Overcoming Design Barriers to Online Learning

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introduction

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B.A. Communications (film/video production)
M.A. Education (Adult & Vocational Education)

- Instructional Technology and Design
- Faculty training, videos, resource development
- *iTeach Essentials* course through CTDLC
structure
learning environments to...
decrease anxiety
support independence
enhance engagement & interaction
Stages of Backward Design
Starting with the end in mind

- Determine acceptable evidence
- Plan learning experiences and instruction
- Course and Unit Outcomes

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Specific

Measurable

Achievable

Relevant

Timebound
### Bloom’s taxonomy (revised)

#### Action verbs

<table>
<thead>
<tr>
<th>Remember</th>
<th>Understand</th>
<th>Apply</th>
<th>Analyze</th>
<th>Evaluate</th>
<th>Create</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe</td>
<td>Classify</td>
<td>Implement</td>
<td>Categorize</td>
<td>Argue</td>
<td>Design</td>
</tr>
<tr>
<td>Identify</td>
<td>Explain</td>
<td>Demonstrate</td>
<td>Organize</td>
<td>Defend</td>
<td>Develop</td>
</tr>
<tr>
<td>Label</td>
<td>Compare</td>
<td>Execute</td>
<td>Compare</td>
<td>Justify</td>
<td>Construct</td>
</tr>
<tr>
<td>List</td>
<td>Outline</td>
<td>Predict</td>
<td>Differentiate</td>
<td>Summarize</td>
<td>Formulate</td>
</tr>
<tr>
<td>Match</td>
<td>Discuss</td>
<td>Solve</td>
<td>Model</td>
<td>Prioritize</td>
<td>Produce</td>
</tr>
<tr>
<td>Select</td>
<td>Translate</td>
<td>Operate</td>
<td>Integrate</td>
<td>hypothesize</td>
<td>Plan</td>
</tr>
</tbody>
</table>

**Lower order thinking**

**Higher order thinking**
Fink’s taxonomy

- Caring
- Human Dimension
Course outcomes

Unit outcomes?
linked to course outcomes

Outcomes Knowledge domains?
Bloom’s, Anderson and Krathwohl, Fink, or other taxonomy

How measured? Evidence of learning – appropriate assessment methods

Performance criteria? – Grading Rubrics for assessments
### Assessments & Rubrics

Here are some links to rubrics and assessment resources:

- [http://www.uwstout.edu/soe/profdev/rubrics.cfm](http://www.uwstout.edu/soe/profdev/rubrics.cfm)
- [http://course1.winona.edu/shatfield/air/rubrics.htm](http://course1.winona.edu/shatfield/air/rubrics.htm)
- [http://www.rcampus.com/indexrubric.cfm](http://www.rcampus.com/indexrubric.cfm)

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<table>
<thead>
<tr>
<th>Criteria</th>
<th>Levels of Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exemplary</td>
</tr>
<tr>
<td>Research</td>
<td>3 Points</td>
</tr>
<tr>
<td>Content</td>
<td>3 Points</td>
</tr>
</tbody>
</table>

- **Research**
  - **Exemplary**: Your notes indicated that you accurately researched a variety of information sources, recorded and interpreted significant facts, meaningful graphics, accurate sounds and evaluated alternative points of view.
  - **Competent**: Your notes show you recorded relevant information from multiple sources of information, evaluated and synthesized relevant information.
  - **Novice**: Your notes show you misinterpreted statements, graphics and questions and failed to identify relevant arguments.
  - **Unsatisfactory**: Your notes show you neglected information from four or less resources, did not find graphics or sounds, and ignored alternative points of view.

- **Content**
  - **Exemplary**: The content is written clearly and concisely with a logical progression of ideas and supporting information. The project
  - **Competent**: The content is written with a logical progression of ideas and supporting information. Includes
  - **Novice**: The content is vague in conveying a point of view and does not create a strong sense of purpose. Includes some persuasive information and only one or
  - **Unsatisfactory**: The content lacks a clear point of view and logical sequence of information. Includes little persuasive information and only one or
# Structure Your Course

For each unit outcome, identify assessments, activities, resources, time

<table>
<thead>
<tr>
<th>Unit Outcome</th>
<th>Assessment Supporting activities/Resources</th>
<th>Description</th>
<th>Est. time (Carnegie Unit: 9 hrs per week, 15 week course)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO1</td>
<td>Reading: Chapter 1, Intro to Psych pp. 35-52 in Smith text</td>
<td>1 hour</td>
<td></td>
</tr>
<tr>
<td>MO1</td>
<td>Article: Courier and Thomsen <a href="http://www.psychtheories.org/Evaluating">www.psychtheories.org/Evaluating</a></td>
<td>20 minutes</td>
<td></td>
</tr>
<tr>
<td>M01</td>
<td>Video: Personality Theories-8 approaches <a href="https://www.youtube.com/watch?v=ythHWudrG80">https://www.youtube.com/watch?v=ythHWudrG80</a></td>
<td>12 minutes</td>
<td></td>
</tr>
<tr>
<td>M01</td>
<td><strong>Compare/Contrast C&amp;T dialectical implications</strong> Disc. board; respond to prompt; reply 2 others</td>
<td>30-45 minutes</td>
<td></td>
</tr>
</tbody>
</table>
LOST
Patterns
wayfinding principles

1. Create well-structured paths.
2. Create regions of differing visual character.
3. Don't give the user too many choices.
4. Use survey views (give navigators a vista or map).
5. Provide signs at decision points to aid decision making.
6. Use sight lines to show what's ahead.
**f-shaped pattern**

1. Users won’t read text thoroughly.

2. The first two paragraphs must state the most important information.

3. Start subheads, paragraphs, and bullet points with information-carrying words.
Context and landmarks may actually be important to going from “remembering” to “knowing.” The more associations a particular memory can trigger, the more easily it tends to be recalled.

Consequently, seemingly irrelevant factors like remembering whether you read something at the top or the bottom of page — or whether it was on the right or left hand side of a two-page spread or near a graphic — can help cement material in mind.

Kate Garland, University of Leicester
In “Do E-Books Make It Harder to Remember What You Just Read?”
**Classification**
- Chunking
- Filtering
- Visual Hierarchy

**Consistency**
- Design Rules: Type, spacing, white space
- Sequencing
- Naming conventions

**Reduction**
- Limit # of headings
- Limit # of items in lists, on pages, subfolders, etc.
Syllabus
CSC 101 – Introduction to Computers
Instructor: Ms. Jane Doe

Course Purpose & Objectives
The object of this course is to introduce you to computers as they are used to solve business problems using the microcomputer. The subject will be taught:

1. General lectures assignments will discuss the fundamental concepts of digital computer systems to assist in understanding computer problems, including a comprehensive overview of contemporary computer concepts such as basic architecture, input/output devices, and software.
2. Hands-on exercises using microcomputer applications in a Microcomputer laboratory for solving problems specializing in word processing, data entry, business graphics, database development, the Internet, algorithm development, communications, and other popular software.

Note: If any student does not have access to the appropriate lab or software, they need to utilize the College’s resources.

Prerequisites & Tips for Success
- No prior knowledge of computers is necessary or expected; the class is for a beginner who wants to learn about computers and develop some basic skills.
- A course outline is provided. As can be seen, there will be a mix of theoretical assignments and practical work. The practical work is very important; it is not enough to learn about a computer, you must also use one - a lot.
- Ask if you need help! The best way for any student to avoid mistakes is to ensure proper communication is upheld with the instructor.

General Expectations
- The outline and structure of this course creates a set of common expectations. At the same time, each individual instructor has a personal style of working with learners that is unique.
- As a student taking this course, you will be expected to attend class regularly, complete all assignments, and participate actively in the learning process.
design examples...

**Classification**
- Chunking
- Filtering
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**Consistency**
- Design Rules: Type, spacing, white space
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**Reduction**
- Limit # of headings
- Limit # of items in lists, on pages, subfolders, etc.
Syllabus
CSC 101 – Introduction to Computers
Instructor: Ms. Jane Doe

Course Purpose & Objectives

The object of this course is to introduce you to computers as they are used in solving practical business problems using the microcomputer. The subject will be taught on two levels: (1) general lectures assignments will discuss the fundamental components of common to all computer systems to assist in understanding computer problem-solving techniques including a comprehensive overview of contemporary computer terminology and concepts such as basic architecture, input/output devices, and storage devices, and (2) hands-on exercises using microcomputer applications in a Microsoft Windows environment for solving problems specializing in word processing, electronic spreadsheet development, business graphics, database development, the Internet, flow-charting and algorithm development, communications, and other popular software packages. Please note that if any student does not have access to the appropriate hardware and software outside the College, they need to utilize the College’s resources to complete all work.

Prerequisites & Tips for Success

- No prior knowledge of computers is necessary or expected; this is a course for the beginner who wants to learn about computers and develop some practical skills.
- A course outline is provided. As can be seen, there will be a mixture of lecture assignments and practical work. The practical work is very important; the best way to learn about a computer is to use one - a lot.
- Ask if you need help! The best way for any student to avoid misunderstandings is to ensure proper communication is upheld with the instructor.

General Expectations

- The outline and structure of this course creates a set of common expectations for your work. At the same time, each individual instructor has a personal style and way of working with learners that is unique.
Organize, Manage and Present Content and Activities in Your Blackboard Course: http://bit.ly/210W3IR

Writing

• The first two paragraphs state the most important information. The lower portions of the page are often only briefly scanned.

• Use “Information-carrying words”: Start subheads, paragraphs, and bullet points – *words that interest the reader*.

• Keep paragraphs short! Large blocks of text are avoided by readers.

• Lists hold reader attention longer; be sure to show numbers as numerals (i.e., use *Part 1* vs. *Part One*)

Formatting, Layout, and Graphics

• **F-Shaped pattern**: Be sure you don’t “stop the eye” with graphics that break up the flow of the text.

• Formatting can draw attention, but *fancy formatting and fonts* can impede readability.

• **Type size** influences viewing behavior. 11-12pt for docs; 14pt sans serif for web.

• **White space** enhances scannability and comprehension.

• Relevant graphics support learning, decorative graphics detract from it.
support
independence
**Scaffolding**

*Scaffolding* refers to instructional devices that enable students to complete tasks they would be unable to master without assistance.

Vygotsky’s zone of proximal development (ZPD)...refers to the “distance between the actual development level as determined by individual problem solving, and the level of potential development as determined through problem solving guidance, or in collaboration with more capable peers.”

Building Scaffolding into Online Courses

[In the online environment] a different kind of scaffolding must be constructed to replace the verbal and visual structures we take for granted....This form of scaffolding consists of:

1. **Instructional scaffolding to facilitate the interactive nature of teaching and learning.**

2. **Procedural scaffolding that helps students manage the online learning environment.**


- Specific unit learning outcomes and associated, sequenced content provides a framework for students.

- Syllabus clearly relates to all online activities, assessments, and content.

- Announcements

- A schedule with all dates specified.

- “Chunked” content and activities.


- Opportunities and tools that allow peers to collaborate on learning (i.e., discussions, Office 365 or Google Drive)
scaffolding challenges

- Gradually *removing* support resources and reminders; be sure to tell students!
- Moving to a coaching role when responding to questions
- Dealing with passivity and pushback

Navigating the Bumpy Road to Student-Centered Instruction, Richard Felder:
http://bit.ly/1t5vXte
enhance engagement & interaction
aesthetics matter

"...The good aesthetic design of the learning material increased the positive emotions throughout the learning process for those learners whose emotional state in the beginning of the learning was neutral. This suggests that positive emotions can be induced from the learning material through the quality of the aesthetic design. - The Effect of Positive Emotions on Multimedia Learning Um, Song, and Plass (2007)
emotion and social learning

- Learning is a social process.
- “Social interaction is key. A well designed series of student discussions has the power to fuel learners' investment in the course -- this is because well-crafted discussions feel good, they are both challenging and affirming.
- Individuals repeat actions associated with reward and peer approval. Discussions ignite one’s own and others' excitement about ideas while simultaneously catalyzing the universal “belongingness” need (a la Abraham Maslow).”
- Even if the aim of the learning is not behavioral, associated behavioral outcomes can make it easier to communicate and assess.
- People learn best when faced with a relevant problem.

Creating Courses for Adults: Design for Learning, by Ralf St. Clair, 2015
Designing emotionally driven and engaging e-learning

**Interspersing interactive and engaging scenarios and activities “chunks” static content,** to engage emotionally:

- **Tell stories** (the narrative that accompanies lectures is often lost in an online course!). Use “micro-videos” to hold attention.
- **Incorporate reflective writing** to encourage students to share stories and experiences
- **Cooperative research:** Find and share resources
- **Games**
- **Students find and share** resources
- **Watch videos** that evoke an emotional response
- **Create micro-videos** to hold student attention
Games for Nursing and Allied Health

• Howard Hughes Medical Institute interactive labs: http://www.hhmi.org/biointeractive/vlabs/
• http://freenursetutor.com/
• Innovation in Games: Better Health and Healthcare (scroll to the end of the pdf for links to many health-related games!): http://www.healthit.gov/sites/default/files/IFTF_SR-1494_Innovations_in_Games.pdf
• Science/Technology quizzes: http://www.funtrivia.com/quizzes/sci__tech/index.html
• AnimaLearn: Animals, Education, and Ethics online dissection lab - includes Human A&P
• Free Nurse Tutor: http://freenursetutor.com/
• Health Professionals Privacy and Security Training: http://www.healthit.gov/providers-professionals/privacy-security-training-games
Discussions and social presence

• Establish your own “voice”
• Maintain a social presence but don’t overdo it.
• Help learners move from a reliance on the instructors to a reliance on peers.
  • Don’t respond to everyone’s post!
  • Encourage students to answer each other’s questions
  • Consider doing a simple summary at the end of each weekly discussion.
questions:

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Resources

STRUCTURE

- http://teaching.uncc.edu/learning-resources/articles-books/best-practice/goals-objectives/writing-objectives
- https://www.nngroup.com/articles/chunking/
- http://info.shiftelearning.com/blog/bid/231591/3-Considerations-When-Chunking-eLearning-Content
- Headings: https://www.nngroup.com/articles/headings-pickup-lines/
- https://www.nngroup.com/articles/legibility-readability-comprehension/
- https://www.nngroup.com/articles/legibility-readability-comprehension/
- http://bigthink.com/endless-innovation/humans-are-the-worlds-best-pattern-recognition-machines-but-for-how-long
- https://www.youtube.com/watch?v=4eBmyttcfU4
- http://healthland.time.com/2012/03/14/do-e-books-impair-memory/
- Estimating Time on Task in Online Courses (from RIT)
EMOTIONS/ENGAGEMENT

- The Myth of Average (Todd Rose): https://www.youtube.com/watch?v=4eBmyttcfU4
- http://www.facultyfocus.com/articles/instructional-design/how-a-course-map-puts-you-on-track-for-better-learning-outcomes/
- Navigating the Bumpy Road to Student Centered Instruction: http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Public/PDF%20Files/Resist.html
- 4 Tips to Design Emotionally Driven E-Learning Courses: http://www.talentlms.com/blog/4-tips-design-emotionally-driven-elearning-courses/
- Emotions and Learning (in UDL): http://udloncampus.cast.org/page/teach_emotion#.V0Si3EZWLQg
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