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**Literature Review on Classifications for Learning and Teaching, Version 1.0**

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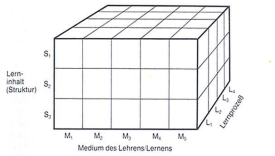
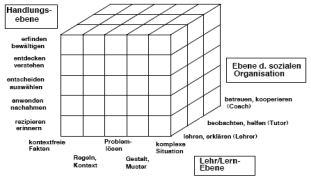
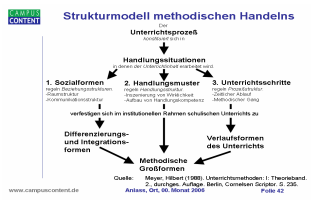
| | Main Author(s) | Relevant References | Pictorial presentation of schema | Name of Schema | Keywords | Short Description and Theoretical Background of Schema | Purpose of the development/Problem addressed |
|---|---|---|---|---|---|---|---|
| 1 | Aebli | Aebli, H. (1991). Zwölf Grundformen des Lehrens: eine allgemeine Didaktik auf psychologischer Grundlage; Medien und Inhalte didaktischer Kommunikation, der Lernzyklus (6 ed.). Stuttgart: Klett-Cotta. |  Abb. 1. Das drei-dimensionale System der Grundformen: fünf Varianten der medialen Vermittlung (M) zwischen Schüler und Lehrer und Schüler und Sache entsprechen dem Erzählen und Referieren, dem Vorzeigen und Nachmachen, der gemeinsamen Objekt- und Bildbetrachtung, dem Lesen und dem Schreiben. In der Dimension der Lerninhalte oder Strukturen (S) unterscheiden wir Handlungsschemata, Operationen und Begriffe und in der Dimension der Funktionen im Lernprozeß (L) das problemlösende Aufbauen, das Durcharbeiten, das Üben/Wiederholen und das Anwenden.<br>Figure on page 25. | *Grundformen des Lehrens/ unterrichtlichen Geschehens* (Basic forms of teaching and instructional events) | content (*Lerninhalt* )<br>medium (*Medium des Lehrens/Lernens* )<br>learning process (*Lernprozeß* ) | The basic forms were derived from a course on the theory and practice of teaching, where the students then use the basic forms, and which has been running for many years (p. 15). Aebli regards his system as a modern *"Formalstufentheorie"* (formal level theory). The idea of *Formalstufen,* Aebli derived from Herbart students, especially Ziller. The sytem distinguishes three dimensions: media (5 parts: telling/lecturing, demonstrating/imitating, joint object & picture studying, reading, and writing), content (3 parts: action schemas (*Handlungsschemata*) , operations, and terms), and function in the learning process (4 parts: problem-solving build-up, working through, practicing/repeating, and applying) (p. 24). Aebli thus distinguishes 60 basic forms of teaching, one for each cell of the three dimensions and its parts. The author states himself that he never tried to fill these sixty cells by describing its values (p. 25). | The basic forms are to be "practical", to serve as rules for the planning of teaching and for the type of behavior that the instructor should have before students (p. 13). |
| 2 | Baumgartner | Baumgartner, P. (2001). Webbasierte Lernumgebungen -- neue Ansätze zum Politiklernen. In Bundeszentrale für politische Bildung (Ed.), Politikunterricht im Informationszeitalter. Medien und neue Lernumgebungen (pp. 90-104). Bonn. Retrieved on August 14, 2008 from http://www.peter.baumgartner.name/material/article/webbasierte_lernumgebungen.pdf/download |  Figure on page 3 of online version. | *Heuristisches Lehr- und Lernmodell* (Heuristic teaching and learning model) | Layer of action (*Handlungsebene* )<br>Layer of social organization (*Ebene der sozialen Organisation* )<br>Layer of Teaching and Learning (*Lehr-/Lernebene* ) | The model ought to serve as a heuristic aid for instructional planning and to identify pedagogic concepts in seemingly neutral objects (p. 3 of online version). The author does not state, how the model was developed. | The purpose is NOT for the model to be a decision or prescription model (*Vorgehensmodell*). It is a heuristic aid (*heuristische Hilfe* ) for pedagogical planning and to retrieve pedagogic concepts that are captured in seemingly neutral objects, for instance, in a learning platform (p. 3 of online version). |
| 3 | Bloh | Bloh, E. (2005). Grundzüge und Systematik einer Methodik netzbasierter Lehr-Lernprozesse. In B. Lehmann & E. Bloh (Eds.), Online Pädagogik, Bd.2 (pp. 7-85). Baltmannsweiler: Schneider Verlag Hohengehren. |  This figure depicts Meyer's schema. Bloh based his schema on Meyer's. Figure by Marc Jelitto (2006). | Structuring model of methodic action (Strukturmodell methodischen Handelns) | *Handlungsfigurationsformen: Initiierungsformen* (Initiating forms)<br>*Präsentationsformen* (Presentation forms)<br>*Rezeptionsformen* (Receptive forms)<br>*Diskussionsformen* (Discussion forms)<br>*Explorationsformen* (Exploration forms)<br>*Kreativitätsformen* (Creativity forms) | The problem of method as Bloh calls it, may not be reduced to a one-dimensional perspective (e.g. what method works for what content or goal) but must be placed in a complex complete relation with its internal and external dependencies. The "Methodic" penetrates all other dimensions of the teaching & learning process and takes effect at different layers (p. 11).<br>Bloh uses Meyer's (1988) model to organize his own model of online learning and teaching.<br>The model propsed by Bloh only has limited value for teaching practice (p. 18). | The structuring model shall bring about theoretical clarity about the relations between the manifold manifestations of methodic actions. It has only limited value for the teaching practice. Teaching planning problems may not be solved with this model. It is rather an analytical classification framework. *"Unterricht"* (instruction) is not conceivable unless all elements of this model are present. (p. 18) |

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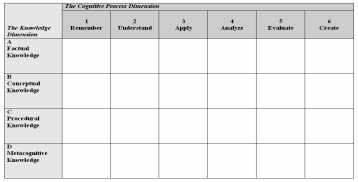
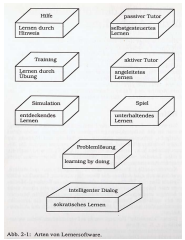
| 4 | Bloom/ Anderson & Krathwohl/ Krathwohl | Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A Taxonomy For Learning, Teaching, And Assessing: A Revision of Bloom's Taxonomy of Educational Objectives (Complete ed.). New York: Addison Wesley Longman. |  <br>Figure on page 28 (adapted). | Taxonomy for Learning, teaching and assessing | cognitive process dimension<br>knowledge dimension<br>remember, understand, apply, analyze, evaluate, create<br>factual knowledge, conceptual knowledge, procedural knowledge, metacognitive knowledge | The authors revised the original and successful framework by Bloom et al. in order to refocus attention on Bloom's Handbook, and to incorporate new knowledge and thought into the framework since its introduction in 1956 (p. XXIf).<br>The original taxonomy by Bloom had undergone a few studies trying to identify correlations for the six levels (p. 287). The Anderson & Krathwohl taxonomy had not undergone such testing, although they did decide to switch Synthesis and Evaluation from the original category based on the data, and based on their reasoning (p. 293f). | The framework is a tool to help educators clarify and communicate what they intend students to learn as a result of instruction (p. 23). The framework is intended for "midrange" (educational) objectives, which lie in between very broad and highly specific objectives (p. 23).<br>Categorizing with the framework permits the examination of objectives from the student's point of view (p. 34); the framework helps educators consider the panorama of possibilities in education (p. 35); helps to see the integral relationship b/w knowledge and cognitive process inherent in objectives (p. 35); it makes life easier as it aids deciding and designing types of assessment (p. 35); the framework makes apparent the (in)consistency among stated objectives, the way it was taught, and the assessment (p. 35); the framework helps to make better sense of wide variety of terms used in education (p. 36). |
| 5 | Bodendorf | Bodendorf, F. (1990). Computer in der fachlichen und universitären Ausbildung. München, Wien: Oldenbourg. |  <br>Abb. 2-1: Arten von Lernsoftware. | Classification of methods in computer-assisted instruction | *Hilfesysteme* (support systems)<br>*Lernergesteuerte Systeme* (learner-driven systems)<br>*Trainingssysteme* (drill & practice systems)<br>*Tutorielle Systeme* (tutorial systems)<br>*Simulationssysteme* (simulation systems)<br>*Spielsysteme* (game systems)<br>--<br>*Expertensysteme* (expert systems)<br>*Mikrowelten* (microworlds)<br>*Intelligente Tutorials* (intelligent tutorials) | The author regards his classification schema as a coarse typology (*grobe Typologie*). The principle that guides the typology setup is the complexity of the system to be classified, i.e. from simpler systems to more complex systems (p. 47). A further distinction is made by the author in form of "intelligent" systems, which do not run on a predefined schema but act situated, non-procedural and individually (p. 109 & 111). Such systems are placed below the line in the Keywords section. | |
| 6 | Brown et al. | Brown, G. A., Bakhtar, M., & Youngman, M. B. (1984). Toward a Typology of Lecturing Styles. British Journal of Educational Psychology, 54, 93-100. | none | Lecturing styles | Oral lecturer<br>Exemplary lecture<br>Information providers<br>Amorphous lecturers<br>Self doubters | A random sample of 400 lecturers at Universities of Notthingham and Loughborough was sent a questionnaire; 258 were returned (p. 93). Items on the questionnaire were answered by the lecturers and statistically evaluated for validity and reliability. As a result, the authors identified five clusters of lecturers, each having a distinctive pattern of lecturing style (p. 93).<br>The authors also found from the cluster analysis that the five types of lecturing styles were associated significantly with subject areas: Oral lecturers were more common in the humanities and social sciences, exemplaries were more common in biomedical science, information providers and amorphous lecturers were more common in science and engineering (p. 96). Self doubters appeared to be distributed across subject areas (p. 96). | Explore the ways in which lecturers prepare and give lectures. As there was little evidence on the process of lecturing as peceived by lecturers themselves or of the relationship between lecturer's styles, subject areas, status within the department and the years of experience (p. 93). |

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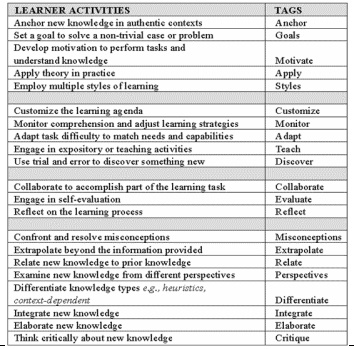
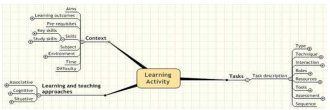
| 7 | Carey, Swallow & Oldfield | (1) Carey, T., Swallow, J., & Oldfield, W. (2002). Educational Rationale Metadata for Learning Objects. Canadian Journal of Learning and Technology, 28(3).<br>And<br>(2) Buzza, D. C., Bean, D., Harrigan, K., & Carey, T. (2004). Learning Design Repositories: Adapting Le |  <br>LEARNER ACTIVITIES / TAGS<br>Anchor new knowledge in authentic contexts / Anchor<br>Set a goal to solve a non-trivial case or problem / Goals<br>Develop motivation to perform tasks and understand knowledge / Motivate<br>Apply theory in practice / Apply<br>Employ multiple styles of learning / Styles<br>Customize the learning agenda / Customize<br>Monitor comprehension and adjust learning strategies / Monitor<br>Adapt task difficulty to match needs and capabilities / Adapt<br>Engage in expository or teaching activities / Teach<br>Use trial and error to discover something new / Discover<br>Collaborate to accomplish part of the learning task / Collaborate<br>Engage in self-evaluation / Evaluate<br>Reflect on the learning process / Reflect<br>Confront and resolve misconceptions / Misconceptions<br>Extrapolate beyond the information provided / Extrapolate<br>Relate new knowledge to prior knowledge / Relate<br>Examine new knowledge from different perspectives / Perspectives<br>Differentiate knowledge types *e.g., heuristics, context-dependent* / Differentiate<br>Integrate new knowledge / Integrate<br>Elaborate new knowledge / Elaborate<br>Think critically about new knowledge / Critique | Educational Rationale Metadata for Learning Objects | metadata<br>instructional approach<br>repository | The set of tags used as educational rationale for learning objects are aligned according to empirical findings regarding learning theory. Each of the 21 tags has at least one citation (most have two+ citations) referenced that proved the learning principle to be true. There does not seem to be a hierarchy among the tags; they are merely presented in a list.<br>The authors found that the usual descriptions of instructional methods (receptive, directive, guided discovery, exploratory) were too general to convey the desired information (source 1, p. 6), which motivated them for the tags. Backing for this statement can be found in Einsiedler (1981, *Lehrmethoden*, München), who says on the basis of comparing studies for open learning environments that "open" or closed" learning methods are information-reduced expressions for complex detail processes during lectures (source 1, p. 173 & 176). | To provide a searching mechanism within a repository of learning objects (which in their definition include activities) for educational metadata, namely the educational approach taken. "metadata to record process-oriented information about instructional approaches for learning objects (source 1, p.1). The focus is on online learning. |
| 8 | Conole | (1) Conole, G. (2007). Describing learning activities. Tools and resources to guide practice. In H. Beetham & R. Sharpe (Eds.), Rethinking Pedagogy for a Digital Age. Designing and delivering e-learning (pp. 81-91). London, New York: Routledge.<br>And<br>(2) Conole, G., & Fill, K. (2005). A learning design toolkit to create pedagogically effective learning activities. Journal of Interactive Media in Education(08).<br>And<br>(3) Bailey, C., Zalfan, M. T., Davis, H. C., Fill, K., & Conole, G. (2006). Panning for Gold: Designing Pedagogically-inspired Learning Nuggets. Educational Technology & Society, 9(1), 113-122. |  <br>Figure from source 2, p. 8. | Taxonomy of learning activities | assimilative<br>information handling<br>adaptive<br>communicative<br>productive<br>experiential | BELONGS TO Dialog Plus<br>The taxonomy attempts to consider all aspects and factors involved in developing a learning activity, from the pedagogical context in which the activity occurs through to the nature and types of tasks undertaken by the learner. At the heart of the taxonomy is the assertion that learning activities are achieved through completion of a series of tasks in order to achieve intended learning outcomes. The components of a learning activity are: context in which the activity occurs, the pedagogy adopted, and the tasks undertaken (source 1, p. 84). The authors see the most useful aspect of the taxonomy in the detailed description of the nature of tasks that students will undertake as part of the learning activity to achieve learning outcomes. Similar to Laurillard's taxonomy, tasks are classifed in six types: assimilative, information handling, adaptive, communicative, productive, experiential (source 1, p. 84f). For each task type, a range of techniques supports the way the task is undertaken (source 1, p. 85). Social forms and assessment forms vary (source 1, p. 85).<br>The older publications (sources 2 and 3) are describing the taxonomy rather than the way and reason the taxonomy was set up.<br>The authors state that they have carried out a detailed comparison between their taxonomy and IMS LD as well as other pedagogical taxonomies, namely LTSN vocabulary, SeSDL (source 2, p. 13), but they lack to provide detailed descriptions of procedure or results. Publication #3 provides analyses of the nugget model. | The taxonomy provides a useful checklist for identifying the components involved in creating a learning activity and can be helpful in terms of guiding practitioners through their decision making (source 1, p. 85). |
| 9 | Currier | Currier, S. (2001). SeSDL Taxonomy Evaluation Report. Glasgow: University of Strathclyde.<br>[Three types of taxonomies are included in literature: Educational Technology, Educational Development, Resource Types] | none | SeSDL Taxonomy | | The taxonomy was developed on the opinions of the author and another developing person. The reference mostly discusses an evaluation study performed with six testers of the taxonomy. | Tool for describing and classifying granular learning resources held in the scottish electronic staff development library (p. 1). |
| 10 | DialogPlus (belongs to Conole) | http://www.nettle.soton.ac.uk/toolkit/help/approachlibrary.aspx<br><br>http://www.nettle.soton.ac.uk/toolkit/help/outcomelibrary.aspx | none | | | BELONGS TO Conole | |
| 11 | ERIC | Houston, J. E. (Ed.). (1995). Thesaurus of ERIC® Descriptors (13 ed.). Phoenix, AZ: Oryx.<br>Including introduction by<br>Barnett, L., & Colby, A. (1995). ERIC's Indexing and Retrieval: 1995 Update. In J. E. Houston (Ed.), Thesaurus of ERIC® Descriptors (13 ed., pp. | none | Thesaurus of ERIC descriptors | | The book does not list how the schema was developed. The introductory chapter of the thesaurus merely states the process of selecting categories for a publication (how the publication is classified).<br>The thesaurus has a category called "teaching methods", which subsumes 77 "narrower terms". This is a flat list; no further organizing mechanisms are applied. Some of the listed narrower terms are subject specific, such as clinical teaching, grammar translation method, and suzuki method (violin teaching). Some of the terms refer to seemingly broader terms, such as the narrower term "educational strategies". Some terms refer to small, concrete methods like dialog journals and drills; others are much coarser and unspecific like cross age teaching and learner controlled instruction. | The purpose is to index language. |

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| 12 | Farnham-Diggory | Farnham-Diggory, S. (1994). Paradigms of Knowledge and Instruction. Review of Educational Research, 64(3), 463-477. | *Table 1* Instructional model criteria<br>*Instructional paradigm* / *Expert–Novice distinction* / *Key mechanism of transformation*<br>Behavior — Quantitative differences on same scale(s) — Incrementation<br>Development — Differences in qualitative models (personal beliefs) — Perturbation<br>Apprenticeship — Sociological differences in the culture of practice — Acculturation<br>*Table 2* Paradigms of knowledge and instruction<br>*Knowledge paradigms*<br>Declarative, Procedural, Conceptual, Analogical, Logical<br>*Instruction paradigms*<br>Behavior — Experts and novices are on the same measurement scales, and instruction enables novices to systematically accrue all five types of knowledge, until they reach expert levels.<br>Development — Experts and novices have different beliefs, and instruction enables novices to acquire all five types of knowledge in ways that challenge them to reconstruct their beliefs.<br>Apprenticeship — Experts and novices are in different worlds, and instruction enables novices to acquire all five types of knowledge (often tacit) in ways that facilitate their entry into the culture of expertise.<br>Tables 1 and 2 are found on pages 464 and 470, respectively. | Paradigms of Knowledge and Instruction | Core Instructional Paradigms<br>Core Learning Paradigms<br>Teaching Tactics | Upon the revision of her own book on educational psychology, the author tried to collapse the widely spread terminology found in other research articles and text books. She has thus found that there are three core instructional paradigms (behavior, development, apprenticeship; p. 464) and that there are five types of knowledge that may be acquired (declarative, procedural, conceptual, analogical, logical; pp. 467-469). All three paradigms can teach all five types of knowledge in their own way. The three core models are defined to be mutually exclusive (p. 467). Instructional hierarchies and interfacing of modules are pointed out as being important, but were not covered in the article (p. 467).<br>Furthermore, the author specified four groups for teaching tactics. These four methods appear whenever a teacher is present (pp. 469f): talking, displaying, coaching, arranging the learning environment. These four methods are based on the author's experiences (p. 469), yet, they are not defining characteristics of instructional paradigms or of knowledge acquisition (p. 469). All other teaching tactics as well as involvement of students and degrees of social interactions appear within these four categories according to the author (p. 470) | To help clarify calls for alternative forms of research; provide parsimonious criteria for classifying research that is currently being conducted. |
| 13 | Felder & Silverman | (1) Felder, R. M., & Silverman, L. K. (1988). Learning and Teaching Styles in Engineering Education. Engineering Education, 78(7), 674-681.<br>(2) Felder, R. M. (1993). Reaching the Second Tier: Learning and Teaching Styles in College Science Education. Journal of College Science Teaching, 23(5), 286-290.<br>(3) Felder, R. M., & Spurlin, J. (2005). Applications, Reliability and Validity of the Index of Learning Styles. International Journal of Engineering Education, 21(1), 103-112.<br>(4) Litzinger, T. A., Lee, S. H., Wise, J. C., & Felder, R. M. (2007). A Psychometric Study of the Index of Learning Styles. Journal of Engineering Education, 96(4), 309-319. | **Dimensions of Learning and Teaching Styles**<br>*Preferred Learning Style* / *Corresponding Teaching Style*<br>sensory / intuitive — perception — concrete / abstract — content<br>visual / auditory — input — visual / verbal — presentation<br>inductive / deductive — organization — inductive / deductive — organization<br>active / reflective — processing — active / passive — student participation<br>sequential / global — understanding — sequential / global — perspective<br>Figure on page 675 of source 1. The picture presented here is based on the old version, not the revised version as proposed in the foreword to the 1988 publication. Namely, the dimension inductive/deductive needs to be excluded, and visual/auditory is changed into visual/verbal. | Learning and Teaching styles in engineering education | Learning Styles:<br>sensory/intuitive<br>visual/verbal<br>active/reflective<br>sequential/global<br><br>corresponding Teaching Styles:<br>concrete/abstract<br>visual/verbal<br>active/passive<br>sequential/global | The learning style model classifies students according to where they fit on a number of scales pertaining to the ways they receive and process information. Parallely, a teaching-style model is introduced which classifies instructional methods according to how well they address the proposed learning style components (source 1, p. 674). The sensing/intuition dimension is based on Jung's theory of psychological types; the dimension active/reflective processing is part of a learning style model by Kolb (source 1, p. 675), and was linked to Jung-Myers-Briggs model's extravert/introvert (source 1, p. 678). The hypothesis is that if engineering instructors include elements for each of the poles for each dimension, they achieve an optimal learning environment for most students (source 1, p. 675). Placing all dimensions and values in a matrix, 32 possible learning styles emerge. Scales of the model are seen as independent of each other; they are orthogonal, except for the sequential/global and sensing/intuitive dimensions, which show a moderate degree of association (source 3, pp. 104 & 108).<br>Many or most of engineering students are visual, sensing, inductive, and active; most enginering education is verbal, abstract (intuitive), deductive, passive and sequential. These mismatches lead to poor student performance, professorial frustration, and a loss to society of many potentially excellent engineers (source 1, p. 680). A list of teaching techniques is given that serve to enhance engineering education (source 1, p. 680, also source 2, p. 5).<br>"Students whose learning styles are compatible with the teaching style of a course instructor tend to retain information longer, apply it more effectively, and have more positive post-course attitudes toward the subject than do their counterparts who experience learning/teaching style mismatches." (source 2, p. 1) | To identify mismatches between teaching styles and learning styles in engineering education. |

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|---|---|---|---|---|---|---|---|
| 14 | Flechsig | (1) Flechsig, K.-H. (1983). Der Göttinger Katalog Didaktischer Modelle: Theoretische und methodologische Grundlagen. Göttingen: Zentrum für didaktische Studien. AND (2) Flechsig, K.-H. (1996). Kleines Handbuch didaktischer Modelle. Eichenzell: Neuland. | none | *Göttinger Katalog didaktischer Modelle* (Goettinger catalog of didactic models) | Work study *(Arbeitsunterricht)*<br>Disputation *(Disputation)*<br>Field study *(Erkundung)*<br>Case Study *(Fallmethode)*<br>Apprenticeship *(Famulatur)*<br>Distance instruction *(Fernunterricht)*<br>Instruction from the front *(Frontalunterricht)*<br>Programmed Instruction (*Individualisierter Programmierter Unterricht)*<br>Individual learning space *(Individueller Lernplatz)*<br>Small group conversation *(Kleingruppen-Lerngespräch)*<br>Learning exhibition *(Lernausstellung)*<br>Learning dialogue *(Lerndialog)*<br>Learning cabinet *(Lernkabinett)*<br>Learning conference *(Lernkonferenz)*<br>Learning network *(Lernnetzwerk)*<br>Learning project *(Lernprojekt)*<br>Simulation *(Simulation)*<br>Tutorial *(Tutorium)*<br>Lecture *(Vorlesung)*<br>Workshop seminar *(Werkstattseminar)* | The author describes a process of reducing complexity from teaching practice and translating these practical observations of into models of teaching. This takes place in several steps/on several levels, namely here the *Kategorialmodelle der Didaktik* (categorial model of didactics) and the level of *Modelle von/für Unterrichtseinheiten* (models of teaching) (source 1, p. 30).<br>The categorial model is the short definition of teaching, defining its determining factors, giving it a theoretical frame and distinction (source 1, pp. 30f). The author states that this model and all thoughts regarding his models of teaching stem from his own convictions and reflections, even though these convictions were built in collaboration with peers and learners (source 1, p. 42).<br>There is no rationale for differentiating a model from a variant of a model as the decisions that led to these were made in the working progress and cannot be reconstructed (source 1, p. 52).<br>The target audience for the catalog of didactic models are innovation-willing practitioners (source 1, p. 64). The models are meant to be used for planning and construction of teaching situations, and as an aid for determining if everyone talks of the same model (and its constituent action steps -- *generalisierte Handlungsmuster*) (source 1, p. 65). | Purpose of the developments was to create models of *"Unterricht"* (instruction) to reduce the complexity in order to establish relationships between theory of teaching and practice of teaching (source 1, p. 30).<br>The first reason for development was a government call for types of teaching *(Unterrichtstypen)* (source 1, pp. 43f). The second purpose was to inventory the results of aborted reform measurements in the hope to keep them alive (source 1, p. 45). The third purpose was to answer demands that were placed on the author in regard to his role of head of center for teaching and learning. He noticed that summarizing overviews were missing that bridged the path from theory of alternative teaching methods to the implementation in practice (source 1, pp. 45f). The fourth purpose was to formulate statements in regard to a specific type of teaching and to prove validity of the statement within that type instead of postulating generally valid statements about teaching (source 1, p. 46). |
| 15 | Fuhrmann & Weck | Fuhrmann, E., & Weck, H. (1976). Forschungsproblem Unterrichtsmethoden. Berlin: Volk und Wissen. | incomplete depiction to be scanned | Classification System for instructional methods (*Klassifizierungs-system für Unterrichts-methoden*) | Distinction Level 1: Goals of (socialist) character/personality development<br>Level 2: Aspects of fundamental laws of knowledge acquisition<br>Level 3: Structure and type of subject matter knowledge to be acquired<br>Level 4: Outer forms of teacher and student activities | The authors performed a large literature review of especially German literature on the topic of classifying instructional methods (*Unterrichtsmethoden*) . They collected the different types of classifications that other authors had already used, i.e. what criteria and methodologies were used by other authors to classify instructional methods. From these activities, the authors concluded that there are three sustainable versions for the further development of ordering instructional methods: 1) classification according to different target areas of character/personality development, 2) classification of student activities that are in line with the targets, and 3) classification according to key aspects of the content (p. 168).<br>The authors provide explicit and detailed information on the first version (classification according to different areas of character/personality development), describing at least four distinction levels that feature a decreasing degree of abstraction for instructional methods as one goes down into the levels. The goals of the instruction (personality development) represent the starting point for classification, while later also taking into account the structure and logic of the subject matter being taught as well as the laws of knowledge acquisition (pp. 168f). The other two versions (classification of student activities and key aspects of content, respectively) receive short, summary-like explanations (pp. 185ff).<br>The authors' statements and explanations are, from today's point of view, highly influenced by the political language and ideologies of East Germany (the former German Democratic Republic). | The purpose is to classify instructional methods (Unterrichtsmethoden). The authors state that it is necessary and useful to further research typical situations of instruction (*Unterricht*) and questions of its arrangement because the approach via "typical situations" is especially appropriate to perfect the methodic instruments (p. 121). |
| 16 | GEM | http://www.thegateway.org/about/documentation/gem-controlled-vocabularies/<br><br>specifically assessment element vocabulary and teaching method element vocabulary | none | GEM Controlled Vocabularies | | The first flat list contains terms that were defined by three sources of dictionaries (two dictionaries of education and the thesaurus of ERIC Descriptors). The list is without further systematics, and mixes different dimensions/modes such as brainstorming (a method in itself) and cooperative learning (a potential group of methods).<br>The second flat list is on learning assessment methods, containing sometimes confusing terms such as "authentic assessment" (which may represent a group of methods) and "testing" (which seems to be a repeated heading for the entire list that this term is part of). | Terms are used to describe ways of presenting instructional materials or conducting instructional activities. |

| | Main Author(s) | Relevant References | Pictorial presentation of schema | Name of Schema | Keywords | Short Description and Theoretical Background of Schema | Purpose of the development/Problem addressed |
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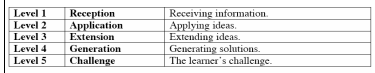
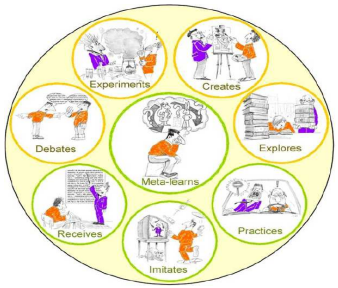
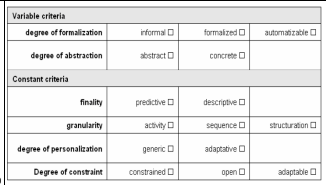
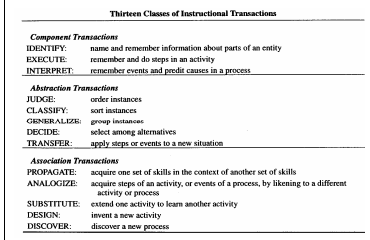
| 17 | Hokanson & Hooper | Hokanson, B., & Hooper, S. (2004). Levels of teaching: A taxonomy for instructional design. Educational Technology, 44(6), 14-22. Available on the World Wide Web at http://www.uwex.edu/disted/conference/Resource_library/handouts/05_1792H.pdf |  Figure on page 2 of online version. | Levels of teaching/ Five levels of instruction | reception<br>application<br>extension<br>generation<br>challenge | Taking Bloom's cognitive taxonomy as a backbone, the schema supposes to describe the interaction between learners (this however was not shown in the article) and questions asked of them. It differentiates between questions and problems, where questions vary in complexity and answering procedures but ususally only have one correct answer, while problems do not have a single correct answer (p. 2 of online version).<br>Teaching methods are sometimes clearly part of one of the five levels; more often the processes are more complex and require a combination of levels (p. 2 of online version). Higher levels require higher cognitive processing. The hierarchy is cumulative, i.e. each builds upon the other and higher ones include the lower ones. | Instructional methods have not been ordered or ranked according to their educational value, or clarified the relative value of various methods. Therefore, the authors developed a framework to guide the selection of educational methods within instructional design (p. 1 of online version).<br>The classification will help designers select and develop instructional methods that elicit appropriate cognitive engagement (p.1 of online version).<br>The taxonomy is intended to encourage the design of activities to include more cognitively challenging activities (p. 10 of online version). |
| 18 | Jensen | Jensen, A. R. (1967). Varieties of Individual Differences in Learning. In R. M. Gagné (Ed.), Learning and Individual Differences (pp. 117-140). Columbus, OH: Merrill. | | Classification of individual differences in learning | intrinsic & extrinsic individual differences, e.g. types of learning, procedures, content and modality | The author describes his theory and approach about studying individual differences. He states that the field is not well researched and has received too little attention in the past. The focus of the article is not on a specific classification of individual differences but the speculations of what they could be and how to test them. | |
| 19 | Kyllonen & Shute | Kyllonen, P. C., & Shute, V. J. (1988). Taxonomy of Learning Skills. Brooks, TX: Air Force Human Resources Laboratory. | not available in legible form; see page 17 of original publication for figure. | Taxonomy of learning skills | Instructional environment<br>Resulting knowledge type<br>Domain<br>Learning Style | The authors have performed extensive analyses of prior approaches to developing/establishing taxonomies, among them Bloom, Gagne, Underwood and Anderson. They distinguish three types of taxonomies, which are categorized by their approach to setting up the taxonomy: a) designated/rational taxonomies based on conditions-of-learning analysis (apparently the most common type), b) empirical-correlational taxonomies, and c) model-based taxonomies dervied from formal computer simulations (largely inspired by cognitive psychologist devleopments) (p. 6). The authors favor type c), however, they also see a chance in creating synthesis between the three different approaches (p. 14).<br>Their own taxonomy is made up of four dimensions (names listed under keywords). The first three dimensions define a space of learning tasks. Each cell represents a task that teaches a particular subject matter by a particular means resulting in a particular kind of knowledge (pp. 22f). The fourth dimension refers to characteristics of the person rather than the environment since the environment alone may not predict what kind of learning experience will result or what kind of learning skill is being tapped (pp. 23f). | The taxonomy should be useful as a learning task analysis system, thus it should answer questions like what are the component skills involved in learning to disassemble a jet engine, or operate a camera, or program a computer, or make economic forecasts?<br>Second, the taxonomy should serve to focus "our research" (p. 14). |
| 20 | Leclerq & Poumay/ Verpoorten | (1) Leclercq, D., & Poumay, M. (2005). The 8 Learning Events Model and its principles. Retrieved January 16, 2008, from http://www.labset.net/media/prod/8LEM.pdf<br>And<br>(2) Verpoorten, D., Poumay, M., & Leclercq, D. (2006). The 8 Learning Events Model: a Pedagogic Conceptual Tool Supporting Diversification of Learning Methods. Retrieved August 14, 2008 from http://dspace.ou.nl/handle/1820/695<br>And<br>(3) Verpoorten, D., Poumay, M., & Leclerq, D. (2006). D1.1 M24 Research Report for T1.1. Report for the iClass project. Liège: University of Liège. Retrieved August 14, 2008 from http://www.iclass.info/docs/1%20D1.1%20M24.doc |  Figure on page 3 of source 1. | 8 Learning Events Model (8LEM) | Imitation/Modeling<br>Reception/Transmission<br>Exercising/Guidance<br>Exploration/Documenting<br>Experimentation/Reactivity<br>Creation/Confortation<br>Self-reflexion/Co-reflexion<br>Debate/animation | The authors distinguish their term "event" clearly from instructional "strategy" and "method". From their point of view, an event equals an atom, where a small number of atoms build the foundation for forming a large number of different molecules (source 1, p. 1). The authors chose the number 8 for their number of events on the basis of the limits of human cognitive processing (Miller, 1956), arguing that the model thus stays clear (source 1, p. 1).<br>The terminology of the model is chosen at an "intermediate level of conceptualisation", which they base on Rosch (1979), as this level is the most widely used in conversation (source 1, pp.1f).<br>For each of the eight (learner!) events, the authors have provided links to learning and other theories to back the event. At times, these seem arbitrary (e.g. Torrance's creativity criteria in the event "Creation" as backup, source 1, p. 7); other times they seem to fit well (Thorndike & Skinner for event "Exercising", source 1, p. 5).<br>The authors state that the 8LEM is "not deemed to be true but useful" (source 3, p. 4).<br>The events are provided in a list; however, the authors state that the ranking within the list does not relate to importance or value (source 3, p. 5). The events do not exclude one another (source 3, p. 6).<br>The authors provide another set of metadata to describe the approaches associated with each of the learning events. These criteria are: type of media used, whether there is an evaluation of the learner's performance, individual or collaborative work, approximate time learner will take (source 1, p. 9). | To reduce complexity without lapsing into simplistic methods (source 1, p. 1)<br>The authors furthermore suggest to use the events to express the learning experiences graphically ("rough yet complete") (source 2, p. 2). This ought to help practitioners to get a quick grasp of what a UoL entails (ibid).<br>The authors wish to foster pedagogical variety, training the learner in being able to learn in several learning modes. They coin the term "learning polyvalence" for this (e.g. source 3, pp. 7f). |

| | Main Author(s) | Relevant References | Pictorial presentation of schema | Name of Schema | Keywords | Short Description and Theoretical Background of Schema | Purpose of the development/Problem addressed |
|---|---|---|---|---|---|---|---|
| 21 | Lejeune & Pernin | (1) Lejeune, A., & Pernin, J.-P. (2005). A Taxonomy for Scenario-Based Engineering. Paper presented at the Cognition and Exploratory Learning in Digital Age (CELDA), Lisboa.<br>And<br>(2) Pernin, J.-P., & Lejeune, A. (2006). Models for the Re-Use of Learning Scenarios. Retrieved January 16, 2008 from http://dspace.ou.nl/bitstream/1820/580/1/Models.pdf |  <br>Variable criteria<br>degree of formalization: informal ☐ formalized ☐ automatizable ☐<br>degree of abstraction: abstract ☐ concrete ☐<br>Constant criteria<br>finality: predictive ☐ descriptive ☐<br>granularity: activity ☐ sequence ☐ structuration ☐<br>degree of personalization: generic ☐ adaptative ☐<br>Degree of constraint: constrained ☐ open ☐ adaptable ☐<br>Figure on page 5 of source 1. | Taxonomy of scenarios/ Taxonomy for scenario-based engineering | Degree of formalization<br>Degree of abstraction<br>Finality<br>Granularity<br>Degree of personalization<br>Degree of constraint | The authors propose a taxonomy that consists of six "criteria" (see keywords column), with each criterion having two or three values, of which one will be checked as being the one for the pedagogic scenario being classified.<br>The quality of the presentation of the authors' research results was below average. | It is not clear what the purpose of the taxonomy development was, perhaps to aid searches for pedagogic scenarios in databases. |
| 22 | Martinez, Sauleda, Huber | Martínez, M. A., Sauleda, N., & Huber, G. (2001). Metaphors as blueprints of thinking about teaching and learning. Teaching and Teacher Education, 17, 965-977. | none | none | Behaviourist/empiricist perspective<br>Cognitive point of view<br>Situative or socio-historic perspective | The authors asked teachers with teaching experience and pre-service teachers to formulate their notion of learning as a metaphor. The authors then interpreted and classified the so produced metaphors into three groups: (they call these "three dimensions" p. 967, but they are actually along one dimension, which is learning theory): behaviourist/empiricist perspective, cognitive point of view, situative or socio-historic perspective. It is not clearly mentioned, how they created these three groups. The authors mention that the groups may be extended (p. 967). | To group metaphors on learning |
| 23 | Merrill, Jones, Li | (1) Merrill, M. D. (1999). Instructional Transaction Theory (ITT): Instructional Design Based on Knowledge Objects. In C. M. Reigeluth (Ed.), Instructional-Design Theories and Models: A New Paradigm of Instructional Theory (Vol. II, pp. 397-424). Mahwah, NJ: Lawrence Erlbaum.<br>And<br>(2) Merrill, M. D., Jones, M. K., & Li, Z. (1992). Instructional Transaction Theory: Classes of Transactions. Educational Technology, 32(6), 12-26. Retrieved August 14, 2008 from http://id2.usu.edu/Papers/TxClass.PDF |  <br>Thirteen Classes of Instructional Transactions<br>*Component Transactions*<br>IDENTIFY: name and remember information about parts of an entity<br>EXECUTE: remember and do steps in an activity<br>INTERPRET: remember events and predit causes in a process<br>*Abstraction Transactions*<br>JUDGE: order instances<br>CLASSIFY: sort instances<br>GENERALIZE: group instances<br>DECIDE: select among alternatives<br>TRANSFER: apply steps or events to a new situation<br>*Association Transactions*<br>PROPAGATE: acquire one set of skills in the context of another set of skills<br>ANALOGIZE: acquire steps of an activity, or events of a process, by likening to a different activity or process<br>SUBSTITUTE: extend one activity to learn another activity<br>DESIGN: invent a new activity<br>DISCOVER: discover a new process<br>Figure on page 405 of source 1. | Classes of Instructional Transactions | component transactions<br>abstraction transactions<br>association transactions<br>___<br>Identify<br>Execute<br>Interpret<br>Judge<br>Classify<br>Generalize<br>Decide<br>Transfer<br>Propagate<br>Analogize<br>Substitute<br>Design<br>Discover | The transactions for IDENTIFY, EXECUTE, and INTERPRET are building blocks for abstraction and association transactions. All instruction involves acquisition of the knowledge and skills promoted by the fundamental transactions. These transactions account for the instructional strategies found in most of the existing instruction in training (source 1, p. 405).<br>The authors assume that different knowledge structures require different types of instructional transactions, and that different transactions promote the acquisition of different types of learner capability (source 2, p. 1).<br>They propose that the nature of interactions for a given class of transaction depends on the type of knowledge structure(s) that the transactions seeks to promote and the learner capability enabled by the transaction (source 2, pp. 2f)<br>The three types of transactions (component, abstraction, association) correspond to the three types of elaborations for knowledge frames. | The purpose of transactions is to render mechanisms for displaying "knowledge frames", which may also be referred to as learning objects in more modern terminology. |
| 24 | Minass | Minass, E. (2002). Dimensionen des E-Learning: Neue Blickwinkel und Hintergründe für das Lernen mit dem Computer. Kilchberg: Smartbooks. | Too large to be depicted here. | Dimensions of e-learning (*Dimensionen des E-Learning*) | | The author provides many different "dimensions" that can be used to classify e-learning. The author states that he has studied and combined many different sources to create these dimensions of e-learning. However, from the book it is not apparent, 1) what sources served as input for his dimensions, or 2) how he then combined them into his dimensions. The whole text is missing links to the literature, while the reference section itself is small enough that one must believe that he has not cited his sources. This work must be concluded to be highly arbitrary. | To show how complex and multi-layered e-learning is. |
| 25 | Niemeyer | Niemeyer, A. H. (1882). Grundsätze der Erziehung und des Unterrichts (2 ed. Vol. I&II). Langensalza: Hermann Beyer & Söhne. Originally published 1825. | none | | Dialog between teacher and learners<br>Lecturing<br>Teaching by demonstrating | The author talks about general instructional strategies that should be attended to when teaching, for instance, teaching should involve learners, or teachers should see instruction from the learner's point of view (Vol. II, pp. 9ff). He distinguishes three forms of teaching: dialog between teacher and learner (*katechetische Lehrform*), lecturing (*akroamatische Lehrart*) and teaching by demonstrating (*Unterricht durch Zeigen und Vortun*) (Vol. II, pp. 22ff). He further states that the three typical forms have to be adjusted depending on the number of participating students. The author then lists exercises and further learning and teaching methods for instructing students depending on the subject matter being taught, e.g. essay writing, mathematics, natural sciences, philosophy, ethics, foreign language learning, religion (Vol. II, pp. 44ff.). It seems that the author did not consider exercises that students performed to be types of teaching as the author did not include these in his list of three types of teaching. Although the publication was first published nearly 200 years ago, some of the (unreferenced) statements by the author reflect modern perspectives on learning that we still hold today. | |
| 26 | OECD | Organisation for Economic Co-operation and Development (OECD). (1999). Classifying Educational Programmes. Manual for ISCED-97 Implementation in OECD Countries. | none | ISCED-97 | | The coverage of the ISCED-97 extends to all organised and sustained learning opportunities for children, youth and adults including those with special educational needs, irrespective of the institutions or organisations providing them or the form in which they are delivered (p. 7). | To classify levels of education (p. 8);<br>to provide an integrated and consistent statistical framework for the collection and reporting of internally comparable education statistics (p. 7). |

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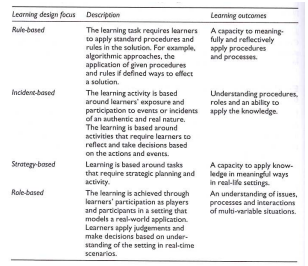
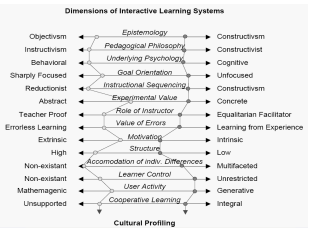
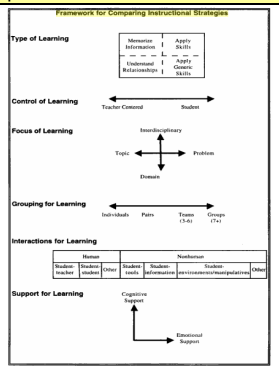
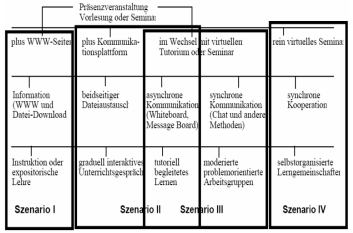
| 27 | Oliver, Harper et al. | Oliver, R., Harper, B., Wills, S., Agostinho, S., & Hedberg, J. (2007). Describing ICT-based learning designs that promote quality learning outcomes. In H. Beetham & R. Sharpe (Eds.), Rethinking Pedagogy for a Digital Age. Designing and delivering e-learning (pp. 64-80). London, New York: Routledge. |  <br>Figure on page 68. | Framework for learning design typology | rule-based<br>incident-based<br>strategy-based<br>role-based | Within an AUTC-funded project, a framework for distinguishing learning designs, and a means for providing a formal description of each design were developed (p. 65). Development of the framework was guided by notions of Jonassen (2000) in regard to activity-theory (p. 67). The first three forms (refer to keywords column) are derived from Jonassen's problem-types, while the fourth was added by the authors (p. 68). The learning design types are seen as discrete and follow a continuum describing the scope of their complexity and openness (p. 68). | "What appears to be still missing for teachers is appropriate guidance on the effective pedagogical practice needed to support such activities [teachers looking to make meaningful use of learning technologies]." (p. 64)<br>"In our project, we needed to be able to articulate clearly the nature and scope of different forms of learning design in ways that would enable a design to be applied across a variety of settings and disciplines. We required some strategy by which the various learning designs could be described and variations and instances accommodated." (p. 67) |
| 28 | Ramsden | Ramsden, P. (1992). Learning to Teach in Higher Education. London and New York: Routledge. | none | Theories of Teaching | 1:Teaching as telling or transmission<br>2:Teaching as organising student activity<br>3:Teaching as making learning possible | The three presented theories of teaching are based on what lecturers have said about the problems and possibilities of improving learning and teaching. The vignettes were derived from the structure of lecturer's theories of teaching suggested in recent research and writing on the subject (information was collected in Melbourne and Hong Kong by four researchers via interviews with lecturers who described their teaching and learning in their discplines) (p. 111). The author brought these findings together with knowledge on student's approaches to learning to derive three generic ways of understanding the role of teachers in higher education.<br>It seems that the first theory is much further away from the second theory, than the second is from the third. The third appears to be a further elaboration of the second, which takes the learner's prerequisite knowledge and general knowledge of teaching the "content" into account (pp. 114f). Ramsden states that theory 3 is associated with better quality learning and changing lecturers' understanding of teaching as a necessary condition for improvement (p. 117).<br>The author states that the three theories have a "progressive, or hierarchical, structure" (p. 116).<br>The author regards the theories as logical constructs rather than descriptions of individual courses (p. 117). | |
| 29 | Reeves | Reeves, T. (1997). Evaluating What Really Matters in Computer-Based Education. University of Georgia. Retrieved August 14, 2008 from http://www.educationau.edu.au/jahia/Jahia/pid/179 |  | Fourteen pedagogical dimensions of computer-based education | epistemology<br>pedagogical philosophy<br>underlying psychology<br>goal orientation<br>experiential value<br>teacher role<br>program flexibility<br>value of errors<br>motivation<br>accommodation of individual differences<br>learner control<br>user activity<br>cooperative learning | The author made the first attempt to describe the dimensions in 1992. Until 1997 (the status of the present publication), the dimensions were revised based on feedback from Reeves' colleagues. The status of the dimensions is not final; further modifications are necessary according to the author. (p. 3)<br>Suggested improvements include conducting a rigorous expert review with leaders in computer-based education, then inserting qualitative scales to the dimensions, then the application of these qualitatively stated dimensions to different forms of computer-based education and a variety of educational contexts. Last, research should be performed to identify relationships between ratings received on the fourteen dimensions and the actual instructional effectiveness and impact of the educational programs (p. 14). | "Pedagogical dimensions can be used to compare one form of CBE [computer-based education] with another or to compare different implementations of the same form of CBE. [The criteria] will result in more valid and useful evaluations" (p. 2). |

| | Main Author(s) | Relevant References | Pictorial presentation of schema | Name of Schema | Keywords | Short Description and Theoretical Background of Schema | Purpose of the development/Problem addressed |
|---|---|---|---|---|---|---|---|
| 30 | Reigeluth & Moore | Reigeluth, C. M., & Moore, J. (1999). Cognitive Education and the Cognitive Domain. In C. M. Reigeluth (Ed.), Instructional-Design Theories and Models: A New Paradigm of Instructional Theory (Vol. II, pp. 51-68). Mahwah, NJ: Lawrence Erlbaum. |  <br>Figure on page 56. | Framework for comparing Instructional Strategies | Types of learning<br>Control of learning<br>Focus of learning<br>Grouping for Learning<br>Interactions for Learning<br>Support for Learning | For the dimension "type of learning", the authors use a synthesis of other classifications proposed by Bloom (1956), Gagné (1985), Ausubel (1968), Anderson (1983), and Merrill (1983). They have placed them in a comparative table to identify (upon their understanding) four main dimensions (groups?) for types of learning: memorize information, understand relationships, apply skills, apply generic skills.<br>For the other dimensions, they do not offer reason how they came up with this dimension of classification. | Authors state that the framework is not intended to be all-encompassing but to provide a starting point from which to begin your own process of analysis and discussion. |
| 31 | Reusable Electronic Software Library (RESL) | Re-usable Educational Software Library (RESL). (2008, August 14). Keywords List. Retrieved August 14, 2008 from http://www.resl.ac.uk/keyword.cfm?keyword=PE | none | Keywords List | | There are no accounts on how this list was set up. Lists are provided in two levels for pedagogy, three levels for technology, and three levels for strategy (level means increasing detail, i.e. creating a subterm of the header term). | To find records in a database especially case-studies in re-using educational software, plus related software, reports, guides, data-sets and websites. |
| 32 | Roth & Roth | Roth, A., & Roth, H.-G. (1978). Die Elemente der Unterrichtsmethode. München: Paul List. | none | Structure moments of teaching methods *(Strukturmomente der Unterrichtsmethode)* | Types of teaching (*Lehrweisen*)<br>Gradation/articulation (*Stufung/Artikulation*)<br>Social form (*Sozialform)* | The authors describe three dimensions of teaching methods (they call these three dimensions *methodische Grundkategorien* or *Strukturmomente*): *Lehrweisen* (types of teaching), *Stufung/Artikulation* (the process of moving through proficiency stages), the social form.<br>For the first dimension (*Lehrweisen*), the authors differentiate subgroups that are dependent on the subject matter and its objects being taught, i.e. 1) real objects that can be experienced are taught with types of teaching of real representation, 2) real objects that cannot be experienced in the immediate learner environment are taught with types of teaching of envisioning, 3) abstract objects like terms, rules or rational insights are taught with types of teaching of questioning and developing, 4) representations of objects created by humans that have meaning or relation to some principle to be interpreted are taught with types of interpreting teaching, and 5) objects being created by learners are taught with types of teaching of practical design by students (pp. 40ff).<br>The gradation of teaching, or moving through the proficiency stages (*Stufung des Unterrichts*) is divided into gradation model of knowledge acquisition (two-fold), transmission of experience, expression composition, and proficiency training (pp. 93ff).<br>The third dimension (*Sozialform*) is divided into: teaching in the same front, the class (entire group of students) as the carrier of instructional events, the (small) group as the carrier of instructional events, the single learner as the carrier of instructional events, and technical media as carrier of instructional events (pp. 112ff). | |
| 33 | Sader et al. | Sader, M., Clemens-Lodde, B., Keil-Specht, H., & Weingarten, A. (1971). Kleine Fibel zum Hochschulunterricht. Überlegungen, Ratschläge, Modelle (2 ed.). München: Beck. | none | Sieben Modelle für den Hochschulunterricht | Beginner exercise (*Anfänger-Übung*)<br>Fact catapult (*Faktenschleuder*)<br>Small group exercises (*Kleingruppenzentrierte Sach-Übung*)<br>Socratic dialog (*Sokrates*)<br>Research seminar (*Forschungsseminar*)<br>Grand old man (G.o.m.)<br>Self-regulated/initiated learning networks (*Basisgruppe*) | The authors provide seven course types (*Lehrveranstaltungstypen*). The seven models are put together from the results of motivation and small group research, some reports from newer higher education research, own experiences of the authors and "a lot of imagination" (p. 127). The authors do not limit the number of possible models to seven, the elements are to be mixed and extened (p. 127). The examples used stem from the subject of psychology; the authors, however, see the potential to use the models/course types in different subjects (p. 127).<br>The authors assume for all seven models that students participate in the planning, preparation and implementation of the models.<br>The Appendix of the book includes a list featuring more methods and versions. The authors state, that those are not meant to be alternatives to the seven models but as variety enhancers (pp. 165ff). | |

| | Main Author(s) | Relevant References | Pictorial presentation of schema | Name of Schema | Keywords | Short Description and Theoretical Background of Schema | Purpose of the development/Problem addressed |
|---|---|---|---|---|---|---|---|
| 34 | Saroyan & Snell | Saroyan, A., & Snell, L. S. (1997). Variations in lecturing styles. Higher Education, 33, 85-104. | none | Variations in lecturing styles | content-driven lecture<br>context-driven lecture<br>pedagogy-driven lecture | Authors state that "of all instructional methods, lecturing is the most widely used format in university classes" (p. 87). The authors establish a framework for discerning differences in lectures by applying the following measures to lectures (whether the instructors make use of): introduction, explicit explanation, periodic summaries, conclusion, signposts of what's ahead, cues when transitions occur, making links between new material and prior knowledge, placing new knowledge in the context of the discipline, and last but not least including interactiveness (p. 88). The result of the study were three different types of lecturing styles (see Keywords column). | The authors set up the goal to describe lectures in more detail than Brown et al.'s schema was capable of (pp. 89f). They saw a need for having a theoretical framework for characterizing lectures and addressing the assertion that there is a lack of "an operational definition of the classical lecture" (Schonwetter 1993) (p. 87). |
| 35 | Schulmeister | Schulmeister, R. (2002). Virtuelles Lehren und Lernen: Didaktische Szenarien und virtuelle Seminare. In B. Lehmann & E. Bloh (Eds.), Online-Pädagogik (pp. 129-145). Baltmannsweiler: Schneider Verlag Hohengehren. |  <br>Figure on page 135. | Scenarios of virtual learning (*Szenarien virtuellen Lernens*) | form<br>function<br>method | Since the author means to classify "virtual seminars", he does not take into account face-to-face scenarios of learning (p. 130). The criterion for the first category "form" is how large the portion of virtual learning/teaching in comparision to the entire course is (p. 130).<br>The author claims that the dimension "function" may be explained using known communication models and theories. However, he fails to mention which ones these are and how they fit his schema (p. 131).<br>The dimension "method" is shortly explained as being on a scale from behavioristic, to cognitivistic towards constructivist pedagogy (p. 131). The author does not explain how the theories fit with his setup of the dimension.<br>The author then compares his own framework with all kinds of other frameworks that researchers have developed. The discourse does not seem to take place critically; he just observes who else has used factors (quite arbitrarily!) that could be interpreted into the author's own schema (pp. 131-135).<br>The author distinguishes four scenarios that "cross" the three dimensions: face-to-face seminars that are accompanied by online components (scenario type I), equal ranks between face-to-face and online components (type II), integrated use of face-to-face and online components (type III), virtual seminars and learning communities (type IV) (p. 135). | |
| 36 | Squires | Squires, G. (2004). A Framework for Teaching. British Journal of Educational Studies, 52(4), 342-358. | [1] *Class*<br>FUNCTIONS / VARIABLES / PERFORMANCE<br>Audit, Orient, Input, Explain, Task, Feed back, Motivate, Reward, Explore, Reflect<br>Objectives, Subject-matter, Level, Structure, Individual, Group, Stakeholders, Physical setting, Organisational setting, Cultural setting<br>Presentation, Demonstration, Question and answer, Discussion, Simulation, Practical, Supervision, Placement, Assignment, Project<br>[2] *Course*<br>FUNCTIONS / VARIABLES / PERFORMANCE<br>Select, Induct, Resource, Manage, Model, Interact, Environ, Support, Counsel, Examine<br>Aims, Subject-matter, Level, Structure, Individual, Group, Stakeholders, Physical setting, Organisational setting, Cultural setting<br>Analysis, Proposal, Design, Marketing, Organisation, Enrolment, Delivery, Assessment, Evaluation, Development<br>Figure on page 355. | Framework for teaching | Functions<br>Variables<br>Performance | Two decades of research led the author to develop his framework for teaching; the headings used in the framework were developed together with practitioners. The headings need further and more systematic evaluation (p. 349).<br>The framework consists of a three-dimensional model: functions (cognitive, affective, executive), variables (content, students, settings), and performance (class, course, institution) (p. 349). The framework is analytic rather than prescriptive (p. 350).<br>The three functions of teaching often run together in practice (p. 345); the functions of teaching are not always the functions of teachers, and may thus be shared with or devolved to the learner (p. 345). The author emphasizes that the framework is not teacher-centered.<br>The author believes to consider teaching within the varying context of further, higher and continuing education as well as schools, since this helps to isolate what is essential rather than situational in the process [of teaching] (p. 347).<br>Some questions were not addressed in the framework, e.g. the "when" of teaching, the "teacher-self", or historical location. The author meant not to rule these questions out but to provide a "manageable framework that allows us to get some initial purchase on complexity" (pp. 347f).<br>For further studies on this topic, the author suggests to draw together rationalist and empiricist approaches, which currently seem rather disjointed (p. 352). The author proposes that the framework helps in identifying and formulating productive research questions, e.g. which kinds of performance in the context of which variables fulfil which functions? (p. 352). | To retrospectively evaluate courses or analyze teaching based on the functions dimension to identify problematic aspects of teachers' work (p. 350). Headings may be used by students to analyse and manage their own learning (p. 350).<br>Headings of functions and variables provide a way into literature on teaching & structure for case-studies as well as personal experience (p. 350).<br>The headings remind teachers of aspects of work that were relegated to the background & the framework subsumes the dualisms of pedagogy (subject-centred vs. student-centred; whole class vs. small group; didactic vs. facilitative). It shall help to see teaching as a whole (p. 350).<br>The framework enables teachers to say "this is what I do" to deliver a sense of professional identity and think beyond the immediacies of current work (pp. 350f).<br>The framework provides a language for group discussions on teaching practice among teachers (p. 351). |
| 37 | Visible Thinking | Harvard Project Zero. (2008, August 14). Visible Thinking. Retrieved August 14, 2008 from http://www.pz.harvard.edu/vt/VisibleThinking_html_files/VisibleThinking1.html | none | Thinking Routines | Core routines (getting started)<br>Understanding Routines<br>Fairness Routines<br>Truth Routines<br>Creativity Routines | Visible Thinking has been created following a number of years of research in children's thinking and learning, along with a sustained research and development process in classrooms. It is a "broad and flexible" framework for enriching classroom learning and fostering students' intellectual development.<br>Goals: deeper understanding of content, greater motivation for learning, development of learners' thinking and learning abilities, development of learners' attitudes toward thinking and learning and their alertness to opportunities for thinking and learning (the "dispositional" side of thinking), a shift in classroom culture toward a community of enthusiastically engaged thinkers and learners.<br>Visible Thinking is designed to foster "really good thinking", which involves abilities, attitudes, and alertness. | |