



Instructional Design Model for Courseware

Executive Summary

Just as fashion designers cannot create new lines of clothing without regard to principles of construction, shape, and form, designers of effective e-learning also require similar knowledge of foundational principles, theories, and models.

This paper describes the instructional design model that is at the core of every course SkillSoft develops. The paper also discusses a variety of learning theories and instructional strategies that are used flexibly and creatively within that model to meet a broad range of learning requirements.

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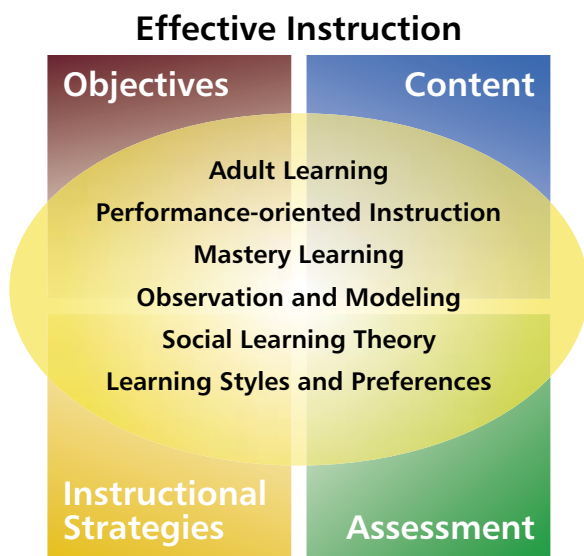
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Introduction

SkillSoft's model of instructional design is based primarily on the concepts of performance-oriented instruction, mastery, and the sequencing of instructional activities and strategies. The model draws heavily from adult learning principles that emphasize learner initiative, self-management, learning transfer, and experiential learning.



The design of each SkillSoft course starts with the definition of learner-focused performance objectives and then proceeds to the selection and implementation of instructional strategies and learning activities appropriate for those objectives. Frequent practice questions or exercises, along with assessments, measure learners' achievement of those objectives. The self-paced environment and unlimited access to instruction and assessment provide all learners with the opportunity to reach their desired level of mastery within each course. This robust, yet flexible, design methodology creates an

instructionally sound model for the design and development of highly interactive, engaging, and instructionally effective courses – regardless of the content focus or level of learning.

SkillSoft's instructional design methods meet the challenge of creating effective and engaging instruction with ongoing consideration for the current capabilities of the Web and our corporate customers' global computer networks. The design, development, and quality assurance standards and processes are all geared toward ensuring each of its key components meets SkillSoft's expectations for the best instruction possible. Each course in SkillSoft's library includes:

- Learning outcomes specified by performance goals and objectives
- Content aligned with course objectives
- Assessments that can be used before and after instruction to evaluate mastery of the knowledge and skills specified in the objectives
- Instructional strategies, learning activities and multimedia elements appropriate for the specific course content area
- Levels of learning appropriate for the content and the target audience

The theories and principles embedded within the SkillSoft ID model are actualized via:

- Friendly, intuitive graphical user interface
- Course structure and interface that supports self-

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paced, learner-controlled instruction

- Unlimited access to instruction and mastery assessments
- Presentation and practice templates designed for unified and predictable functionality
- Rich variety of presentation, practice, and assessment templates supporting high levels of learner interactivity and engagement
- Standardized, yet flexible, flow of instruction

Starting from this set of common elements and attributes, SkillSoft courses include the instructional strategies most suitable for the content and specified objectives. For instance, instructional strategies required to teach negotiation skills are different from those used to teach finance or accounting skills. It's also easy to understand that the strategies used to teach these two business content areas would differ from those used to teach computer and software skills.

SkillSoft Instructional Design Model

Instructional design is often described as an application of theory, rather than theory itself. Restricting application to a single theory or approach isn't realistic; different learning theories, principles or concepts may apply, depending on the learners, the content, and the situation. Understanding the strengths and weaknesses of many learning theories is essential to optimizing their use in designing appropriate instruction for those varying conditions. Therefore, a solid foundation in learning theory is essential in the preparation of ISD profes-

sionals because it permeates all dimensions of instructional design. Adopting a "one size fits all" or "recipe" approach may be useful for novice designers, but more experienced designers with access to larger "wardrobes" and "cookbooks" benefit from the ability to see the design world from multiple perspectives and angles. The best design decisions are influenced by knowledge of not one, but multiple, learning theories. This is why SkillSoft's approach to instructional design is deliberately flexible and eclectic.

The Cornerstones

SkillSoft's Instructional Design Model consists of four cornerstones supported by multiple learning theories and instructional design principles.

Objectives

Objectives are statements of intended learning outcomes. They describe the performance learners will exhibit in order to be considered competent. Objectives describe the result of instruction, rather than the process of instruction. Objectives, along with content, are the starting point for the design and development of all SkillSoft courses. Objectives must be written in performance-oriented language. In other words, objectives must clearly describe the behavior or activity the learner will perform to demonstrate learning. Those behaviors must be measurable and "doable" within an e-learning environment.

Objectives must also reflect or strongly suggest the desired level of learning – whether it's lower level comprehension and knowledge, or higher level application and

analysis. SkillSoft strives to include as many high-level objectives as possible – or as appropriate to the purpose and goals of the course.

Related Learning Theories and Concepts:

- Criterion-referenced instruction (Mager)
- Cognitive Domain (Bloom’s Taxonomy of Learning Levels)
- Cognitive Learning Theories (Ausubel, Bruner, and Gagné)

Content

Content is the information or subject matter treated in a specific work – like a book or a college course. Within the training industry, the term “content” refers to broad curriculum areas as well as the subject matter treated in specific, individual courses. In the context of instructional design, content usually refers to the information included in a planned instructional product or collection of products. Content, then, from a course design perspective, is the specific information needed to support presentation, practice, and assessment of one or more instructional objectives. Content and learning objectives are the starting point for designing and developing e-learning courses, or any type of instructional product.

Content Domains

Content domains are broad areas of knowledge, influence, or activity. SkillSoft’s course offerings include content from four high-level domains — Business Skills, Information Technology (IT) Professional, Compliance (which includes Environmental, Safety and Health), and

Desktop/End User. Each of these content domains is subdivided into sub-categories, which form the basis for Curriculum areas in SkillSoft’s Overall Content Library.

Each sub-category is easily divided into even smaller areas, further delineated and defined by content specifics and/or target audience. It’s this more restrictive, less inclusive focus that drives the identification and selection of content for specific series, courses, and ultimately the course-level lessons and topics.

Learning Domains

Just as there are broad areas of content, there are also broad areas of learning outcomes called Learning Domains. These three domains provide an additional structure for categorizing instructional outcomes and content.

• Cognitive Domain

The cognitive domain of learning refers to the intellectual skills and behaviors involving mental processing. These skills range from rote memorization to the ability to think and solve problems.

• Affective Domain

The affective domain refers to attitudes, feelings, and values – all of which are critical to learner motivation. From a learner’s perspective, content in this area answers the question, “What’s in it for me?”

• Psychomotor Domain

The psychomotor domain involves behaviors requiring motor as well as cognitive skills. Physical

activities, such as sports, fall into this domain, as do many technical skill areas, such as machine operation and medical device handling.

Learning outcomes are often described as changes in behaviors, skills, and/or attitudes. Those changes are the same changes defined in the performance-oriented objectives. Under SkillSoft's Instructional Design Model, categorizing objectives and their related content by Learning Domain is the first and most fundamental step in achieving instructional excellence and effectiveness.

Content/Information Types

Several learning theorists and instructional designers have devised methods of categorizing or classifying content into types. SkillSoft works with five types of content and bases the definitions of those types on Robert Horn's theories of Structured Writing and Information Mapping.

- **Facts**

Facts are statements asserted with or without supporting evidence. Facts include names, dates, events, specifications, symbols, measurements, and experimental results and observations.

- **Concepts**

A concept is a class or group of items that share a unique combination of critical attributes or characteristics. These unique attributes are not shared by other groups and are referred to by the same generic name or symbol. Concepts can be physical objects, conditions, responses, events, and ideas.

- **Principles**

A principle is a statement of what should or should not be done, what seems to be true in light of evidence, or what is unproven but implied by other statements. Principles include laws, policies, guidelines, generalizations, hypotheses, relations, rules, assumptions, and axioms.

- **Procedures**

A procedure is a set of steps a person performs in order to obtain a specified outcome.

- **Processes**

A process is a series of events or phases that takes place over time and usually has an identifiable purpose or result. A process, like a procedure, usually involves sequential events or time intervals. However, a process usually lacks the specificity required for the reader to perform the tasks described.

Content can involve several or all five of the content types. Breaking the content into smaller component parts based on content type is often a beneficial process—for the person structuring the content as well as for the person attempting to understand or learn the content.

Content types are invisible to SkillSoft's target audience (the learner), but play an important role in the organization and development of content for presentation to the learner.

Related Learning Theories and Concepts:

- Bloom's Taxonomy (Benjamin Bloom)

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- Sequencing of Instruction (Bruner, Reigelith, Scandura, Mager, Bloom)
- Conditions of Learning (Gagné)
- Structured Writing and Information Mapping Theories (Robert Horn)
- Multiple Intelligences (Howard Gardner)

Instructional Strategies

Instructional strategies deal with the selection and arrangement of content elements and instructional activities in a manner that facilitates learning. SkillSoft defines “instructional strategies” as the methods used to present, practice, and sequence instructional content. Instructional strategies are tools for implementing instruction, regardless of the media and delivery options. They are a key component in any instructional design process and provide a high degree of flexibility and adaptation when considering media and/or platform delivery alternatives. Instructional strategies provide the greatest opportunity for flexibility, engagement, and interaction.

As the explanations of objectives and content cornerstones have already implied, no single instructional strategy, or specific arrangement or sequence of instructional activities, can be applied across the board to meet all learning requirements in all content domains. Therefore a wide range of instructional strategies must be available, regardless of the media or delivery requirements.

Instructional strategies include, but are not limited to:

- Examples and non-examples
- Demonstrations
- Visual representation of content, including animations, when appropriate
- Audio representation of content (voiced narration, sound effects, music)
- Advance organizers
- Attention gaining strategies
- Reflection
- Debriefs
- Progressive disclosure
- Exploratory and discovery learning
- Job aids
- Learning aids
- Follow-on activities
- Simulated dialogs
- Guided practice, discussions
- Practice exercises
- Embedded questions with feedback
- Case studies and scenarios
- Role-plays
- Simulations
- Repetition and rehearsal
- Follow-on activities

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Obviously, not all strategies are used in all instructional circumstances. But these kinds of presentations, explanations and activities, combined with content organization and sequencing strategies, provide the means by which the instructional designers and course developers at SkillSoft design engaging, interactive, and successful learning activities and instruction.

The full range of possibilities associated with instructional strategy is evident at <http://glossary.plasmalink.com/glossary.html>, a Web-based glossary of instructional strategies. This Web site includes over 988 individual entries, some focused on specific and specialized methods of facilitating learning, others covering broader learning theories and instructional design principles.

Related Learning Theories and Concepts:

- Engagement Theory (Greg Kearsley & Ben Shneiderman)
- Experiential Learning (Carl Rogers)
- Andragogy (Malcolm Knowles)
- Interactivity
- Advance organizers (David Ausubel)
- Learning Style Theories (Kolb, Gardner, Guilford)
- Sequencing and Content Organization Specific
- Simple to complex (Bruner, Reigeluth, Scandura)
- Linear (Behavioral S-R theories, as from Skinner, Hull, Thorndike)
- Elaboration Theory (Reigeluth)

- Chunking, Information Processing Theory (G. Miller)
- Cumulative Strategy (Landa)
- Component Display Theory (D. Merrill)
- Scaffolding (Bruner)
- Criterion-Referenced Instruction (R. Mager)

Assessments (Tests)

Assessments are deliberate attempts by people to acquire information about themselves or others. The information is then compared to a specified standard or desired result. Within instructional and learning environments, tests are used to measure what people know (knowledge) and how well they can apply what they know (performance).

Assessment strategies are closely related to the instructional strategies used to practice content. No single practice strategy, or sequence of practice strategies, can be applied across the board to meet all learning requirements in all content domains. Therefore a wide range of strategies must be available, regardless of the media or delivery requirements. The same holds true for the range of strategies that are appropriate for use in assessment or testing.

Effective assessments allow learners to exhibit the behaviors specified in the objectives and provide meaningful feedback about those behaviors.

• Pre-tests

When tests occur before instruction they are called

pre-tests or pre-assessments. Used in this manner, tests identify content the learner has not already mastered, set expectations for upcoming instructional experience, and establish a baseline measure against which future learning gains can be charted. Pre-assessment results can also be used to focus learner attention on unknown content.

- **Post-tests**

When tests occur after instruction, they are called post-tests or mastery tests. The primary purpose of post-testing is to evaluate learner mastery of content after instruction. The score produced in post-testing is often compared against the pre-test score to evaluate whether learning gain has occurred, and if so, its extent. The post-test score is also the score most often compared to established standards or expected levels of proficiency—as in certification or achievement testing.

Related Learning Theories and Concepts:

- Measuring Instructional Results (Robert Mager)
- Mastery Learning (John B. Carroll)
- Bloom's Taxonomy of Cognitive Learning

Underlying Learning Theories and Instructional Design Principles

Adult Learning

The term “Adult Learning” is associated with a body of attempts to develop theories of learning specifically for adults. Theories of adult learning vary in their origins and degree of development, but all emphasize the im-

portance of building upon the learner's experience.

Experiential Learning (Carl Rogers)

Carl Rogers was a psychologist who became interested in learning theory as part of the humanistic education movement. Rogers distinguished two types of learning: cognitive (meaningless) and experiential (significant). The former corresponds to academic knowledge such as learning vocabulary or multiplication tables, and the latter refers to applied knowledge such as learning about engines in order to repair a car. The key to the distinction is that experiential learning addresses the needs and wants of the learner.

Characteristics of Experiential Learning:

- **Personal involvement**

The learner participates completely in the learning process and takes control over its nature and direction.

- **Self-initiation**

The learning or sense of discovery comes from within and is based primarily on involvement with practical, social, personal, or research problems.

- **Pervasive effect**

Learning makes a difference in the learner's behavior, attitude, or even personality.

- **Self-evaluation**

The learner determines whether the experience meets a need and self-evaluates progress or success.

Per Rogers, experiential learning is equivalent to personal change and growth. Rogers believed that all human beings have a natural propensity to learn and that the role of the teacher is to facilitate such learning. He also emphasizes the importance of “learning to learn” and an openness to change.

Rogers’ approach to learning evolved as part of the humanistic education movement and was based on his views about psychotherapy and a humanistic approach to psychology. It applies primarily to adult learners and significantly influenced other adult learning theorists such as Knowles and Cross.

Andragogy (Malcolm Knowles)

Although psychologists and educators have been concerned for many years with the best ways to teach adults, Malcolm Knowles is often credited with pioneering the field of adult learning. Pioneer or not, he certainly played a significant role in the spread of adult learning theory awareness, knowledge, and popularity, and continued to refine his model over time based on input from peers. His original list of four basic assumptions about adult learners (numbers 2 to 5 below) expanded to six. The newest additions are motivation (number 6) and “need-to-know” (number 1).

1. Need to Know

Adults need to know why they need to learn something before undertaking to learn it. This includes the benefits they will gain as well as the negative consequences of not learning it. At the very least, educators can make an intellectual case for the value

of the learning in improving the effectiveness of the learners’ performance or the quality of their lives. Tools that can raise the level of self-awareness via real or simulated experiences can help learners discover for themselves the gaps between where they are now and where they want to be. Personnel appraisal systems, job rotation, exposure to role models, and diagnostic performance assessments are examples of such tools.

2. Self-Concept

Adults have a self-concept of being responsible for their own decisions, for their own lives. They have a need to be seen by others and treated by others as capable of self-direction. They resent and resist situations in which they feel others are imposing their wills on them.

3. Experience

Adults enter educational activities with an accumulated reservoir of experiences that provide both beneficial and negative learning effects. Life experiences can be a resource for learning, as well as a strong foundation for or connection to new learning. But as adults accumulate experiences, they also develop mental habits, biases, and presuppositions that can cause resistance to new ideas, fresh perceptions, or different ways of doing things.

4. Readiness to Learn

Adults become ready to learn new behaviors and skills in order to cope with real-life situations. They learn best when the achievement of new skills has

immediate value in their professional or personal lives.

5. Orientation to learning

In contrast to children who are subject-centered (at least in school), adults are life-centered (or task-centered or problem-centered) in their orientation to learning. Adults are motivated to devote energy to learn something to the extent they perceive it will help them perform tasks or deal with problems that they confront in their life situations. Furthermore, adults learn new knowledge, understandings, skills, values, and attitudes most effectively in the context of application to real-life situations.

6. Motivation

While adults are responsive to some external motivators, such as better jobs, promotions, and pay raises, the most potent motivators are internal pressures such as a desire for increased job satisfaction, self-esteem, or better quality of life.

Knowles used his assumptions about adult learners to develop an associated set of assumptions about the design of adult learning:

1. Prepare adults for learning. Tell them in advance why they need to learn something and what they can expect to learn as a result of their efforts. If possible, also involve them in the planning and evaluation of the instruction.
2. Provide adults with learning activities based on experiential techniques vs. transmittal techniques (doing vs. being told about). Treat mistakes as op-

portunities for more learning.

3. Learning for adults should be problem-centered rather than content or theoretically oriented. Adults need opportunities to apply and try out learning as quickly as possible.
4. Adults learn best when the topic is of immediate value. Make instruction available when needed, and present it within the context of learner needs and experience.

In practical terms, instruction for adults should focus more on the process and less on the content being taught. Strategies such as case studies, role-playing, simulations, and self-evaluation are most useful. Instructors in classroom settings adopt the role of facilitator or resource rather than lecturer or grader.

Related Learning Theories and Concepts:

- Experiential Learning (Rogers)
- Andragogy (Knowles)
- Adult Learning Theory (Cross)

Criterion Referenced Instruction (CRI)

Criterion Referenced Instruction refers to a set of methods developed by Robert Mager and Peter Pipe for the design and delivery of instruction. The critical aspects of CRI include:

- Identification of what needs to be learned via goal and task analysis
- Exact specification of the outcomes to be accomplished and how they are to be evaluated (perfor-

mance objectives)

- Evaluation of learning in terms of knowledge and skills specified in the objectives (criterion referenced testing)
- Development of instructional units tied to specific objectives

CRI is based on the ideas of Mastery Learning and performance-oriented instruction, both endorsed by Benjamin Bloom and John Carroll. It incorporates many of the ideas found in Gagné's Conditions of Learning Theory (types and levels of learning, task hierarchies, objectives) and is compatible with most theories of adult learning because of its emphasis on learner initiative and self-management. The methods are particularly applicable to self-paced courses in which students learn at their pace and take tests to determine if they've mastered a module.

Principles

- Instructional objectives are derived from job performance and reflect the competencies that need to be learned.
- Students study and practice only those skills not yet mastered to the level required by the objectives.
- Students are given opportunities to practice each objective and obtain feedback about the quality of their performance.
- Students should receive repeated practice in skills that are used often or are difficult to learn.
- Students are free to sequence their own instruc-

tion within the constraints imposed by the prerequisites, and progress is controlled by their own competence (mastery of objectives).

- Students' attainment of desired levels of mastery is evaluated via test items that evaluate mastery in terms of the knowledge and competency specified in the objectives.

SkillSoft's Instructional Design Model, particularly the four cornerstones of objectives, content, strategies, and assessment, draw heavily on the criterion-referenced methods. The approach is well known throughout educational and training communities, but is particularly valued by corporate learning and training and development organizations.

Related Learning Theories and Concepts:

- Criterion Referenced Instruction (Mager)
- Conditions of Learning Theory (Gagné)
- Sequencing of Instruction (Bruner, Reigeluth, Scandura, Gagne, Mager, Bloom)
- Andragogy (Knowles)
- Experiential Learning (Rogers)
- Adult Learning (Cross)

Levels of Learning

Benjamin Bloom's Taxonomy of Learning Objectives is one of the most well known approaches to classifying learning outcomes by level. This taxonomy, or classification system, identifies three domains of learning, each organized as a series of levels of prerequisites. The tax-

onomy suggests that learning cannot effectively progress through lower to higher levels until the levels directly below have been covered and mastered.

The original concept applied to all three learning domains (cognitive, psychomotor, and affective), and as part of their original work, Bloom and his associates established classifications for the cognitive and affective domains. Others later developed the taxonomy of learning levels and objectives for the psychomotor domain.

Taxonomy of Cognitive Learning Objectives

The learning levels identified with the Cognitive domain have received the most attention in both academic and workplace instruction, and are worthy of a brief review. Cognitive learning consists of six levels. Specific learning behaviors can be identified for each level, along with appropriate descriptive verbs that can be used for writing instructional objectives:

1. Knowledge: arrange, define, duplicate, label, list, memorize, name, order, recognize, reproduce state
2. Comprehension: classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate
3. Application: apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write.
4. Analysis: analyze, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test.
5. Synthesis: arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write.
6. Evaluation: appraise, argue, assess, attach, choose compare, defend estimate, judge, predict, rate, core, select, support, value, evaluate.

Taxonomy of Affective Learning Objectives

The affective domain deals with feelings, emotions, attitudes and valuing. The cognitive and affective domains are related. As learners cognitively learn subject content they form judgments of its worth and value to them as a person or business professional. The affective domain consists of five levels, each requiring more involvement and commitment to the subject content and its underlying principles.

1. Receiving. Learners merely tolerate the subject content. They pay attention and can recognize facts or information associated with the affective content.
2. Responding. Learners become sufficiently involved with the subject that they will seek it out and gain satisfaction in learning it. The learners actively attend and have a preference for the subject.
3. Valuing. When learners value subject matter, they are committed to it. They see it as being critically important to them.
4. Organization. As learners internalize values, they 1) organize the values in systems, 2) determine the relationships among the systems, and 3)

establish the dominant and pervasive values. At the organizational level, affective objectives help students formulate a philosophy of life.

5. Characterization. Values at this level now consistently guide learner behaviors. Values guide behavior without conscious forethought and learners utilize their philosophy of life.

The work of Bloom and others on taxonomies of learning outcomes is significant because it represents the first attempt to classify learning behaviors and provide concrete measures for identifying different levels of learning. The organization of levels and prerequisites suggests a basic sequential model for designing instruction, and provides a method of categorizing expected learning level maximums for specific instructional programs. For instance, instruction for technicians working within the cognitive domain may cover knowledge, comprehension and application, but not analysis or above. Conversely, training for full professionals might include all the technician-focused training, as well as analysis, synthesis and evaluation.

Bloom's taxonomy is an integral part of SkillSoft's design process. Each learning objective is classified first by domain and then by level. In the Business Skills library, a small percentage of the objectives (20% or less) in every course must be based on the affective domain. Although the learning level is low (receiving), it represents an important learning focus. Receiving is a prerequisite to paying attention and ultimately putting the cognitive content into practice. SkillSoft courses do not include

objectives from the psychomotor domain, and only occasionally touch on related content, such as mouse movements, keyboard strokes, or facial expressions.

Since the majority of content in SkillSoft courses is drawn from the Cognitive Domain, most of the course objectives are classified according to Bloom's Taxonomy of Cognitive Learning Outcomes. SkillSoft's instructional design standards also emphasize the importance of higher-level objectives. Learners want to be able to "do" as well as "know" which requires solid instruction covering lower as well as application and analysis level content and objectives.

Related Learning Theories and Concepts:

- Taxonomy of Educational Objectives (Bloom and Krathwohl)
- Criterion Referenced Instruction (Mager)
- Conditions of Learning Theory (Gagné)
- Systematic Design of Instruction (Merrill, Gagné, Mager)
- 3 Levels of Learning (Merrill)
- Behavioral Verbs for Objectives (Gronlund)

Mastery Learning

Mastery Learning is based on John Carroll's idea that most, if not all, students can achieve the same or similar levels of mastery given varying amounts of time and instructional strategies. This is in sharp contrast to the more traditional model that assumes differences in learning outcomes are based on differences in aptitude

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rather than instruction. This approach aligns nicely with corporate and business goals for training and professional development.

The theory depends heavily on developing measurable objectives against which learner achievements can be assessed. The key elements are:

- Clearly specifying what is to be learned and how it will be evaluated
- Allowing students to learn at their own pace
- Assessing student progress and providing appropriate feedback or remediation
- Testing for achievement of the final learning criterion

The Mastery Learning model is closely aligned with the use of instructional objectives and the systematic design of instructional programs. In fact, Mager's Criterion Referenced Instructional model is an attempt to implement the Mastery Learning Model. The concepts of individualized learning and the importance of feedback and reinforcement are also relevant to the model.

The challenge in mastery learning environments is providing enough time and employing instructional strategies so that all students can achieve the same level of learning. It calls for an organized plan and procedure for developing instructional materials or programs. Programs that closely adhere to its concepts and key elements, especially in regard to multiple learning paths,

tend to require considerable time to develop and implement. Its practical shortcoming is the fact that people do differ in ability and tend to reach different levels of achievement.

Mastery Learning is evidenced in SkillSoft's courseware largely through course navigational features and interface design. No limits are placed on learning time or mastery attempts, and learners are allowed to repeat instruction as often as they choose.

Related Learning Theories and Concepts:

- Instructional Systems Design, aka ISD (Merrill, Gagne)
- ADDIE Instructional Design Model
- Criterion Referenced Instruction (Mager)
- Behaviorism, Feedback, Reinforcement (Skinner, others)

Social Learning Theory / Observational Learning

Social Learning Theory is associated with the work of Albert Bandura. It emphasizes the importance of learning through observing and modeling the behaviors, attitudes, and emotional reactions of others. Social Learning Theory explains human behavior in terms of continuous, reciprocal interactions between cognitive, behavioral, and environmental influences. Learning occurs by forming ideas about how new behaviors are performed after observing others, and then later using that information as a guide for action.

The underlying processes include:

- Attention (degree of distinctiveness, attractiveness, and usefulness an individual, activity, or object possesses as a behavioral goal)
- Retention (coding, cognitive organization, symbolic and motor rehearsal)
- Motor reproduction (physical reproduction, self-observation of reproduction, feedback)
- Motivation (external, vicarious, self-reinforcement)

Principles:

- Organizing and rehearsing the modeled behavior symbolically and then enacting it overtly achieve the highest level of observational learning. Coding modeled behavior into words, labels, or images enhances retention.
- Individuals are more likely to adopt a modeled behavior if they value the resulting outcomes.
- Individuals are more likely to adopt a modeled behavior if the model is similar to the observer, has admired status, and if the behavior has functional value.

Social Learning Theory is the theoretical basis for the behavior modeling widely used in soft skills training, and for many advertising approaches. Bandura showed modeling to be an effective shortcut to tedious and hazardous trial and error learning attempts. Simple mimicry augmented by extracting the rules underlying the modeled behaviors successfully generated new behavior patterns. This aspect of Bandura's theory plays a significant role in the design of the behavioral skills training in

the Business Skills Solutions area.

Related Learning Theories and Concepts:

- Social Learning Theory (Bandura)
- Mental Models (Norman)
- Social Development Theory (Vygotsky)

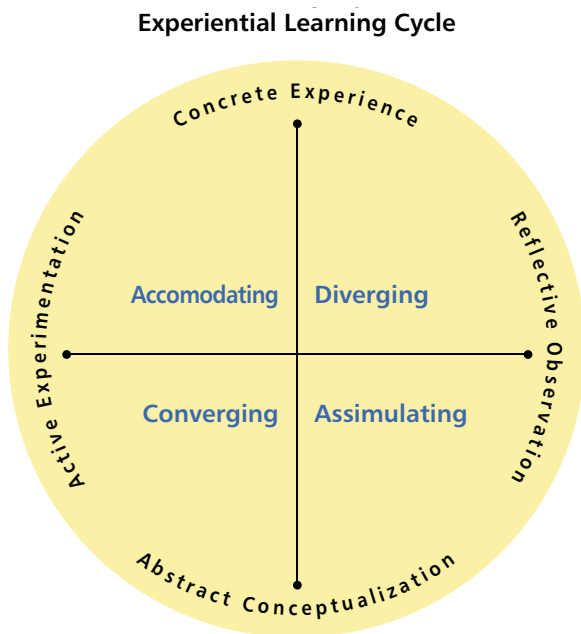
Cognitive Learning Styles and Preferences

Cognitive learning styles refer to the preferred way an individual receives and processes information. Not to be confused with individual differences in abilities described by Gardner and Guilford, learning styles describe typical modes of thinking, remembering, or problem solving. Cognitive styles indicate an individual's tendency to behave in certain ways and are associated with personality rather than inherent abilities or intelligences. The assumption is that optimal learning occurs when learning activities and information design are aligned with the preferred style of the individual learner.

The field of research literature on learning styles is filled with discussions of concepts that are often similar, but described with varying terminology and descriptors. Kolb's Learning Styles are an outgrowth of his original work on what he calls the experiential learning cycle. In an experiential learning cycle, learners first have experiences, reflect on them in small groups, complete readings and conceptualize, and then do active projects. Kolb formalized this theory and expanded it to include learning styles characterized by types of learners aligned with two stages in the cycle. The stages – concrete experiences, reflective observation, abstract conceptualiza-

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tion, and active experimentation – align with the North, East, South, and West points on a compass. The four learning styles – accommodating, diverging, assimilating and converging – fall into the quadrants between two of the stages in the cycle and are linked with learning preferences identified with those two stages of experiential learning. For example, an accommodator prefers concrete experiences and active experimentation.



Kolb continues to refine his original thinking on learning styles, and recently moved to a nine-style model with a tic-tac-toe grid instead of the four-quadrant grid. The more complex grid places more emphasis on balance and adaptation; individuals with more balanced styles are more flexible and adaptable to meet the needs of specific tasks or learning challenges.

The Learning Style Questionnaire (LSQ) developed by

Honey and Mumford identifies a similar set of four styles—activist, reflector, theorist, and pragmatist. This model infers a person’s learning style preference from the way the person solves problems or behaves in meetings.

The 4MAT framework, based on the work of Bernice McCarthy, suggests yet another four learning modes (analytic, imaginative, common sense, and dynamic), and has been widely applied in education.

Simpler approaches to learning style definition also flourish. For instance, Pask described a style called serialist versus holist. Serialists prefer to learn sequentially, and holists prefer to learn in a hierarchical or top-down manner.

Media-based instruction has also popularized the notion of learning styles based on input modes, or the way individuals perceive and receive information. One such style includes four categories—auditory, kinesthetic, visual/verbal, or visual/nonverbal components. Another style describes three modes—auditory, visual, and kinesthetic.

Wading through the literature and terminology is only one challenge associated with learning styles. Ever since Kolb introduced learning styles to education in the mid-60s, educators have debated a series of unanswered questions:

- Is the theory predictable enough to be of use to educators and instructional designers?
- Is an individual’s style constant, or does it adapt based on varying factors and conditions?

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- Should learning be focused exclusively on an individual's preferred style?
- Is there empirical data to support correlating learning style with learning effectiveness?
- Can instruction be designed to effectively adapt to more than one learning style across multiple learners?

These and other questions are targets of periodic interest in the trade journals and e-learning communities, but without any new clarification or resolution. The debate continues, and usually with obvious polarized views and opinions. The trade press energy underscores the appeal of learning styles and adaptive learning—not only to educators and designers who want to develop effective learning solutions, but also to learners, who are attracted to the idea of individualized learning.

SkillSoft continuously monitors the research and associated advancements in technology. In the meantime, the course design and development process continues implementing instructional strategies and course features in a manner that is palatable to and effective with as many learners and learning styles as possible.

Related Learning Theories and Concepts:

- Learning Style Inventory (Kolb)
- Learning Style Questionnaire (Honey & Mumford)
- I-OPT (Gary Salton)
- Multiple Intelligences (Gardner)
- Structure of Intellect (Guilford)
- 4MAT (McCarthy)

- Learning Orientation (Dr. Margaret Martinez)
- Hermann Brain Dominance, Whole Brain Thinking (Hermann)

Summary

Learning design is a core foundation of SkillSoft's e-learning solution. Teamed with enabling technologies and professional services, learning design develops the highest quality courseware possible. SkillSoft maintains a highly qualified staff of instructional design experts to support the ongoing implementation of the instructional design model, standards, and guidelines. SkillSoft Learning Design has established a distinguished track record of continuous improvement and industry recognition. The Learning Design team is committed to maintaining that reputation and to the continued application of learning theory and instructional design principles to the development of **highly effective, interactive, and engaging learning experiences!**

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