Beyond Bullet Points: Using Microsoft® Office PowerPoint® 2007 to Create Presentations That Inform, Motivate, and Inspire

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Teaching an Old Dog New Tricks

IN THIS CHAPTER, YOU WILL:

- Learn why Beyond Bullet Points (BBP) gets the results it does.
- Review key research principles that every presenter needs to know.
- Compare the research principles with BBP and the conventional approach.

BEYOND BULLET POINTS (BBP) is making headlines because it gets dramatically better results than the standard bullet point approach that most people use with Microsoft® Office PowerPoint®. But it's no accident that BBP gets these results, because beneath the simple, clear, and compelling visual stories is a sophisticated foundation that determines everything you say, show, and do during a presentation. This chapter will explain why BBP works so well and why the conventional approach so often falls short of expectations.

Three Bedrock Tools of PowerPoint

Throughout its 20 years of existence, PowerPoint software has always offered the ability to work on your presentation in three key views: Normal view, Notes Page view, and Slide Sorter view. Although the rest of the PowerPoint features added since then are nice to have, these three views continue to be the bedrock tools you need to manage the images and narration of your presentations.

See Also This chapter focuses on the three views you use when you prepare your slides in advance of a PowerPoint presentation. For more information about the two views you can use when you present your slides to an audience—Slide Show view and Presenter view—see Appendix B on the companion CD.

Normally when you create a text slide in PowerPoint with the standard bullet point approach, you first start in Normal view, as shown on the left in Figure 2-1, where you click to add a title to the title area and then click to add text in the content area below. If you have more to say verbally about the slide but can't fit the extra words in the content area, you might be one of a few people to visit Notes Page view, shown in the middle in Figure 2-1, where you can see the slide area at the top and an adjacent text box in the notes area at the bottom that does not appear on screen during a presentation. And after you've created your slides, you might visit Slide Sorter view, shown on the right, to take a look at all of your slides together as small thumbnails.

Slide Sorter view

Normal view
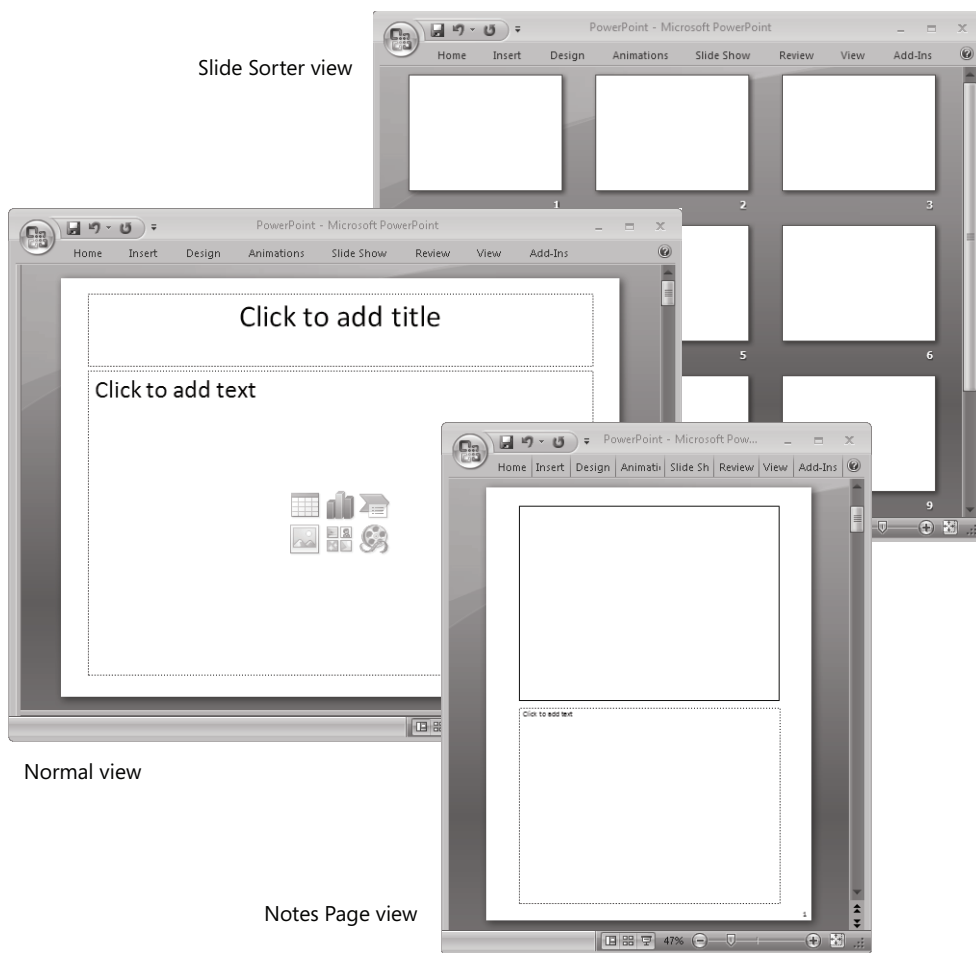
Notes Page view

FIGURE 2-1 The three working views in PowerPoint: Normal, Notes Page, and Slide Sorter.

This sequence of using PowerPoint in Normal, Notes Page, and then Slide Sorter views is the norm today, and it defines the standard for PowerPoint approaches. The secret to unlocking the power of BBP is to flip this sequence and always work in PowerPoint in Slide Sorter view first, then in Notes Page view, and finally in Normal view. As this chapter explains, when you discover this new order for using the same features that have been around for two decades, you will teach an old PowerPoint dog new tricks. And when you apply the new sequence to your own presentations, you'll see how BBP taps into the powerful potential of PowerPoint that has been waiting for you all along.

NOTE	The Ribbon has been minimized throughout the figures in this book to make the graphics more visible. If you ever need to minimize your Ribbon, click the Customize Quick Access Toolbar button next to the Quick Access Toolbar on the upper left in the PowerPoint window, and then select Minimize The Ribbon.

Trick 1: Use Slide Sorter View to Manage the Volume

Open a new, blank PowerPoint presentation, and on the View tab, in the Presentation Views group, click Slide Sorter, as shown in Figure 2-2. Although you might be used to looking at Slide Sorter view only occasionally, if ever, the first trick of BBP is to always begin working in PowerPoint in this view. You'll do that starting in Chapter 6 after you finish writing the outline for your presentation. If you're wondering why it's so important to bump up the status of this little-used view to the most important way to look at your presentations, you need to step out of the PowerPoint mindset altogether for a bit and ask some uncommon questions first.
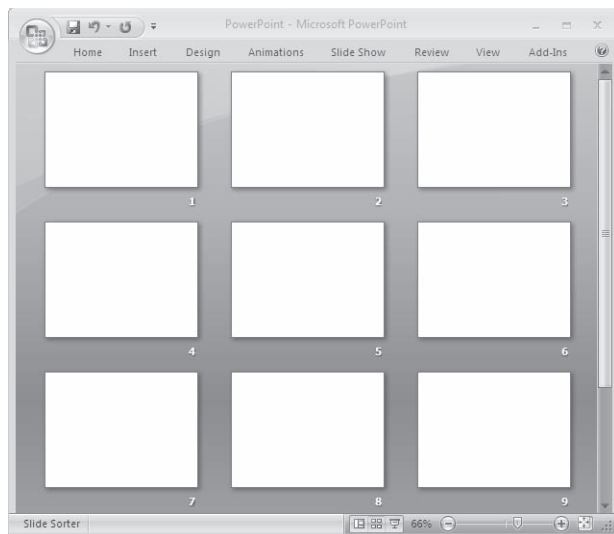
FIGURE 2-2 Slide Sorter view, displaying all of your slides as small thumbnails.

In Search of "Research Reality"

When you talk about PowerPoint, you'll usually discuss which size font to use, how to insert a video clip, and whether the background of a PowerPoint template should be blue or black. One thing you never hear is a conversation about any research related to PowerPoint presentations. Despite the widespread use and influence of PowerPoint software in many professions, you would be hard pressed to find research that demonstrates that the underlying theory, impact, or effectiveness of the conventional PowerPoint approach is better than any other approach.

For example, you won't find research indicating that presenting with bullet points on a PowerPoint slide is more effective than presenting without them, or studies showing that using a PowerPoint design template to make every slide background the same produces better learning than not using a design template, or a quantitative justification and rationale for commonly accepted PowerPoint design guidelines such as the 6-by-6 rule, which states that every slide should have six lines of text with six words per line. This lack of comparative studies on PowerPoint approaches has created a void in terms of research-based guidelines on how best to use the software, and this void has been quickly filled

with popular myths and cultural habits. In other words, the main reason we approach PowerPoint the way we do is simply because that's the way that we've always done it, and not because any research says it's better than any other way.

Although there is little research specifically comparing PowerPoint approaches, there is a significant body of research that has direct relevance to those who use spoken words and projected images to communicate. Researchers in the fields of cognitive science and educational psychology have been studying for decades the best ways to help people learn new information using narration and images. Their work is a treasure trove of information that is directly relevant and applicable to you when you use PowerPoint to create presentations. The only problem is that currently the research dots are not connected to our PowerPoint bullet points. That is what you'll do now as you apply three key parts of this research to the three views of PowerPoint. As you do that, you'll see how these three "research realities" quickly dispel the myths and break the habits that stand in the way of effective presentations. These three research realities also will show clearly why BBP works so well and why the conventional approach to PowerPoint does not deliver results as effectively.

THE MULTIMEDIA RESEARCH

This chapter is inspired by the work of Richard E. Mayer, Ph.D., a professor of psychology at the University of California, Santa Barbara. Ranked as the most prolific researcher in the field of educational psychology, Mayer is the author of 18 books and more than 250 articles and chapters and has been researching multimedia learning and problem solving for 15 years. In his books and related articles and papers, Mayer proposes a way to understand the use of multimedia that promotes meaningful learning and lays out a set of principles for designing any multimedia experience based on his own research and that of others. For more information about the research on multimedia learning and its implications for PowerPoint presentations, see:

- Richard E. Mayer, Ed., *The Cambridge Handbook of Multimedia Learning* (Cambridge University Press, 2005).

- Cliff Atkinson, "The Cognitive Load of PowerPoint: Q&A with Richard E. Mayer," *www.beyondbulletpoints.com* (March 2004).

Research Reality 1: You Have to Respect the Limits of Working Memory

Whether or not you think about it consciously, you probably accept fundamental assumptions about communication that literally shape your thinking in ways large and small. If you commonly talk about communication in terms of a "sender" who transmits a "message" to a "receiver," you might assume that you can "send" information through an unobstructed channel, like a pipeline, and the audience will "get it," fully intact, at the other end of the pipeline, as shown in Figure 2-3.
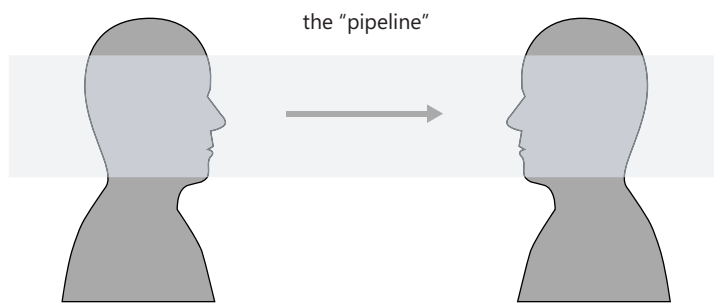
FIGURE 2-3 The pipeline concept assumes that there is an unobstructed channel between you and your audience.

With the pipeline in mind, you assume that you can produce a PowerPoint presentation in whatever way you like, as shown on the left in Figure 2-4. After you send this PowerPoint presentation through the pipeline, you assume that its receivers will "get it" on the other side, as shown on the right. Your work is then done. The only criterion for success is that you "delivered" the PowerPoint presentation through the pipeline. If for some reason the audience didn't get what you delivered, of course, it's not your fault as a presenter—after all, you delivered the PowerPoint presentation, and what they did with it is their problem, not yours.

The pipeline assumption is at work when people make statements like, "We showed them the facts, but they just didn't get it," or, "The presentation went right over their heads." When a verdict in a legal trial goes against one party, it is common for people to say the jury just didn't "get" the evidence, or when a sales presentation does not succeed, the presenter might say the audience just didn't "get" the benefits of the product or service. It is hard to separate the pipeline metaphor from our thinking because it is woven into the words and expressions we use commonly every day.

What you present to your audience   What you assume the audience learns
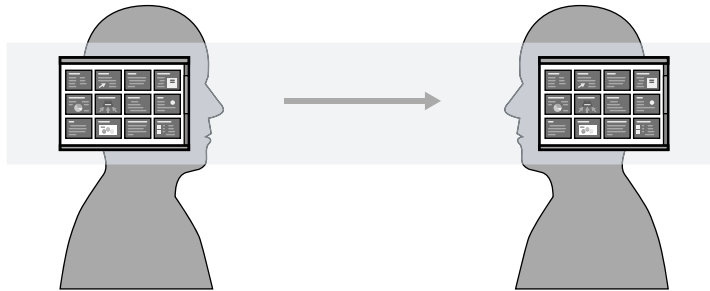
FIGURE 2-4 With the pipeline in mind, you assume that your audience will "get" whatever you "deliver" to them.

Although the pipeline metaphor is convenient, in practice it does not deliver what you might assume it does. According to leading educational psychologist Richard E. Mayer, if you give a multimedia presentation to an audience, there are three possible outcomes, as shown in Figure 2-5. The first possible outcome is that your audience experienced *no learning* (upper right). This is the worst-case scenario—in spite of your work in preparing your presentation and your audience's time and effort in showing up and paying attention, no learning happened to make the experience worthwhile.

What actually happens

What you present to your audience

No learning

Fragmented learning

Meaningful learning
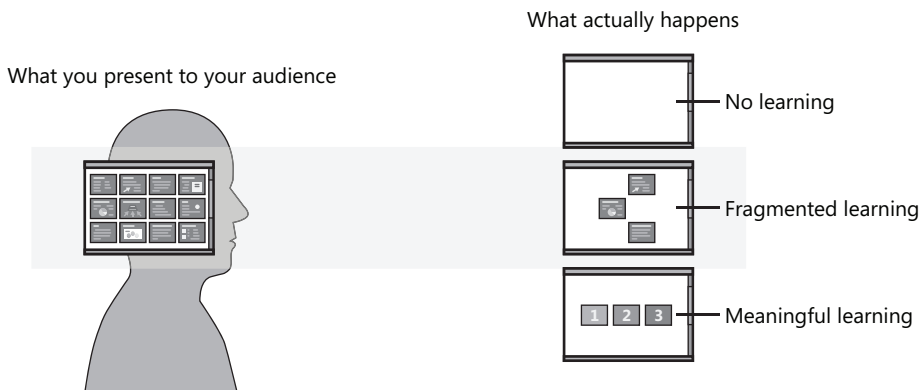
FIGURE 2-5 In reality, audiences do not automatically get what you send through the pipeline.

A second possible outcome is that your audience remembered perhaps the bullet points on slides 12 and 33 and the diagram on slide 26—but that's all they remembered. In this scenario, they remember only bits and pieces of the presentation because they experienced *fragmented learning* (middle right). In fragmented learning, the audience members

remember at least some things; but from a presenter's perspective, you have no control over what they learned because the fragments could be *any* pieces of information among many, and you don't know which ones.

The third possible outcome is that the audience remembered exactly what the presenter intended—they experienced *meaningful learning* (lower right). Meaningful learning is what any group wants to achieve in their time together—the people in the audience understand what the presenter intended, and they are able to apply the information after the meeting. Audiences routinely report that PowerPoint presentations today are "Forgettable!" and "What's the point?" It's rare to hear an audience and a presenter agree that meaningful learning has occurred. In order to turn the situation around, you literally need to change the shape of the metaphor that guides the way you think about human communication.

During a PowerPoint presentation, the memory of an audience member is the critical human element that determines how well new information is received, processed, and stored in the human mind. Researchers who study the mind generally accept that there are three types of human memory, as shown in Figure 2-6. The first type is *sensory memory*. Sensory memory is the part of the mind where your audience members briefly store the initial impressions of sights and sounds as they look at and listen to the environment around them. Sensory memory is potentially unlimited in capacity, although sights and sounds might persist in sensory memory for less than a second.
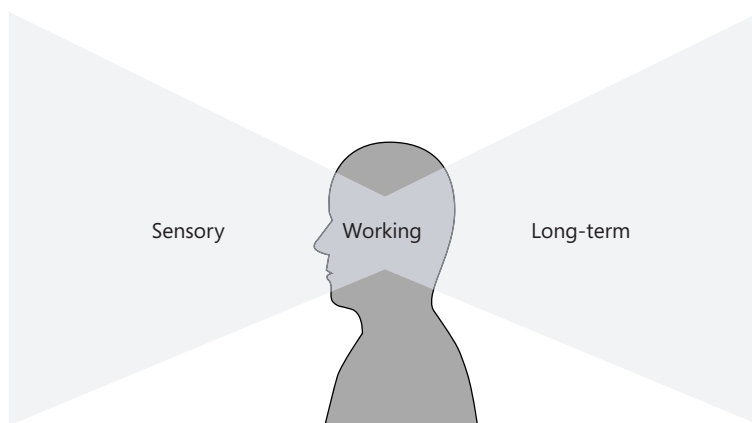
FIGURE 2-6 The three types of human memory: sensory memory, long-term memory, and working memory.

The second type is *long-term memory*—the part of the mind where your audience members store information over an extended period of time, from as little as 30 seconds to as long as a lifetime. In a presentation context, this is where you would like your audience to store the new information you intend to communicate to them. Beyond just remembering the new information, you also would like them to be able to access and apply the information from long-term memory when needed. Like sensory memory, long-term memory is also potentially unlimited in its capacity.

The third type is *working memory* (sometimes called *short-term memory*)—the part of the mind where your audience members hold their attention. The theories underlying working memory are complex, but essentially, working memory is a temporary holding area for information. As sensory memory briefly holds sights or sounds, working memory then pays attention to some of them and holds them for a matter of seconds while it works to integrate them into long-term memory.

While sensory memory and long-term memory each have unlimited capacity, working memory is severely limited in its capacity to process new information. In an influential paper published in 1956, George A. Miller observed that people could hold a small number of "chunks" that they mentally form in what we now understand as working memory. Although the capacity of chunks was thought to be around seven for most people, depending on the type of information, working memory expert Nelson Cowan recently revisited Miller's classic work and now estimates the capacity of working memory for new information at three or four chunks.

See Also For more information about the capacity of working memory, see:

- George A. Miller, "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information," *Psychological Review* **63**, 81–97 (1956).

- Cliff Atkinson, "The Science of Making Your PowerPoint Memorable: Q&A with Nelson Cowan," *www.beyondbulletpoints.com* (June 2004).

Although the limits of working memory have been acknowledged for 50 years, the concept has never been fully absorbed or integrated into our day-to-day practice and understanding of human communication. The pipeline metaphor has such a strong grip on our collective consciousness that we have effectively resisted the adoption of the research that contradicts it. Yet as much as you might want to believe that there is an unobstructed pipeline between sender and receiver, the reality is that the limits of working memory put a major crimp in that metaphor. In order to align your own assumptions about communication with what researchers accept about the way human memory works, you'll need to drop the old pipeline metaphor and pick up a new metaphor—the *eye of the needle*, as shown in Figure 2-7.
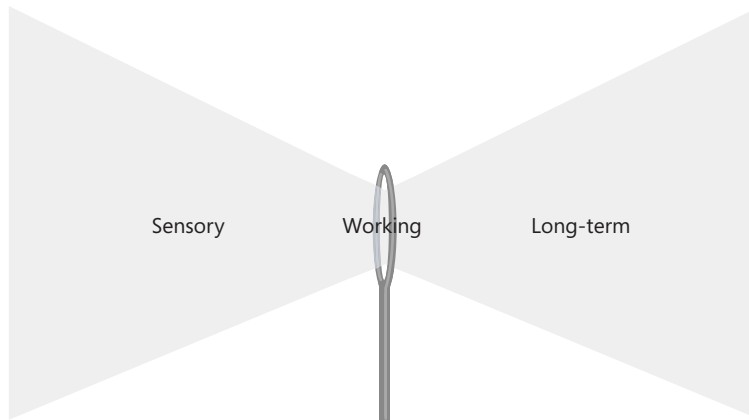
FIGURE 2-7 The limited capacity of working memory to process new information creates a narrow passage—much like the eye of a needle—that stands between the information you present sensory memory and the information that is integrated into long-term memory.

Keeping this new metaphor in mind when you create presentations, you know that you have a potentially unlimited amount of new information that you could show someone's sensory memory (left). You want the new information to be retained in long-term memory (right). But working memory is so constrained in its capacity to process new information that it creates a narrow passage, much like the eye of a needle (center). This extremely small space of the "eye" of working memory constitutes the most formidable challenge you face as a presenter.

This new metaphor visually explains why audiences report either no learning or fragmented learning. If you present working memory with more new information than it can handle, as shown on the left in Figure 2-8, the eye of the needle is easily overloaded and will process and integrate into long-term memory what it can—only bits and pieces out of the entire presentation, as shown on the right. As much as you might want your audience to learn the new information you present, they will never be able to learn it unless you help that information properly pass through the eye of the needle.
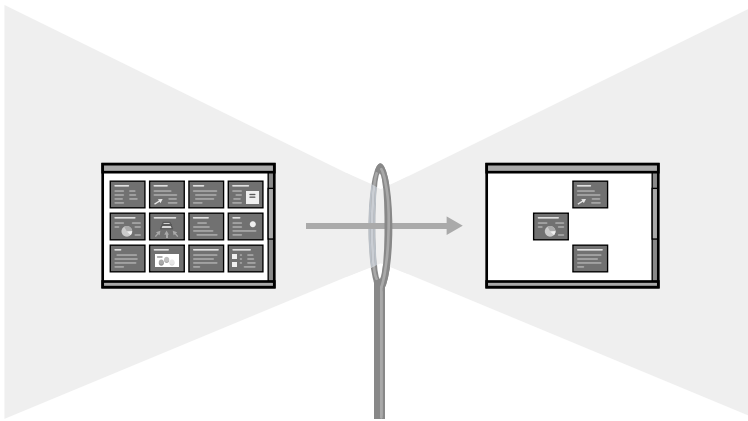
FIGURE 2-8 When you show more information than working memory can handle, audience members remember only bits and pieces.

The impact of reducing excess load on working memory has been documented by researchers including Mayer, who conducted a study using two multimedia presentations. The first presentation featured interesting but irrelevant graphics, and the second presentation provided the same information, but without the interesting but irrelevant graphics. Mayer measured the impact of the two approaches on audiences in terms of two criteria: *retention*, the ability of the audience to simply recall the information, and *transfer,* the ability to creatively apply the new information. Audiences who experienced the second presentation retained 69 percent more information and were able to apply 105 percent more creative solutions using the information than those who experienced the first presentation. This study offers research-based evidence to support the saying "Less is more"—the less you overload working memory with extraneous information, the more learning improves.

BBP Respects the Limits of Working Memory

With the eye of the needle metaphor in mind, take a look at how a BBP presentation appears in Slide Sorter view, as shown in Figure 2-9. Studies have found that people learn better when information is broken up into digestible pieces, and here in Slide Sorter view, you can literally see each specific digestible piece—in the form of a single slide that contains only one main idea that is clearly summarized by a headline. This eases your audience through your story and explanation frame by frame, one piece at a time.

A familiar motif relates new information to
existing information in long-term memory.
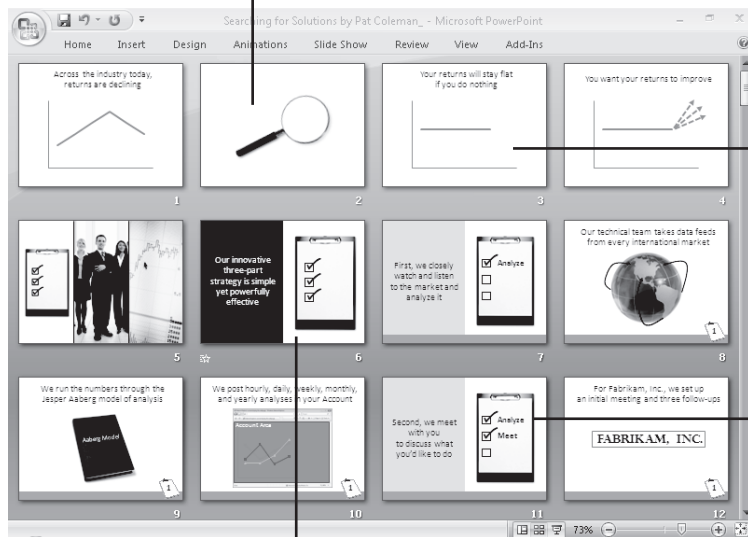
Information is
presented in
bite-sized segments,
with one idea per slide.

There is clear
guidance to
help the viewer
build a coherent
structure.

Slide layouts and backgrounds call
attention to the most important slides first.

FIGURE 2-9 Slide Sorter view shows a presentation that is broken up into digestible chunks for easier han-
dling by working memory.

In the Slide Sorter view of a BBP presentation, your eye immediately goes to the most
important slides because you use layouts and backgrounds to cue your audience to
where they are. This approach draws from the hard work you do when you distill your
complex ideas to the essence and identify your key points, as you'll see in Chapter 5.
These visual cues also indicate the sections of the presentation that explain your key
points, explanation, and backup detail. In Chapters 6, 7, and 8, you'll use consistent
layouts and backgrounds within the individual sections of a presentation to create visual
and verbal continuity, but when you reach a new section of the presentation, the layouts
and backgrounds will change. This orients both presenter and audience to where they
are in the story, and the changing slide layouts and backgrounds offer your audience
visual variety to keep their interest.

You can also see from Slide Sorter view that BBP uses a visual motif through a
presentation. Researchers have found that you can improve the ability of working memo-
ry to process new information by applying familiar organizing structures. This works
because an important quality of working memory is that it is a two-way street. Although

working memory has only limited capacity to handle *new* information as that information arrives, as shown on the left in Figure 2-10, it also has unlimited capacity to pull in *existing* information from long-term memory, as shown on the right.
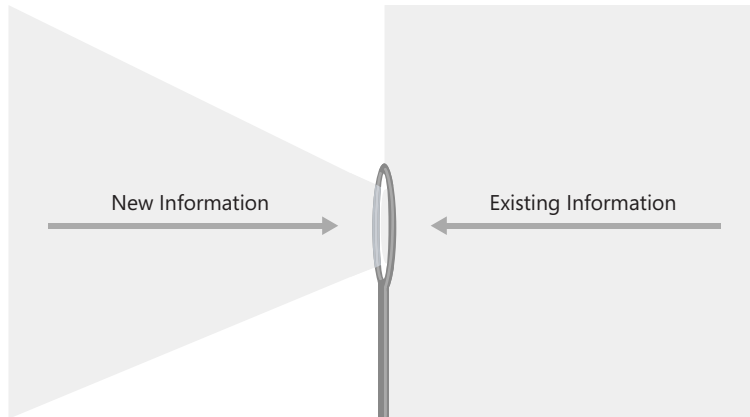
FIGURE 2-10 Working memory is limited in its capacity to process new information (left), but it is unlimited in its capacity to process existing information from long-term memory (right).

This plays out in the classic test of working memory, when a researcher presents someone with new information in the form of a series of unrelated numbers, such as *1 2 1 5 1 5 2 3 5 4*. The number of these individual chunks of information that someone can recall is considered the capacity of that person's working memory. However, people can remember more of the same set of numbers when working memory pulls from long-term memory a structure they already know. This organizes the new information into meaningful chunks that hold the same information in a more memorable way, such as 212-555-1234—the familiar structure of a U.S. telephone number. Thus a "chunk" is defined by the *audience* as they apply a meaningful structure from their long-term memory to new information. You help your audience accelerate understanding of new information with BBP by introducing a familiar "chunking" structure to new information you present. For example, in Chapters 4 and 5, you choose a familiar motif that resonates with your audience, and then later in Chapters 7 and 8, you extend the motif visually across the slides.

See Also   For more information about using familiar structures to overcome the limited capacity of working memory to process new information, see John Sweller, "Implications of Cognitive Load for Multimedia Learning," in *The Cambridge Handbook of Multimedia Learning,* Richard E. Mayer, Ed., pp. 19–30 (Cambridge University Press, 2005).

The Old Way Ignores the Limits of Working Memory

For comparison, take a look at a conventional PowerPoint presentation in Slide Sorter view, as shown in Figure 2-11. Audiences might not know about the limited capacity of working memory, but they do know what they're talking about when they say presentations like this are a "Data dump!" and "Overwhelming!" They've been down the road to overload before, and Slide Sorter view shows exactly how the conventional approach takes them there. The new information is clearly not presented in bite-size pieces; instead, it fills every slide, slide after slide, with overwhelming detail.

Information is not presented
in bite-sized segments.

The slides do not
help introduce new
information
with a familiar
structure.

There are no visible
signals to indicate
which slides
are most important.

There is no guidance to help the viewer
build a coherent structure.
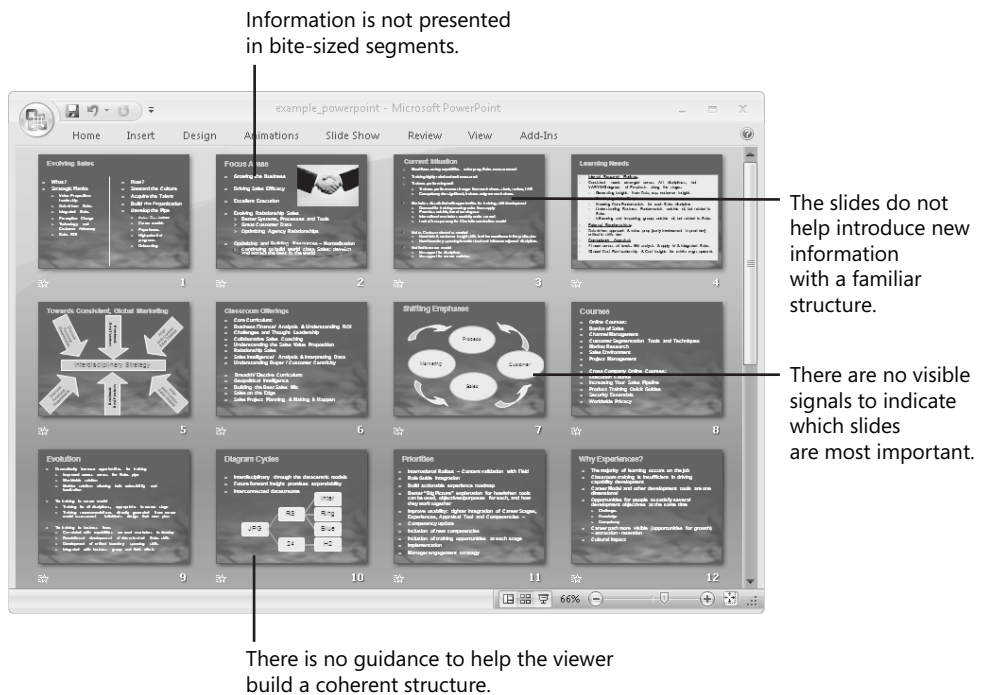
FIGURE 2-11 Slide Sorter view of a conventional PowerPoint presentation reveals no digestible pieces and no cues about the presentation's structure or organization.

What you see here is visual tedium rather than visual organization. As in most PowerPoint presentations, these slides use a design template with a single predesigned background. Using a single background gives all your slides a uniform look, but it also prevents you from using a range of design techniques to visually highlight the most important information on single slides or across slides. It also makes the overall presentation appear visually repetitive, which causes boredom that quickly shuts down attention.

MYTH VS. TRUTH

Myth: There's no need for me to use graphical cues to point out the organization of the presentation.

Truth: Research shows that people learn better when you use visual cues to highlight a presentation's organization.

See Also For more information about the research described in the Myth vs. Truth sidebars in this chapter, see Richard E. Mayer, Ed., *The Cambridge Handbook of Multimedia Learning* (Cambridge University Press, 2005).

Looking at this big-picture view of the presentation, you can't see immediately the location of the most important slides. Instead, every idea has equal visual weight, and there are no cues given by the slide backgrounds about relative importance of ideas. Working memory, with its limited capacity to process new information, has to sort things out on its own and is presented here with the impossible task of holding all this new information while it figures out what's most important to know.

MYTH VS. TRUTH

Myth: People will learn more if I show more.

Truth: Research shows that people learn better when information is presented in bite-size pieces.

You can also see that there is no structure that ties each of the individual slides together into a coherent whole—this presentation is just a series of bulleted lists, slide after slide. There is no effort to introduce a familiar framework that the audience already has in long-term memory—such as a story structure with a beginning, a middle, and an end— that can guide working memory to make sense of the new information.

Trick 2: Use Notes Page View to Sync Pictures and Narration

Now that you've sorted out the most important view of PowerPoint for the BBP approach, it's time to move on to another seldom-seen view in PowerPoint. Click the View tab, and in the Presentation Views group, click Notes Page, to switch to Notes

Page view, shown in Figure 2-12. As described earlier, Notes Page view lets you see the on-screen slide above, along with an off-screen notes area that the audience does not see. The second trick of BBP is to always work in Notes Page view after Slide Sorter view, which you'll do starting in Chapter 6. There are two specific reasons to do that, as you'll see next.
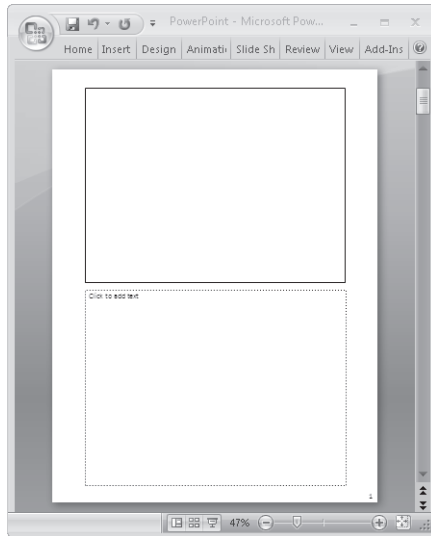
FIGURE 2-12 Notes Page view includes the on-screen slide area above and an off-screen notes area below.

Research Reality 2: You Have to Address the Two Channels

The next research reality, the concept of *dual channels*, states that people receive and process new visual and verbal information in not one, but two separate but related channels. Allan Paivio described his theory of *dual coding* in the 1970s, and during the same decade, Alan Baddeley and Graham Hitch described a similar two-channel structure in working memory. Today, the concept has become a widely accepted standard among researchers. In the dual-channels model, the images someone sees are processed through a *visual channel*, the domain of images including photographs, illustrations, charts, and graphs, as illustrated conceptually in Figure 2-13 (top). What a speaker narrates is processed through the *verbal channel* (bottom), which is the domain of language.
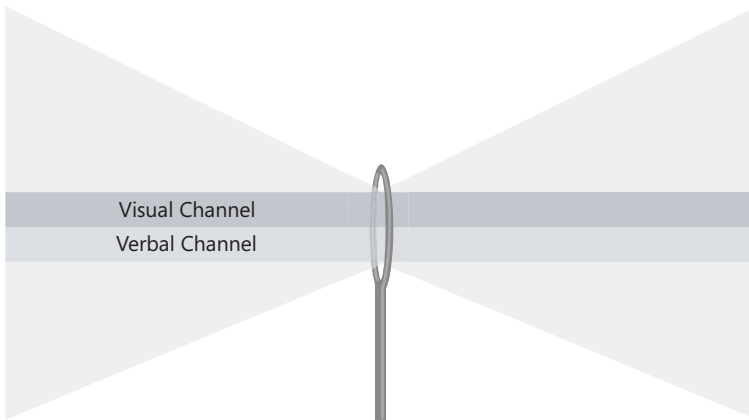
FIGURE 2-13 The second research reality is that working memory receives information through two channels—a visual channel and a verbal channel.

Although text on a screen is a visual element, working memory quickly verbalizes the words and sends them through the verbal channel. Research over the years has found that the way information is presented to these two channels has a big impact on the effectiveness of working memory.

See Also For more information about the dual-channels concept, see:

- Alan D. Baddeley and Graham Hitch, "Working Memory," in *The Psychology of Learning and Motivation: Advances in Research and Theory*, G. H. Bower, Ed., Vol. 8, pp. 47–89 (Academic Press, 1974).

- Allan Paivio, *Mind and Its Evolution* (Lawrence Erlbaum Associates, 2007).

BBP Addresses the Two Channels

You can see how BBP addresses the reality of dual channels by looking at a typical slide in Notes Page view, as shown in Figure 2-14. A clear headline at the top of the page always summarizes the point—you'll write out these headlines in Chapters 4 and 5. The off-screen text box in the bottom half of the page contains what you will say aloud while the slide is on screen—you'll write out your narration for each slide in Chapter 6. And last you'll add a simple graphic to the slide area that you see in the top half of the page to complement the headline and the verbal narration in Chapter 8.

BBP plans for visuals in the slide area and
spoken words in the off-screen text box below.

Seamlessly integrating visuals and spoken
words ensures that the attention is not split
between screen and presenter.

Using the notes area recognizes the critical
information presented by the speaker's voice.
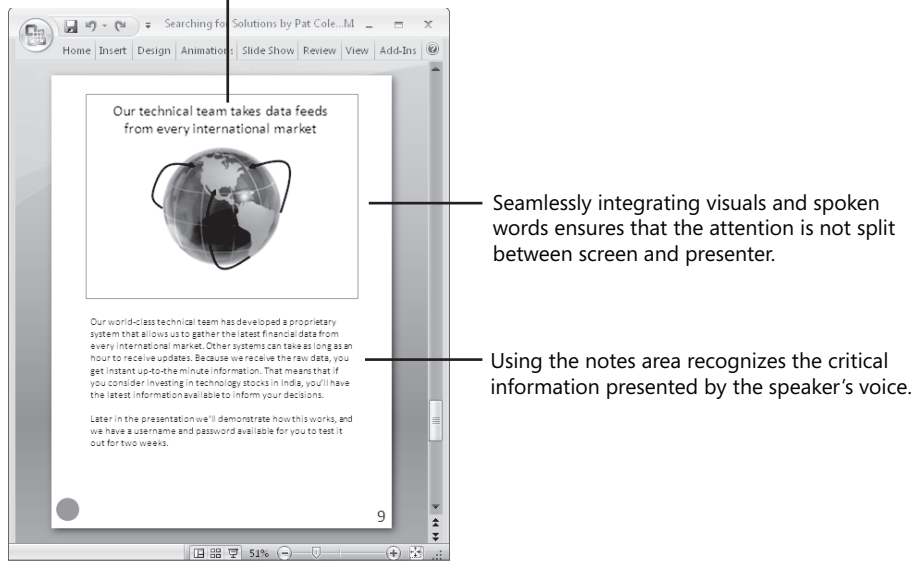
FIGURE 2-14 With BBP, you use Notes Page view to manage the visual channel in the on-screen slide area above and the verbal channel in the off-screen text box below.

Writing out the spoken information in the off-screen text box before you add a graphic significantly reduces the amount of information you otherwise would place in the slide area and instead keeps the slide area simple and clear. This helps working memory focus attention on the single point that you explain verbally during this slide. Instead of reading the headline verbatim, you let the audience quickly read and digest it on their own.

BBP uses Notes Page view in this way to tightly integrate screen and narration in order to make the most efficient use of the two channels of working memory. Looking at the visual and verbal areas together in Notes Page view is like looking at a single frame in a filmstrip, which is made up of a sequence of connected visual frames, each with a corresponding chunk of audio. When you design for multimedia such as film, you apply a different set of conventions than the ones used for print because a film model has two coordinated informational tracks—a visual track that contains pictures and an audio track that contains the spoken words.

AN EFFECTIVE SCREEN AND HANDOUT

By viewing your slides in Notes Page view like the frames in a filmstrip, you align your approach with the dual channels—the information that is presented to the visual channel is in the on-screen slide area, and the information presented to the verbal channel is in the off-screen text box. This approach also creates a well-balanced handout that you can print in Notes Page format, as shown in Figure 2-14. By using PowerPoint this way, you ensure that you produce both an effective live presentation and an effective printed document.

It is no accident that the structure of a filmstrip is conspicuously similar to the dual-channels concept. When you watch a film with sound, your mind coordinates the different information from the soundtrack and the visual frames on screen. Filmmakers have managed to communicate complex ideas to audiences around the world with synchronized images and sound for almost a century, with little if any text on the screen. Likewise, working memory can easily coordinate visual and verbal channels if they are properly coordinated and presented.

With the screen behind the speaker, the audience sees and quickly digests the slide and then pays attention to the speaker and his or her verbal explanation. The entire experience appears seamless to the audience. Using the off-screen notes area in Notes Page view also takes into account the fact that the speaker has a voice during a presentation, which offers a critical source of information that has to be planned and integrated into the experience.

BBP fundamentally changes the media model for PowerPoint from paper to a filmstrip. But the difference between a filmstrip and the BBP approach is *pacing*. In film and television, you commonly view 24 to 60 frames per second. A BBP presentation runs at the speed of conversation—about one frame per minute—allowing time for the audience to digest the new information and then focus next on the presenter. This even and appropriate pacing ensures that your audience experiences only the right things at the right times.

The Old Way Addresses Only One Channel

If you choose not to address both the visual and verbal channels, you can see from the Notes Page view of a conventional slide shown in Figure 2-15 that you load up the slide area at the top with all of the information you want to communicate both visually and verbally. Because half of the available real estate available for information in Notes Page

view is not used—the off-screen text box below is empty—the slide area becomes the single place to hold both spoken words and projected images.

Placing all information on the slide area results in an overwhelming amount of information on the slide.

When the text on screen is the same as what is narrated, it creates redundancy that reduces understanding.

The busy slide splits attention from the speaker's narration.

Not using the notes area ignores a critical source of information, the speaker's voice.
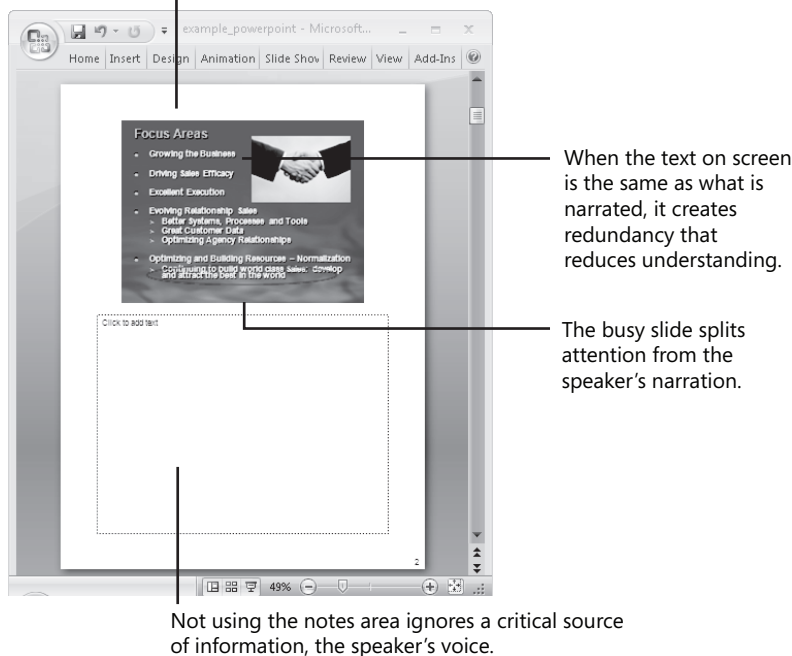
FIGURE 2-15 The conventional PowerPoint approach does not incorporate the dual-channels concept and instead places both visual and verbal information in the slide area.

When you do not align your PowerPoint approach with the dual-channels concept, you impair learning in a number of ways. For example, ignoring the off-screen text box creates a scarcity of resources in the slide area, which predictably produces overloaded slides. Words will usually take priority over visuals, so you will tend to see slides filled with text. Visuals added to these already crowded slides will usually shrink to the size of postage stamps so that they can be squeezed between the boxes of text. These dynamics produce slides that are overly complex and difficult to understand.

During a presentation, as the audience tries to make sense of the overloaded slide, they are not paying attention to the speaker. When they do shift attention to the speaker, they soon look back at the slide and work hard to try to synchronize the two sources of information. Researchers call this the *split-attention effect*, which creates excess cognitive load and reduces the effectiveness of learning. You can observe similar dynamics when

you're watching a film or TV show and the sound is slightly out of sync—it's very noticeable because your working memory has to do the extra work of continually trying to synchronize the mismatched images and narration.

MYTH VS. TRUTH

Myth: I don't need to worry if what I say doesn't match up with my slide.

Truth: Research shows that people understand a multimedia presentation better when they do not have to split their attention between, and mentally integrate, multiple sources of information.

Another problem with ignoring the off-screen text box in Notes Page view is that you do not recognize and plan for an incredibly rich source of information during PowerPoint presentations—your own narration. The result is that the relationship between your spoken words and projected visuals is not fully addressed. Thinking of the slide area as the piece of paper rather than one frame in a filmstrip ignores this essential element of a live presentation—your verbal narration. You might assume that the information can stand alone, without verbal explanation, but a PowerPoint slide does not exist in a vacuum— you are standing there speaking to your audience while you project the slide. You must effectively plan how your spoken words and projected images relate to each other. And if you write nothing in the off-screen notes area, you will be unable to take advantage of Presenter view, as shown in Figure 2-16 and described in Appendix B on the companion CD, to manage your presentation because nothing will appear in the speaker notes pane on the right to guide you while you cover all the points you want to make.

AN INEFFECTIVE SCREEN AND HANDOUT

By addressing only one channel in your presentation, as shown earlier in Figure 2-15, you easily create split attention and redundancy in a live presentation. And by not capturing what is said verbally in the off-screen notes area, you also miss the chance to use PowerPoint for an effective handout that you could otherwise create by printing notes pages.
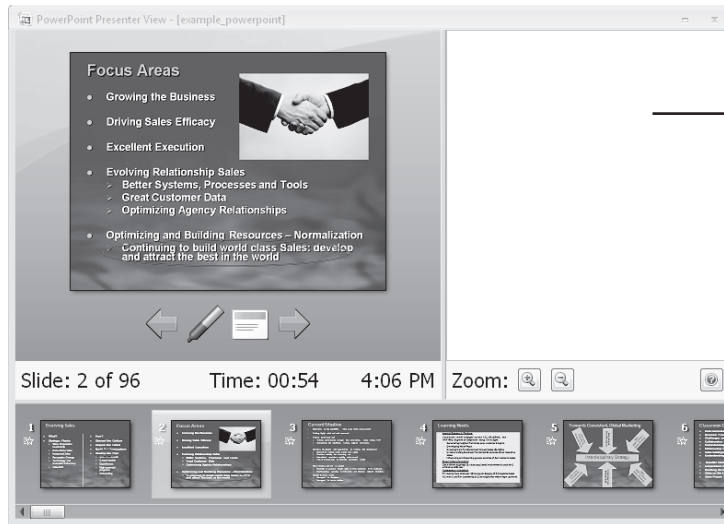
If you do not use the off-screen notes area when you set up your slides, no speaker notes will appear here to guide you during your talk.

FIGURE 2-16 If you don't write out what you will say in the notes area in Notes Page view, there's no point in using Presenter view, because nothing will appear in the speaker notes pane.

Audiences might not know about dual-channels theory, but they do know how they feel when presenters don't integrate the concept into their PowerPoint approach. When presenters read bulleted text from the screen, audiences complain that the presenter should "E-mail it to me!" or "Just give me the handout!" This frustration has a research basis—writing out the text of your presentation on your slides and then reading it to your audience contradicts the widely accepted theory of dual channels. You might assume that presenting the same information in multiple ways will reinforce your point. But if you present the same information to the two channels, you reduce the capacity of working memory and in turn reduce learning by creating what researchers call the *redundancy effect*.

When someone speaks, you process the verbal information at one speed. When the speaker also displays the text of the speech, you process the information at a different speed—your mind first takes in the text visually and then verbalizes it for processing in the verbal channel. Because the same information is arriving through the same channel at different speeds, working memory has to split attention between the two sources of information as it works hard to reconcile them. This redundancy quickly overloads working memory and impairs learning.

Redundancy also happens when the same information is presented both visually and in text because the same information is entering through two channels and the mind has to exert more effort to reconcile them. This reduces the efficiency of working memory and can lead to the cognitive overload that so frustrates audiences. This inefficient duplication of information is unnecessary, because the verbal channel is perfectly capable of understanding the narration without the display of text to the visual channel.

MYTH VS. TRUTH

Myth: It's OK to read my bullet points from the screen.

Truth: Research shows that people understand a multimedia presentation better when the words are presented as verbal narration alone, instead of verbally and as on-screen text.

To explore the redundancy effect, Mayer conducted experiments using two multimedia presentations. The first presentation included the same material both narrated and displayed with text on the screen, and the second presentation included the narration with the text on the screen removed. Audiences who experienced the second presentation retained 28 percent more information and were able to apply 79 percent more creative solutions using the information than those who experienced the first presentation. Thus, the dual-channels concept turns one of our core assumptions about PowerPoint upside-down. Contrary to conventional wisdom and common practice, reading bullet points from a screen actually hurts learning rather than helps it. Research shows that when you subtract the redundant text from the screen that you are narrating, you improve learning.

If you choose not to align your PowerPoint approach with dual channels, you diminish the potential effectiveness of your presentations. When you place both verbal and visual material in the slide area, the busy slide splits the audience's attention between screen and presenter, which creates additional load on working memory. And when you present the same information in both visual and verbal form, you create redundancy that overloads working memory. You can easily resolve the situation in BBP by effectively coordinating visual and verbal information in Notes Page view.

■ Trick 3: Use Normal View to Guide the Eye and Ear

With two views in PowerPoint, Slide Sorter view and Notes Page view, taken care of, it's time to get back to normal in terms of the way you're used to working in PowerPoint. Click the View tab, and in the Presentation Views group, click Normal to display Normal view, as shown in Figure 2-17. The third trick of BBP is to always work in Normal view last, which you'll do in Chapters 7 and 8. The third research reality will guide you through the reasons why.
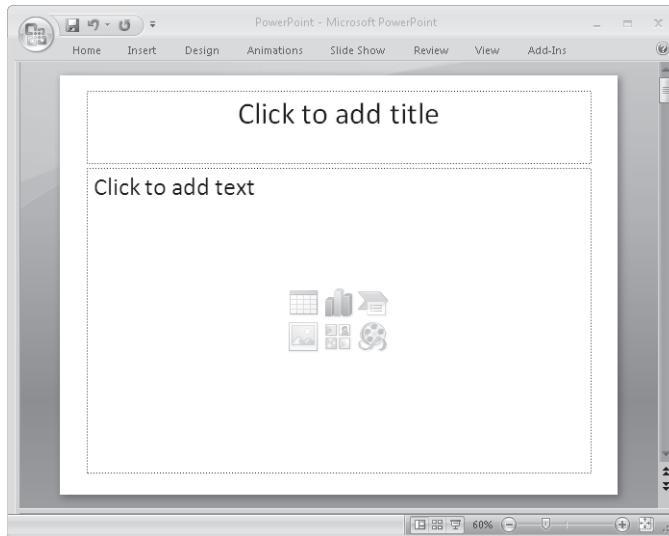
FIGURE 2-17 The most common way to work in PowerPoint is in Normal view.

Research Reality 3: You Have to Guide Attention

The third research reality confronts the PowerPoint assumption that you can create your slides however you want and your audience will understand them. In the pipe-line metaphor, a presentation exists by itself, independent of the people who receive

it—a presenter simply pours information into the passive minds of the audience. Yet researchers have long known that the mind is not a passive vessel, but rather it is an active participant in the process of learning. It is the minds of your audience that have to create understanding out of the new information they process in working memory. You play an important role in helping your audience create understanding by designing slides in specific ways that guide the attention of working memory to the most important visual and verbal information, as illustrated in Figure 2-18.
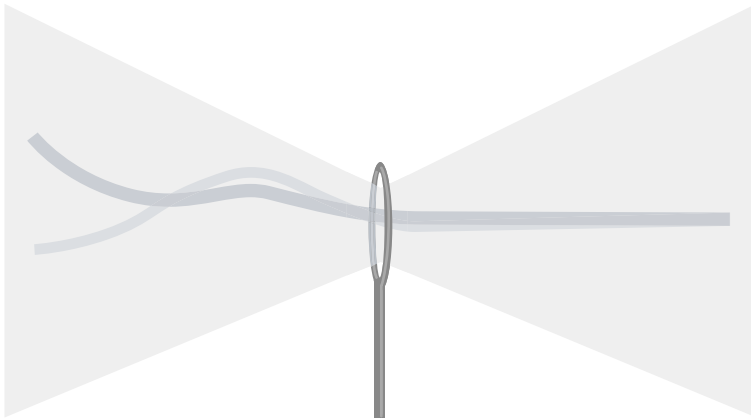
FIGURE 2-18 The third research reality is that you must guide the attention of working memory.

BBP Guides Attention

As described earlier, with the BBP approach, each slide has a headline when you start working in PowerPoint. You then write out what you will say verbally in the off-screen text box in Notes Page view and then add a simple graphic in Normal view to produce a slide, as shown in Figure 2-19.

The graphic clearly and simply illustrates the main point of the slide.

The headline summarizes the main point.

After quickly digesting the slide, audience attention turns to the speaker and the narration.

There is no extraneous information to detract attention.
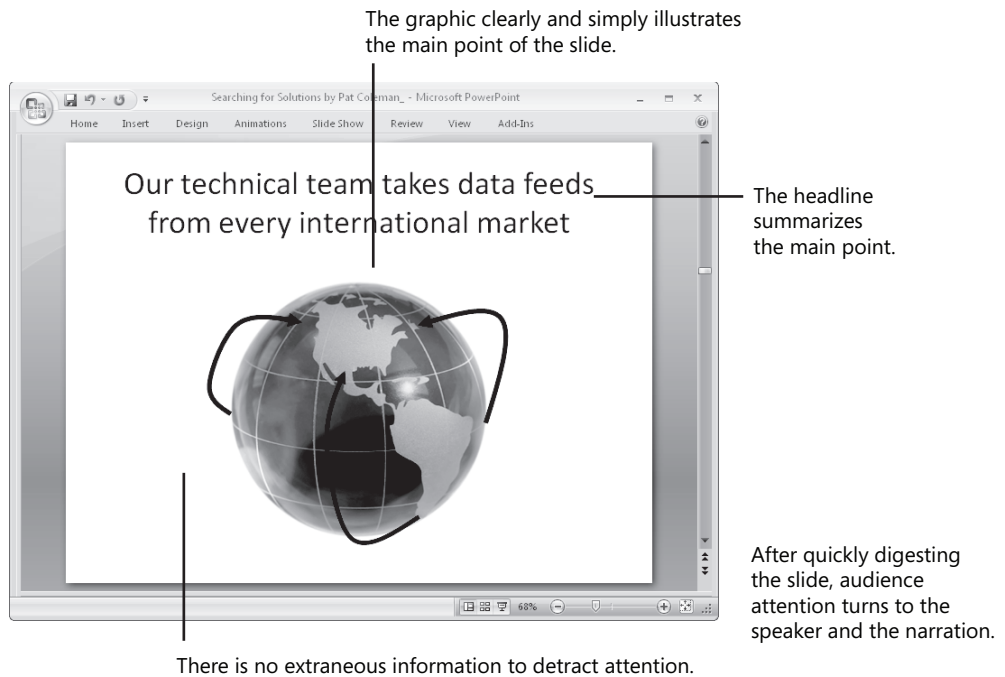
FIGURE 2-19 A BBP slide, shown here in Normal view, guides the attention of working memory from the headline to the graphic to the person speaking.

The simplicity of this slide belies the sophisticated impact it has as it effectively guides the attention of working memory. It is crystal clear where working memory should focus first—on the headline at the top of the slide. People are used to reading newspaper headlines that summarize the main point of a story in a single sentence, and here the complete sentence headline serves the same function. The audience doesn't have to work hard to figure out the point you want to make—instead, you have cleared the way for them to focus on the idea at hand rather than be distracted by unnecessary cognitive work.

HEADLINE RESEARCH

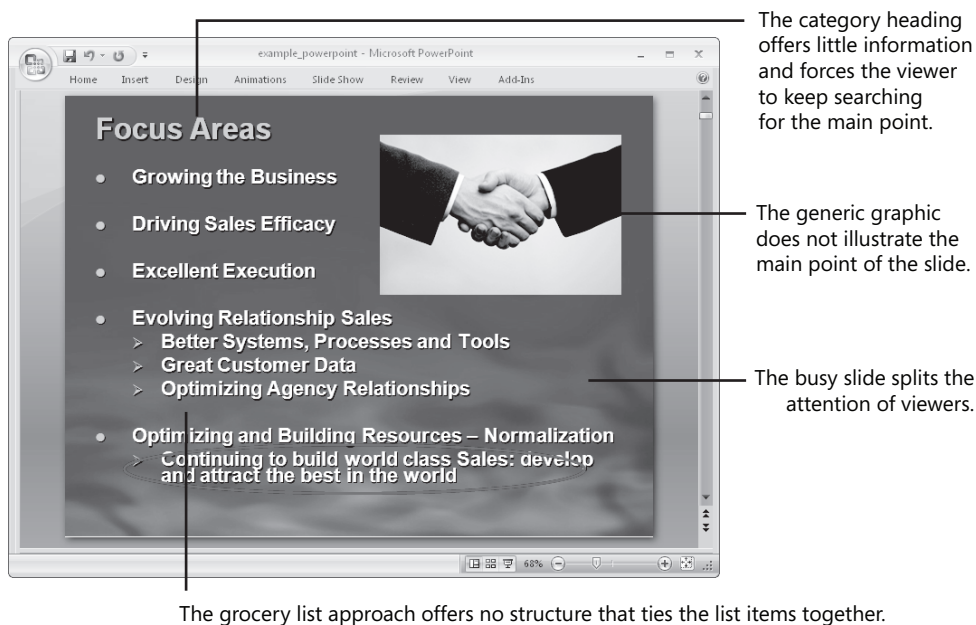Michael Alley, author of *The Craft of Scientific Presentations: Critical Steps to Succeed and Critical Errors to Avoid* (Springer, 2005), conducted a study using two PowerPoint presentations, each with a different headline format. One presentation included only sentence fragments at the top of each slide, and the second presentation included a complete sentence at the top that summarized the most important point of the slide. In tests to measure the knowledge and comprehension of the information in the presentations, the audiences who experienced the slides with the complete sentence headlines saw an average improvement in test scores of 11 percentage points over the audiences who saw the slides with the sentence fragments. When you use the title area of the slide to summarize your point for your audience, you properly guide their attention, and in the process you ease the burden on their working memory to figure out your point.

Research has found that visuals can improve learning, but only if they illustrate the point you are making. In Chapter 7, you will sketch the appropriate graphics for each slide by focusing on the slide headlines, and then in Chapter 8, you will add the specific graphics. Because you choose only graphics that relate to the specific point at hand, the graphics tell a major part of the story as they communicate information through the visual channel in sync with your verbal explanation. This makes effective use of working memory by using both the visual and verbal channels, rather than just the verbal channel alone. It also ensures that working memory is not distracted by graphics that don't relate specifically to the information at hand. Likewise, the slide background contains no extraneous information that would add more cognitive load.

The simple elements of a BBP slide work together to guide the complete presentation experience. First the audience members quickly digest the headline, then they view the simple graphic that illustrates the headline, and then they turn their attention to the verbal explanation of the speaker. The result is an engaging multimedia experience that balances visual and verbal elements and contributes to meaningful understanding.

The Old Way Does Not Guide Attention

It's not easy to see where the presenter intends to guide attention in the conventional PowerPoint slide shown in Figure 2-20—the slide contains so much information, it's hard to know where to look. Such a busy slide assumes that viewers have the time and the working memory capacity to read through all the material as they might with a written document—all while they are listening to you speak. As described earlier in the discussion of the dual-channels theory, it is easy for too much material on this slide to split the attention of the audience between screen and presenter or to impair learning by using both on-screen text and narration to explain the same information.

The category heading offers little information and forces the viewer to keep searching for the main point.

The generic graphic does not illustrate the main point of the slide.

The busy slide splits the attention of viewers.

The grocery list approach offers no structure that ties the list items together.

FIGURE 2-20 The conventional PowerPoint approach does not help working memory to select the most important information.

If you grew up writing essays and reports on paper or as Microsoft Office Word documents, it's a natural transition to think of a PowerPoint slide as a piece of paper where you can start writing out your thoughts. But one of the fundamental assumptions about a piece of paper is that it can stand alone—a presenter normally does not need to be there to explain it. The only problem is that this example PowerPoint slide is accompanied by the narration of a live presenter—yet the slide does not take that fact into account.

Another problem with thinking of the slide area as a piece of paper is that you are much more likely to fill it with text instead of a graphic. Although text on a screen is initially processed through the visual channel, it is quickly verbalized and sent through the verbal

channel—thus text-filled slides essentially ignore the capacity of the visual channel to efficiently process information in sync with the verbal channel.

> **MYTH VS. TRUTH**
>
> **Myth:** Graphics are nice to have, but they're not essential.
>
> **Truth:** Research shows that people learn better from words and pictures than from words alone. This applies when the pictures illustrate what the words say, not when pictures are added for decorative effect.

One of the reasons the example slide does not guide attention is that it uses a *category heading*—like those you see in almost all PowerPoint presentations. A category heading like "Focus Areas" can help you quickly brainstorm a list of information, but as you can see here, it does nothing to guide you to a quick understanding of what is the most important information on the slide. Simply categorizing and listing information does not entail the critical thinking it takes to determine the point of the lists in the first place. Category headings don't say anything specific, and to uncover the mystery of what you are trying to communicate when you use them, your audience members need to invest extra capacity of working memory they don't have to connect all the dots of the bullet points below the headings. And these headings put an extra burden on you and your audience as you both struggle to see the focus of your ideas through the sequence of slides in your presentation. As your audience views these headings and their corresponding stacks of bulleted lists, slide after slide, it's no wonder that they find the presentation unfocused, hard to understand, and overwhelmed with unnecessary details.

The background of the example slide offers no visual guidance related to the topic, and although the slide includes a photograph of a handshake, it does not illustrate the specific point of the slide and was likely added to spice it up. This runs counter to the research that shows that the less you overload working memory with extraneous information, the more people learn.

> **MYTH VS. TRUTH**
>
> **Myth:** People learn more when I wow them with special effects and spice up my presentations with razzle-dazzle.
>
> **Truth:** Research shows that people learn better when extraneous information is removed from a presentation.

Audiences might not know about the research that indicates that you need to guide their attention, but they do know what they are talking about when they frequently say conventional presentations are "incoherent lists" with "no direction" and "a jumble." Instead of guiding working memory through the experience, this example slide creates unnecessary work by not quickly getting to the clear point, by not tapping into the visual channel, and by creating split attention and redundancy with the narration of a live presenter.

THE MISALIGNED TEMPLATE

Many organizations create a corporate PowerPoint template in an effort to ensure that every presentation created in the organization has a similar graphical style. Although these templates can ensure a similar look across presentations, if they ignore the three research realities described in this chapter, they also diminish the effectiveness of presentations of all the presenters who use them.

A Well-Trained Tool

In the light of these three research realities, you can see the stark contrast between BBP and the conventional approach to PowerPoint and why BBP gets dramatically better results. Now you can personally connect the dots between this research and the three views of PowerPoint by adopting a new metaphor, the eye of the needle, and by using the BBP approach to guide you through the challenges of creating powerful and effective presentations.

Forget the old tricks of PowerPoint, because as you can see in this chapter, when you ignore the research realities, you use an approach that is broken, ineffective, and frustrating for audiences. Instead you can use an approach that fixes the problems, is effective, and produces experiences that audiences find engaging and meaningful. That's because you have now taught an old PowerPoint dog three new tricks, and with these new ideas in mind, you are ready to unlock the power of BBP in your own presentations as you turn now to Chapter 3.