

Learning Design Principles for Power Point™ Presentations

See the *Structural Design Principles* handout for non-instructional principles.

Text and Images

Images should be combined with verbal (text or oral) information. This allows the learner to make connections with what they already know (language and visual iconography) and allows them to encode new information in more than one form.

Audience members cannot read text and hear information that is different from what is in text. Presenters can read the slide text, but many audience members prefer presenters not to do this.

Chunking

Presentation content should be grouped into logical sections that allow the learner to organize for memory and recall. In general we can absorb seven pieces of new information at one time.

- If information is new to an audience the rule of thumb is 7 minus 2 pieces of information.
- If information is familiar to audience and is a refresher the rule of thumb is 7 +2 pieces of information.

Cognitive Design Strategies¹

When students better understand how to learn, they improve their learning performance. Cognitive strategies help the learner make sense of information being presented. The following strategies may be used by the instructor to organize information for the learner or they may be used by the learner to make sense of what they are learning. In this way, these strategies can be used to frame or organize an assignment or instructional activity VIA PPT or handouts.

Strategy	Description	Example/Reference																				
Chunking	Rational ordering, classifying, or arranging of information Prepare for further processing. When we re-chunk, we facilitate comprehension.	<ul style="list-style-type: none"> Linear/spatial: spatial, narrative, procedure, expository Classification: taxonomy, typology, sorting (alike/unlike, cause-effect, forms & functions, advantages/disadvantages) 																				
Frames, Type 1	Matrix or grid labeled with names of concepts, categories or relationships. Learners can complete or add information.	<table border="1"> <thead> <tr> <th></th> <th>Problem of</th> <th>Action</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>#2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>#3</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Problem Frame</p>		Problem of	Action	Results	#1				#2				#3							
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Frames, Type 2	Matrix or grid that is guided by a <i>principle</i> that requires learner use logic to fill information into slots.	<table border="1"> <thead> <tr> <th></th> <th>Religion</th> <th>Structures</th> <th>Style elements</th> </tr> </thead> <tbody> <tr> <td>Africa</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Middle East</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Far East</td> <td></td> <td></td> <td></td> </tr> <tr> <td>N. America</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Non-Western Art</p>		Religion	Structures	Style elements	Africa				Middle East				Far East				N. America			
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Concept Maps	Arrangement of concepts into a relational presentation. Lines are drawn between related concepts and reveal a structural pattern; a BIG picture.	<p>What are concept maps? - http://olc.spsd.sk.ca/de/pd/instr/strats/conceptmap/index.html</p> <p>A period Table of Visualization - http://www.visual-literacy.org/periodic table/periodic table.html</p>																				
Advance Organizers	Brief, abstract passage that helps to connect prior learning to new material. Includes a brief outline of new material. Must be created by teacher or designer.	<p>Creating and using advance organizers - http://www.netnet.org/instructors/design/goalsobjectives/advance.htm</p>																				

¹ West, C. K., Farmer, J. A. & Wolff, P. M. (1991). *Instructional Design Implications from Cognitive Science*. Lawrence Erlbaum Associates, Hillsdale, NJ

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Strategy	Description	Example/Reference
Metaphor ² Analogy ³ Simile ⁴	Transpose meaning from one idea, concept, procedure, or event to another. Help to make connections among knowledge pools. Metaphors are similar to AOs but less definitive and detailed.	Examples by theme, http://www.metaphorsandsimiles.com/
Rehearsal	Study or comprehension strategy: reviewing, answering questions, predicting, summarizing.	Twelve Active Learning Strategies http://www1.umn.edu/ohr/teachlearn/tutorials/powerpoint/learning/index.html
Imagery	Mental visualization of objects, events, and arrays, Major device for storing knowledge in mind.	Creating Animations in PowerPoint to Support Student Learning and Engagement - http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolume/CreatingAnimationsinPowerPoint/192966
Mnemonics	Artificial memory aids: letter coding, keyword, chain.	Mnemonics by discipline http://www.eudesign.com/mnems/mnframe.htm

Learning Designs

Follow a narrative format

- a. Beginning
 - i. Get attention by using music, simple and direct text, image(s), and/or unexpected information.
 - ii. Focus attention on what is to be learned: agenda, objectives, list of key terms, etc.
- b. Middle
 - i. Divide presentation into segments with NO more than 12-15 minutes of lecture.
 - ii. Integrate activities between segments (see Learning Activities)
 - iii. Use blank slides so that student responses can be added – this allows students to contribute and it communicates that they will be expected to contribute to the class session.
- b. End
 - i. Review or ask students to review topics covered.
 - ii. Relate to course sequence – what has already been covered and what will be covered next.

² Implicit comparison between two unlike entities.

³ Comparison of two unlike things using “like.”

⁴ Explicit comparison between two things indicated by “is” or “as.”

- iii. Relate to any assignments or assessments.

Follow Keller's ARCS (Attention, relevance, confidence, satisfaction)⁵

- a. **Attention.** Concreteness focuses the learner and eliminates ambiguity. Incongruity and Conflict can also gain the learner's attention and may involve: humor, variability (pacing, delivery method, modalities, etc.), participation, inquiry (active investigations by the learner).
- b. **Relevance.** Consider what is relevant to the learner: their prior experience, what they consider to be a present worth of the course material, the future usefulness of what they are learning, how what is being learned matches their needs (in career, success, health, welfare, etc.), what students see modeled by instructor or other role models, the choices that are afforded to learners.
- c. **Confidence.**
 - Articulate clear learning objectives and prerequisites
 - Develop increasing levels of difficulty
 - Set realistic expectations
 - Provide for learner controlled aspects of experience
 - Provide opportunities for increased learner independence.
- d. **Satisfaction.** To be satisfied, learners must be given opportunities to practice what they are learning, recognized for their developing knowledge, and know that they were provided what they needed in order to learn.

Learning Activities

Integrate learning activities that engage the learner into your presentation. The following strategies are not necessarily contingent upon the use of Power Point™. Most of these can be prompted with one slide. Class size will determine activities that will be more effective.

- a. **Think-share-pair.** Students are given a prompt or question to discuss. They are given one minute to think and then asked to pair with another student. After a few minutes of discussion, the instructor asks students to share their ideas. A classroom vote is taken to determine consensus. Related to Thinking Aloud Pair Problem Solving (TAPPS). See <http://www.wcer.wisc.edu/archive/CL1/CL/doingcl/thinkps.htm>
- b. **Brainstorming.** Students work in pairs or small groups to list ideas without censorship. For different types of brainstorming, see <http://www.mindtools.com/pages/Supplementary/BrainstormingWarmUps.htm>
- c. **Poll.** Polls can help you ascertain student understanding. Additionally, they can spark a discussion, identify errors in thinking, etc.
- d. **Stump your neighbor.** Have students compete to come up with questions, little known facts, or puzzles to stump their peers. These can be added to an instructor's PPT.

⁵ See <http://www.arcsmodel.com/>

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- e. **Note check.** Have students check their note taking by exchanging with a neighbor.
- f. **Focused listening.** After describing or illustrating a concept or point, include slide that asks learner to give illustrations or examples – collect (in writing) or add to slide
- g. **Two-minute paper.** Typically used at the end of class to determine student learning. These can also be assigned within a 24-hour period and posted to a course management system (e.g., Blackboard™, Moodle™,
- h. **I still don't get it.** Students report what they are still struggling with.

The following games are highly motivational for undergraduates and even graduate students, when used appropriately. A search on the Internet will result in many other PPT game templates.

- i. **Jeopardy.** Divide lecture material into categories. Divide class into teams and allow students to compete to get answers. Use as practice or rehearsal strategy.
 - o Templates - <http://www.jmu.edu/madison/teacher/jeopardy/jeopardy.htm>
- j. **Who wants to be a Millionaire.** Have students compete to win points or a special privilege (e.g., extra time for an assignment, opportunity to re-take a quiz, or something that is valued and motivational). They may select a helpline.
 - o Template and instructions - <http://jc-schools.net/tutorials/ppt-games/Millionaire.ppt>
- k. **Other games** - <http://eganscorner.wikispaces.com/PowerPoint+Games>

Other resources:

Power Point for E-learning - <http://www.articulate.com/rapid-elearning/powerpoint-for-e-learning/>

Presentation Tools - <http://elearningtools.wetpaint.com/page/Presentation>