



5.2 | Understand: Content Analysis Questions

To a large extent, the success of your content analysis depends on the questions you ask. If you don't obtain the content, there's nothing to analyze and classify! This table provides a series of questions and factors to consider when gathering content. Customize it for your next instructional design project. When working with a SME to identify content, select questions carefully. You don't want to overwhelm them with too many questions, so the ones you ask should be targeted to obtain the key, essential content required. These questions anticipate the tasks you will complete to classify, prioritize, and sequence your content. In the next exercise, you'll be challenged to think like a designer and "find the gaps" in a sample of content. These questions can help you identify those gaps and missing content items!

One of the first things you'll ask when you begin to identify content...

Is there any **EXISTING CONTENT that we can use or re-purpose for the project?**

1. What content resources already exist in the organization that can be repurposed or adapted for this project?
2. Are there other existing learning materials on the market that could be used as part or all of the instruction, with or without adjustment?
3. If the desired materials exist, what are the advantages, disadvantages, and costs of using those materials versus starting from scratch?

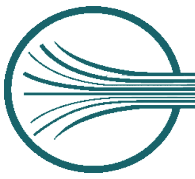
Note:

Table 12.1 in Chapter 12 provides an ***Existing Resources Survey for Stakeholders*** that you can give your Subject Matter Experts (SMEs) to help them understand the vast array of existing materials that can be leveraged to create instruction.

*As you question your SMEs and other Stakeholders, begin to think about the **nature and demands of the content**...*

Are there **PREREQUISITES? What **KSAs** must be learned? What **TYPES OF LEARNING OUTCOMES** are involved?**

1. What **prerequisite knowledge and skills** should the learner possess prior to beginning the proposed instruction?
2. How can we determine if the learner possesses the prerequisite knowledge and skills?
3. If the learner does not possess the prerequisite knowledge and skills, can they be remediated in a timely manner and still take the proposed instruction?
4. What **Knowledge, Skills, and Attitudes (KSAs)** must the learner possess upon completion of the proposed instruction?



As you question your SMEs and other Stakeholders, begin to think about the **nature and demands of the content...**

Are there PREREQUISITES? What KSAs must be learned? What TYPES OF LEARNING OUTCOMES are involved?

5. For KSAs identified, what Cognitive knowledge is required? Psychomotor skills? Attitudes, values, interests, and motivations?
6. What **types of learning outcomes** are required? Is there *declarative knowledge* (facts and procedures) the learner must know and understand? If so, does the learner need to recall it from memory, recall it with a job aid, or recognize it when encountered?
7. Does the learner need to *discriminate* or distinguish between objects based on physical characteristics, features, or other sensory factors to determine whether objects are alike or different?
8. What *abstract or defined concepts* should the learner understand and be able to classify by function to determine whether it matches a definition or list of characteristics?
9. What *principles or relational rules* (“if-then” statements) and *step-by-step procedures* does the learner need to know to solve problems or accomplish a task?
10. What *higher-order rules* (complex problem-solving with principles and procedures, or multiple simple procedures) must the learner be able to use to solve a new problem or accomplish a task?
11. What *cognitive strategies* should the individual learner use to manage their own learning (including rehearsal strategies, elaboration strategies, organizational strategies, metacognitive strategies, and affective strategies)?
12. What *attitudes, values, beliefs, motivations, and ideas* should the learner exhibit that will lead to desirable actions, motivations, and persistence?
13. What *psychomotor skills* should the learner master to carry out a sequence of physical actions or manipulate an object?
14. What *interpersonal skills* should the learner develop, including communication, teamwork, relating with and working with other cultures, effective management of others, leadership, and self-awareness.
15. What **instructional strategies** should be used to teach the KSAs identified?
16. What type of **media or technologies** might be required to adequately and accurately convey the content? Should the content be conveyed using print, A/V and multimedia, simulations, online interactions, etc.?
17. Does the mediated content already exist, or must it be developed?
18. Is the project budget sufficient to pay for existing media or to develop the media?



As you begin to think more and more like a “seasoned” designer, consider whether the content you’ve collected is complete...

Have we identified all the **CONTENT, JOBS, and TASKS?**

1. Is the job and/or task analysis complete?
2. Does it include all procedural steps, sub-steps, and cues for simple and complex procedures?
3. Are all procedures accurately stated and are action verbs used to state the procedures?
4. Are unobservable as well as observable behaviors included?
5. Does your representation of the content clearly indicate the relationships between tasks? Are dependencies and prerequisites indicated? Is the recommended sequence of tasks apparent?

As you pull together all the content elements involved, consider the quality of what you’ve collected...

Is the content **NEED TO KNOW (essential)? Is it **ACCURATE**? Have we identified **DEPENDENCIES**?**

1. Is there an adequate breadth of tasks included, and an adequate depth of thinking levels represented, from remembering to problem solving and creating?
2. Is the breakdown of learning processes valid and accurate?
3. Is the hierarchy consistent in grouping similar tasks on the same level?
4. Are skills and sub-skills stated in performance terms using action verbs?
5. If mental processing is analyzed, is it accurate?
6. If an activity is described, is the description accurate?
7. Is the subject matter broken down into discrete constructs and are the relationships between those constructs apparent?

And finally, begin to think about how you will incorporate this content into a coherent instructional design...

How should this **CONTENT BE PRESENTED AND TAUGHT?**

1. Why must individuals know this information? Is there a need for this learning across time (for life) and applications (all topics)?
2. What might the demonstration of learning (the assessment) for this information look like?
3. What deeper levels of thinking are needed to demonstrate the standards included in the unit? (See the Bloom’s table below.)
4. How can I incorporate the demonstration of those levels of thinking into the assessment?
5. How can I translate standards into meaningful questions? How can I “chunk” and sequence the content to support learning?



This table provides questions you can ask for each Bloom's thinking skill level identified for your instruction, along with example strategies that can be used to foster each skill level. You can use this information as a guide when analyzing cognitive content according to Bloom's revised taxonomy (Anderson et al, 2001), and to identify potential learning activities to foster thinking skills.

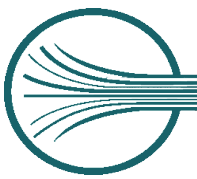
Bloom's Thinking Skill Level	Questions to Ask	Strategies to Use to Foster the Thinking Skill
REMEMBER: Cognitive content that the learner must recognize, recall from memory, or recall with a memory aid.	<i>Questions to ask about the demands of content to be Remembered...</i> • Should the content be recalled from memory, recalled with a job aid, or recognized by the learner? How will this requirement impact the content treatment? (<i>categorize the type of remembering</i>) • How should the content be presented or organized to prompt the learner to relate new information to existing knowledge or experiences? (<i>identify related learner prior knowledge/experience and sequence the content</i>) • To foster content mastery, should the learner be required to process, rearrange, and/or restructure new knowledge to effectively encode it in their memory? What aspects of the content should the learner be required to process in working memory, and how should it be processed? (<i>characterize the demands of the content with respect to content treatment</i>)	<i>Possible strategies to use for content treatment...</i> • Use a variety of sensory inputs (auditory, textual, visual, tactile, gustatory, olfactory, etc.) and clear links to prior knowledge for the information to be learned. • Encourage the use of rehearsal strategies, meaningful repetition of information, and elaboration to help learners recall information from memory. • Use chunking and organizing exercises to present information in meaningful segments and patterns. • Provide practice with job aids to foster aided recall of information. • Provide practice with examples and non-examples to aid learners in recognizing the desired information. • Build the capacity of working memory through exercises that use mnemonics, anagrams, and alliteration.
UNDERSTAND: Cognitive content that the learner must comprehend or thoroughly understand.	<i>Questions to ask about the demands of content to be understood...</i> • [<i>categorize the level of understanding</i>] To exhibit understanding beyond mere remembering of the content, should the learner ... ▪ explain the content? ▪ interpret the content? ▪ apply the content? ▪ demonstrate or identify a perspective (point of view) concerning the content? ▪ empathize with another viewpoint about the content or find value in it not perceived through mere memorization? ▪ exhibit self-knowledge about the limits or influences on their understanding of the content to self-direct future learning?	<i>Possible strategies to use for content treatment –</i> • Require the learner to summarize and/or paraphrase the new knowledge or have them use analogies and metaphors to illustrate understanding of new content. • Have the learner explain a concept using a visual representation (convert information in another form). • Provide an advance organizer (outline, objectives, demonstration, etc.) to aid their interpretation of the new information. • Prompt the learner to elaborate on the new knowledge to illustrate understanding by providing examples from their own experience.



Bloom's Thinking Skill Level	Questions to Ask	Strategies to Use to Foster the Thinking Skill
	• [<i>characterize the demands of the content to determine content treatment</i>] What mental processing tasks are appropriate to build the identified type of understanding? Should the learner be prompted to: ▪ explain the content by providing details and elaborating on the new information? ▪ interpret the content by organizing it in a logical, purposeful manner? ▪ explain or interpret the content by associating it or encoding it for recall and use through an appropriate analogy, meaningful metaphor, appropriate imagery, or a mnemonic? ▪ explain the content by highlighting critical features in examples? ▪ explain/interpret by identifying a rule that applies to a series of examples? ▪ explain/interpret by developing examples for a rule? ▪ explain content by identifying the steps involved in a content task? ▪ explain/apply content by organizing the steps of a content task in the appropriate order? ▪ explain/apply content by identifying the conditions under which to use a task or modify the steps of a task? ▪ interpret content to demonstrate understanding through examples, meaningful stories and analogies? ▪ apply the content appropriately for a given scenario to demonstrate full understanding? ▪ demonstrate perspective (a grasp of the big picture) through informed and critical commentary concerning the content? ▪ demonstrate empathy by adopting a perspective different from the learner's typical perspective? ▪ demonstrate empathy by identifying value, exceptions, implications, or issues with the content that are not readily evident without deep reflection?	• Have the learner troubleshoot, redesign, or predict changes in a system.



Bloom's Thinking Skill Level	Questions to Ask	Strategies to Use to Foster the Thinking Skill
	▪ exhibit self-knowledge concerning mastery of the content by identifying areas of personal need or potential gaps in understanding of related knowledge, skills, and attitudes?	
APPLY: Cognitive content that the learner must apply.	<i>Questions to ask about the demands of content to be applied...</i> • Does the strategy/learning experience either require the learner to remember the steps of the applicable procedure or allow the learner to use a job aid that lists the steps? • Are expectations for quality or accuracy communicated to the learner?	<i>Possible strategies to use for content treatment...</i> • Prompt the learner to execute a learned procedure. • Task the learner with implementing new knowledge. • Require learners to use learned information in familiar and unfamiliar situations. • Have learners identify and follow the predetermined steps of an established procedure.
ANALYZE: Cognitive content that the learner must analyze.	<i>Questions to ask about the demands of content to be analyzed –</i> • Does the strategy/learning experience prompt the learner to identify all elements of the topic that need to be organized and their relationship to each other? • Does the strategy/learning experience provide the learner with options for classifying and grouping the information (generalizing/differentiating, associating, aggregating, proceduralizing, sequencing, alphabetizing, defining systems, etc.)? • Does the strategy/learning experience provide the learner with suggestions or options for structuring the information and representing it in a form that reflects their organization appropriately (outlines, hierarchical diagrams, Venn diagrams, charts, flow charts, concept maps, spider maps, tables, matrices, models, narrative descriptions, rebuses, graphs, logic statements, process steps, blueprints, concept or consequence charts, etc.)?	<i>Possible strategies to use for content treatment...</i> • Require learners to break down a topic into its sub-elements. • Prompt learners to identify the relationships between elements in a topic. • Ask learners to organize elements of a topic into a whole. • Have learners differentiate between two or more items. • Have learners attribute or deconstruct an event to a particular cause or source, or determine the point of view, biases, values or intent underlying presented material.
EVALUATE: Cognitive content that the learner must evaluate.	<i>Questions to ask about the demands of content to be evaluated –</i> • Does the learner understand the purpose of the evaluation activity? • Can the learner ascertain or recognize the indicators of quality by which they are to evaluate an item?	<i>Possible strategies to use for content treatment –</i> • Prompt the learner to check and compare the quality of two or more items. • Foster a discussion between learners concerning the merits and drawbacks of items under evaluation.



Bloom's Thinking Skill Level	Questions to Ask	Strategies to Use to Foster the Thinking Skill
	• Can the learner justify their value judgment on the basis of valid criteria and/or standards?	• Ask learners to provide examples and non-examples of items that meet/do not meet specified criteria. • Require the learner to evaluate and critique alternatives, make a decision on the alternative to pursue, and justify their decision.
CREATE: Cognitive content that the learner must synthesize and create with.	<i>Questions to ask about the demands of content to be created or synthesized...</i> • Are the instructions for the learning experience clear and is the purpose stated? • Is there sufficient flexibility in the learning experience to allow learners to create a unique artifact? • If facts and information are communicated to the learner, are they presented in a way that connects the information to corresponding principles and rules?	<i>Possible strategies to use for content treatment...</i> • Require learners to generate a hypothesis and/or discriminate reasonable but yet-to-be-proven alternatives as solutions to a problem or challenge. • Ask learners to produce a plan for developing a product or for establishing and/or following a process. • Task learners with producing a product, paper, performance, or other creative artifact.