Domain of Design

Seels and Richey (1994) define the domain of design as "the process of specifying conditions for learning" (p.30). The domain of design optimizes performance outcome of a learner or an organization at either the micro (lessons and modules) and/or the macro (programs and curricula) levels.

During the design phase, the instructional designer will analyze the problem, identify the needs, define the goals and objectives determine the instructional and assessment strategies that are most suitable for each situation. In order to be effective, the context of learning, such as learner characteristics and learning environment must be analyzed and taken into consideration when designing instruction.

The domain of design can be broken down into four sub-domains: instructional systems design, message design, instructional strategies and learner characteristics (Seels & Richey, 1994).

Instructional Systems Design

A system is a set of interrelated parts that work together toward a defined goal. The components of a system include the learners, the instructor, the instructional materials, and the learning environment (Dick, Carey & Carey, 2005, p.1-2). Instructional Systems Design (ISD) is "an organized procedure that includes the steps of analyzing, designing, developing, implementing and evaluating (ADDIE) instruction" (Seels & Richey, 1994, p.31).

The ADDIE (Reiser & Dempsey, 2007) procedure or process is a representation of a system or theory presenting complex information in a simpler way. According to Dick, Carey & Carey (2005), a model is "a simplified representation of a system, often in flowchart form showing selected features of a system" (p.365). The practice of each step should be guided by validated theories and principles.

Analyzing- process of defining what is to be learned
Designing- process of specifying how it is to be learned
Developing- process of authoring and producing the materials
Implementing- process of using the materials and strategies in context
Evaluating- process of determining the adequacy of the instruction

The ISD process must be thorough in order to bring about effective instruction. The steps in the ISD process rely on each other; the output of a previous step serves as the input of the next step and thus affects the operation of the next step. Also, instructional strategies and materials are revised constantly as needed to ensure effective final product (Dick, Carey & Carey, 2005).

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Dick, Carey and Carey's systematic design of instruction (2005) model (Figure 2) guides the instructional designer to thoroughly analyze the learning context before writing performance objectives and developing assessment instruments. Revision is also expected to take place at each stage and anytime during the process. The instructional designer will then develop effective instructional strategy and materials. At the completion of the instructional development, a formative evaluation will be conducted. Finally, summative evaluation will be conducted after the implementation of the instruction.

Figure 2: Dick and Carey's Instructional Systems Design Model.
Adopted from: http://www.itma.vt.edu/modules/spring03/instrdes/images/dickcarey6.gif

Message Design

Message Design entails "planning for the manipulation of the physical form of the message" (Grabowski, 1991, p. 206). According to Seels and Richey (1994), an effective message encompasses principles of attention, perception and retention. Learners who do not pay attention to the message will not receive it. Perception focuses on how the individual sees the message and what they will do with the message. Learning is the process of integrating new knowledge from short-term memory into long-term memory. This is usually done by connecting the new information to a learner's previous experience. Also, the design of the message should take into account how people process information, the nature of a learning task and the characteristics of various media.

Instructional Strategies

"Instructional strategies are specifications for selecting and sequencing events and activities within a lesson." (Seels & Richey, 1994, p.31). Based on learning theories and processes, instructional strategies provide a plan of action for instructional development and delivery.

Dick, Carey and Carey (2005) describe instructional strategy as "choosing a delivery system, sequencing and grouping clusters of content, describing learning components, specifying how students will be grouped during instruction, establishing lesson structures, and selecting media for delivering instruction" (Dick, Carey & Carey, 2005, p.184).

Both Bloom's (1956) taxonomy of learning and Gagne's five domains of learning serve as foundations from which effective instructional strategies are derived. According to Bloom, there are three domains of learning: cognitive, affective, and psychomotor. The cognitive domain involves recalling or recognizing information. Six types of performance objectives are distinguished within the cognitive domain: (1) knowledge; (2) comprehension; (3) application; (4) analysis; (5) synthesis; and (6) evaluation. Gagne (1985) launched another widely used taxonomy for the cognitive domain which makes distinctions among verbal information, intellectual skills, cognitive strategies, attitudes and psychomotor skills (Reiser & Dempsey, 2007). Bloom's "affective" domain of learning involves growth in feelings or emotional areas, which is addressed in Gagne's domain as "attitude." The psychomotor domain of learning involves physical movement, coordination, and use of the motor-skill areas.

In 1985, Gagne described the following nine events of instruction (or teaching activities), that are necessary in promoting the achievement of any type of learning outcome (Reiser & Dempsey, 2007).

Gain attention

Inform learner of objectives

Stimulate recall of prior learning

Present stimulus material

Provide learner guidance

Elicit performance

Provide feedback

Assess performance

Enhance retention and transfer

Learner Characteristics

"Learner characteristics are those facets of the learner's experiential background that impact the effectiveness of a learning process." (Seels & Richey, 1994, p.32). An instructional designer analyzes learner characteristics in order to tailor instruction to the learner characteristics to optimize learning outcome. The assessment of target learners usually involves the following elements:

Entry Behaviors- skills already mastered associated with learning the goal

Prior Knowledge of Topic Area- what the learners already know about the topic that will be taught

Attitudes toward Content and Potential Delivery System- learners feelings and expectations in the content and the delivery of the content

Academic Motivation

Educational and Ability Levels

General Learning Preferences-learning skills and preferences of the target population and their willingness to explore new modes of learning

Attitudes toward Training Organization- how the learners feel about the organization providing the training

Group Characteristics- a general description of the target population