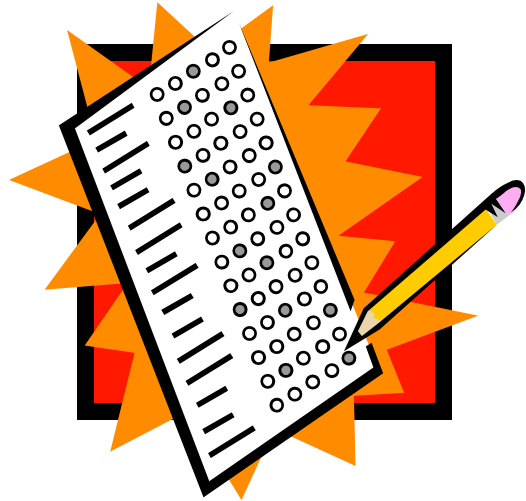# Thirteen Suggestions for Writing Engaging and Relevant Questions

Exercises
and Supplemental
Information

Presented by

Saul Carliner, PhD, CTDP
Professor and Interim Chair
Department of Education
Concordia University
Montreal, Quebec
www.saulcarliner.com
saul.carliner@hotmail.com

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Question This! An Opening Activity

Instructions
1. Break into groups of 2 to 5 people.
2. Read the assigned situations.
3. Working as a group, prepare the types of questions and explanations requested in the situation.

Here's the situation	Write a question for an e-learning program. Include any assumptions you made when composing your response.
Challenge 1: You are designing an online course about preventing distracted driving for a driver's education course. The main objectives of the course are: • Understand distracted driving • Know the behaviors of distracted driving • Avoid distractions when driving • Know the penalties for distracted driving. Note that, because the course is taught online, the course designer cannot conduct tests in a vehicle. What would be your approach to testing? Write at least 1 test question.	
Challenge 2: You're writing the end-of-unit quiz for a unit that teaches students how to cut and paste a passage of text in MS Word. The unit includes a segment that showed users how to cut and paste the text. But your authoring tool only permits the use of multiple choice, true/false, and fill-in-the-blank questions. What do you test? Write at least 1 test question.	

Here's the situation	Write a question for an e-learning program. Include any assumptions you made when composing your response.
Challenge 3: You are writing a multiple choice question about the distinction between over-the-air, regular cable, and premium cable television for a communications course. The question is: Of the following, which requires an additional subscription besides a general subscription to a cable or satellite service: • Over-the-air television • Webcast television • Basic cable television • Premium cable channels a. In what order to you present these options? What is your logic for this choice? b. By the way, the correct answer is premium cable. Write the feedback that would be displayed with each response. When doing so, assume that the course is taught online and that learners only receive 1 try to get the correct answer. They receive feedback regardless of their response.	
Challenge 4: As part of a course on technical writing, you're preparing a unit on how to write definitions. Before you ask students to write definitions, you want to teach them how to recognize effectively written definitions. Design an interactive activity for that unit on recognizing effectively written definitions.	

Here's the situation	Write a question for an e-learning program. Include any assumptions you made when composing your response.
Challenge 5: You're designing an online course about programming interfaces. You're concerned that the course material is, in general, extremely dry. And you're especially concerned about the desert-like quality of the first unit on interface concepts. That unit explains how the interface between a Learning Content Management System (LCMS) passes information about courses available to a Learning Management System (LMS), where students would register for those courses. You want to quench learners' thirst for something interesting by adding some interaction to this unit. What can you do to dry this parched learning landscape?	
Challenge 6: You're teaching a unit of an online course to teach medical students how to handle a medical emergency. Because your department spent most of its e-learning budget on a medical simulator (a patient who has lifelike symptoms and responses to simulated medical treatment), you have hardly any funds to develop the course. Because you know how to code HTML, you will produce the online materials without an authoring tool (other than WordPad). But you're no coding expert; besides paragraphs, lists, and tables, you only know how to code links. Furthermore, if you want to use photographs, your manager has told you that you can use the 5.0 megapixel camera on your iPhone. You want to incorporate interactivity. What can you do?	

E-Learning: Nine Suggestions for Writing Engaging and Relevant Questions
By Saul Carliner

One of the most challenging parts of designing an asynchronous e-learning program is writing questions that foster interaction and assess learning.

Part of the problem results from the limited ability of computers to process responses to questions (even with all of their sophisticated capabilities). Most software for creating e-learning programs (called *authoring tools*) limits questions to those that can be easily processed: multiple choice, true/false, and fill-in-the-blank. These are called *objective questions*, because they have well-delineated correct and incorrect responses.

But perhaps part of the problem is that e-learning designers let these mechanics of questioning interfere with the conceptualization of questions. Starting that process of re-conceptualizing questions is the purpose of this article. In it, I specifically offer nine suggestions for doing so.

First Things First—What Purposes Do Questions Serve in e-Learning Programs?
Before offering suggestions, I'd like to first step back and consider the primary purpose of questions in asynchronous e-learning programs. Questions typically have three instructional uses and one motivational use.

The instructional uses of questions are 1) to provide learners with opportunities to practice working with the material presented in the lesson, 2) assess the extent to which they mastered the content, and 3) reflect on that material and the broader learning process.

The motivational use is to foster interaction, because the process of actively engaging with the content is believed to foster interest in it. Although research shows that active engagement also increases learning, the results assume that the interaction first fulfills one of the three instructional uses. Interaction for the sake of interaction offers no value.

#1: Root Practice and Assessment Questions in Learning Objectives
Before starting to develop a learning program, most instructional design processes advise designers to establish learning objectives for the program.

Learning objectives are observable and measurable statements that describe, as explicitly and unambiguously as possible, what learners should be able to do at the end of a learning program. An effective objective has three components:

- **An observable, measurable behavior**, stated as an action verb, such as *install*, *type*, *describe*, and *state*. Words like *know*, *understand*, *appreciate*, and *inform* are not appropriate terms for tasks because they cannot be measured.
- **Conditions under which the task should be performed**, which identifies any affordances that should be made when asking learners to demonstrate their ability to perform the behavior, such as whether learners have access to a particular publication when performing the task.
- **Level of acceptable performance**, which describes the extent to which the objective must be achieved to be considered complete, such as without errors. The level of acceptable performance is assumed to be 100 percent, unless stated otherwise.

The behavior is key to designing both practice and assessment questions. In terms of assessment, the behavior becomes the basis for the question. An objective that states, "Learners should be able to define such-and-such term," means something fundamentally different than, "Recognize the definition." In the first case, learners need to be able to write the definition; in the second, learners merely need to be able to recognize the definition from a list of choices.

Similarly, an objective that states that learners should be able to install a piece of software is different than one that says learners should be able to recognize the steps in the installation of the software. More significantly, if the objective reads, "Install such-and-such software," but the test question asks learners to recognize the steps in that process, the test question has not tested the objective.

Such distinction is not about hair-splitting—it's about accurate testing. The second example does not test the objective. Tests whose questions emerge directly from an objective are said to be *criterion-referenced*, because the objective is the criterion that was referred to when writing the test question. Criterion-referenced testing is the implicit approach used for devising most product and workplace e-learning.

If a learning assessment evaluates the extent to which learners can master the objective, then practice questions are intended to provide learners with the opportunity to practice their ability to do so. As assessment questions are rooted in the objectives, so practice questions are also rooted in the objectives.

#2: Write Several Test Questions at the Same Time, Both for Practice and Assessment
As most instructional design texts advise, the best time to write test questions is immediately after writing the objectives. If the instructional objectives state the goals that the learning program must achieve, the test questions provide a means through which learners can show what achieving those goals looks like. By writing the test questions immediately after writing objectives, those goals are fresher in your mind.

Typically, most instructional designers generate two or three equivalent test questions for each objective so that they have a bank of questions and can offer several versions of the same test (which provides a deterrent against cheating). But some authors advise developing several more questions for each objective, so instructional designers can use them as practice exams. In practical terms, that means that some instructional designers might need to write as many as eight to ten questions for each objective.

#3: Use the Behavior in the Objective to Generate Questions

Use the behavior listed in the objective to generate several appropriate questions. For example, if the behavior is "match," then the questions should ask learners to match something. If the behavior is "install," then ask learners to install something.

When using the behavior word in the objective to generate questions, two problems arise.

A. **The behavior is not something that can be tested.** For example, most software training courses are intended to promote use, but test questions seem to assess recall of knowledge because people assume that the software that creates their e-learning programs cannot assess use. In such instances, brainstorm ways to have the test most closely resemble the behavior. For example, although one cannot actually install computer hardware online, developers have found ways to use drag-and-drop exercises that simulate the installation process.

B. **The behavior in the objective does not match the desired outcome as closely as desired.** In such cases, change the behavior word so that it more closely matches. For example, in an academic course on scientific and technical presentations for professional communication majors, the original test question had students delivering such presentations. But upon writing the assignment, the instructor realized that this objective (and, hence, the assignment) did not reflect the purpose of the course, as students learned how to deliver presentations in an earlier course. Rather, this course was intended to teach students how to develop presentations that *others would deliver*. The instructor changed the objective to reflect this and, as a result, changed the assessment.

Considering how learners will use the lessons taught in the e-learning program can help instructional designers choose the most appropriate behaviors for their objectives.

#4: Situate the Question in a Scenario that Learners Are Likely to Encounter in Their Daily Lives

Considering how learners will use the lessons not only helps instructional designers choose the most appropriate behaviors for their objectives, but also helps them situate those questions in a relevant context for learners. Adult learning theory emphatically advises training professionals to make learning relevant.

What adult learning theory doesn't do as well, however, is explain how to make a specific learning program relevant to a specific group of learners. That's where use cases, popular in other aspects of the work of technical communicators, can be helpful. Use cases describe, in rich detail, how people might use something in the real world.

For an installation course, one instructional designer created two scenarios. In one, end users of an engineering firm install their own software after receiving instructions from their Information Technology department. In the other scenario, a single person (called a technical coordinator) in a call center installs the software on each user's PC after hours, and users only learn about the installation the next day when they start their work shifts.

For the case of the effective scientific and technical presentations course described earlier, the instructor developed several brief use cases from which he generated the revised objective and more relevant practice assignments. The first of these scenarios described Casey, a technical communicator in a software company, who was asked to develop a presentation about a new product feature that a programmer would subsequently deliver at a user group conference. The second of these scenarios described Traci, who was asked to develop a self-running PowerPoint presentation that could be shown in a booth at a trade show.

#5: Develop Versions of the Questions for Near and Far Transfer
One of the problems with test and practice questions is that they can look suspiciously alike. For example, a matching question used in a practice exam might be nearly identical to the question used on the test, except that some of the *distracters* (incorrect responses) differ but the correct response is the same.

In such instances, the questions are only assessing *near transfer*. That is, the questions only assess a learner's abilities to address situations on the test that are nearly identical to those taught in the e-lesson and assessed in practice questions.

Effective practice (and testing) not only prepares students for nearly identical situations in the real world, but also ones that substantially differ from these at first glance while actually calling on the same strategies. These vastly different scenarios are called *far transfer*, because they ask learners to determine when their learning applies in less familiar situations.

In fact, in some evaluation systems, the ability to master far transfer is what distinguishes average from exceptional learners, because recognizing a familiar concept in a familiar situation is an easier task than recognizing a familiar concept disguised by an unfamiliar situation.

#6: Use Open Questions to Provide Learners with Practice Opportunities
Instructional designers often feel compelled to use objective questions when writing practice and assessment questions. In some instances, designers need not feel so limited.

In some cases, such as the response to a case or a problem, learners might need an opportunity to write a longer response, which provides them an opportunity to work through their thinking processes. Although the computer cannot analyze such long answers, that doesn't mean that you should avoid such questions. Rather, you might rethink your approach to providing responses. Specifically, you might start in one frame by asking an open question in which you let students write out their responses. In the next frame, you might discuss several possible responses. Start with the anticipated response that is *least* correct. State what the response is and why learners might have chosen it. Then explain why it is not correct. Continue doing so for each other anticipated response, ending with the correct response. When explaining the correct response, change the order—start by explaining why someone might think it is *not* correct, and then explain why it *is* correct.

For example, consider the response in Figure 1. The response addresses a practice question in which learners are supposed to assess the effectiveness of a piece of writing. Students are supposed to not only indicate whether they think the writing is effective, but why (or why not).

The passage is not effective.

On the one hand, the passage is effective in that it stays on-topic (that is, focuses only on installing decks), and provides an introductory definition of decking.

On the other hand, it does not address all of the key parts of the opening. It does not make a special effort to motivate learners or provide an overview of the materials. Although some of the on-screen material suggests the structure of the course, the specific topics to be addressed are not clearly identified, so the expectations of the learner are not set regarding the content. Nor does the site tell readers how much time is needed to go through this material. As a result, readers might start it but not have sufficient time to finish.

Figure 1: Answer to an open question

#7: Provide Effective Feedback to Practice Activities
Practice activities are intended to help learners hone their skills—and provide a safe place to fail as they try.

Part of creating that safe place is providing learners with meaningful feedback to their work. Meaningful feedback not only explicitly tells learners whether their answers are correct, but tells them specifically what, if anything, is not correct. This in turn helps ensure that learners actually learn from the experience of answering incorrectly. Without this specific feedback, learners are left to guess at what was incorrect about

their answer. Figure 2 provides an example of a simple question of factual knowledge and provides an example of feedback for correct and incorrect responses.

Also notice in Figure 2 that the distracters are (1) logical ones (ones for which people might logically mistake) rather than easily dismissed ones, and (2) are listed in alphabetical order (so that learners can't try the "C is usually the right answer" approach).

STC stands for:

a. Society for Technical Communication
   Correct. This is the name of the organization.

b. Society for Technical Communications
   Not correct. The correct name is "Society for Technical Communication" without the *s*. In referring to the society, the word *Communication* is singular.

c. Society for Technicians and Communication
   Not correct. The correct name is "Society for Technical Communication." The STC does not serve technicians.

Figure 2: Example of effective feedback to questions

#8: Use Open Questions to Let Learners Reflect on Their Learning

As open questions can provide learners with an opportunity to work through their thinking processes regarding the material, they also can provide learners with an opportunity to reflect on the learning process.

Specifically, open questions can help learners reflect on readings, how they might apply lessons learned in the e-learning course in their everyday work, and how they might continue learning after finishing the e-learning course.

In some instances, the responses entered can be captured and, with some custom programming, sent to learners at a set time after the course completes to remind them of what they learned and how they initially planned to apply it.

At the very least, you can suggest that learners print what they've typed, keep the printout in an accessible place, and refer to it after some period of time.

#9: Consider Other Methods to Foster Active Engagement with the Content

Although active engagement with content can increase learner motivation, not all engagement is relevant and, therefore, not all of these efforts are likely to achieve their intended goals.

For example, two techniques commonly used in e-learning programs to foster engagement actually run the risk of building apathy for the learning content. One of those techniques is asking learners to answer what is, essentially, a trivia question about the content, such as to define an inconsequential term or to recall a marginally significant fact that was merely used to illustrate a point. While forcing the learner to type an answer, the cognitive task is usually irrelevant to the learning.

Similarly of concern are e-learning versions of TV show games, like *Jeopardy!* and *Wheel of Fortune*. Sometimes they do have use in helping learners master declarative information (facts and figures) because of their focus on recall, but when the primary learning objectives focus on performing tasks or mastering cognitive skills, these games are merely diversions from the actual content.

Instead, instructional designers can build meaningful activities that require mental engagement, even if it does not involve answering a formal question. For example, some e-learning programs for advanced learners provide links to articles and podcasts by experts in their field. These serve similar purposes to guest lecturers in classroom courses and give these expert learners direct access to expertise.

Programs also can present guest lectures and external readings as integral learning activities to the course. In fact, the source of readings need not be limited to articles by experts; background pieces, case studies, and tips and techniques articles can all help learners achieve the intended objectives. Because they are on-topic activities, they actively engage learners, much the same way that field trips engage learners in traditional classes.

Merely providing the activities, however, does not ensure that learners perceive them as integral to the e-learning program. To make sure that learners take the readings seriously—and make sure they have a reason to return to the main course if they've been linked to another window—some instructional designers include Reading Guide Sheets with course materials to help focus learners' attention on key aspects of the readings. Reading Guide Sheets are fill-in-the-blank forms that ask questions about the content of the readings and provide learners with an opportunity to reflect on that content. Figure 3 shows an example of a Reading Guide Sheet.

After reading the three articles on information design, please complete the Reading Guide Sheet. Be prepared to submit it when requested.	
What is similar about the three definitions in the reading? Different?	
What are the key points of difference?	

| Consider information design in the real world. Which definition best matches your understanding of the work? Which differs the most? Why do you feel that way? | |

Figure 3: Example of a Reading Guide Sheet

Conclusion

By reconceptualizing the questions that you include in your e-learning programs, you can not only foster interaction in an appropriate way and help learners achieve the intended objectives of the learning program. More significantly, by carefully developing questions that are rooted in the objectives and promote near and far learning, you help ensure that learners actually apply the content when the opportunity arises in the "real world."

Example of a Webquest

Read this First!

Before we continue our discussion of writing descriptions, it would be helpful if you could read about two topics.

Reading 1
The first reading is a page from the instructor's website that provides tips for writing reference entries.

http://saulcarliner.home.att.net/id/references.htm

Use the following questions to guide you through the reading these pages. Your teaching assistant might ask you to share your responses with your online discussion group.

What is a reference entry?

Which references do you use in your life? Based on the guidance in this reading, do you feel they are effective? Explain why you feel that way.

Name at least 5 tips for effectively writing reference entries.

What is a template?

How do templates assist in the writing of reference entries?

Reading 2
The second reading provides tips for designing pages.

Chapter 12 in the Markel text presents these tips.

Use the following questions to guide you through the reading these pages. Your teaching assistant might ask you to share your responses with your online discussion group.

What are the 5 purposes of effective page design?

Describe in your own words the design principles of proximity, alignment, repetition, and contrast.

Explain how each of the following affects page design:
- Size
- Paper
- Bindings
- Accessing tools (also known as retrievability aids)

From the list of items about designing the page (such as layout, white space, and columns), which two seem most important to you? Why do you feel they're important?

Choose any of the sample page designs in "Analyzing Some Page Designs." What is effective about the design of the sample you chose?

Reading 3
The third reading provides tips for designing screens (web pages).

Chapter 20 in the Markel text presents these tips.

Use the following questions to guide you through the reading these pages. Your teaching assistant might ask you to share your responses with your online discussion group.

How does the process of designing a website compare with the process for designing any other piece of educational communication? How is

it similar? Different?

Explain in your own words what the author means by each of the following:

- Aim for simplicity.
- Make the text easy to read and understand.
- Create informative headers and footers.
- Help visitors navigate the site.
- Create clear, informative links. Avoid Web clichés.
- Include extra features your visitors might need.

How should designs of websites be altered for persons with disabilities? For members of unique cultural groups?

Describe the ethical issues that arise in using materials from other websites.

Exercise: Template for a Webquest

Read this First!
List of Readings

_____

_____

Purpose of the Readings

_____

_____

About the First Reading
The first reading is a _____describe its theme
_____.

Use the following questions to guide you through the reading.

Insert question 1

Insert question 2

Insert question 3

Insert question 4

Insert question 5

About the First Reading
The first reading is a _____describe its theme
_____.

Use the following questions to guide you through the reading.

Insert question 1

Insert question 2

Insert question 3

Insert question 4

Insert question 5

Integrate the Readings

The common theme linking these two readings are: _____

The following questions help you link the material from the two readings, then apply to the course content.

Insert question 1 (about a common theme in the readings)	
Insert question 2 (about another common theme in the readings)	
Insert question 3 (linking the readings to the next assignment)	Optional: Ask students to post response on an online discussion board before or after the class session
Insert question 4 (linking the readings to the broader objectives of the course)	Optional: Ask students to post response on an online discussion board before or after the class session
Insert question 5 (personalize the messages in the readings)	Optional: Ask students to post response on an online discussion board before or after the class session

Gordon Mackenzie-Style Lecture
By Saul Carliner, Concordia University

For people looking for ways to make synchronous courses (live virtual classes) more interactive, consider using the Gordon Mackenzie-style lecture. This technique is named for the person who introduced it to most of us (someone else may have developed it, but the first person I ever saw use it was Gordon). Gordon was an executive working in the creative area of Hallmark Cards, and became a popular speaker after he retired. Although he used this technique in live presentations, I've used them in synchronous classes and have had a positive experience with them.

Quickly, What Is this Technique? The core of the presentation is a slide that has a number of topics listed on it. The number varies, depending on how many topics are appropriate for the issue you're trying to teach. One-by-one, invite a randomly chosen student to select a topic of interest. Then you present the topic. When you finish presenting the topic, invite another randomly chosen student to select another topic until all of the topics are chosen.

In addition to the main topics, Gordon always had one additional topic—and if a student called it, the lecture was over. Because Gordon had 18 topics in his lecture, topic 19 was the one to end it. And whenever I saw him present, I never heard anyone choose topic 19 until the scheduled time to end the presentation had been reached (and usually, a minute or two later).

Figure 1 shows an example of a main slide from a PowerPoint presentation. This slide presents the topics that learners can choose among.
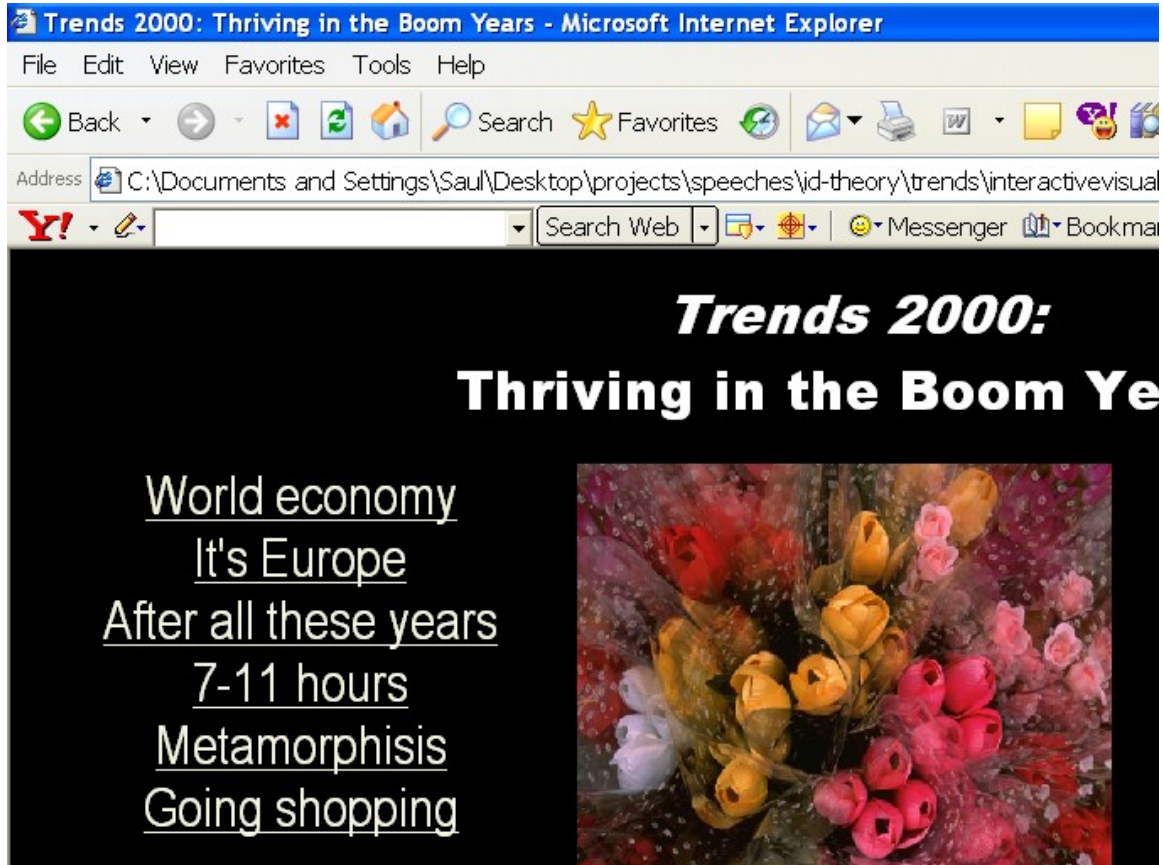
Figure 1: Example of a Main Slide for a Gordon Mackenzie Lecture. © Copyright. Saul Carliner. 2000. Used with permission.

Some Practical Tips for Using this Virtual Lecture Technique:
- Because the slides must be linked so they can be viewed in a somewhat random order, it's easier to design the slides as browser pages rather than PowerPoint slides.
- Also, if you use browser pages rather than PowerPoint slides, learners can immediately tell which topics have been discussed and which ones are still open.
- The main slide is one that lists all of the available titles.
- Use intriguing titles for topics, as a means of quietly enticing learners to name them. For example, the topic "Going Shopping," in the above presentation focuses on opportunities in e-commerce and other e-fields for participants in the audience. Using the title e-commerce would have been obvious and not have invited interest like the title shown.
- Following the main slide are separate ones for each topic. Try to limit the number of slides for a given topic to one. Unlike the main slide, the topic slides should be as clear as possible. Figure 2 shows an example of a topic slide.
- Do not use Topic 19 (or whatever you choose to call the topic that ends the presentation) in lessons intended for learners who are not likely to be responsible about using it (that is, likely to call for it before the end of the presentation).
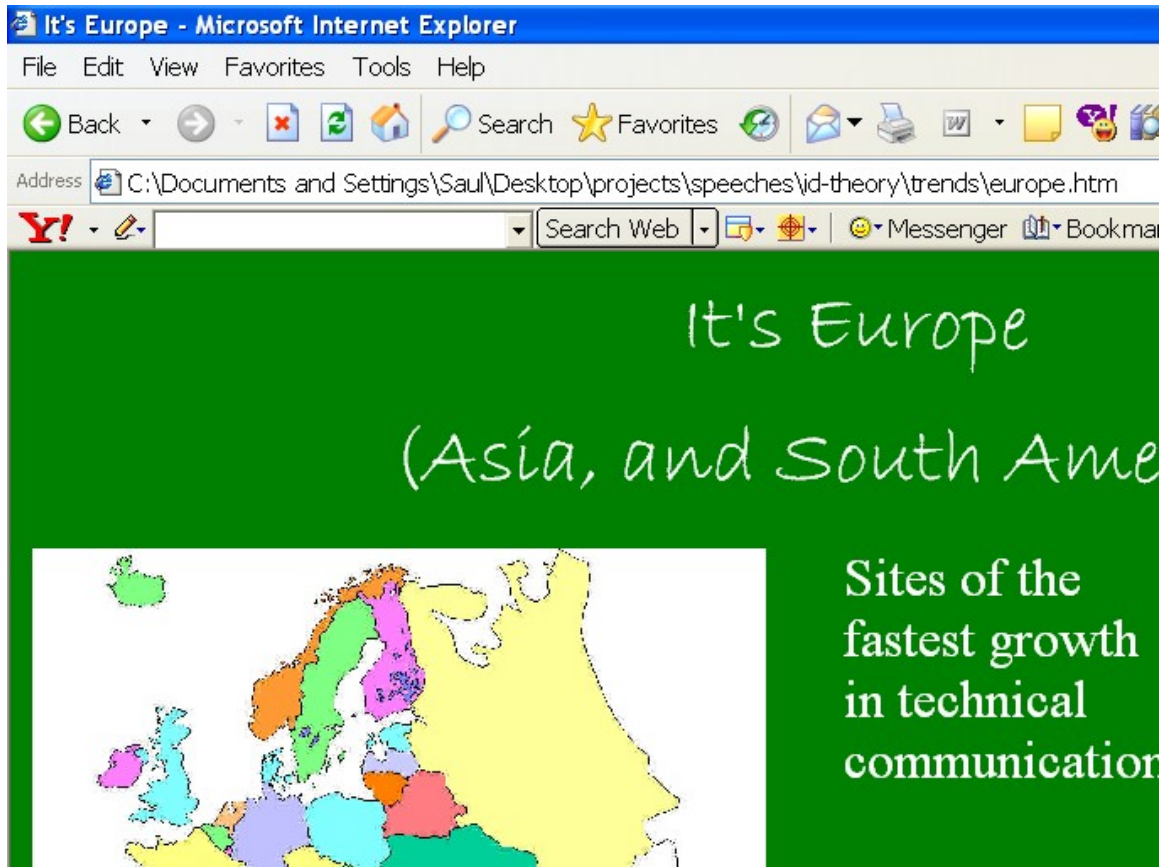
Figure 2: Example of a Topic Slide for a Gordon Mackenzie Lecture. © Copyright. Saul Carliner. 2000. Used with permission.

11 Tips for Gaining and Holding the Attention of Readers
By Saul Carliner and Sheryl Guloy

One of the byproducts of the communication explosion fueled by the Internet is that we, professional communicators, bombard our readers with more content than they can handle. For example, trainers report that, in many cases, the majority of online learners do not finish their courses (Tyler-Smith, 2006). Technical support departments find themselves with an increasing demand for their assistance with problems that are addressed in the documentation (Ehrlich & Cash, 1994, as cited in Ehrlick, 2003, p. 140).

As the amount of technical information available to readers increases, all indicators suggest that we will continue to see a decline in their use of it (Rosson & Carroll, 2002). For a group of communicators who sometimes have life-or-death messages to send and have always assumed that the majority of people read the material we publish, this is a serious problem.

Admittedly, our original assumption is probably a false one and the likelihood that we will have 100 percent use is unrealistic. But if we do as our colleagues in marketing communication and journalism have done, and focus as much of our efforts on gaining the attention of readers as on crafting the message itself, we might stem the eroding use of our work.

Even if that weren't the case, we have always faced the problem that readers tend to drift off while reading user's guides, help, references and similar communication products. So we must focus as much effort on keeping attention as we do to gaining it.

A variety of techniques exist for gaining the attention of readers for technical information. This article explores 11 of them. Most are probably familiar, but in the buzz of researching technical information, dealing with technical developers, meeting deadlines, and verifying the accuracy of information, many of us might overlook them.

(Also take the associated "Attention Test" in the sidebar to consider the challenge of gaining and holding the attention of readers from the perspective of your own reading habits.)

Tip 1. Go Where the Readers Are
A wise person once advised, "I don't want to be at the airport when my ship comes in." In other words, one key tactic in the battle for readers' attention is being where the readers are.

Sometimes, conventional ways of approaching communication issues directly contrast with the realities of a situation. We think we'll find readers in one place when, in reality, they're somewhere else.

For example, many people usually believe that the best way of reaching our colleagues is presenting information at a conference. Although this is a good way of reaching the members, only 10 to 12 percent of the membership of an organization attends its conference and only one-twentieth to one-tenth of that group is likely to attend any given session. As a result, only .5 to 1.5 percent of the intended audience is likely to hear the message.

In contrast, organizations distribute their magazines and journals to 100 percent of their membership as well as to libraries and other subscribers. Communicators therefore increase the likelihood of reaching an audience by publishing the material.

Tip 2. Announce Your Intentions
At the beginning of a communication product, tell readers what to expect from reading this passage. Tell them what you intend to cover and the benefit of reading it.

For example, most tutorials begin by stating "After taking this course, you should be able to…." and proceed to list the skills that users should master. Similarly, in an online procedure, a heading like "Changing Margins" that describes a practical task, which users typically want to complete immediately, communicates both your intentions and the benefit to them for sticking with the passage.

Tip 3. Intriguingly Package Communication Products
Observe the owners of semi-complicated new phones. To use the phones, the new owners must read the instructions. But who is likely to do so when the instructions are printed on copier-quality paper that's stuck in an unmarked cellophane bag inside the electronics box.

As an attractively wrapped present excites its recipient, so an attractively packaged communication product (or group of products) encourages readers to use it. Unfortunately, many technical manuals come in unattractive packages.

We must balance the low cost of simple covers with the "I can't wait to open this" factor of more elaborately designed and printed covers.

Similarly, a cover or package that comes in an interesting shape, or information that's smartly tucked into a little cubbyhole often entices readers to pay attention to a piece of information.

Creative packages of online information often pique users' interest in learning more about a topic. For example, providing existing users with a quick, "guided tour" of the new features of a revised software package entices them to learn more about the features, without overloading them with training that they do not yet need.

Similarly, providing readers with an occasional tip while using an application increases the likelihood that they might actually apply that suggestion (All memories of the intrusive Microsoft Clippy aside). At that time, readers' interest is high and, by providing a single tip, increases the likelihood that readers will retain the information for use at an appropriate time.

Tip 4. Design for Scanability

The research on readers is clear; they don't read, they scan (Rosson & Carroll, 2002). In print, they scan a publication until they find an item of interest, then they read in depth. Even when reading in-depth, however, readers tend to only focus on the first paragraph and, on occasion, the last. Only a small percentage of people read material in its entirety.

The situation is only worse online. Readers only scan (Graham, 1999, as cited in Henke, p. 24). Even when they're reading something of interest, readers still tend to scan, reading in-depth only the first few lines of the screen or items in charts and illustrations.

The same guidelines that we follow for designing documents also make them easy to scan. We just need to redouble our efforts in this area:

- Include running headers and footers (in print) or title and navigation bars (online) so users can easily identify their location.
- Use headings so users can easily find key words.
- Differentiate among heading levels so users can quickly sense the structure of a document (use online, too).
- Use lists and charts.
- Make sure that procedures are presented as a series of numbered steps, not paragraphs. If you have to present several considerations, disguise them as steps such as: "1. Consider the following issues," and present the considerations as a bulleted list or table, so readers can easily scan it. A procedure that's presented as a series of paragraphs scares users.
- Use illustrations to present complex topics; they simplify understanding.

Tip 5. Let Visuals Do the Talking

The former American Museum of Advertising in Portland, Oregon, USA shows how advertising designers originally relied on copy (and lots of it) to entice readers to read ads.

But as the volume of ads increased and as advertisers increasingly relied on television and billboards to sell products, they also increasingly relied on visuals to attract readers. In the process, they reduced typical ad copy from several hundred words to, in some instances, a single phrase like "Just do it."

This trend in advertising parallels a similar trend in technical communication. As we move communication online, we move from a verbal to visual language. The computer screen is primarily a visual medium; and, as with film and video, pictures carry the message. Words merely support the pictures. Furthermore, as computers have come into wide use, the methods of communicating online also affect those used in print. Visual images increasingly play the pivotal role in print materials as they do online and in video.

Clean design isn't enough to attract attention, then. The visual appearance must encourage readers to stop what they're doing and focus their attention onto the message.

Although we're not likely to eliminate that many words, we increasingly rely on visuals to attract attention. Consider all of the computer setup instructions that rely solely on words, or the visual designs of products like Mavis Beacon Teaches Typing, Quicken, and popular computer games.

Tip 6. Time Information Appropriately

As the 60s rock song (and well-known psalm) advises, "There is a time for everything, and a season for every activity under heaven," so with technical information.

Consider the several different ways to cut and paste items in Windows and Mac applications: function keys, clicking on icons, using the right mouse button, using menu items.

This flexibility is appreciated by an experienced user, but intimidating to a new one.

So rather than spray and pray all of the information available on a topic, treat it like a precious resource and disperse it in small chunks. In this way, users can successfully finish tasks (and nothing breeds success like success) and appreciate the variety.

This is the general idea behind tips of the day, but many users do not like them. If that's the case with your users, find other ways to get tips to them, such as occasional e-mailings, newsletters, or articles on your website.

Tip 7. Let Users Just Do It
Our challenge in presenting technical information is much like that faced by directors of action films: drawing people who have little or no background into the fray as quickly as possible.

Because we love knowledge and learning, we often assume that our readers want a complete background on a subject before using the material. For example, when we first introduced computers to end users in the 1980s, we often told them about the history of computing and the principles of programming, when they only wanted to learn how to turn on the computer and start the word processor (Carroll 1990).

The amazing characteristic of most technical products is that people can often use them without understanding how they work. For example, people drive cars without understanding the principles of engines. People merely need to know where the location of the ignition, headlights, and window controls to begin driving an unfamiliar car.

Similarly, many users of software products do not need extensive background on the software to begin using it. Installers only need to learn whether the installation command is "a:setup," "a:install," or some similar command. End users only need to know which icon to click on to start, and how to perform the most common functions.

In fact, studies indicate that users who become productive quickly with new software tend to use it more thoroughly and completely than users who do not become productive quickly (Belanger & Van Slyke, 2000). (That is, those users who spend a lot of time in class learning all the functions and features before they ever have a chance to try them.). In other words, if we want people to understand software, first let them to use it. Instead of a lengthy explanation of a procedure—or even a one-paragraph explanation—just let users do it. Their success in using the computer will generate attention for other uses of it.

Tip 8. Provide Special Paths
Because each user comes to a new technical experience with a different background and different levels of comfort, each has a unique need. Some need to be carefully led to a level of proficiency. Others need a few pointers and can proceed independently.

To make sure that users have their needs met, you might do as Mavis Beacon does in Mavis Beacon Teaches Typing. She begins this technical training course by asking learners what their age level is (to make sure that they receive age-appropriate exercises). Next, she asks learners about their experience level, to give users exercises that are commensurate with their experience.

Or you might do as Microsoft does, by providing a generic path for new users, and specialized paths for people who are upgrading from competitor's products or previous versions.

Both of these are specialized implementations of "layered interfaces," which layer the complexity of a technical topic to the needs of users. But rather than dryly ask "What level of user interface do you want?" these developers ask the question in more human, terms.

Tip 9. Use the Cliffhanger

Some television weather reporters thoroughly describe current weather patterns, but make viewers wait until after the commercial advertisement to receive a weather forecast.

This technique of retaining interest by making users wait for a desired piece of information is called a cliffhanger. As these examples show, some of our colleagues in other branches of communication have mastered it.

Admittedly, cliffhangers manipulate users. But by doing so, we encourage users to attend to information they might otherwise ignore. The weathercaster, for example, entices viewers to watch the commercial advertisements.

We, too, can incorporate such cliffhangers into our communication products. Consider these suggestions.

- Use the back covers of one communication product to tell readers about skills they can learn in other products.
- Use the messages displayed while readers wait for software to install to tell them about tasks they can perform—and how to learn about them.
- Use e-mail to entice them to check out the instructions to learn about new features and how to use them.

Tip 10. Repeat the Obvious (at least, the obvious that users are thinking but wouldn't verbalize)

Online communication is, as author Harding Lemay described soap operas—one endless middle. As a result, we often need to provide a brief recap of what's happening to help place readers into an appropriate context.

The best way to do so might not be a link or other cross-reference to a related section; it might simply be a 1- or 2-sentence description. Not only does this benefit the shy novice, it also clarifies information for experienced readers who might not willingly admit to their lack of knowledge.

As software firms extol the virtues of object-oriented information, we are led to believe that we can write something once and assume people can read it (or, online, link readers to the information). And in this technical world, we often assume that readers have a firm grasp on terminology and concepts.

What dangerous, false assumptions to make!

Users often do not know the technical terms and concepts that we assume that they know. In some cases, no one introduced users to these terms. Users learn technical information in the context of a job and often have not learned a framework for understanding the information. When reading on their own, users do not have a means of inquiring about unknown information and, as a result, either act on misunderstood information or, in frustration, stop reading.

Our typical response to such situations might be, "let's just link them to the desired information" (if online) or "cross-reference" (if we're writing printed materials). The problem with such an approach is that, once users link to another topic, they might not link back to the original information. Or worse, in a rush to learn the information they immediately need, users might not link to the background information at all.

Tip 11: Attention-Getting Techniques to Avoid

In our quest to gain readers' attention, let's make sure to avoid drawing attention to the wrong things. Specifically, try to avoid the following:

- Glaring errors. Cognitive psychologists note that readers quickly catch obvious mistakes, such as incorrect information and typographical errors. Typographical errors detract from the credibility of content as readers assume it was poorly reviewed. Worse, errors in information cause confusion for readers. Use editing, peer reviews, usability tests, and technical reviews to prevent these errors.
- Laughing at someone's expense. Admittedly, humor offers a unique means of connecting people with one another. But humor doesn't translate well and has the potential to offend readers. And when you offend someone, especially a reader with whom you have no direct contact, you must work hard to regain the lost trust. If users do not trust the author (real or invisible), they probably will not trust the important technical information you have to communicate to them.
- Missing expectations. Users expect the communication product to follow a familiar format with all its key elements. For example, users expect users' guides to provide step-by-step procedures for key tasks and references to organize content in an alphabetical order. Users do not like it when such expectations are not met. Before beginning an assignment, take a few moments to identify the expectations that users bring to make sure that you meet those expectations. (And if you can't, explicitly tell users so to avoid disappointing them.)

- Making users work once you've gained their attention. Document designers often spend a great effort on designing the first page of a chapter or the home page of a website, then cram information on all of the other pages. Users then have to search for information, and when it has been found, its quantity overwhelms them. We need to apply the same attention to designing "inside" pages as we do to designing first and home pages. We need to control the quantity of information on a given page, and provide appropriate rests and cues, such as headings, charts, graphics, and white space.
- Making assumptions. False assumptions destroy credibility and ruin relationships. When we have no direct relationships with our readers, we cannot afford such a mistake. Yet we communicators make false assumptions all the time. We make assumptions about knowledge and culture. Sometimes we do so with our language. We use terms like "easy," "simply," and "user-friendly," because that's the image we want to project. Of course the products should be easy, simple, and user-friendly to us; we helped develop them. Our users might feel differently.

We learn to recognize assumptions by becoming sensitized to them. The more our exposure readers through usability tests, focus groups with readers, interviews, and reader comment forms, the more opportunities we have to develop this sensitization and, in response, adjust our communication practices.

Humility and Attention

The next time we technical communicators design and develop communication products, let's not assume that readers have infinite time to read the material. Let's not assume that our communication products are the only ones requiring the attention of our users. Finally, let's not assume that—once readers see information—we have their attention and they permanently retain the material without effort.

Instead, let's make the effort to attract and retain readers' attention, so that they might use the information we have painstakingly crafted for their ultimate benefit.

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Your Opinions Please

1. In a word, how would you describe this workshop: _____

2. Using a number, how would you describe this workshop:

1	2	3	4	5
Abysmal		Average		Outstanding

3. How much did you know about writing test questions *before* taking this workshop:

1	2	3	4	5
Nothing		Some		A lot

    after:

1	2	3	4	5
Nothing		Some		A lot

4. How likely are you to use some or all of the skills taught in this workshop in your work:

1	2	3	4	5
Not at all		Not sure		Very likely

5. The best part of this workshop was: _____

    _____

    _____

6. This one thing that could improve this workshop most is: _____

    _____

    _____