Designing Effective PowerPoint Presentations

Problem

The purpose of a PowerPoint presentation is to aid comprehension. However, traditional PowerPoint slide design is flawed: slides packed with unfocused and text-heavy bulleted lists can confuse or disengage your audience. You may have endured one of these ineffective presentations yourself.

Cognitive research shows that people cannot simultaneously process textual and verbal information, since both processes happen in the same part of the brain. Audiences will actively try to avoid being overloaded by:

a. Blocking out the speaker's voice
b. Ignoring the text on the slide
c. Toggling back and forth between reading and listening

In other words, text heavy slides and bulleted lists hurt audience comprehension.

Solution

To increase audience recall, research suggests using the assertion-evidence model, which has been shown to increase audience retention up to 32%.

The Assertion-Evidence Model of Slide Design

1) **Clearly assert the slide's main idea in a complete sentence**
   a. Appears at the top of the slide
   b. Contains one distinct point
   c. Flows logically from previous slide
2) **Reinforce the argument with visual evidence**
   a. Diagrams/charts/images
   b. Functional – not decorative/distracting –visuals
3) **Simplify slide design**
   a. Only include essential information on the slide (verbally deliver the details)
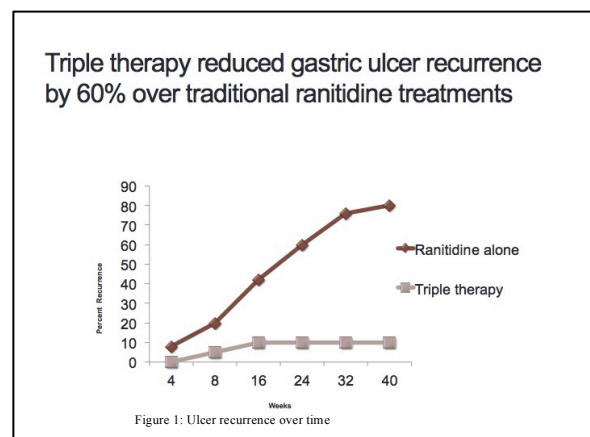   b. Eliminate non-data ink (bullet points, gridlines, etc.)

Example Slide Revision

Before

After

Bulleted list template is designed to help speaker, not audience, remember key points

Message distilled into a complete sentence heading

Visual evidence emphasizes message

Example Slide Revisions

Mineral Economics

- Free Market:
  - Plentiful mineral resource
    - cheap
    - supply exceeds demand
  - Resource becomes scarce
    - price increases
    - Demand exceeds supply

In a free market, supply determines price

| Large supply | Few buyers | Cheap prices |
| Scarce supply | Many buyers | High prices |

Visual concepts improve audience recall up to 32%

Fog warning and education system

- Average vehicle speed before implementation = 45.4
- Average vehicle speed after implementation = 45.7
- Standard deviation in vehicle speed before imp. = 9.4
- Standard deviation in vehicle speed after imp. = 7.2

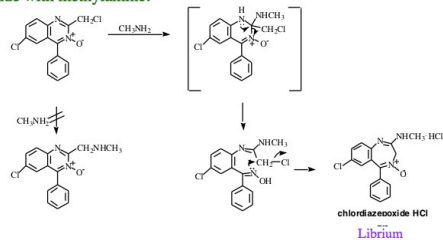### The system shows potential to reduce car accidents related to deviations in speed

Table 1: Results of implementation of fog warning and education system

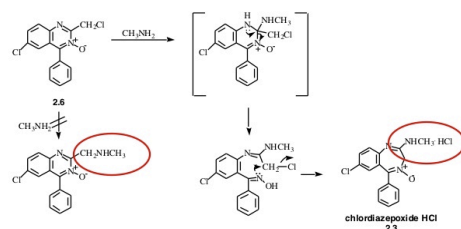| Implementation	Before	After
Standard deviations in vehicle speed	9.4 mph	7.2 mph
Average vehicle speed	45.5 mph	45.7 mph

Slide headings should contain a message, not a topic

In 1957, during a lab cleanup, a vial containing what was thought to be the latter compound (X = 7-Cl, R^1 = CH_2NHCH_3, R^2 = C_6H_5) was sent for testing, and it was highly active.

Further analysis showed that the actual structure of the compound was the benzodiazepine 4-oxide, **Librium**, presumably produced in an unexpected reaction of the corresponding chloromethyl quinazoline 3-oxide with methylamine.

chlordiazeoxide HCl
Librium

An accidental test during lab cleanup led to the discovery of Librium, a highly active structure

chlordiazepoxide HCl
2.3

Expected: Methylmethanamine   **Found:** Librium

Easily interpreted visuals allow audiences to confirm, rather than discover

Make Text-heavy Slides "Visual"

Text-heavy slide?
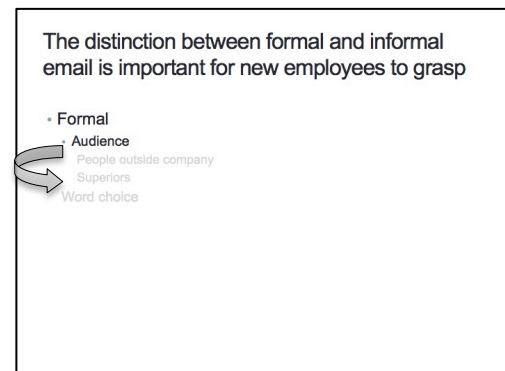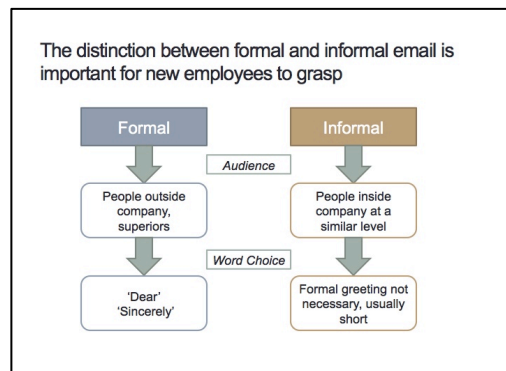
Question whether you actually need this slide.

Details can always be delivered verbally!

Option 1

Option 2

Show conceptual relationships between ideas (SmartArt is useful)

"Build" a list, verbally discussing each point before cuing the next point to appear

When revising a text-heavy slide, pick an option that is best suited for your purposes.

Frequently Asked Questions (and Objections)

Why does it have to be a complete sentence?

Take a look at a newspaper. Every single headline is a complete sentence because people process information in sentences.

Which would you rather see: "Results of World cup final" or "Brazil wins World cup"? Your slides should tell the "news" of your project; structure them like news stories.

This design seems like it will take longer.

It will – at first. But when you've spent so long on your research, isn't it worth the extra effort to communicate that work in the most effective way possible? Start by revising 2-3 key slides.

This seems like it will make my presentation longer.

Actually, this strategy tends to make your presentation shorter because you focus more on the essential information (and thus reduce extraneous details).

I like this idea, but I don't know if this is conventional in my field.

How often has someone said: "Your ideas are really good, but your presentation was just too *easy* to follow"? A more common comment is: "Your material seems good, but I had trouble understanding it." If your presentation is effective, people will be focused on the ideas.

If you are concerned about following norms, just apply these principles as far as your field will allow. These principles are tools – not rules. Play with them; adapt them to your situation.

Alley et al. "How the Design of Headlines in Presentation Slides Affects Audience Retention." *Technical Communication*, 53:4 (2006).
"Pilot Testing of a New Design for Presentation Slides to Teach Science and Engineering." 35th *ASEE/IEEE Frontiers in Education Conference*. Oct,19 – 22, 2005, Indianapolis, IN.