Can You Read My Slides?

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Educator Development Program
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Goal: The purpose of this Zipinar is to present best practices in generating slides for effective teaching and learning.

Learning Objectives: By the end of this Zipinar, you will be able to:

- Follow Cognitive Load Theory
- Provide Effective Content Delivery
- Motivate Learners to Attend
- Germaine
- Organize Content
- Vary sensory experience
- Intrinsic
- Think Visually
- Add interactivity
- Extrinsic
- Focus Attention
- Relate to interests
What about PowerPoint slides makes a presentation **NOT** work?

1. Heart Disease
2. Depression
3. Stroke
4. COPD
5. Respiratory Infection
6. Tuberculosis
7. War
8. GI diseases
9. HIV
10. Prenatal conditions
11. Violence
12. Congenital anomaly
13. Self-infected injury
14. Lung cancer
PowerPoint Pitfalls — challenge readability and learning

- Everything starts with a bullet
- Lengthy, wordy passages
- Misspelled words
- No graphics – all text
- Presentation used as a crutch

- Too many animations
- Inappropriate images
- Distracting templates
- Poor choices for background colors
- Distracting transitions
- Too busy, too many colors
- Poor font choices

Organizing content

Formatting
To avoid

DEATH BY POWERPOINT

Apply effective PowerPoint best practices

How do we process information?

Sensory Memory filters out the important information and passes it into Working Memory that can hold 5-9 chunks of information that moves along into Long-Term Memory for storage in structures called “schemas.”

Cognitive Load Theory

= The amount of information that can be processed in working memory at one time.

Instead of presenting a group of rote facts, apply cognitive structures or “schemas” for effective learning

Consider:

- **Germane Cognitive Load**: Process of integrating new learning
- **Intrinsic Cognitive Load**: Learning level effort and difficulty
- **Extrinsic Cognitive Load**: Presentation of learning

Germane Cognitive Load = integrating process, construction, and automation of schemas (the storage of knowledge)

Students encode, store and retrieve information by:

**Learning style**
Described by theories
- VARK
- Kolb
- Multiple Intelligences

**Learning experience/personality**
Motivates interest in content
- Through their previous academic, cultural and social knowledge
- Screened by their preferred interests to attend to the content
Increase germane cognitive load

**Reflection**
Connect new content to previous experiences

**Interleaving**
Present similar concepts to differentiate and avoid incorrect schemas

**Work Examples**
Provide explanations with solutions to create schemas

Intrinsic Cognitive Load = level of learning difficulty in the instructional presentation that may need subschemas

Increase Intrinsic Cognitive Load

**Focusing**
Filter out information to pass important concept into working memory

**Sequencing**
Build concept logically to increase learning in steps

**Chunking**
Provide smaller concept units to reduce difficulty

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Efficiency in Learning

Managing relevant cognitive load by --

Focusing the learner’s attention
Introduce the Content:
Focus with an Icebreaker

- Tell a personal/patient story
- Relate the topic to current events/student life
- Describe how the presentation + student participation will run
- Explain how the presentation fits into the curriculum
- Display a funny cartoon
- Write a question or show a picture for students to ponder
- Embed a short quiz
- Play a short game or short video/audio clip
Sequencing: Content Decision Points — tell a story

1. How will you introduce the content?

2. How will you deliver the content?

3. How will you conclude the content presentation?
Focus Attention to Slide Presentation by

Providing presentation goal and learning objectives
Initiating discussion with an icebreaker/formative quiz
Asking a question or pose a problem to stimulate discussion
Changing colors of backgrounds or text
Adding motion when needed
Playing an audio track
Using visuals for analogies or metaphors
Appealing to learner’s interest
Allowing learner to participation in presentation with a game

*Tip: The key idea is offer variety, but do not overdo it.*
Insert Appropriate visuals – use image instead of text

Depicting depression

http://diabetesthensome.blogspot.com/2011/01/depression.html

Too distracting unless your content is about lion mothers & cubs

http://movies.nationalgeographic.com/movies/last-lions/about/
Use Analogies or Metaphors

Like a finishing line –

Learning objectives describe what is expected of you to achieve by the end of the learning

By the end of the Zipinar, you will be able to:
Focus Learner’s Attention -- Pose Problems to Solve

How would you manage this situation?
Focus Learner’s Attention --
Allow Learner to Participate

Games
Practice Quiz
Know-Pair-Share discussions
Panel Topic
Debate Question
Predictions of outcomes
Focus Attention with **Readable Font Sizes**

**TITLE TEXT**

Font size is 44 points -- 36 pts

**SUBTITLES**

Font size is 38 pt. – 32 pt.

**BODY TEXT SIZE**

Font size is 24 pt – 20 pt  (16 pt for online presentation)

**TOO SMALL**

Font size is 12 pt. OK for citing sources on a slide.
Focus Attention with Readable Fonts --

**Styles**

<table>
<thead>
<tr>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sans serif for easier reading</td>
</tr>
<tr>
<td>• <strong>Color, bolding, capitals, different fonts</strong> to emphasize a point</td>
</tr>
<tr>
<td>• Limit font styles for consistency (optional)</td>
</tr>
<tr>
<td>1. one for title</td>
</tr>
<tr>
<td>2. one for the body</td>
</tr>
<tr>
<td>3. one for labels</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do NOT use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Serif fonts</td>
</tr>
<tr>
<td>– <em>Italics</em></td>
</tr>
<tr>
<td>– <strong>Underlining</strong> (except for internet links)</td>
</tr>
<tr>
<td>– ALL CAPITALS (like yelling at your learners)</td>
</tr>
<tr>
<td>– Stacked vertically (English read horizontally left to right)</td>
</tr>
<tr>
<td>– Dropped shadows</td>
</tr>
</tbody>
</table>
Focus Attention with Text & Backgrounds

Light text on dark backgrounds

- Light Sans Serif Text
- On Dark Background

OR dark text on light backgrounds

- Dark Sans Serif Text
- On Light Background

Avoid distracting backgrounds, photos or clip art

- Dark Sans Serif Text
- On Light Background

- Light Sans Serif Text
- On Dark Background

No text over images

Less text more images
Focus Attention with **Color**

- Differentiate background color for specific slides
- Differentiate color *text* for *emphasis*
- Differentiate **color frame** to organize slide
- Differentiate with contrasting colors (NOT red on green)
- Differentiate image with color or black and white
Decrease Difficulty – keep text readable

Text on slides compliment your instruction*

• Avoid lots of slide text
• Limit colors to blocks of text
• Follow the 6 X 6 rule ("Joy of Six")
  • Limit to 6 lines per slide
  • Limit to 6 words per line

*A Zipinar is a slide book where it is OK to have more text because the learner focuses only on the slides without an instructor.
Extrinsic Cognitive Load = the manner in which information is presented to the learner

This Is Some Important Point

- One amazing fact that you didn’t realize
- Another amazing fact that maybe you knew
- A third fact that you might have known, but didn’t realize was relevant
- And, of course, a fourth fact that needs to be stated because you can’t just say it and expect them to remember
- And a fifth point, just for luck
- Oh, and did I mention point #6 too?
- And there’s an important conclusion too

Too much slide information and the learner finds it difficult to focus and then seeks distractions
Reduce Extrinsic Load -- Dynamic Delivery of Content

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Instead of a bullet list, use an animated pumping heart to focus learners’ attention away from any distractions (e.g., eMail, Twitter, Google)
Reduce Extrinsic Cognitive Load

Organization
Follow and sequence concepts by objectives
1. Objective
2. Objective
3. Objective

Split Attention
Avoid linking to external sources

Redundancy
Focus on concept without repeating same ideas

Efficiency in Learning -- Managing relevant cognitive load

Manage working memory capacity

Weeding = an instructional strategy to eliminate unnecessary or redundant content and minimize cognitive load.

Use Slide Sorter to Weed Out Redundancies

Click
Choosing Antimicrobial Therapy for Patient with VAP

Decision Point:
1. Antibiotic for MRSA? Vancomycin or Linezolid
2. Possible MDR gram negative/Pseudomonas?
   One or two antibiotics active vs. gram negative rods, including pseudomonas

Antimicrobial Therapy for Patient with VAP

1. Antibiotic for MRSA?
   Vancomycin or Linezolid
2. Possible MDR gram negative/Pseudomonas?
   One or two antibiotics active vs. gram negative rods, including pseudomonas
Reduce Extrinsic Cognitive Load -- limit information needed for level of learning

Simplify Tables

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Americas</th>
<th>Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>All Ages</td>
<td>106.8</td>
<td>29.4</td>
</tr>
<tr>
<td>0 – 4</td>
<td>43.6</td>
<td>28.9</td>
</tr>
<tr>
<td>5 – 14</td>
<td>19.2</td>
<td>9.3</td>
</tr>
<tr>
<td>15 – 29</td>
<td>143.8</td>
<td>25.2</td>
</tr>
<tr>
<td>30 – 44</td>
<td>133.7</td>
<td>24.2</td>
</tr>
</tbody>
</table>

Injury-related mortality rates (per 100,000 population) in WHO regions by age group and sex, 2000
Reduce Extrinsic Cognitive Load = display images in subschemas to build learning

Simplify Illustrations

More info than is needed

Gray H. Anatomy of the Human Body
Key Points

Cognitive Load Theory — Germane (encoding, retrieving, & storage), Intrinsic (difficulty level), and Extrinsic (reduced distractions)

Dynamic Delivery of Content — organize content, limit bullets, and include animation, appropriate images, and analogies/metaphors

Focus the Presentation— think visually with backgrounds, fonts, colors, spacing, contrast, and limited wording

Motivate the learner to attend— variety in presentation style, include interests, and participation in interactivity of answering questions exercises, peer exercises, and games
Reading Sources


University of California San Francisco. Slide design tips Available at https://meded.ucsf.edu/tee/slides# . Verified 12/21/21.
Your Thoughts?

What do you think about this Zipinar?

- Cognitive Load Theory
- Focus Learner Attention
- Think Visually
- Organize Content
- Motivate Learners
- Improve
- Like

Please click on this [LINK](#) and take the brief survey and share your thoughts about this Zipinar.

For Residents, fellows, graduate students and medical students; please enter your name and site so that UMMS and your clinical site knows you viewed this Zipinar.

*Thank you for taking the time to view this quick overview.*