patterned after Section 504. It requires that students with disabilities may not be excluded from participation in, or be denied the benefits of, or be subjected to discrimination by any institution which is subject to the ADA. The ADA does not require that the institution receive federal financial assistance. A postsecondary institution must make reasonable accommodations in order to provide students with disabilities an equal opportunity to participate in the institution's courses, programs and activities. Retrieved March 16, 2006 from: NETAC Teacher Tipsheet was compiled by Jo Anne Simon, Attorney at Law, Brooklyn, New York. http://www.netac.rit.edu/publication/tipsheet/ADA.html. See also: Distance Education: Access Guidelines for Students with Disabilities August 1999 http://www.htctu.net/publications/guidelines/distance_ed/disted.htm. Also, Web Accessibility Initiative (WAI) http://www.w3.org/WAI/

Assistive technology   Assistive technology is either software, hardware, or both which is designed to help individuals with disabilities be more independent. In general, the term is applied to technology, such as screen readers, designed to help individuals with vision disabilities but it can also be applied to tactile aides such as haptic devices and software.

Audio   Audio refers to the sound component of multimedia content.

Blog   A blog (web log) is web-based journal. It gives a chronological, usually daily, account of the author's interests, activities or life.

Bloom's Taxonomy   Beginning in 1948, a group of educators, headed by Benjamin Bloom, undertook the task of classifying educational goals and objectives. The intent was to develop a classification system for three domains: the cognitive, the affective, and the psychomotor. Work on the cognitive domain was completed in 1956 and is commonly referred to as Bloom's Taxonomy of the Cognitive Domain (Bloom et al., 1956). It is a classification of thinking with six different levels, with each successive level increasing in complexity. The first three levels: Knowledge, Comprehension and Application are often referred to as lower level thinking, while the second three levels: Analysis, Synthesis and Evaluation are referred to as higher level thinking.

Anderson & Krathwohl (2001) have proposed some minor changes to include the renaming and reordering of the taxonomy. Anderson and Krathwohl expanded the single dimension of the original taxonomy into a two-dimensional framework consisting of factual/conceptual knowledge and cognitive processes.

The revised taxonomy incorporates both the kind of knowledge to be learned (knowledge dimension) and the process used to learn (cognitive process), allowing for the instructional designer to efficiently align objectives to assessment techniques.

For further information see: Bloom, B., Englehart, M. Furst, E., Hill, W., & Krathwohl, D. (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. New York, Toronto: Longmans, Green. Also see: Anderson, L.W., & Krathwohl (Eds.). (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman. Definition based on information retrieved March 15, 2006 from: http://www.nexus.edu.au/teachstud/gat/morrison.htm (no longer available as of 7/8/11), http://chiron.valdosta.edu/whuitt/col/cogsys/bloom.html, and http://www.bena.com/ewinters/Bloom.html (no longer available as of 7/8/11). Also see http://classweb.gmu.edu/ndabbagh/Resources/Resources2/krathstax.htm

Collaborative learning   "A structured instructional interaction among two or more learners to achieve a learning goal or complete an assignment" (Clark & Mayer, 2003, p. 310).Taken from: Clark, R. C., & Mayer, R. E. (2003). E-learning and the science of instruction. San Francisco, CA: John Wiley & Sons, Inc.

Constructivist Learning Theory   Constructivist learning theory is based on the belief that individuals actively construct their own knowledge and their own understanding of the world based on past knowledge. Constructivists believe that the environment needs to be highly adaptive to the student, and they rely heavily on student initiative, allowing students to learn at their own speed. People then construct meaning by the way in which they make sense of their experiences as an internal cognitive activity (Alessi & Trollip, 2001). "Meaning is made by the individual and is dependent on the individual's previous and current knowledge structure" (Merriam & Caffarella, 1999, p. 261). In constructivism, the brain not only finds slots to house the information entering it, but it must also process and interpret the information. This process may be conscious or unconscious, but it is the process through which learning occurs. This process of interpretation may also be referred to as metacognition or the process of thinking about thinking. (Taken from Cercone, 2006).

Critical thinking   Critical thinking includes the ability for a person to use his/her intelligence, knowledge and skills to question and carefully explore situations to arrive at thoughtful conclusions based on evidence and reason. A critical thinker is able to get past biases and view situations from different perspectives to ultimately improve his/her understanding of the world. According to Brookfield critical thinking includes reflecting on the assumptions underlying our actions, and considering new ways of looking at the world and

living in it. Brookfield, Stephen D., (1989) Developing Critical Thinkers - Challenging Adults to Explore Alternative Ways of Thinking and Acting, Jossey Bass Publishers, San Francisco. The *Critical Thinking Organization* has a lot of information about critical thinking with many references, http://www.criticalthinking.org/.

Formative evaluation   At its most basic, formative evaluation is an assessment of efforts prior to their completion for the purpose of improving the efforts. It is a technique that has become well developed in the education and training evaluation literature. [Michael Scriven, 1991) *See also Summative evaluation*. Retrieved March 15, 2006 from: http://www.beyondintractability.org/essay/formative_evaluation/

HTML (HyperText Markup Language)   HTML is a language to specify the structure of documents for retrieval across the Internet using browser programs of the World Wide Web. An HTML file is a special kind of text document (with an HTM or HTML file extension) that presents both text and graphics in a Web browser (a software application, such as Internet Explorer or Netscape, that enables a user to display and interact with web pages on the World Wide Web or a local area network). HTML documents are often referred to as "Web pages". The browser retrieves Web pages from Web servers that, thanks to the Internet, can be pretty much anywhere in World. Definition retrieved March 15, 2006 from: http://www.ucc.ie/info/net/whatis.html and http://www.w3.org/MarkUp/Guide/.

Intentional learning   Three aspects of intentional learning are the (1) decision to engage in committed, persisted learning effort (self-motivation), (2) the ability to apply and manage strategic cognitive efforts to achieve goals (self-direction), and the (3) extent to which the learner takes responsibility for learning autonomously. Intentional learning depends on one's conception of knowledge, how to connect meaning and use that knowledge to act or create, and the learner's perception of the intended task, activity, or instructional situation. Intentional learners choose to be in charge of their learning. In an intentional learning environment, the teacher's role is to mentor or coach and the learner's role is to question, connect, reflect, and apply knowledge to create, act, and achieve. Taken from: The Training Place. (2005). Intentional Learning. Retrieved March 15, 2006 from http://www.trainingplace.com/il/.

Locus of control "Researchers…agree that there is a relationship between the locus of control and student success. According to Rotter (1966), there are two types of locus of control: internal and external. Individuals who have an internal locus of control will take responsibility for their failures and congratulate themselves on their successes. Individuals who have an external locus of control tend to see their failures and successes as a result of chance, luck, or intervention by others. Research generally shows that, in the distance education environment, students with an internal locus of control are more likely to be successful than students with an external locus of control (Dille & Mezak, 1991; Parker, 1999; Stone, 1992)." Quote from Yukselturk, E. & Bulut, S. (2007). Retrieved July 8, 2011 from http://www.ifets.info/journals/10_2/7.pdf

Metacognition "Awareness and control of one's cognitive processing, including setting goals, monitoring progress, and adjusting strategies as needed" (Clark & Mayer, 2003, p. 313). Metacognition is "knowledge of one's knowledge, processes, and cognitive and affective states; and the ability to consciously and deliberately monitor and regulate one's knowledge, processes, and cognitive and affective states." In more general terms, metacognition is the awareness of the acquisition of mental organization skills, and the ability to apply these organization and recognition skills.

What is basic to the concept of metacognition is the notion of thinking about one's own thoughts. Those thoughts can be of what one knows (i.e., metacognitive knowledge), what one is currently doing (i.e., metacognitive skill), or what one's current cognitive or affective state is (i.e., metacognitive experience). To differentiate metacognitive thinking from other kinds of thinking, it is necessary to consider the source of metacognitive thoughts: Metacognitive thoughts do not spring from a person's immediate external reality; rather, their source is tied to the person's own internal mental representations of that reality, which can include what one knows about that internal representation, how it works, and how one feels about it. Therefore, metacognition sometimes has been defined simply as thinking about thinking, cognition of cognition, or using Flavell's (1979) words, "knowledge and cognition about cognitive phenomena" (p. 906). Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. American Psychologist, 34, 906-911. Definition based on information taken from: http://www.emstac.org/registered/topics/studyskills/metacognition.htm and http://www.psyc.memphis.edu/trg/meta.htm (no longer available as of 7/8/11).

Mental models Mental models are deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action. Taken from: Smith, M. K. (2001) 'Peter Senge and the learning organization', the encyclopedia of informal education. Retrieved March 14, 2006 from www.infed.org/thinkers/senge.htm.

PDF A PDF (Portable Document Format) is special file format created by Adobe Systems Inc. Documents in this format can be distributed electronically across the web and on a variety of platforms all the while retaining their original look. With the use of Adobe's PDF reader program, documents originally created by any number of programs (word processors, spreadsheets, desktop publishing programs, etc.) appear on the screen exactly as they were meant to look, including the correct type fonts, graphics, etc.. PDF files can be viewed electronically or printed, and can usually be saved to the user's PC. Adobe's PDF reader is called Adobe Acrobat Reader and can be downloaded free of charge from Adobe's website, http://www.adobe.com/products/acrobat/readstep2.html. Definition (slightly adapted) taken from http://www.medicine.arizona.edu/pubs/what_is_pdf.html (no longer available as of 7/8/11).

Pedagogy "It is the tools, activities, strategies, and decisions for a more interactive, engaging, collaborative and motivational learning environment" (C. J. Bonk, personal communication, February 12, 2005). Pedagogy relates to the teaching skills and strategies used by instructors to facilitate learning.

Podcasts   A "podcast" often used generically to refer to any sound or video file distributed over the Internet. However, a true podcast is generally part of a themed series to which individuals subscribe through a website (such as iTunes). "Podcasts" owe their name to the proliferation to the iPOD, a portable device manufactured by Apple computer, which allows users to download and take with them various kinds of music, sound and audio files. An actual podcast is more than simply an audio file that is merely uploaded to a website or into a course. Rather, the term implies that there is some sort of periodic, regular release schedule of the files.

Problem-based learning   PBL is an instructional method that challenges students to "learn to learn," working cooperatively in groups to seek solutions to real world problems. These problems are used to engage students' curiosity and initiate learning the subject matter. PBL prepares students to think critically and analytically, and to find and use appropriate learning resources. Definition taken from http://www.udel.edu/pbl/; (Barbara Duch bduch@udel.edu)

Reflective learning   Consciously thinking about and analyzing what one has done, or is doing.

Scaffolding   Scaffolding instruction as a teaching strategy originates from Lev Vygotsky's sociocultural theory and his concept of the zone of proximal development (ZPD). "The zone of proximal development is the distance between what learner can do by themselves and the next learning that they can be helped to achieve with competent assistance." The scaffolding teaching strategy provides individualized support based on the learner's ZPD. In scaffolding instruction a more knowledgeable other provides scaffolds or supports to facilitate the learner's development. The scaffolds facilitate a learner's ability to build on prior knowledge and internalize new information. The activities provided in scaffolding instruction are just beyond the level of what the learner can do alone. The more capable other provides the scaffolds so that the learner can accomplish (with assistance) the tasks that he or she could otherwise not complete, thus helping the learner through the ZPD. Adapted from Rachel Van Der Stuyf   http://condor.admin.ccny.cuny.edu/~group4/ (no longer available as of 7/8/11).

Schema   Schemas (or schemata) are cognitive structures, rather like mental templates or 'frames', that represent a person's knowledge about objects, people or situations. Schemas are derived from prior experience and knowledge, and the concept was a foundation of Jean Piaget's Stage Theory of the cognitive development of children. Piaget purported that as children gain experience, new information is used to modify, add to, or change previously existing schemas. (Chandler, D. 1997. Schema Theory and the Interpretation of Television Programmes. Retrieved on March 16, 2006 from http://www.aber.ac.uk/media/Modules/TF33120/schematv.html; also http://psychology.about.com/od/sindex/g/def_schema.htm)

Screen Reader   A screen reader is an application that can interpret text and other types of information shown on a computer screen. The output can either be speech or can feed to a device that produces Braille text. Blind and low vision computer users are able to take advantage of this assistive technology.

SCORM   The Shareable Content Object Reference Model (SCORM) is an XML-based framework used to define and access information about learning objects so they can be easily shared among different learning management systems (LMSs). SCORM was developed in response to a United States Department of Defense (DoD) initiative to promote standardization in e-learning. Taken from http://searchwebservices.techtarget.com/sDefinition/0,,sid26_gci796793,00.html.

Self-directed learning   Self-directed learning has been described as "a process in which individuals take the initiative, with or without the help of others," to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes (Knowles 1975). An estimated 70 percent of adult learning is self-directed learning (Cross 1981).

Adult educators have found that some adults are incapable of engaging in self-directed learning because they lack independence, confidence, or resources. Not all adults prefer the self-directed option, and even the adults who practice self-directed learning also engage in more formal educational experiences such as teacher-directed courses (Brookfield 1985).

Brookfield, S. "The Continuing Educator and Self-Directed Learning in the Community." In Self-Directed Learning: From Theory to Practice, edited by S. Brookfield. New Directions for Continuing Education No. 25. San Francisco: Jossey-Bass, 1985. Cross, K. P. Adults As Learners. San Francisco: Jossey-Bass, 1981. Knowles, M. Self-Directed Learning: A Guide for Learners and Teachers. New York: Association Press, 1975. Definition based on information taken from http://www.ntlf.com/html/lib/bib/89dig.htm.

Streaming Video   Streaming video is a sequence of "moving images" that are sent in compressed form over the Internet and displayed by the viewer as they arrive. Streaming media is streaming video with sound. With streaming video or streaming media, a Web user does not have to wait to download a large file before seeing the video or hearing the sound. Instead, the media is sent in a continuous stream and is played as it arrives. The user needs a player, which is a special program that uncompresses and sends video data to the display and audio data to speakers. A player can be either an integral part of a browser or downloaded from the software maker's Web site. Definition taken from http://www.smarterbydesign.com/faq.html.

Summative evaluation   Summative evaluation is designed to present conclusions about the merit or worth of an object and recom-mendations about whether it should be retained, altered, or eliminated. (Scriven, 1991) *See also formative evaluation*. Scriven, M. (1991). Evaluation thesaurus (4th ed.) Beverly Hills, CA: Sage

Wiki   A wiki is a web page that allows users to actively edit its content within a prescribed format. Wiki is from the Hawaiian word "wiki" which means fast. In general, one user can post information to a web page and other users can makes subsequent changes. Because of their rapid growth and potentially frequent changes, it can be difficult to maintain the veracity of the content of wikis. Blackboard now

incorporates a Wiki tool. For more discussion on wikis in general, see http://en.wikipedia.org/wiki/Wiki, http://www.wiki.org/wiki.cgi?WhatIsWiki, and http://www.youtube.com/watch?v=-dnL00TdmLY.

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