A glossary of selected teaching approaches and techniques

Crib sheet A provides an overview of the characteristics of a learning activity.

Description of a Learning Activity

An interaction between a learner or learners and an environment (optionally including content resources, tools and instruments, computer systems and services, 'real world' events and objects) that is carried out in response to a task with an intended learning outcome (Beetham 2004)

Learning activities are achieved through completion of a series of tasks in order to achieve intended learning outcomes. We have defined the components which constitute a learning activity as:

The context within which the activity occurs; this includes the subject, level of difficulty, the intended learning outcomes and the environment within which the activity takes place. Learning outcomes are mapped to Bloom's taxonomy of learning outcomes and grouped into three types: cognitive, affective and psychomotor and are what the learners should know, or be able to do, after completing a learning activity; for example they might be required to be able to: understand, demonstrate, design, produce or appraise.

The learning and teaching approaches adopted. These are grouped according to Mayes and de Frietas' (2004) three categories – associative, cognitive and situative.

The tasks undertaken, which specifies the type of task, the (teaching) techniques used to support the task, any associated tools and resources, the interaction and roles of those involved and the assessments associated with the learning activity.

The glossary defines a selected few teaching approaches and techniques where we feel a little explanation may be of use to the practitioner.

Web page: Mayes, T. and S. de Freitas (2004). Review of e-learning frameworks, models and theories: JISC e-learning models desk study, JISC.
http://www.jisc.ac.uk/uploaded_documents/Stage%202%20Learning%20Models%20(Version%201).pdf

Web page: Beetham, H. (2004). Review: developing e-learning models for the JISC practitioner communities: a report for the JISC e-pedagogy programme, JISC.
http://www.jisc.ac.uk/index.cfm?name=elp_outcomes (under work package 1)

Acknowledgement: This document has been repurposed from the work of Karen Fill of the DialogPlus project. http://www.nettle.soton.ac.uk/toolkit/

Action research

With the Action research model, real world problems are discussed and experiences shared, leading to action and creative solutions.

Web page: Action Research Guide

Book: Marquardt, M. J., (1999) *Action Learning in Action*, Consulting Psychologists Press.

Active learning

Active learning requires that students do things and think about what they are doing.

Journal: Active Learning in Higher Education

Reference: Stiles, M.J., and Orsmond, P., Managing Active Student Learning with a Virtual Learning Environment., in *Educational Development Through Information and Communications Technologies*, Fallows, S.J.and Bhanot, R., Kogan Page, 2002

Active Learning website.

Activity theory

Activity theory, based on the work of Vygotsky, consists of a set of basic principles [which] include object-orientedness, the dual concepts of internalization/externalization, tool mediation, hierarchical structure of activity, and continuous development.

Source and further information: Activity Theory pages, Carbon, M. (2004)

Answer Garden

A form of vicarious learning originating in the 1990 paper by Ackerman and Malone. Answer gardens are developed in which "snapshots" of learning can be reused. For example concepts or problems discussed can be added to an answer garden to allow these ideas and concepts for further development.

Source: M.S. Ackerman, T. W. Malone. Answer Garden: A Tool for Growing Organizational Memory.Proc. of the Conference on Office Information Systems,Cambridge,MA,1990

Apprenticeship

As embraced by the UK's Modern Apprenticeship schemes, apprenticeship can be described as "a social theory of learning in which young learners (newcomers) are conceptualised as 'legitimate peripheral participants' who learn by participating first peripherally and gradually more fully in communities of practitioners", Unwin, L., Lifelong learning in workplace settings: the case of the young worker

See also: Fuller, Alison and Unwin, Lorna (2003)Creating a Modern Apprenticeship: a critique of the UK's multi-sector, social inclusion approach. *Journal of Education and Work,* 16 (1), 5-25.

Web page: Presentations & papers from the International Conference on apprenticeship, London, January 2004.

Articulate reasoning

Students articulate reasoning via writing, speaking etc.

Associative

Associative Learning & Teaching approaches rely on linking recognition of past situations and/or experiences to establish and build on rules and/or processes that have previously produced satisfying outcomes.

Behaviourist

Behaviourist approaches are based on the work of Pavlov, Watson, Skinner and the concepts of 'operant conditioning' and 'shaping behaviour'. More recently, Gagne's work in the field of instructional design has been influential. For further information see: Gagne, R. M. (1992) *Principles of instructional design*. Harcourt Brace Jovanovich, 4th edition.

There is much debate about the advantages and disadvantages of the teacher-centredness of the behavioural approach. See for example Section 4 in this online paper.

Cognitive

Cognitive Learning & Teaching approaches attempt to integrate new learning into the learner's existing knowledge base.

Cognitive apprenticeship

"In addition to the traditional apprenticeship's three primary components of modeling, coaching, and fading, Cognitive Apprenticeships have the instructor verbalize the activity while they are modeling it and verbally coach the student during her completion of the task." Seitz, R., short paper,Cognitive Apprenticeship

Cognitive scaffolding

Cognitive scaffolding is a teaching strategy that was cleverly named for the practical resemblance it bears to the physical scaffolds used on construction sites. The strategy consists of teaching new skills by engaging students collaboratively in tasks that would be too difficult for them to complete on their own. The instructor initially provides extensive instructional support, or scaffolding, to continually assist the students in building their understanding of new content and process. Once the students internalize the content and/or process, they assume full responsibility for controlling the progress of a given task. The temporary scaffolding provided by the instructor is removed to reveal the impressive permanent structure of student understanding (Herber and Herber, 1993, pp. 138-139).

Source:
http://72.14.203.104/search?q=cache:QAgfalUQ2o8J:condor.admin.ccny.cuny.edu/~group4/Cano/Cano%2520Paper.doc+herber+and+herber+1993&hl=en&ct=clnk&cd=2

Collaborative learning

Collaborative learning is "an instruction method in which students at various performance levels work together in small groups toward a common goal. The students are responsible for one another's learning as well as their own. Thus, the success of one student helps other students to be successful." Gokhale, A. A. (1995)Collaborative Learning Enhances Critical Thinking, *Journal of Technology Education* Vol.7,(1)

Web page: Collaborative Learning Theory

Communities of practice

Jean Lave and Etienne Wenger used the term 'communities of practice' to refer to an organisational phenomenon they identified as being a feature of the development of social groupings that had a particular need or desire to transfer skills and practices from one member to another (Lave and Wenger: 1991). Examples of CoPs include the organisations of Ancient Greek craftsmen and the medieval guilds of Europe. In such communities, apprentices learned from their masters until they were competent enough to work on their own account, eventually becoming masters themselves. Perhaps the most frequently cited modern CoP is that of the Xerox photocopier repair technicians (Brown and Duguid: 1991) who were the focus of research by Julian Orr (1996). Arguably, Orr's original work remains the most definitive on communities of practice, despite the fact that he never used the term, he referred to them as the 'technician community' or the 'service community'. But exactly what is a community of practice?

Lave and Wenger initially described a community of practice as: 'a set of relations among persons, activity and world, over time and in relation with other tangential and overlapping CoPs' (1991). The idea

is further developed in subsequent publications by Wenger and is, essentially, a social entity recognised as such by its members who are bound together in a sense of joint enterprise that emerges from a mutual understanding of a problem, or issue, and a desire and commitment to solve it. The 'copier technicians, for example, were presented with a common set of technical problems they would take as a collective challenge to their intellectual capacity as problem solvers. Through their participation in this self-organised joint solution making, individuals gain a sense of shared identity with fellow technicians in an occupational community focused on its work and not the organisation that employed them. Later, the concept becomes much more aligned with knowledge management, and their function or purpose is described as building and exchanging knowledge, and developing the capabilities of the membership. In contrast, the purpose of a team is to accomplish a given task, and that for a work group is to deliver a product or service (Wenger and Snyder: 2000).
(http://www.leader-values.com/Content/detail.asp?ContentDetailID=984)

According to Etienne Wenger (1998), a community of practice defines itself along three dimensions:

- What it is about – its joint enterprise as understood and continually renegotiated by its members.
- How it functions - mutual engagement that bind members together into a social entity.
- What capability it has produced – the shared repertoire of communal resources (routines, sensibilities, artefacts, vocabulary, styles, etc.) that members have developed over time. (see, also Wenger 1999: 73-84)

Web page: Communities of practice http://www.infed.org/biblio/communities_of_practice.htm

Web page: Etienne Wenger Communities of Practice: Learning as a social system
http://www.co-i-l.com/coil/knowledge-garden/cop/lss.shtml

Conceptualisation cycle

Professor Terry Mayes examines how different learning activities support students' understanding of new concepts and the revision of erroneous concepts. This is achieved in three stages, known as the Conceptualisation Cycle: **At the conceptualisation stage**, students are exposed to other people's ideas or concepts (for example in traditional lectures or accessing content on the WWW). **At the construction stage** students apply these new concepts in the performance of meaningful tasks. However, it is only **at the dialogue stage**, in the performance of tasks in which when these new concepts are tested during conversation with tutors and peers, that learning takes place. The feedback provided enables students' erroneous conceptions to be resolved.

In his theory, Mayes suggests that each of the three levels of learning activity can be supported by three different classifications of courseware, or online material intended to promote students learning, into three categories:

- Primary Courseware - to support the presentation of content. This may involve interaction - e.g., simulations, ``drill and practice'', virtual worlds.
- Secondary Courseware - to support the doing tasks. This includes use of wordprocessors etc, plus software designed to support exploration of concepts ``mindtools'' and problem solving skills (e.g., LOGO).
- Tertiary Courseware - In general this includes software that supports learning dialogues, through communication. Maye's sometimes restricts the term to mean software that allows the ``re-use'' of products of past learning experiences.

Web page: Learning Technology and Groundhog Day http://apu.gcal.ac.uk/clti/papers/Groundhog.html

Constructivist based design

This approach draws on the work of Bruner and others who believe that learning is an active process where learners construct new ideas through the use of their knowledge and understanding.

Reference: Bruner, J., (1960) *The Process of Education*. Cambridge, Massachusetts: Harvard University Press.

Web page: Characteristics of Constructivist Learning & Teaching

Dialogue/argumentation

"Historically,argumentation or debate is one of the cornerstones of the teaching provided in occidental universities. One would expect that the ability to argue with respect to a specific point of view reveals a deeper form of understanding of the domain of discourse." Baker, M.J.(1998)The function of argumentation dialogue in cooperative problem-solving. In F.H. vanEemeren, R. Grootendorst, J.A. Blair & C.A. Willard (Eds), *Proceedings of the 4th International Conference on Argumentation (ISSA'98)*. Amsterdam, pp. 27-33.

Didactic

The didactic model is based on transmission of knowledge, explicit instructional goals, objectives, content, and expectations.

Possible resources: Rosenshine, B. (1986). Synthesis of research on explicit teaching. *Educational Leadership*, 43(7), 60-69.

Webpage of Direct Instruction Resources

Elaboration theory

Elaboration theory (ET) is a model for sequencing and organizing courses of instruction. Source and more information: ISD Knowledge Base / The Elaboration Theory

Based largely on the work of Reigeluth, the approach suggests starting from simple concepts and building on them to bring the learners to mastery of the more complex.

Reference: Reigeluth, C.M., (1999). The elaboration theory: Guidance for scope and sequence decisions. In C.M. Reigeluth (ed.), *Instructional-design theories and models: A new paradigm of instructional theory*, volume ii. (pp. 425-459). Hillsdale, NJ: Lawrence Erlbaum Associates.
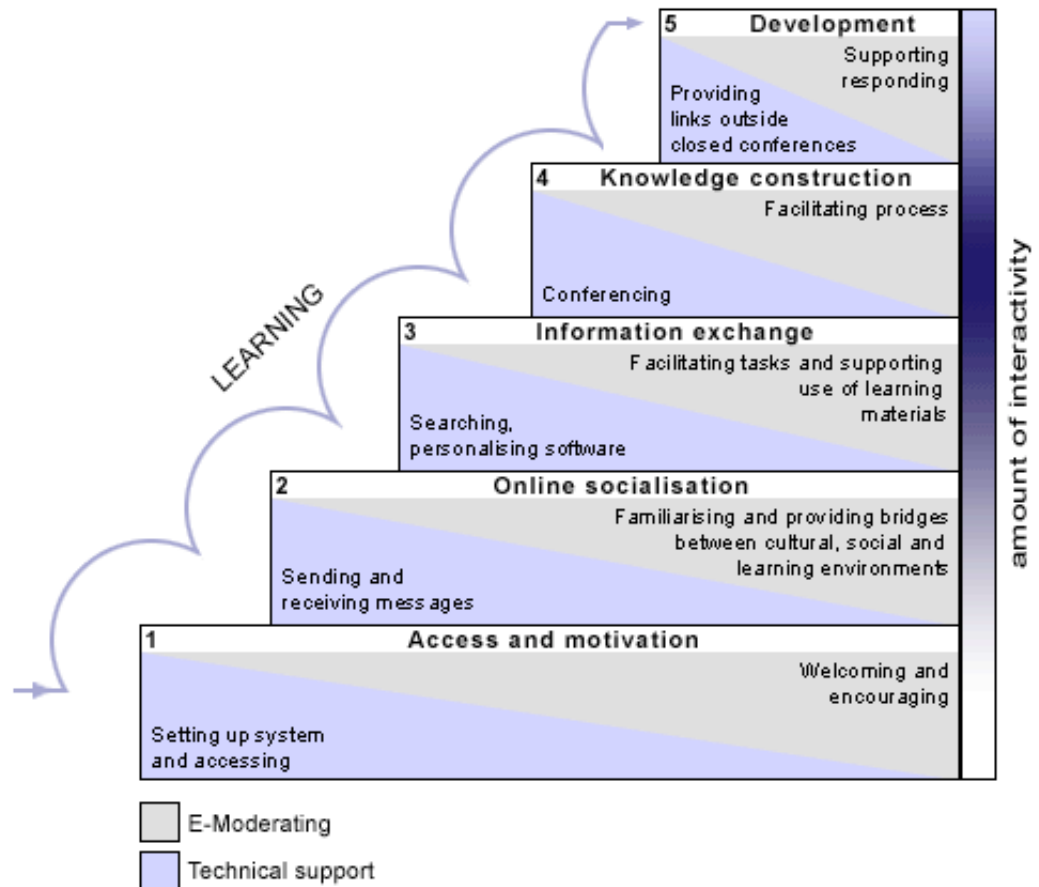
E-moderating framework

'Five-stage' model for the moderation online learning communities originally proposed by Gilly Salmon in 2000. The model consists of the following five phases of online activity: access and motivation; on-line socialisation; information exchange; knowledge construction; and development. Here's a summary: Individual access and the ability of participants to use Computer-Mediated Communication (CMC) are essential prerequisites for conference participation (stage one, at the base of the flights of steps). Stage two involves individual participants establishing their online identities and then finding others with whom to interact. At stage three, participants give information relevant to the course to each other. Up to and including stage three, a form of co-operation occurs, i.e. support for each person's goals. At stage four, course-related group discussions occur and the interaction becomes more collaborative. The communication depends on the establishment of common understandings. At stage five, participants look for more benefits from the system to help them achieve personal goals, explore how to integrate CMC into other forms of learning and reflect on the learning processes.

Each stage requires participants to master certain technical skills (shown in the bottom left of each step). Each stage calls for different e-moderating skills (shown on the right top of each step). The 'in-teractivity bar' running along the right of the flight of steps suggests the intensity of interactivity that you can expect between the participants at each stage. At first, at stage one, they interact only with one or two others. After stage two, the numbers of others with whom they interact, and the frequency, gradually increases, although stage five often results in a return to more individual pursuits.

Source: http://www.atimod.com/e-moderating/5stage.shtml

Book: Salmon, G. (2004) E-moderating: the key to teaching and learning online.

Follow up with Salmon, G. (2002) E-tivities: The Key to Active Online Learning

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Gilly Salmon's 5-stage framework for e-moderation

Enquiry-led

Also know as enquiry-based learning (EBL), this approach requires that content, teaching methods and assessment all encourage students to research, discover and construct their own knowledge and meanings.

HEA guide available here: Guide to Curriculum Design: Enquiry Based Learning

Experiential learning

Experiential learning, based on the work of Piaget, Lewin, Kolb and others, requires that learners reflect on experience, devise, and subsequently test, general rules.

Book: Kolb, D. (1984) Experiential Learning, New Jersey: Prentice Hall, Inc.

Web page: Experiential Learning ... on the Web, Greenaway, R. (2004)

Goal-based scenarios

Goal-based scenarios, such as simulations or role play, use skills based learning to achieve specified learning outcomes.

Article: Schank, Roger, C (1992) Goal-Based Scenarios

Fishbowl

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The fishbowl is a special form of small group discussion. Several members representing differing points of view meet in an inner circle to discuss the issue while everyone else forms an outer circle and listens. At the end of a predetermined time, the whole group reconvenes and evaluates the fishbowl discussion. Groups may also take turns in being observers or observed.

Source: http://www.consensus.net/ocac6.html

Another definition from public service management in Wales.

http://www.wales.gov.uk/themespsmw/excellence/fishbowl-e.htm

Ice breaker

Icebreakers are used to facilitate introductions and warm-ups, to introduce the topic of a meeting or training or to facilitate team building. They can also be used within established groups to facilitate discussion on a chosen topic.

Instructional system design

Based largely on the work of Gagne, this approach recommends different types of instruction are appropriate for different types and levels of learning.

Reference: Gagne, R. M. (1992) *Principles of instructional design.* Harcourt Brace Jovanovich, 4th edition.

See also this online resource: Bostock, S. (2003) Courseware Engineering - an overview of the courseware development process.

Intelligent tutoring systems

Intelligent tutoring systems (ITS) have four components: the domain model, the student model, the teaching model, and a learning environment or user interface. The system "selects a problem and compares its solution with that of the student and then it performs a diagnosis based on the differences. After giving feedback, the system reassesses and updates the student skills model and the entire cycle is repeated." Source and more information: here.

Books: Sleeman, D. H. & Brown, J. S. (Eds.). (1982). *Intelligent Tutoring Systems*. New York: Academic Press.

Wenger, E. (1987). *Artificial Intelligence and Tutoring Systems: Computational and CognitiveApproaches to the Communication of Knowledge.* Los Altos, CA: Morgan Kaufmann.

Paper: Kinshuk, & Patel, A. (1997) A conceptual framework for Internet based Intelligent Tutoring Systems, in Behrooz, A. (ed.) (1997) *Knowledge Transfer (Volume II)*, pAce, London, UK, pp117-124.

Learning cycle

Experiential Learning Cycles are models for understanding how the process of learning works. They are distinct from other models of learning, such as behavioral models or social learning models, in two notable ways:

Experiential Learning Cycles treat the learner's subjective experience as of critical importance in the learning process. ELCs draw on experiential education principles, which are largely based on the educational philosophy of John Dewey (1920's-1950's).

Experiential Learning Cycles propose an iterative series of processes which underlies learning. Depending on the model, there is anywhere between one stage (experience alone) through to six stages of learning to be considered. Experiential Learning Cycles are commonly used to help structure experience-based training and education programs.

One formulation of the 5 E's (engage, explore, explain, extend, evaluate) learning cycle gives possible activities matched to each phase of the cycle. Modelling activities may be integrated into a learning cycle paradigm, so that students become engaged by a demonstration and discussion, conduct prelimi-

nary explorations with the model, seek to explain the model's behavior, extend it to include related behavior, and evaluate their own learning. Perhaps the most well known of learning cycle theories is Kolb's Experiential Learning Cycle from 1984.

Website and source:Learning Cycle Instructional Model
http://mvhs1.mbhs.edu/mvhsproj/learningcycle/lc.html

Website and source: Experiential Learning Cycles: Overview of 9 Experiential Learning Cycle Models
http://www.wilderdom.com/experiential/elc/ExperientialLearningCycle.htm

Website: The Learning Cycle as a Tool for Planning Science Instruction
http://www.coe.ilstu.edu/scienceed/lorsbach/257lrcy.htm

Problem-based

Learners investigate a specific scenario either individually or in groups & propose solutions or determine what skills and/or information they would need to manage or solve the problem(s).

Book: Savin-Baden, M., (2000). *Problem-based Learning in Higher Education,* Buckingham: Open University Press.

Website: the PBL Clearinghouse, a collection of peer reviewed problems and articles to assist educators in using problem-based learning.

Project-based learning

Project based learning is a "systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks".

Source and more information: Project Based Learning Handbook (2002) Buck Institute for Education.

Reciprocal teaching

Reciprocal teaching entails the teacher and/or learners take turns leading a dialogue. There are four key activities: predicting, questioning, summarising and clarifying.

Articles: Palincsar, A.S. and Brown, A.L. (1984) Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 2, pp. 117-175.

Rosenshine, B. and Meister, C. (1994) Reciprocal teaching: A review of the research. *Review of Educational Research,* Vol. 64, No. 4, pp. 479-530.

Webpage: RECIPROCAL TEACHING: Questions and Answers

Reflective practitioner

"Reflective practitioners in academic environments will frequently think about what they are doing while they are doing it, whether it be curriculum design, devising a PowerPoint presentation, setting seminar questions, developing assessment strategies, delivering information or marking assessed work. More importantly the professional lecturer will encourage students to think about what, why and how they are doing whatever they are doing while they are doing it." Aiding reflective practice UK Centre for Legal Education, University of Warwick

Book: Schön, D. A. (1990) *Educating the Reflective Practitioner : Toward a New Design for Teaching and Learning in the Professions.* Jossey-Bass.

Webpage: transcription of Donald Schon's Presentation Educating the Reflective Practitioner to the 1987 meeting of the American Educational Research Association.

Rounds

This is a simple technique that encourages participation. The facilitator states a question and then goes around the room inviting everyone to answer briefly. This is not an open discussion. This is an opportunity to individually respond to specific questions, not to comment on each other's responses or make unrelated remarks. http://www.consensus.net/ocac6.html

Scaffolding

Scaffolding is a teaching strategy that was cleverly named for the practical resemblance it bears to the physical scaffolds used on construction sites. The strategy consists of teaching new skills by engaging students collaboratively in tasks that would be too difficult for them to complete on their own. The instructor initially provides extensive instructional support, or scaffolding, to continually assist the students in building their understanding of new content and process. Once the students internalize the content and/or process, they assume full responsibility for controlling the progress of a given task. The temporary scaffolding provided by the instructor is removed to reveal the impressive permanent structure of student understanding (Herber and Herber, 1993, pp. 138-139).

Source: http://72.14.203.104/search?q=cache:QAgfalUQ2o8J:condor.admin.ccny.cuny.edu/~group4/Cano/Cano%2520Paper.doc+herber+and+herber+1993&hl=en&ct=clnk&cd=2

Situative

Situative learning results from activity, context and interpretation of both the outcomes and social interactions that occurred.

Social constructivist

Social constructivists view learning as a social process. It does not take place only within an individual, nor is it a passive development of behaviors that are shaped by external forces (McMahon, 1997). Meaningful learning occurs when individuals are engaged in social activities.

A major theme in the theoretical framework of Bruner is that learning is an active process in which learners construct new ideas or concepts based upon their current/past knowledge. The learner selects and transforms information, constructs hypotheses, and makes decisions, relying on a cognitive structure to do so. Cognitive structure (i.e., schema, mental models) provides meaning and organization to experiences and allows the individual to "go beyond the information given".

Web page:Constructivist theory http://www.learningandteaching.info/learning/constructivism.htm

Socratic instruction

Generally, the Socratic teacher invites a student to attempt a cogent summary of a case assigned for that day's class. Regardless of the accuracy and thoroughness of the student's initial response, he or she is then grilled on details overlooked or issues unresolved. A teacher will often manipulate the facts of the actual case at hand into a hypothetical case that may or may not have demanded a different decision by the court.

Source:http://www.princetonreview.com/law/research/articles/life/socratic.asp

Snowball

Group activity that involves concentrating groups of ideas pertaining to the same problem and assigning them a theme. Patterns and relationships in the groups can also be observed.

Involves concentrating groups of ideas pertaining to the same problem and assigning them a theme, i.e.

- One slip of paper (or 'post-its') is used per idea generated or possible solution offered
- A meeting is set up of up to 5 people. The slips of paper are viewed and then grouped 'like with like'.
- Duplicates can be created if the idea/solution is relevant to more than one group
- Patterns and relationships in the groups are observed

Source: http://www.mycoted.com/creativity/techniques/snowball.php

Structured debate

A simple logic structure for issue debate. Teacher poses an issue for students to debate. Each student is obliged to stake out a position. All positions can be posted in the same document if everybody wants the convenience of being able to see all positions at once. Then to each position, each student attaches (i.e., hypertext links) pro or con arguments. For convenience, these also may be put in a common pro or a con document. Students then critique the arguments by attaching (linking) various comments, two to four participants engage with each other on provocative or divisive issues with an eye to challenging themselves and the audience to examine their assumptions and unconscious beliefs. Debates can be done in fishbowl style, in which two participants engage only with each other, or in a more conversational style, where the audience also joins in the debate.

Source: http://www.cvm.tamu.edu/wklemm/logic3.html

Systems theory

System theory is basically concerned with problems of relationships, of structures, and of interdependence, rather than with the constant attributes of object (Katz and Kahn, 1966). Webster defines a system as a "regularly interacting or interdependent group of items forming a unified whole," which "is in, or tends to be in, equilibrium". Negandi says that "a system's attributes, which are the interdependence and interlinking of various subsystems within a given system, and the tendency toward attaining a balance, or equilibrium forces one to think in terms of multiple causation in contrast to the common habit of thinking in single-cause terms".

Applying systems theory gives the students (and educators, who are learners as well) cohesion to disparate facts giving better problem solving skills. It also increases the understanding of relationships between systems. For example, giving a group of students the task of developing an amusement park requires them to look at economic, social, environmental, educational, and construction factors. It requires them to use traditional material (maths, reading, spelling, grammar, biology, physics, etc. skills) as well as giving students additional understanding about how these pieces mesh together to make a whole. It demonstrates to them first hand how the most basic concepts contribute to the larger figure. It encourages students to change from being passive absorbers of information to active learners seeking knowledge.

Web page: Systems Theory http://www.ed.psu.edu/INSYS/ESD/systems/theory/SYSTHEO2.htm

Training needs analysis

Training needs analysis is a work based approach which addresses the needs of organisations/teams/individuals, identitifies gaps and specifies training.

Web page of resources: Training Needs Analysis

Vicarious learning

Vicarious learning, based on work by Bandura, and entails learning by observing and modeling behaviours, attitudes, and emotional reactions.

Book: Bandura, A. (1977). *Social Learning Theory.* New York: General Learning Press.

Webpage: Social Learning Theory