Design for Learning:
Restructuring your Online Content to Optimize Learning

David MacDonald, Jean-Pascal Beaudoin
© October 2017

1. Why is design important?

It supports online learning by:
- Maintaining attention level
- Reducing cognitive overload
- Fostering curiosity to learn

2. What should be considered and why?

A valuable online experience should be:

- **Useful, desirable, accessible, credible and intuitive**
  (usable and findable):
  - Refer to the Honeycomb model: http://cel.uwaterloo.ca/honeycomb/valuable.html
  - Provide students with a combination of *words and images* to support their learning
  - *Avoid cognitive overload*: Select relevant information to be organized into a coherent representation and integrated with prior knowledge
  - Help learners process new material, minimize distraction and construct a model or schema:
    - **3 principles to help learners process material**
      - Segmenting: Break content into shorter, user-controlled chunks
      - Pre-training: Introduce names and characteristics of main concepts first
      - Modality: Have pictures, not text, accompany narration
    - **4 principles to minimize distractions:**
      - Coherence: Leave out unnecessary words, sounds, and pictures
      - Signalling: Point out important material (use sparingly)
      - Redundancy: Don't add on-screen text that duplicates narration
      - Spatial/temporal contiguity: Place pictures and related text close together, and have them appear at the same time
    - **4 principles to help learners construct model/schema**
      - Multimedia: Pair words with pictures rather than using words alone (helps constructing mental models to process info and integrate it.
      - Personalization – voice: Use a conversational style
      - Image: Humanize learning (for ex.: add the instructor's picture; show hands of instructor while drawing, etc.)

uWaterloo – UXDL Honeycomb model

- Demonstrate with worked examples: Effective for novices (scaffolds learning by making problem-solving techniques visible; reduces cognitive load); Experienced learners benefit from open-handed questions.
  - **Design** with learning in mind: content and format should be **appealing, easy to use, coherent and aligned** :
    - Organize and label content; Make activities and materials self-explanatory:
    - **Confusion** or **frustration** brings negative emotions and make learners unhappy which lead them to not managing information well,
      leading to **ineffective learning**

A valuable online experience should also be:

- **Clear, concise, concrete, correct, coherent, complete and courteous:**
  - Make content, format, instructions and interactions optimal for learners
  - Refer to the 7C's of Communication: https://www.getadministrate.com/blog/the-7-cs-of-communication/

The 7 Cs of communication
1. Clear
2. Concise
3. Concrete
4. Correct
5. Coherent
6. Complete
6. Courteous
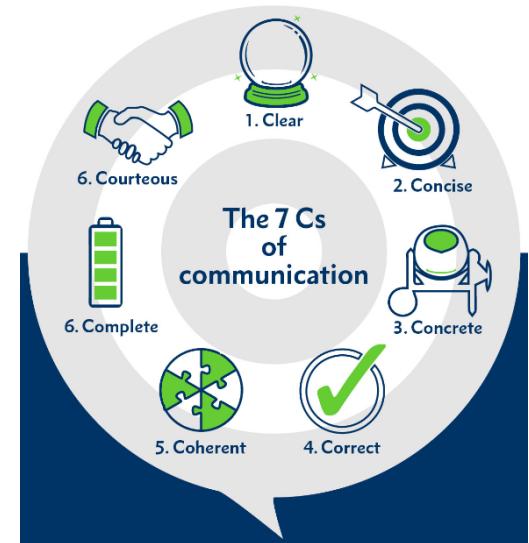
3. What are *good design strategies* to enhance interactions and communication in online learning?

1. Organize material
- Bring clarity to content and format: **breakdown complex information**; keep format and content **consistent**: learning outcomes, graphics, videos, activities, navigation, layout, writing style & structure, etc.)
- Avoid providing extra material on the same page as the main content – it is distracting
- Structure menu in a logical and temporal way: Micro-macro; Close-far (time); Phenomenon-structure; 12 weeks; 24 classes; *n* modules

2. Order content strategically
- Write using the **inverted-pyramid**: Communicate the **essential points** in the first few sentences of your paragraph or section
- Think of web users' **'F' reading method**: selective (scan key words, power-browse, click on links); and prefer visuals (videos and images)

3. Use active voice
- Personalize interactions, make the reading dynamic to keep attention and reduce cognitive overload

4. Use the right tone
- **Personalize text** by using the first and second person
- Use **concise, plain and easy to scan language** for optimal retention

5. Adopt storytelling
- Add short stories or anecdotes; **Use narrative form to share information**
- **Storytelling allows learners to**: relate to content, internalize subject matter, interpret concepts, and become familiar with problem solving scenarios

6. Include actionable content
- Design clear interactions and instructions
- Identify 'clickable' items as such
- Use hyperlinks, videos, audio files, pictures of resources or of themes
- **Lists** - bullets and numbers: **numbers for procedures or sequence**s; start with verbs (or nouns)

7. Manage visual cues
- Structure content by using proper titles, subtitles, font, highlights, contrasts, colours, icons, and relevant images
- Simplify visuals by using animations sparingly and simple lines:
  - Animations are best used for physical procedures and still images for processes
- Consider the **CRAP** model:
  - **C**ontrast for key elements to stand out
  - **R**epetition for cohesiveness of content and format
  - **A**lignment to connect elements, and
  - **P**roximity for an organized look

Questions to ask when reviewing the design of your online material:
- What is the purpose of the item(s) being presented?
- What actions are expected from the student?
- What is the design trying to communicate? Is it effective? Why or why not?
- Consult the TLSS Design Checklist for more questions to consider

Resources

- Design for how people learn by Julie Dirksen (2012)
- Multi-media learning, second edition by Richard E. Mayer (2009)
- The elements of user experience by Jesse James Garrett (2010)
- Elements of learning experience design by Andre Plaut. Retrieved on October 12, 2017 at http://boxesandarrows.com/elements-of-learning-experience-design/
- UX for learning: Design guidelines for the learner experience by Dorian Peters. Retrieved on October 12, 2017 at https://www.uxmatters.com/mt/archives/2012/07/ux-for-learning-design-guidelines-for-the-learner-experience.php

Personal notes:

Contact

Jean-Pascal Beaudoin

jpbeaudo@uOttawa.ca

613-562-5800 (2428)

EXCELLENCE | VISION | PASSION