



# Entelechy's Designing Training Based on Five Content Types

*Effective and Practical Training Design*

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# **Five Content Types**



# Introduction

## Overview of Content Types

As longtime readers know, I am a true believer in relevant, practical, bottom-line impacting training. Our philosophy at Entelechy is to start at the end and work backwards; training should simulate and support on-the-job performance as much as possible.

At the same time, it is important that we as training designers create training that is both efficient and effective. Our goal is to simplify information and skills enabling learners to shorten their learning curve and increase their overall capabilities.

Several years ago I ran across a useful model that I've used since that helps me determine the most effective and efficient way to teach material. The model, developed by Dr. M. David Merrill at the University of Utah, is based on content type and it is equally effective for instructor-led training as it is for web-based or self-paced training. In this instructional design model, there are five primary content types:

- **Facts:** Facts are basic information. Facts are inefficient to store in memory and are prone to recall errors. Job aids are preferred to memorization of most facts.
- **Concepts:** A class of items that is known by a common name, includes multiple specific examples, shares common features, and varies on irrelevant features. There are two types of concepts: concrete and abstract.
- **Processes:** Descriptions of how things work rather than how to do things. There are two types of processes: business (describing work flows in organizations) and technical (describing how things work in equipment or nature).
- **Procedures:** A series of clearly defined steps that results in the achievement of a job task. There are two types of procedures: linear and branched.
- **Principles:** Guidelines or rules that govern. Principles are far-transfer training and are useful when actual scenarios in which principles are used vary significantly and constantly.

According to the model, each of these content types can be taught at two levels: at the Remember level and at the Apply Level (except for Facts which only can be taught at the Remember Level). For example, you can LIST the steps to log on to a computer (Remember Level) or you can actually log on to a computer (Apply Level).

|                 |       |          |           |            |            |
|-----------------|-------|----------|-----------|------------|------------|
| <b>Apply</b>    |       |          |           |            |            |
| <b>Remember</b> |       |          |           |            |            |
|                 | Facts | Concepts | Processes | Procedures | Principles |

In the pages that follow we'll step through each of the content types and explore definitions, best uses, related objectives, best ways to assess, suggested learning activities, and recommended learning/teaching sequences.

## For More Information

This information comes from High Impact Training, a module in Entelechy's High Performance Training program. Much of the general information is provided free of charge at <http://unlockit.com/improve.htm>. If you want more detailed information on this skill and others from our High Performance Training program, please visit our website at [www.unlockit.com](http://www.unlockit.com) or contact me directly at [ttraut@unlockit.com](mailto:ttraut@unlockit.com).



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# Procedures

## Definition of Procedures

A procedure is a series of clearly defined steps that result in the achievement of a job task.

There are two types of procedures:

- Linear procedures consist of a single stream of steps.
- Branched procedures consist of two or more alternative linear procedures that are selected by making a decision at a certain point.

Think of procedures as a series of specific and discrete steps. Leave out a step and you most likely cannot continue.

## Examples of Procedures

The following are procedures (clearly defined steps that result in the achievement of a job task):

- Logging into a database application.
- Inserting a table into Microsoft Word.
- Installing a washing machine motor.

## Non-examples of Procedures

The following are NOT examples of procedures:

Selling a washing machine. (This is a **PROCESS**, a content type that we will discuss in a future installment; when selling, there are **GENERAL** phases or steps but not specific, discrete steps.)

Using Microsoft Word to write an effective letter. (Certainly there are procedures embedded in this activity such as setting up the page, but the focus of this training is most likely on the **PRINCIPLES** of effective letter writing.)

## How to Teach Procedures

While procedures can be learned at the Remember Level by memorizing the steps, this is not recommended. Procedures should be learned at the Application Level by doing them.

Learning objectives should begin with the application-oriented verbs such as: assemble, configure, demonstrate, log in, insert, perform, and process. Avoid remember-oriented verbs such as: define, list, recite, and repeat.

Information for teaching procedures should be displayed in flow charts or action and decision tables. A flowchart visually illustrates the steps and may differentiate actions from decisions. An action table consists of two columns; the first column lists the action to take and the second column describes the expected result. A decision table expands an action table by allowing for alternate actions or results; common decision tables have columns with headings such as “If ...” and “Then....”

The suggested learning/teaching sequence is as follows:

1. List the procedure (document it and provide it as a handout).
2. Demonstrate the procedure highlighting decision points and troublesome areas.
3. Optional: Ask one student to perform the procedure while the rest of the class observes; provide feedback.
4. Ask students to perform the procedure.
5. Provide feedback.

As you can see, classroom practice should move students to the Application Level quickly by providing follow-along demonstrations and exercises that require the employee to perform the procedure. Labs are most effective for practicing procedures.

Instead of having participants memorize procedures, create a user guide or set of job aids for post-training reference. If it IS important for learners to memorize procedures (for speed or accuracy), consider using a game to help memorize: participants stand in a circle; a participant recites the first step and throws a soft ball to another in the circle who recites the second step, etc.

## How to Assess Learning

Evaluation of learning should be based on performance assessments. Participants should be assigned a procedure and be evaluated on the successful completion of the procedure (including speed and accuracy if that is required for job performance).

**How to Brush Your Teeth**

**Introduction** Now that you recognize the equipment you will need and we have discussed when you will need to brush your teeth, let's see how you brush.

**Action Table** Here are the steps to follow to brush your teeth.

| Step | Action  |
|------|---|
| 1    | Wet toothbrush with water from tap.                               |
| 2    | Apply about 1/2" of toothpaste on bristles.                       |
| 3    | Hold handle of brush and move bristles up and down against teeth. |
| 4    | Open mouth and brush back teeth.                                  |
| 5    | Use glass of water to rinse out mouth.                            |
| 6    | Wash off toothbrush and return equipment.                         |

**Demonstration** Follow along as your instructor demonstrates the steps.

**When to Brush Your Teeth**

**Guidelines** The following table describes situations when you should brush your teeth.

| IF...                | AND...                                  | THEN...                         |
|----------------------|---|---------------------------------|
| You have just eaten  | Your brush and paste are handy          | Brush your teeth                |
| You have just eaten  | Your brush and paste are NOT handy      | Rinse out mouth and brush later |
| You are going to bed | You have NOT brushed for four hours     | Brush your teeth                |
| You are going to bed | You have brushed in the last four hours | Wait until morning              |

Refer to your learning objectives; if you used application-oriented verbs such as assemble, configure, demonstrate, log in, insert, perform, and process, use labs where learners can assemble, configure, demonstrate, log in, insert, perform, and process.

Most of the time, only the final result of the procedure is important (i.e., if a person is successfully logged onto the application, we can assume that the learner followed the steps successfully.). However, sometimes it is important to follow the progress of participants as they go through the procedure. In this case, use a checklist of critical steps to record progress as the participant completes the lab.

Sometimes a simulation is useful in replicating “the real world” where the appropriate procedure must be selected and used using real data. Simulations can test a learner’s ability to use procedures within a larger context.

# Concepts

## Definition of Concepts

Our everyday language includes many concepts such as chair, woman, and house. A concept is a mental representation or prototype of objects or ideas for which multiple specific examples exist. The ability to classify many things under a common heading is very efficient and is desirable in training and in work.

Concepts share critical features and vary on irrelevant features. For example, consider the concept “house.” All houses share at least three critical features. All houses serve as living places for humans. (A barn is not a house.) All houses are permanent fixtures. (Recreational vehicles are not houses; trailer houses are questionable!) All houses are living places for one or a few families. (Apartment buildings are not houses.) An irrelevant feature might be the number of sides on a house (some have four, some have more, some are round).



A concept is a class of items that share common features and are known by a common name. All concept groups include multiple specific examples. Most technical training involves many concepts associated with procedures that employees need to know in order to perform.

Concepts are made up of critical features that all specific examples in that concept class share and irrelevant features on which specific examples vary.

Concepts with parts and boundaries are concrete concepts. Less tangible concepts that cannot be illustrated with a diagram are abstract concepts.

## Examples of Concepts

The following are concepts (classes of items that share common features and are known by a common name):

- Fish
- Router
- Qualified customer

## Non-examples of Concepts

The following are NOT examples of concepts:

Logging into the database application. (This is a **PROCEDURE**, a content type that we discussed in the previous section; logging in consists of a series of defined steps — or a defined procedure.)

The speed of throughput for a particular router. (This is a **FACT**, a content type that we will discuss in a section that follows; facts can be used to define concepts.)

## How to Teach Concepts

While concepts can be learned at the Remember Level by memorizing the definition, this is not recommended since the purpose of learning a concept is to use it to classify objects, analyze, make judgments, discriminate, etc.

Information for teaching concepts should be displayed as definitions, examples, non-examples, and analogies.



**The Definition:** A definition is a statement of the critical features associated with a concept. Use definitions to help students better understand the critical features. For example, the definition of a fish would be: “Any of three classes (jawless, cartilaginous, and bony fishes) of cold-blooded vertebrate animals living in water and having fins, permanent gills for breathing, and, usually, scales.”

**The Example:** An example is a real instance of the concept. Make the concept definition real by illustrating with examples. In the fish example, show big fishes, little fishes, and odd-shaped fishes. If the concept is complex, you may wish to provide several examples, each of which contains all of the critical features and in which irrelevant features are systematically varied one at a time.

**The Non-Example:** A non-example can illustrate the critical features of a concept. For the concept of fish, a non-example could be a dolphin since it contains many of the critical features of the concept — and could be easily confused as an example — but varies on at least one critical feature.

Examples and non-examples for concrete concepts take the form of pictures or diagrams while examples for abstract concepts need to be presented verbally. Initial examples should reflect typical instances that systematically vary one feature at a time while later examples call on less common instances.

**The Analogy:** An analogy is a representation that corresponds with a concept in function or form but is otherwise dissimilar. Using the human brain to explain how the central processing unit of a computer works might be a useful analogy. Analogies are efficient instructional techniques because they allow the learner to build on what they already know.

| What is a Toothbrush? |   |
|-----------------------|---|
| Definition            | A toothbrush is a small brush with a long handle, usually made of plastic, used exclusively for brushing teeth.   |
| Example               |   |
| Non-example           | <br>A hair brush (shown) is much larger and it would not fit into your mouth. |

Learning objectives should begin with the application-oriented verbs such as: select, analyze, contrast, distinguish, and validate. Avoid remember-oriented verbs such as: define, describe, and identify.

Learning activities should include discussion, diagrams, classifying games, and verbal explanations.

The suggested learning/teaching sequence is as follows:

1. Define the concept.
2. Provide examples to illustrate common characteristics.
3. Provide non-examples to further identify characteristics.
4. Use diagrams for concrete concepts; use verbal explanations for abstract concepts.
5. Ask students to classify objects into their category.
6. Provide feedback.

Practice should include asking students to correctly identify the new concepts from a group of valid and non-valid examples.

## How to Assess Learning

To evaluate concept learning, measure the participant's ability to classify unknown items. Format assessment questions like the practice exercises but with new examples. Have students choose from examples.

Especially for complex concepts, post-evaluation discussion yields valuable learning. Discussing why some of the choices are examples of the concept and others are not further cements the concept in participants' minds.

Sometimes a simulation is useful in replicating "the real world" where the concept must be applied (e.g., qualified customer, eligible for a refund, "gold customer"). Simulations can test a learner's ability to apply concepts within a larger context.

# Principles

## Definition of Principles

Principles are guidelines or criteria that can direct you in similar situations. Principles help us communicate effectively, solve problems efficiently, relate to customers, sell, and perform effectively in many other activities.

Unlike procedures, there are no automatic or mandatory steps to follow in the situation. Each situation varies from other situations in some fashion. In fact, trying to follow a lock-step, mechanical procedure may get you into trouble with situations that require you to apply principles.

To be sure, there are some situations that have a more defined set of phases to run through in order to be effective. Skills such as problem solving a customer's billing issue on the phone are fairly well defined, are fairly easy to train, and are called near-transfer principles. Skills such as general problem solving may be less defined, more difficult to train, and are called far-transfer principles. Both involve problem-solving principles, but one is job — and even task — specific (near-transfer) while the other is broader in scope and more encompassing (far-transfer).

While near-transfer tasks are easier to train, with greater probability of success, the employee is limited to performing the tasks as taught. Far-transfer tasks are more difficult to train and the probability of success is lower. But once the guidelines are acquired, the employee is able to apply the skills to a variety of job-related contexts.

Identifying the principles that best support optimal job performance is a key challenge. See *Entelechy's Approach to Performance Consulting eGuide* (<http://unlockit.com/eguide-HPT-PC-EG.htm>) for over 50 pages of information, tips, and techniques that will help you.

## Examples of Principles

The following are examples of principles:

- **Probing/Questioning (Sales):** Uses open/closed ended questions to identify/clarify customer's business goals/problems/needs. Uses questioning techniques to direct the call, demonstrate attention, and gain information and insight.
- **Handling Objections (Sales):** Maintains presence and demonstrated empathy. Acknowledges the concern and uses questions to clarify the concern. Addresses objection appropriately. Uses checkback questions to check for agreement.
- **Professional Team Presence (Sales Presentation):** Supportive to other team members. Defers questions to other team members appropriately. Uses discretion in offering help to fellow team members. Well prepared and obviously rehearsed.
- **Effective Feedback (Employee Development/Coaching):** Provide feedback that is balanced, objective, specific, and supportive (BOSS).

## How to Teach Principles

Principles should be trained at the application level of performance. This means that trainees must practice successful implementation of guidelines in a variety of job-related situations often presented as case studies.

To teach principles, you need to provide the relevant guidelines. Varied context examples illustrate successful application of the principles to diverse situations. Non-examples can be used to illustrate the differences between successful and unsuccessful application of the principles.

Analogies are especially powerful in training of principles. To work, the analogy must be familiar to the students and its critical elements must link meaningfully to the principle. “Handling an angry customer is like handling an egg.” is more familiar to more people than “Handling an angry customer is like tuning a performance automobile.”

Far-transfer training that involves application of social skills, such as supervisory or sales training, is best taught in a classroom setting where video scenarios and role-playing can provide realistic examples and practice with feedback.

Learning objectives should begin with the application-oriented verbs such as: demonstrate, assess, criticize, evaluate, judge, position, demonstrate. Avoid remember-oriented verbs such as: explain, describe, and identify.

Learning activities should include demonstrations with feedback, role plays, simulations, analogies, and plays.

The suggested learning/teaching sequence is as follows:

1. State the principle. Provide a statement describing the principle and any guidelines that flow from the principle.
2. Provide varied context examples to illustrate the principle being applied. Illustrate the application of the principle in typical work-related situations.
3. Provide examples where the principle wasn't applied and the resulting consequences.
4. Provide analogies to build off of prior knowledge.
5. Demonstrate the principle in a scenario.
6. Provide practice exercises/role plays. Design practice exercises that will require students to apply the principles, not just recall them. Use at least two practice sessions: the first one encourages the learner to evaluate sample performance; the second session requires the learner to apply the principles taught.
7. Provide feedback.

## How to Assess Learning

To evaluate principle learning, measure the participant's proficiency in meeting the skills criteria in context. Use role plays and a skills performance assessment sheet to determine proficiency. This evaluation is best done by skilled raters/evaluators using behavioral criteria. It is important



to use behavioral checklists (checklists that list behaviors that illustrate the principle in action) and that the raters/evaluators are well trained in recognizing these behaviors in action.

# Processes

## Definition of Processes

Processes are descriptions of how things work. There are two basic types of processes: business (describing work flows in organizations) and technical (describing how things work in equipment or nature).

Learning about processes results in knowing how things like manufacturing operations, corporate functions, chemical reactions, or computer programs work, rather than how to do things.

Processes may be included in your training as “nice-to-know” information or as essential to performing the job. Processes are especially appropriate for new hire training, trouble shooting, customer service, and sales — the “big picture stuff.”

Processes and procedures are similar in that they both outline a flow or sequence. They are quite different, however. While procedures are **DIRECTIVE** in nature, processes are **DESCRIPTIVE**. Procedures tell employees how to go about doing a task. Processes describe to employees how something works.

We teach processes for three primary reasons:

- To provide a context for learning. Knowing “the big picture” provides a context for more detailed procedures and concepts. This improves the training and retention.
- To help employees troubleshoot and problem-solve. For example, teaching newly hired auditors the flow of claims from beginning to end may help them determine why certain claims are being processed incorrectly.
- To help motivate employees. Most people like to know how what they do fits into the bigger scheme of things.

## Examples of Processes

The following are examples of processes:

- The sales process.
- The manufacturing process.
- The claims adjustment processes.

## Non-Examples of Process

The following are NOT examples of processes (with explanations of why they are not):

- The log-in process (more than likely, logging in is a series of discrete steps — a procedure)
- Techniques for handling angry customers (while there may be a procedure — a series of steps — for handling angry customers, the techniques/guidelines for handling the angry customer — listening/paraphrasing, displaying empathy, using open probes, etc. — are principles, not processes.)

## How to Teach Processes

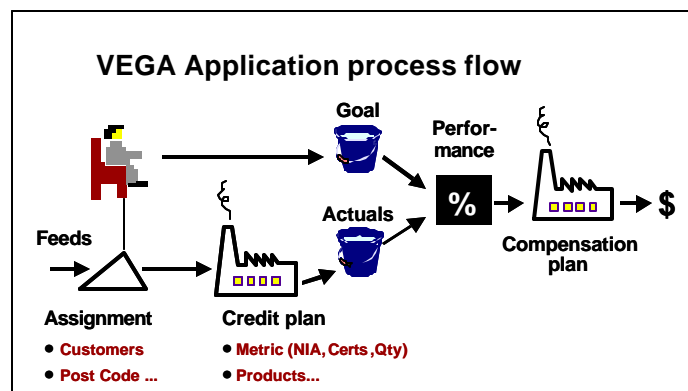
At the Remember Level, students can recall the major stages of the process. At the Apply Level, students can solve a problem or make an inference based on their knowledge of how the process works.

If the process is essential, make sure to write an objective for the process and teach the process at the application level. For example, rather than having students “describe the network routing process” you may want to have students “diagnose common problems in the network routing process”. This moves learning from the Remember Level to the Apply Level — a level that is more relevant to the student’s job.

Learning objectives should begin with the application-oriented verbs such as: create, generate, develop, formulate, and propose. Move quickly from remember-oriented verbs such as: explain, describe, and identify.

Learning activities should include case studies, simulations, and work problems.

Use informational displays for processes such as process tables and flow diagrams. Flow diagrams are preferred as they are more memorable and more efficient. (A flow diagram consists of a series of boxes or bubbles or titles depicting primary functions or elements in the process.)



To practice/apply process knowledge at the Apply Level, ask students to solve a problem or make an inference based on the process. Use case studies, simulations, or work problems to apply process knowledge.

The suggested learning/teaching sequence is as follows:

1. Outline the process.
2. Explain why it is important to know this process.
3. Give a common example to illustrate how the process works.
4. Give a problem and ask the class to solve the problem.
5. Ask students to solve a problem or make an inference based on the process.

6. Provide feedback.

## How to Assess Learning

To evaluate process learning, measure the student's ability to solve a problem using the process. Especially useful for evaluation are simulations and problem-solving scenarios. Use role-plays to combine process learning with principle learning.

# Facts

## Definition of Facts

Facts are, ... well, facts. They're the building blocks of other content types. However, facts by themselves aren't very useful. That's why we try to teach facts when we teach processes, concepts, procedures, or principles and NOT by themselves.

Facts can be processed at the Remember Level only. (When you "apply" a fact, you are actually doing something else, such as performing a step in a procedure.)

Throughout high school and into college, much of our learning included memorization and recall of factual information. (What are the names of the colors in the color spectrum? What are the names of the five Great Lakes? How many electrons in a hydrogen atom?) Some of the facts you remember, most you don't simply because you don't use them often.

## Examples of Facts

We often see facts displayed in statements, displays, lists, and charts. Open a user guide to a computer or appliance or tool and you are likely to encounter a graphic of the item with arrows pointing to different parts of the item. At the end of each arrow is the name of that component — a fact. Or you may see a list of specifications — more facts.

For the most part, these facts are important for a fleeting moment while you accomplish a specific task — setting up your computer, for example. While the facts must be clearly and accurately presented, memorizing facts is usually NOT necessary.

Facts SHOULD be memorized in only two cases:

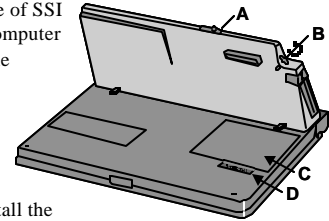
- For speed. If speed is critical and dependent upon the recall of facts, facts should be memorized. For example, knowing the shortcut keys in Microsoft Word may be important in jobs where word processing is a primary activity.
- For accuracy. If accuracy is critical and dependent upon the recall of facts, facts should be memorized. Knowing the qualification criteria of financial aid applicants may be critical to client services agents.

However, in each of the cases above, it is likely that the facts will be used in some type of work context and are best taught within that context.

### Components in Releasing the Floppy Dock

Diagram

This is a diagram of the underside of SSI Notebook Computer displaying the components needed to release the floppy dock and install the memory upgrade.



| Part # | Name of Part          | Purpose/Description                   |
|--------|-----------------------|---------------------------------------|
| A      | Module Release Latch  | Releases the Floppy Dock              |
| B      | Locking Thumbwheel    | Locks the Floppy Dock in place        |
| C      | Memory Module Door    | Covers the Memory Module              |
| D      | Communications Socket | Links the Floppy Dock to the Notebook |

## How to Teach Facts

Avoid writing objectives and assessment questions that ask students to recall factual information. Instead, have them recall factual information as part of another application objective.

Objectives that begin with: state, recall, list, define, match, describe, and other similar objectives are possible fact-recall objectives. They're easy to write and even easier to test (and because we've experienced at least 12 years of factual recall testing, we're GOOD at writing these tests!).

Teach facts when you teach another content type — process, procedure, principle, or concept. If you must spend time teaching facts, organize the facts. Try:

- Mnemonics – If you correctly answered the question, “What are the names of the colors in the color spectrum?” then chances are that you're either an artist OR you know the mnemonic: Roy G. Biv. Each letter in Roy's name stands for a color in the spectrum: Red, Orange, Yellow, Green, Blue, Indigo, Violet. HOMES is a mnemonic for the five Great Lakes. Mnemonics aid recall.
- Provide charts – Organize functions or features on charts or graphic displays. Bring the facts to life. Make them relevant and useful.
- Provide lists and tables – organize facts into easy-to-use lists or tables. For example, instead of teaching the acronyms that seem to tag along with every business, create an acronym glossary and show learners how to use the glossary.

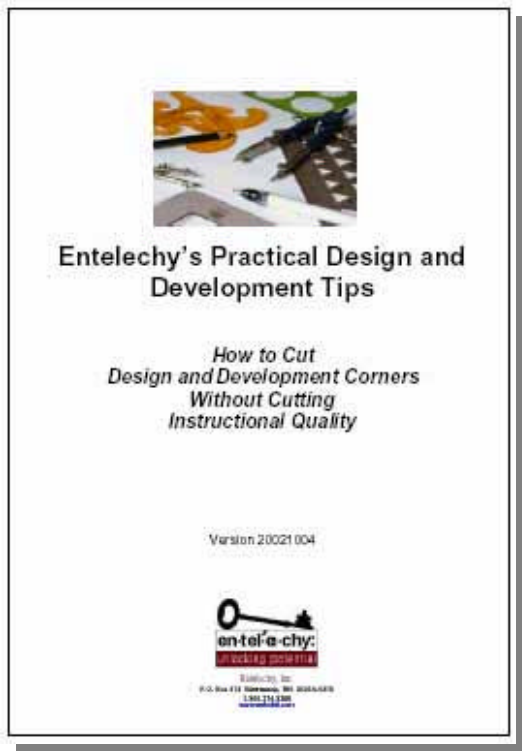
## How to Assess Learning

Because some facts ARE important and because testing facts is a teaching strategy (i.e., use a test to teach important facts in a fun way), consider using the following testing techniques to test/teach facts: multiple choice, short answer, matching. For facts that require definitions, consider using a crossword puzzle format (crossword puzzle makers are easily sourced on the Internet).

## Wrap Up

That's it!!! We've now covered all five content types; we have looked at how to best teach each content type and evaluate the learner's grasp of the material. Use this information to increase the effectiveness and efficiency of YOUR training, whether it is classroom-based, web-based, distance, or self-paced training.

## More from Entelechy...



It's here!!! Entelechy's *Entelechy's Practical Design and Development Tips* is available NOW!

*Entelechy's Practical Design and Development Tips* is THE eGuide for anyone designing or developing training. With over 100 pages, this eGuide gives you not only a detailed overview of the instructional design and development steps, it gives you almost 30 pages of tips and shortcuts that will help you save time designing and developing training.

The 40-page overview of ADDIE (Analysis, Design, Development, Implementation, and Evaluation) is an outstanding refresher for those who have had training in — or experience with — instructional design. It's also a clear, easy-to-understand introduction for those who have no instructional design or development background. The eGuide also contains a glossary with definitions of over 250 instructional design and development terms.

Great designers and developers know where you can AND CAN'T cut corners. The 100+ shortcuts and tips come from training experts — Entelechy's own experts as

well as leading industry designers and developers — and are practical and useful. Most importantly, you'll find that you not only save time, but the quality of your training increases!

Here are three tips to whet your appetite:

- Tip #1: Always have a resource file of graphics that you like, but don't currently have a use for. At a later time, when you get stuck looking for "just the right" graphic you have somewhere to go to get things rolling.
- Tip #2: Use a second set of eyes. Don't try to proofread your own work — find someone else who can read it quicker and pick up on the things that you won't because you are too close to it.
- Tip #3: Get to know your tools. Microsoft Word and PowerPoint are typically the tools of choice. Learn how to make tables. Learn how to use styles and section breaks. Use

shortcut keys (e.g., CTRL+C = copy or SHIFT+CTRL+V = paste the format). Use search and replace for words, phrases, and even styles!

In addition to the wealth of tips and shortcuts, we've provided the following job aids to help you shorten your design and development cycle without sacrificing instructional quality:

- Instructional Design Job Aid
- Audience Profile and Context Analysis Checklist
- Performance Analysis Flowchart
- Needs Assessment Questions
- Instructional Media Selection Flowchart
- Instructional Strategies for Five Content Types
- Training Lesson Checklist

Click <http://unlockit.com/eguide-HPT-PDD-EG.htm> to download *Entelechy's Practical Design and Development Tips* now!

If the instructional design process is bogging you down or if the quality of your training is suffering because the shortcuts that you're taking are short-circuiting the learning process, *Entelechy's Practical Design and Development Tips* is the eGuide for you! Here's what others have to say about the eGuide:

- *"The tips are useful and practical. You can tell that these folks know their stuff!"* Corporate instructional designer.
- *"Thanks! Most of the tips work just as well for designing and developing web-based training."* Corporate web-based training developer.
- *"The organization of this guide is outstanding! The tips and shortcuts follow the overview of the ID process. Too often, we take shortcuts without realizing what we're cutting short and instructional integrity suffers as a result."* Training manager.
- *"The tip about cutting and pasting formats was worth the price of the guide alone! I've saved HOURS of development time!"* Government trainer.
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## Here's to GREAT Design!

Send this document to your friends and colleagues who may be involved in training and the performance of others and could benefit from Entelechy's services.

Enjoy!

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**Appendix A:**  
**Five Content Types Job Aid**



# Instructional Strategies for Five Content Types (1 of 2)

|                          |                                      | <b>Facts</b>  | <b>Concepts</b>  | <b>Processes</b>   | <b>Procedures</b>  | <b>Principles</b>   |
|--------------------------|--------------------------------------|---|--|--|--|---|
| <b>Application Level</b> | <b>Definition</b>                    | Facts are basic information. Facts are inefficient to store in memory and are prone to recall errors. Job aids are preferred to memorization of most facts. | A class of items that is known by a common name, include multiple specific examples, share common features, and vary on irrelevant features. Two types: concrete and abstract.   | Descriptions of how things work rather than how to do things. Two types: business (describing work flows in organizations) and technical (describing how things work in equipment or nature).  | A series of clearly defined steps which result in the achievement of a job task. Two types: linear and branched.   | Guidelines or rules which govern. Principles are far-transfer training and are useful when actual scenarios in which principles are used vary significantly and constantly.   |
|                          | <b>Best Used For</b>                 | Not applicable at the Application Level.  | Technical training (along with procedures)<br>New hire training<br>Skills training   | New hire training<br>Trouble shooting<br>Customer service<br>Sales<br>(Big picture stuff)  | Data entry<br>Trouble shooting<br>Programming<br>Safety procedures<br>Some software  | Sales<br>Customer service<br>Management<br>Life skills<br>Change management   |
|                          | <b>Objectives</b>                    | Not applicable at the Application Level.  | Select<br>Analyze<br>Contrast<br>Distinguish<br>Validate   | Create<br>Generate<br>Develop<br>Formulate<br>Propose  | Assemble<br>Configure<br>Demonstrate<br>Perform<br>Process   | Assess<br>Criticize<br>Evaluate<br>Judge<br>Position  |
|                          | <b>Assessments</b>                   | Not applicable at the Application Level.  | Measure ability to classify unknown items.<br>Format assessment questions like the practice exercises but with new examples.<br>Have students choose from examples.  | Measure ability to solve a problem using the process.<br>Simulations<br>Problem-solving scenarios  | Measure speed and/or accuracy in completing the procedure.<br>Labs and simple simulations<br>Have students demonstrate the procedure.  | Measure proficiency in meeting skills criteria.<br>Best done by skilled raters/evaluators using behavioral criteria.<br>Use behavioral checklists.<br>Train rater/evaluators.   |
|                          | <b>Suggested Learning Activities</b> | Not applicable at the Application Level.  | Discussion<br>Diagrams<br>Classifying games<br>Verbal explanations   | Case studies<br>Simulations<br>Work problems   | Activity tables<br>Decision tables<br>Flow charts<br>Labs  | Role plays<br>Simulations<br>Analogies<br>Plays   |
|                          | <b>Suggested Learning Sequence</b>   | Not applicable at the Application Level.  | <ol style="list-style-type: none"> <li>1. Define the concept.</li> <li>2. Provide examples to illustrate common characteristics.</li> <li>3. Provide non-examples to further identify characteristics.</li> <li>4. Use diagrams for concrete concepts; use verbal explanations for abstract concepts.</li> <li>5. Ask students to classify objects into their category.</li> <li>6. Provide feedback.</li> </ol> | <ol style="list-style-type: none"> <li>1. Outline the process.</li> <li>2. Explain why it is important to know this process.</li> <li>3. Give a common example to illustrate how the process works.</li> <li>4. Give a problem and ask the class to solve the problem.</li> <li>5. Ask students to solve a problem or make an inference based on the process.</li> <li>6. Provide feedback.</li> </ol> | <ol style="list-style-type: none"> <li>1. List the procedure (document it and provide it as a handout).</li> <li>2. Demonstrate the procedure highlighting decision points and troublesome areas.</li> <li>3. OPTIONAL: Ask one student to perform the procedure while the rest of the class observes; provide feedback.</li> <li>4. Ask students to perform the procedure.</li> <li>5. Provide feedback.</li> </ol> | <ol style="list-style-type: none"> <li>1. State the principle.</li> <li>2. Provide varied examples to illustrate the principle being applied.</li> <li>3. Provide examples where the principle wasn't applied and the resulting consequences.</li> <li>4. Provide analogies to build off of prior knowledge.</li> <li>5. Demonstrate the principle in a scenario.</li> <li>6. Provide practice exercises/role plays.</li> <li>7. Provide feedback.</li> </ol> |

# Instructional Strategies for Five Content Types (2 of 2)

|                                      | <b>Facts</b>  | <b>Concepts</b>  | <b>Processes</b>  | <b>Procedures</b>  | <b>Principles</b>   |
|--------------------------------------|---|--|---|--|---|
| <b>Definition</b>                    | Facts are basic information. Facts are inefficient to store in memory and are prone to recall errors. Job aids are preferred to memorization of most facts. | A class of items that is known by a common name, include multiple specific examples, share common features, and vary on irrelevant features. Two types: concrete and abstract. | Descriptions of how things work rather than how to do things. Two types: business (describing work flows in organizations) and technical (describing how things work in equipment or nature). | A series of clearly defined steps which result in the achievement of a job task. Two types: linear and branched. | Guidelines or rules which govern. Principles are far-transfer training and are useful when actual scenarios in which principles are used vary significantly and constantly. |
| <b>Best Used For</b>                 | Information that must be memorized for productivity or importance.<br><i>*not preferred</i>   | Definitions that must be memorized.<br><i>*not preferred</i>   | Processes that must be memorized due to complexity of problems to be solved.<br><i>*not preferred</i>   | Procedures where memorization is required due to safety or productivity reasons.<br><i>*not preferred</i>        | Simple rules from which specific application can be derived.<br><i>*not preferred</i>   |
| <b>Objectives</b>                    | Identify<br>State<br>Label<br>List<br>Recite  | Label<br>Match<br>Name<br>Recognize<br>Select  | Name<br>Identify<br>Recall<br>Define<br>Illustrate  | Describe<br>Order<br>List<br>Explain<br>Arrange  | Label<br>List<br>Identify<br>Quote<br>Generalize  |
| <b>Assessments</b>                   | Multiple choice<br>Short answer<br>Matching   | Matching assessments<br>Multiple choice<br><br><i>*not preferred</i>   | Verbal response<br>Long answer/essay<br><br><i>*not preferred</i>   | List the steps<br>Recite the steps<br><br><i>*not preferred</i>  | List the rules and guidelines<br>Describe the scenario<br><br><i>*not preferred</i>   |
| <b>Suggested Learning Activities</b> | Recall facts as part of another learning activity. Provide mnemonics, lists, charts, and descriptive tables.  | Memorization<br>Flash cards  | Process tables and flow diagrams. Flow diagrams are preferred as they are more memorable and more efficient.  | Roundrobin<br>Each-one-teach-one<br>Reorder the mixed up steps   | Rule lists<br>Multiple scenarios<br>Discussions and brainstorming   |

**Remember Level**