

ROCKY MOUNTAIN
Alchemy

TURNING THE PLAIN
INTO THE PRECIOUS



SELECTING & ORGANIZING INSTRUCTIONAL
CONTENT

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ORGANIZING CONTENT

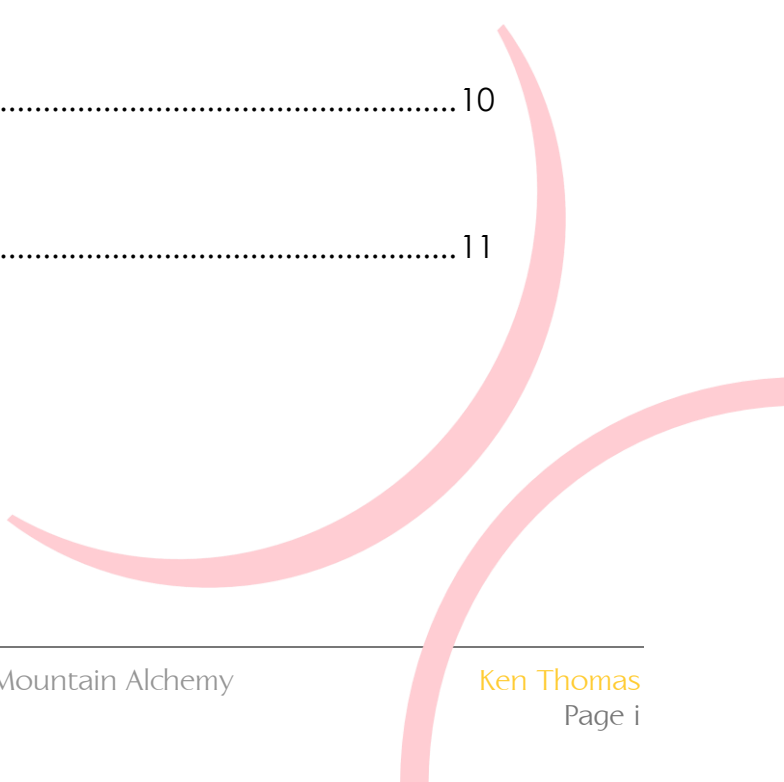
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Selecting Instructional Content

Intro

“Determining what to teach is the most important activity of the instructional design process.” (Merrill, 1998)

One of the key problems that plague instructional designers is the appropriate selection of content. This is especially true when the designer is relatively new to the content area and must rely heavily on SMEs for guidance. For reasons discussed earlier, SMEs have a tendency to drive the classic “everything but the kitchen sink” approach to training (“oh, and while you’re at it, let’s throw in the sink, too”).

Another side of the SME dilemma is the problem succinctly stated by Mager, “most subject matter experts aren’t!” This can result in misdefined goals and incomplete or inappropriate content to meet the goals of the instruction.

NOTE: William Gibson (the cyber punk science fiction author who coined the term cyberspace) created a concept called “wet-ware,” where people connect to a virtual world via a mini-jack installed at the base of the skull directly wired to the central nervous system. This is similar to how the characters enter The Matrix in the movie of the same name (“whoa... I know Kung Fu!”). Until “wet-ware” is a reality, our learners may have to occasionally take a sip from the fire-hose. Still, designers should make every effort to either limit the amount of content to that which meets the objectives, or come up with strategies to provide ongoing support or strategies that lessen the cognitive load of the course (e.g., take away materials, job aids, EPSS).

ISD Approach to Selecting Content

Intro

The ISD discipline has two basic approaches to selecting content:

- Gap approach
 - Identify the knowledge, skills, and attitudes (KSAs) necessary to perform the job.
 - Identify the deficit or “gap” KSAs within the target audience.
 - Write terminal and enabling objectives to address the gap KSAs.
 - Select the content needed to achieve the gap KSAs.
- Criterion approach
 - Identify the knowledge, skills, and attitudes (KSAs) necessary to perform the job.
 - Write terminal and enabling objectives to address the required KSAs.
 - Select the content needed to achieve the required KSAs.

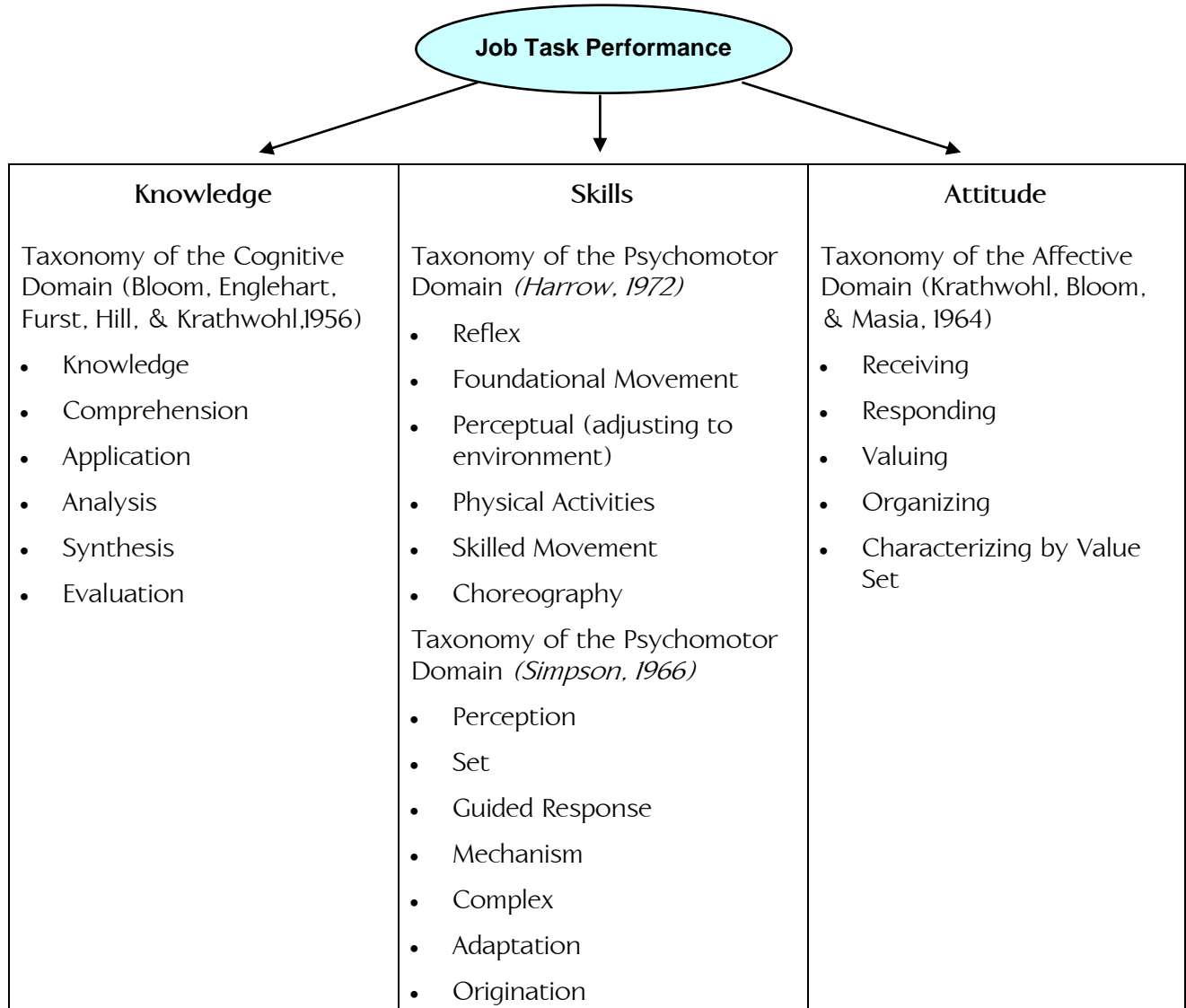
In both approaches, KSAs and objectives are critical elements.

NOTE:

- *A gap approach is best suited when you have a clearly defined target audience with similar existing KSAs.*
 - *A criterion approach is best suited when you have an undefined target audience or an audience with a wide range of KSAs (e.g., new hires taking the same training as experienced workers).*
 - *This is often a good opportunity to incorporate prescriptive learning through a learner customized design.*
-

KSAs

Knowledge, skills, and attitudes relate directly to the three major taxonomies of learning:



NOTE: You will occasionally encounter references to KSAs as “knowledge, skills, and abilities.” I personally like the way attitudes works better than abilities for two reasons:

- *Attitude is a critical aspect to many of the solutions we design, especially when change of behavior is required, and*
- *I have yet to see a clear and practicable separation of skill and ability in the work addressing ability.*

- Types of objectives** There are two primary types of objectives designers work with:
- Terminal Objectives
 - What the learner should know, be able to do, or feel (KSAs) at the end of the intervention
 - Enabling Objectives
 - What the learner needs to know, be able to do, or feel (KSAs) in order to achieve the terminal objective

Terminal and enabling objectives both focus on knowledge, skills, or attitudes (KSAs), and borrow their foundational "verbs" the appropriate domain's taxonomy.

Traits of "good" objectives

"GOOD" INSTRUCTIONAL OBJECTIVES SHARE THE FOLLOWING TRAITS:

- Clearly written (i.e., not open to wide interpretation)
 - Accurately reflect the job task
 - The quality of any training program depends directly upon how accurately the course objectives reflect the expected performance on the job.
 - Objectives should be one output of the learning/needs analysis.
 - Observable and/or measurable
 - Mastery of an objective can only be determined if the objective is observable and/or measurable.
 - Attitudes are not observable, however they are measurable.
 - Organized
 - Objectives should be organized by complexity (how they build upon each other), their superior/ subordinate relationship (i.e., terminal and enabling), or other acceptable methods (e.g., chronological order).
-

Structuring objectives

There are three prevalent methods of structuring objectives:

- Mager's three-part system (Condition / Behavior / Criteria)
 - Example: Given an unlabeled diagram of a telephone circuit and a list of components (condition), label (behavior) 90% (criteria) of the components.
- Knirk and Gustafson's ABCD method (Audience / Behavior / Condition / Degree of measurement)
 - Example: Given an unlabeled diagram of a telephone circuit and a list of components (condition), the Technician 3rd Class (audience) will label (behavior) 90% (degree of measurement) of the components.
- Gronlund's general approach (Behavior / Clarifier)
 - Example: Label the components of a telephone circuit (behavior) (switch, line, CPE, etc.) (clarifier).

NOTE:

- *Although I have a personal preference for Gronlund's general approach for the vast majority of situations, Mager's three-part approach is an industry standard, and is well suited for certification training.*
 - *When using Mager's approach, make sure the objective can be tested in the selected media (e.g., it is very difficult to test a "discuss" objective in web based training; likewise, it is challenging to test a system task without access to a system (live or simulated)).*
- *The Knirk & Gustafson ABCD approach is a solid choice when your learning product will be distributed to multiple audiences, and each audience has different paths (defined based on the audience(s) listed in the objectives).*

Objective driven design

Well written objectives can accomplish the following:

- Define the scope of the training.
 - What should you include ("need to know")?
 - What should you discard ("nice to know")?
- Influence media selection.
- Influence design methodologies and strategies.
- Guide test development.
 - Test items should be "representative" of the objectives.
 - Test items should be "valid" (i.e., measure what you are intending to measure).

- Test items should reflect the appropriate "weight" of the objective being tested.
 - Improve the learner's training experience.
 - Set learner's expectations.
 - Boost learner confidence.
 - Reduce learner anxiety.
 - Allow the learner to organize his/her own efforts to accomplish the objectives.
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Summary

Key points

Content selection is critical to the success of any learning product. In the ISD / ADDIE model, this is accomplished through analysis, the phase where the objectives are defined.

Objectives, defined based on either gap or criterion KSAs (Knowledge, Skills, & Attitudes), are used to make decisions for the rest of the design and development process, including the selection (and filtration) of content.

Organizing Content

Introduction

Information is remembered better and longer when it is organized, even if that organization is imposed upon it, and the learner is aware of the organization structure through such tools as advanced organizers.

Organizing Content

Organization strategies

The following table lists basic organization strategies, and provides a description and basic uses for each:

Strategy	Description	Use
Chronological	Content is arranged in time pattern of occurrence.	Procedures, processes, recipes
Cause & effect	A cause is presented, followed by the effect. (This can also be reversed.)	Policy, build awareness, change attitude & behavior
Problem & solution	A problem is defined, followed by the solution. (This can also be reversed.)	Introduce a new system, process, or product; policy, build awareness, change attitude & behavior
Complexity	Content is typically arranged from easy to difficult. (This can be reversed to gain attention and provide a concrete end goal.)	Complex content requiring prerequisite knowledge or skill, motivate learners, minimize frustration
Spatial	Content arranged in a directional pattern (e.g., left to right, top to bottom, front to back, inside to outside, clockwise).	Geographic information (e.g., regions, lata maps, screen layouts), forced organization (left to right, top to bottom)
Conceptual/topical	Content is divided into its inherent chunks or clusters.	Used when no other strategy listed above fits.

NOTE: These strategies can be combined (e.g., a set of topics can be derived, then arranged spatially on the screen) and can be nested (i.e., content organized within one strategy could be further organized by the same or a different strategy).

- *Example: A product course may be organized first by prerequisite knowledge (product knowledge first), then chronologically (selling, ordering, troubleshooting). Within the ordering module, the main organization may be chronological (the ordering process), yet topics within that structure may be even further organized.*

Summary

Key points

Once content has been selected, it needs to be organized. The major organization strategies include:

- Chronological
- Cause & effect
- Problem & solution
- Complexity
- Spatial
- Conceptual/topical

These strategies can also be combined and nested to fit the needs based on the objectives.

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