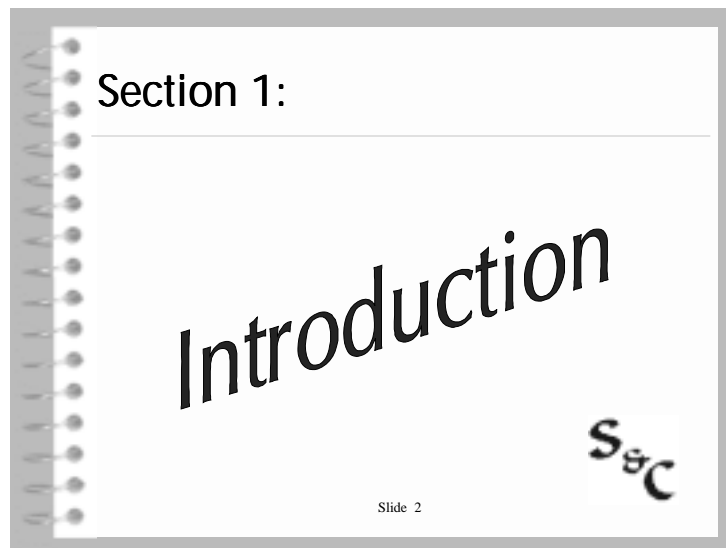


1. Introduction



Thesis : Continuity & Discontinuity

Discontinuity

- > As Big a Change as Printing
- > Need Some Different Skill Sets
- > Social, Political Institutions Revamped

Continuity

- > Printing Won't Go Away
- > Some Skill Sets Never Change
- > Most Major Changes Will Be Gradual

Slide 3

S&C

Goals

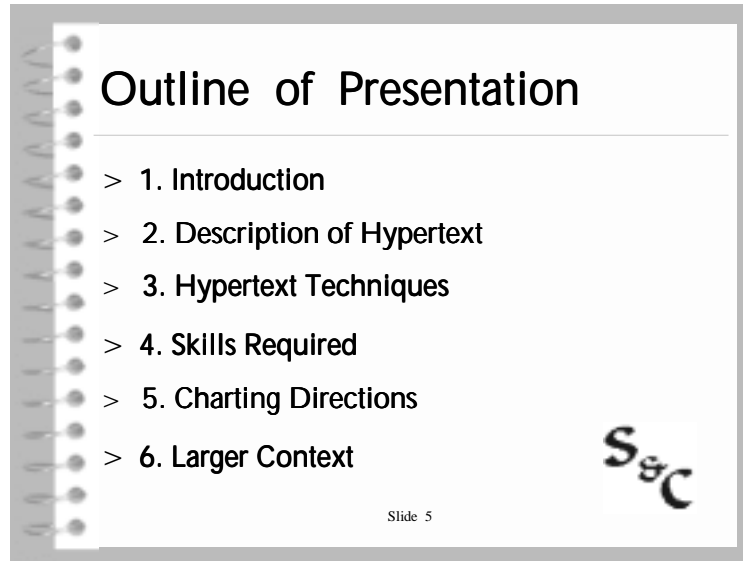
1. Provide Full Description of Hypertext
(Particularly Essences and Advantages / Disadvantages)
2. Identify the Techniques You'll Use
(Both Continuities & Discontinuities Here)
3. Identify the Skills You'll Need
(And Show You Where To Find Them)
4. Chart Near- & Mid-Term Directions
(Primarily for Career Planning)
5. Paint the Larger Context
(Political, Social, Philosophical)

Slide 4

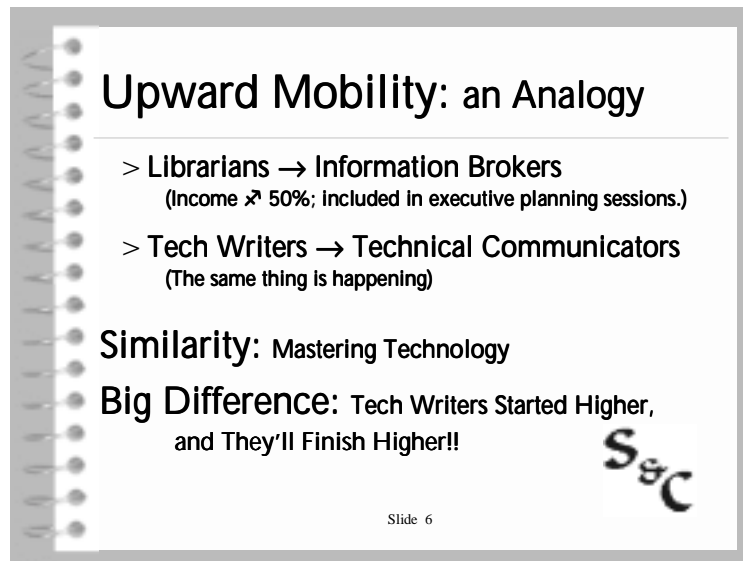
S&C

Goals. I've got five goals for this presentation:

1. Provide a full understanding of hypertext: what it is; how it developed; how it's used; what it looks like. We'll emphasize its essential characteristics and its advantages and disadvantages.
2. Identify the techniques you'll use. What stays the same in your toolbox; what changes.
3. Identify the skills you'll need. Most of this will be at least partly new.
4. Chart directions. We'll look at this primarily from a career planning perspective.
5. Paint the larger context: political, social, philosophical. This will also help you make decisions. (And indicate that hypertext is no passing fad.)

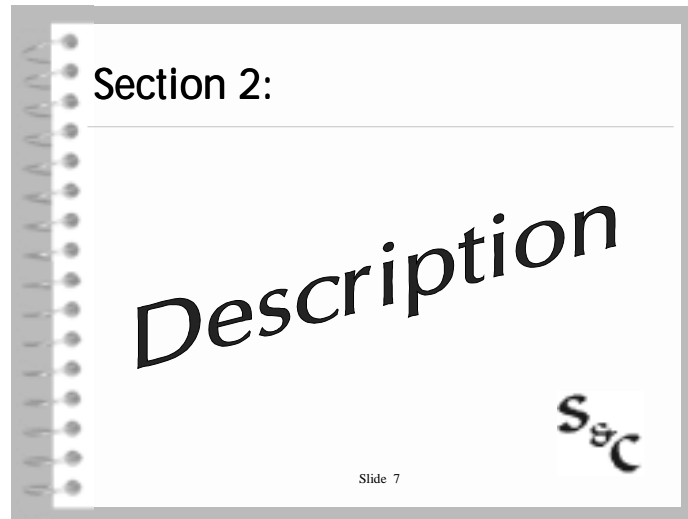


As you can see, there's one section (§§ 2-6) for each of the five goals.

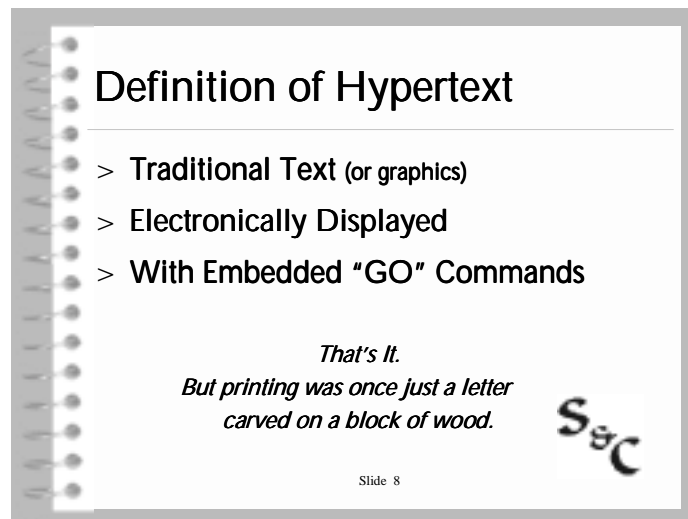


Upward Mobility. Librarians became Information Brokers (with a huge jump in compensation, status, and influence) when they mastered a new technology, primarily online research. Tech Writers are becoming Technical Communicators (some use the term "Information Designers") in a similar pattern, and hypertext is a major avenue.

2. Description of Hypertext

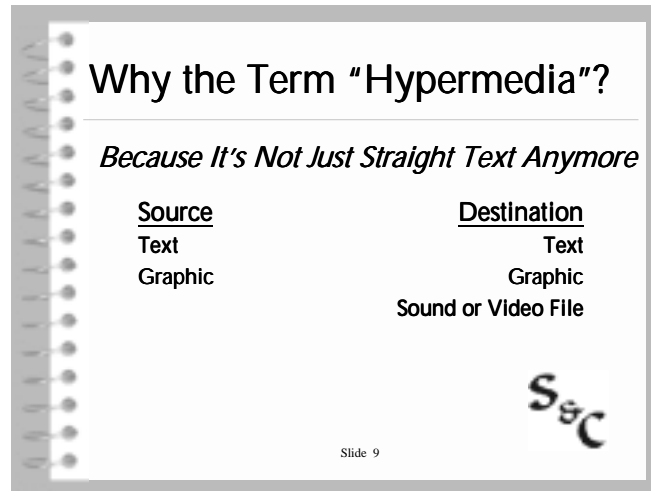


Definition. Hypertext has three simple elements.



This is important, and we'll come back to it. Simple concepts often have huge repercussions.

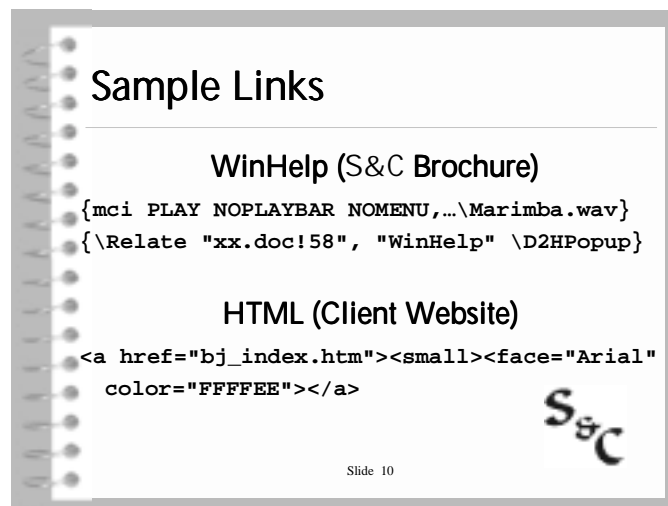
Hypermedia. Now, what's this term hypermedia?



The source can be either text or graphics, and the link can go to text, graphics, sound, or video.

Using "hypermedia" normally implies an emphasis on A/V; and when "hypertext" is used, you can generally tell whether it's used generically, or whether text only is meant.

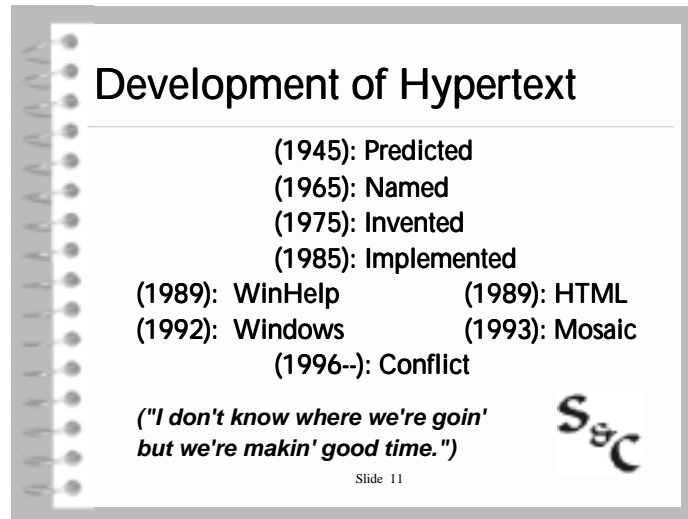
Sample Links ("GO" Commands). This is just to give you a quick flavor if you've never seen it. It's programming, sort of, but maybe only 1/3 as complex as BASIC, or 1/5 the difficulty of C++. You can do this, particularly if you try it at home first.



The first example is from our online brochure. It plays a short marimba when you enter a new section. There are no user controls; they just have to endure it. It lurks behind a menu button.

The second returns the user to the main page of the Website, and defines font and color. This is also behind a navigational button and is triggered when the user clicks on it.

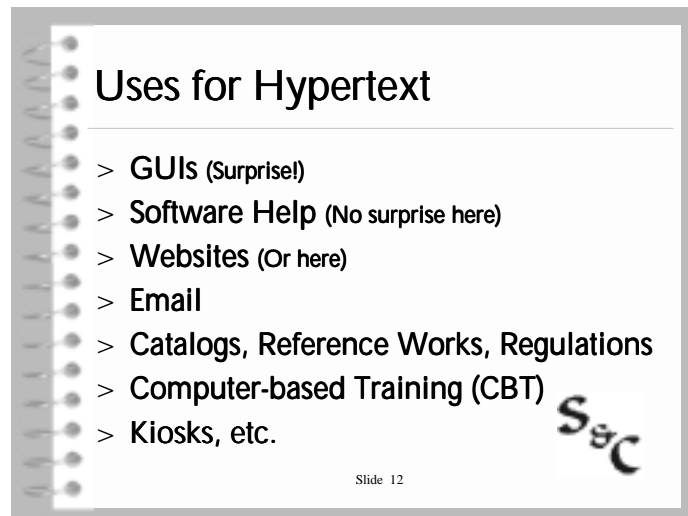
Development of Hypertext. The way hypertext developed explains a lot of the infighting.



What you need to get here are 1) how short this development has been, and 2) the simultaneous (and independent) development of the Big Two: HTML and WinHelp.

[For the background on the quote, see **Cassady** in the "Quick-Reference" Supplement]

Uses for Hypertext / Hypermedia. I'll bet a couple of these will surprise you.



It's around the versions of hypertext developed for items #2 and #3 that the Hypertext Wars are raging. We'll touch that briefly later.

Make an experiment: Try to go through a day recognizing every instance of hypertext you see. Then, a little while later, spend a day identifying *places where hypertext isn't used, but should be*. You may look back on the time as some of the best you've ever spent in professional development.

Types of Hypertext (Basis 1). From the perspective of what is needed to produce, distribute, and display documents, it seems to me valuable to divide hypertext into three different types:

Types of Hypertext -- I

- > **Stand-alone**
Nothing but a form of hypertext required.
- > **Independent - but - Linked**
Generally need a server, and often a telecommunications connection.
- > **Context-sensitive**
Need constant interaction between the other software and the hypertext; may need server & connection.

Slide 13

S&C

The subordinate, indented, lines are the important ones; don't attempt a project unless your skills and company/client infrastructure support it.

Types of Hypertext (Basis 2). This second subdivision you may have seen before:

Types of Hypertext -- II

- > **Markup Languages**
HTML / DHTML / XML / SGML
- > **WinHelp**
- > **HTML-based HELP**
HTMLHelp / JavaHelp / Oracle Help
- > **Others (Representative Samples)**

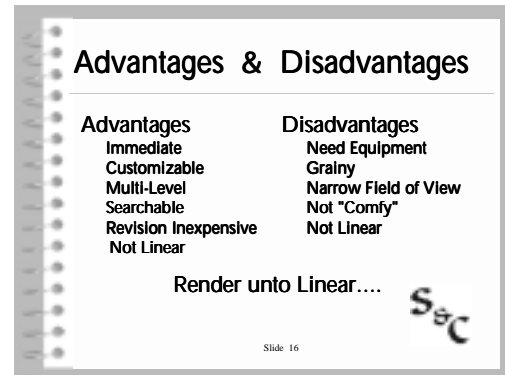
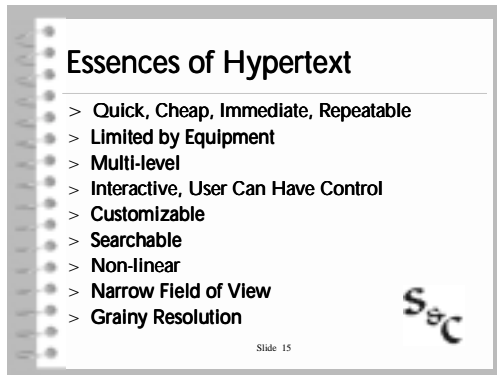
PDF	Trellix	Quadralay
Bristol	Inso	ColdFusion

Slide 14

S&C

The value here is to illustrate how confusing the stage has become; navigating through these choices is part of § 5. The Development slide (slide #11) explains some of this chaos; special needs and some companies' desire for proprietary possessions explains most of the rest.

Essences / Advantages & Disadvantages. These slides go together; they're almost inseparable.



Essences. This may be the most important slide of all; if you know the essential elements of something, you can do a lot with it. We'll spend the rest of our time building on this slide, starting right away with Advantages & Disadvantages.

Quick, Cheap, Immediate, Repeatable. These are all economic issues (which argue that hypertext is no fad); the "quick" aspect has huge social implications as well.

Limited by Equipment. Distribution is easy with proper equipment, impossible otherwise; monitor and telecommunications connections limit what can be displayed.

Multi-level. You can write several documents at once, and by following or ignoring links, users create their own customized document out of millions of possibilities.

Interactive / User Control. Unlike passive TV, this challenges the user.

Customizable. The days of Henry Ford's "one color fits all" mass production are over.

Searchable. I've indexed materials both ways; the best is still done manually by an expert, but you can do 100 times more, 90% as well, at 1/10 the cost with automation. You decide.

Non-linear. User can enter and leave at will. Non-linear thinking may turn out to be very different from what we've known, but full effects will not be immediate.

Narrow Field of View. A normal screen is about 20% of an open book; the new 21" screens only raise that figure to less than 30%.

Grainy Resolution. And for the foreseeable future, pixels will not rival dots per inch.

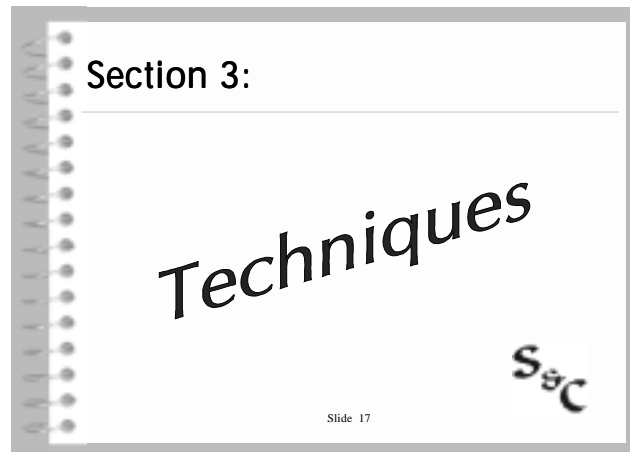
Advantages & Disadvantages. Nearly every one of the essences shown on the last slide is here – a couple of them twice. So I'll not repeat the line items.

Well Suited. Anything requiring searching, random access, interactivity, or quick revision/distribution: catalogs, reference works, newsletters, training materials, conversations.

Poorly suited. Documents that are used away from support equipment, or that require scope and resolution; linear arguments; long narratives that don't subdivide well; anything needing a warm fuzzy.

Effective Mix. Increasingly, you'll find hypertext employed in distribution and access; and print in its use: access a map software, customize a portion, and print it for use.

3. Techniques



You can convert print material to hypertext without change; but it's almost always better to design for the online medium. What should you do differently? What techniques are involved? There are three essences that lead to most of the techniques I'll discuss:

non-linear limited by equipment multi-level/customizable

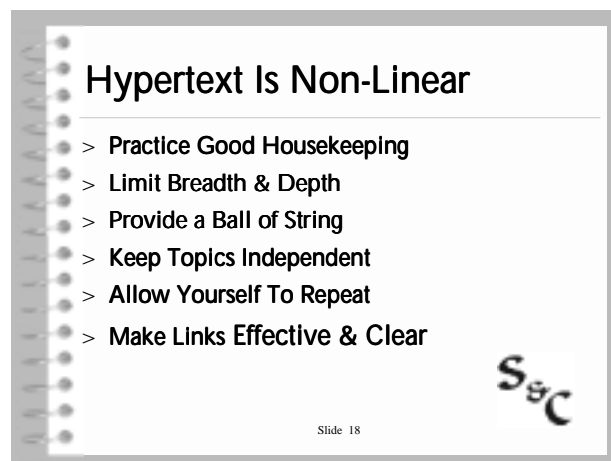
Because the techniques derive from the general essences of hypertext, they all apply (or soon will) to HTML, WinHelp, or other flavors.

In general, being a good stylist is less important than it was in print; being organized and analytical is more so. In the Tech Writer-to-Tech Communicator transition I mentioned earlier:

- technology is more important
- writing is only one way to communicate.

The sources listed are all cited in § 2 of the "Resources" supplement. Two good general sources are the discussion that meanders through the Online-Writing Mailing List, and Garcia (*Redesigning...*).

Hypertext Is Non-Linear. You can enter and leave most topics in several ways, including index selections and full text search; this forces us to adopt novel techniques. [Horton (*Designing...*) covers non-linearity well.]



Practice Good Housekeeping. Writers can keep track of linear projects (1a, 1b, 2, 3a, 3b, 3c, etc.); but hypertext is many times harder. There are various techniques for organizing your material (flow charting, storyboarding, etc.) and a normal-sized project will overwhelm you if you don't master one of them. [Only Deaton & Zubak (*Designing...*) touches, and only briefly.]

Limit Both Breadth and Depth. The "Housekeeping" technique is necessitated by our losing control of material; users get lost even more easily because of tunnel vision. Research indicates that users get confused when there are more than 7 horizontal sections, or when they have to drill down more than 4 levels deep. (If you're trying to do the math in your head, that's $7 + 49 + 343 + 2401 = 2800$ topics; you'll make it – but you'll need that housekeeping technique.) [Horton (*Designing...*). Deaton & Zubak (*Designing...*) has different approach.]

Provide a Ball of String. Cave explorers understand being lost in hyperspace. Even if you don't approach the 2800-topic barrier, you'll need to help your users move around – and to bail themselves out when they get lost. [Horton (*Designing...*).]

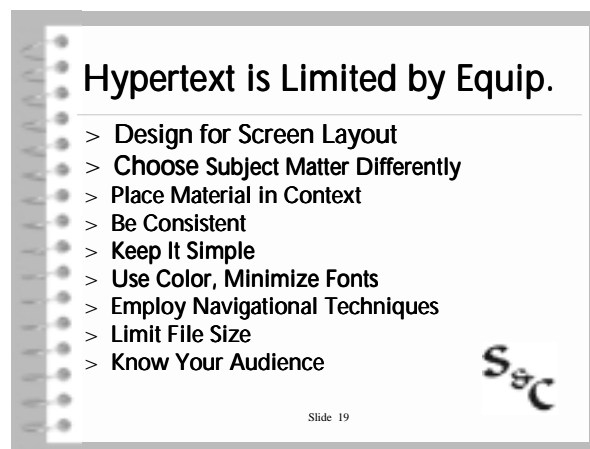
- Always provide a back button. A couple clicks all it takes to get the user back to a place they recognize. Knowing they can bail out increases their willingness to explore.
- Use a navigational frame (or pane) that updates dynamically as the user moves around.
- If your system supports it, use a "History" stack so users can view where they've been.
- Be imaginative with the use of other buttons.
- Be consistent. (We'll talk more about this on the next slide.)

Keep Topics Independent. Because most topics can be entered from a variety of locations, each has to be fairly independent. Avoid words like "above" and remember the user may not have read all the pre-requisite topics you'd like. [Horton (*Designing...*).]

Allow Yourself To Repeat. You can't make topics independent without some repetition. So qualify the Commandment you learned never to repeat yourself.

Make Links Effective & Clear. Ask your reviewers to suggest logical jumps from each location. If your system allows mid-topic or mid-file jumps, use them where appropriate. Then make those links clear, both in where they are and what they do.

Hypertext Is Limited by Equipment. Most monitors are still grainy; all display vehicles in our lifetimes will have limited scope compared to an open book or magazine; and for at least a decade, a significant number of display stations will have limited bandwidth connections. Therefore, you have to acknowledge constraints of resolution, breadth of vision, and file size.



Design for Screen Layout. There are many aspects to this technique. Screens are landscape, not portrait, and users prioritize screen segments differently from page segments. Vertical scrolling frustrates, and horizontal scrolling produces outright hostility. Chunking solves many of the problems, but designing in chunks is harder than it sounds. Other layout aspects under "Consistency", "Simplicity", and "Color" below. [Garcia (*Redesigning...*); and *Windows Interface Guidelines...*]

Choose Subject Matter Differently. Limit the use of schematics and other graphics that should be displayed in large format. Limit the use of narratives, or rework them so they aren't in long topics that require scrolling. Procedures work well; limit explanations and background material, or make them optional. [Garcia (*Redesigning...*)]

Place Material in Context. Users lose a lot of perspective because a screen is only 1/5 (20%) of an open book or magazine. You, as author, know the context because you're completely familiar with the subject; it's hard to pretend that you're a confused viewer. You need an editor who is not an SME, who has not read the previous draft, and who thinks differently from you. You need this editor much more than when you write for print. [Horton (*Designing...*)]

Be Consistent. With their tunnel vision, users often don't grasp the context even if you try to make it plain. So make the context, the order, and the wording as consistent as possible. (If this sounds like repetition of the "Repetition" topic, it is.) [Horton (*Designing...*)]

Keep It Simple. Most technical subject matter isn't simple (and is dry to boot); the screen tunnels your vision, and glare is hard on the eyes; the viewer's position may not be ideal. So you must remove all unnecessary complexities from your writing. That's one reason icons are so valuable. [Boggan (*Developing...*); Horton (*Icon Book.*)]

Use Color / Minimize Fonts. With the exception of bandwidth problems, color is cheaper and easier online than with print. Use it wisely, but use it. (Be aware, however, that most systems allow viewers to change default colors.) Fonts, on the other hand, are the reverse: serif fonts don't reproduce well, and too many get "busier" faster than is the case with print. [Garcia (*Redesigning...*). As usual Deaton & Zubak (*Designing...*) have a different take; they emphasize standardizing palettes.]

Employ Navigational Techniques. The last slide called route-finding "a ball of string". Navigational techniques are also important because of equipment limitations.

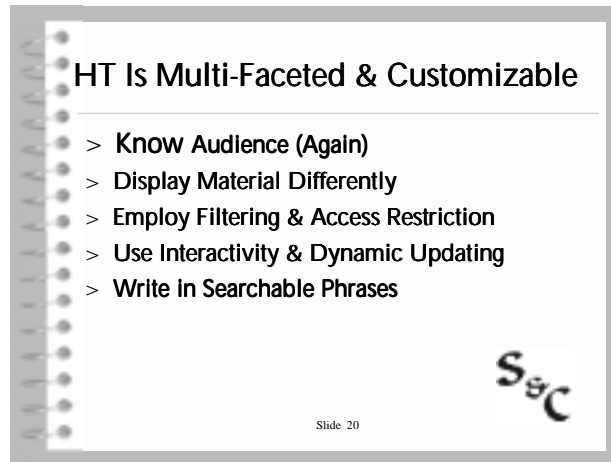
Limit File Size. For some users, download speed will be a problem for years. If bandwidth (or memory) is a problem for your users:

- Use A/V materials only for purpose (not for show)
- Provide non-A/V alternatives
- Learn how to cut corners on graphic size, including choosing software that assists.

[**Source:** A good source of parsimonious techniques is Kent. (*Poor Richard's...*); the case for profligate disregard of the problem is presented by Siegel. (*Creating Killer Web Sites*); a middle ground is Horton. (*Web Design Cookbook*).]

Know Your Audience. This is as important in hypertext as in print. In addition, if you don't know, and design for, your audience's hardware, they may not be able to display (or even access) parts of your document. Try to determine their platform; bandwidth; and monitor resolution, size, desktop area, and colors. We'll discuss audience again, in terms of subject matter. [Mandel (*Elements...*) is one of the few authors who treats audience from an equipment perspective.]

Hypertext Is Multi-Faceted & Customizable. This is an essential essence of hypertext, and it has a whole host of corollaries.



Know Your Audience (Again). Hypertext offers new techniques, so you have to know your audience from new perspectives. Because you can write on several levels, you might be writing to more than one audience. You need to know more than ever about your audience – but if you're designing Websites anyone can visit, you obviously know a lot less than most print authors. Audiences read online material differently from print: they scan more than they do with print, and they approach the material with different expectations. [Mandel (*Elements...*); Garcia. (*Redesigning...*); Nielsen (Alert Box).]

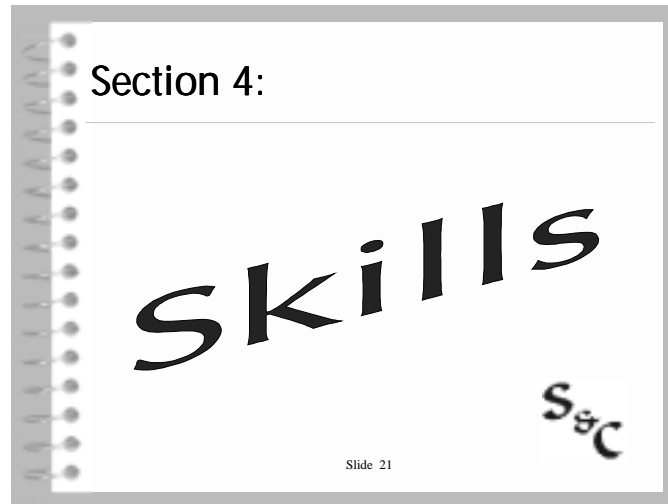
Display Material Differently. Popups (if your hypertext system supports them) can be used to display definitions and quick-reference material. Special kinds of information (procedures, conceptual background, or management overviews, for example) can be put in color-coded frames or secondary windows. You can control your users wandering off to another Website by bringing material into a frame rather than employing a link (**Note:** beware of copyright infringement!). You'll be amazed how mastering these techniques changes your writing style. [*Official Microsoft HTMLHelp...*]

Employ Filtering & Access Restriction. If you know programming, you can see a simple flag involved here: each topic and path can be coded with one or more flags denoting content, purpose, difficulty, language, security. Some of these flags can be explained to the users, permitting them to select (customize) the material; other flags are set by the system according to such criteria as logon password. (**Note:** *HTMLHelp's* Topic Types will advance filtering considerably in the next few years.) [*Official Microsoft HTMLHelp...*]

Use Interactivity and Dynamic Updating. If your system supports it, your document permits it, and your users can handle it, you can use scripts (JavaScript, Active-X, or CGI) to alter content or format according to a variety of inputs. DHTML (and, to a lesser extent, XML) are even more robust.

Write in Searchable Phrases. Don't use "car" in one topic and "automobile" in another if you expect a user to find both with a single search. On the other hand, don't start each section with a topic called simply "Introduction", because a search will return several hits that are indistinguishable from each other. A good technique comes from manual indexing: keep a running list of terms and equivalents, and use it to maximize efficiency of full text searches and to minimize synonyms needing manual cross-reference. Put significant words early in the phrase: "Telecommunications: Introduction" may not be elegant, but it's more useful in an index than "Introduction to Telecommunications". [Boggan (*Developing...*).]

4. Skills



As a print writer you had to know a little design, color was useful, and there were two or three software packages you needed. All these new techniques require some new skills. Here's a selected list, with a brief discussion and occasional references (all in § 2 of "Resources"). (Don't worry: you don't need to master them all.)



Analysis. Learning analytical skills may be the most important basic after English. It doesn't matter what you've learned to analyze as much as learning the generic technique. (If you've been a Research Analyst, as I have, it stays on your resume even when it's 30 years old.)

Hardware Capabilities. The only hardware we needed to know about to author print was our machine, our printer, and maybe a scanner. Now, after we determine (if we can) the spectrum of hardware our audience is running, we have to know how that limits us. We must know, for example, what pixels are, what 480 of them means, and what happens if the user changes that to 768.

Telecommunications. This is a subset of hardware – but it's changing rapidly (and is treated in different source materials), so I've listed it separately. Depending on your project, you might have to know what ISDN and ADSL are and when they're likely to be widely available. Or what T-1 and T-3 are, and that the European E-1 and E-3 are fractionally faster. What are routers?, and what is IPv6? *Ad infinitum*. [Held (*Understanding Data Communications...*); *Boardwatch Magazine* in § 2-Per.]

Scripting / Markup. You may have to learn to script (Active-X, JavaScript, CGI, Perl, Tcl) right away; you almost certainly will within a few years. Learn markup *now*, and learn to read code. [Graham (*HTML 4.0...*); Turner (*Readme.1st...*); Connolly (*XML...*). Several O'Reilly books are good for scripting; see their newsletter in "Resources" § 2-Per.]

Info Mapping. One meaning is similar to storyboarding (below). In software, however, it has a different meaning: the linking of context-sensitive help topic numbers to parts of the program. If you write software documentation, get the beginning programmer to teach you how. S/he'll love you for it, and you'll be a better Technical Communicator. [Boggan (*Developing...*)]

Color / Graphics. Know what your users' equipment can handle, know what it takes to push something through their connection. Know how to manipulate graphics, reduce colors, and compress. [Siegel (*Creating...*); Horton (*Web Design...*); Horton (*Icon...*); Kent (*Poor Richard's...*)]

Flowcharting / Storyboarding. Outline and/or flowchart and/or storyboard. Make whatever you choose an iterative process. Plot your topics *and record what goes where, if your software doesn't do it for you*. [Horton (*Designing & Writing...*)]

Multimedia. If you need much of it, you'll have to spend a fair amount of time learning it; it doesn't bundle with other skills. [Siegel (*Creating Killer...*)]

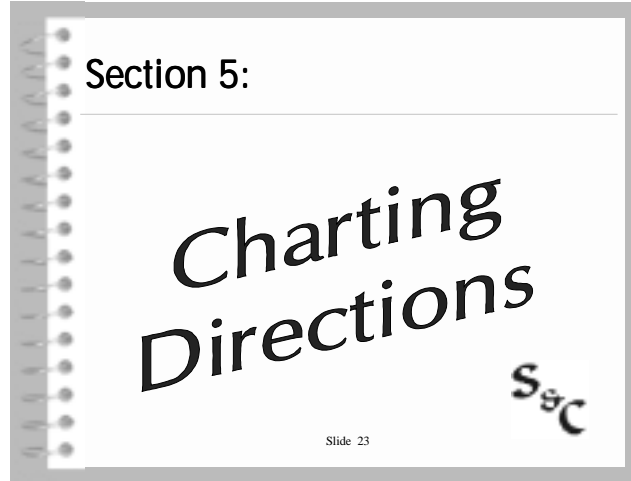
Project Management. If your project is of any significant size, you will not be able to skate on talent any longer; if there are writers or graphics folks under you, get acquainted with Microsoft Project. And you might find a flowcharter handy.

More Software Packages. You'll need most, if not all, of the following software: word processor; DTP; graphics (including conversion filters, capture utility, and flowcharter); WinHelp and HTML editors; communications software; both browsers (including at least one prior version). Scribble & Count has a legacy machine with old software installed and old hardware available for hookup.

What Else? If you know anything about this field, you can add a dozen items I omitted. Like reading specs. Or change control. Or.... Maybe metaphysics.

Mario Garcia (*Redesigning...*) says that there are five skills Information Designers must master: management, visual arts, language, technology, journalism. I assumed language, discarded journalism; the rest is pretty similar.

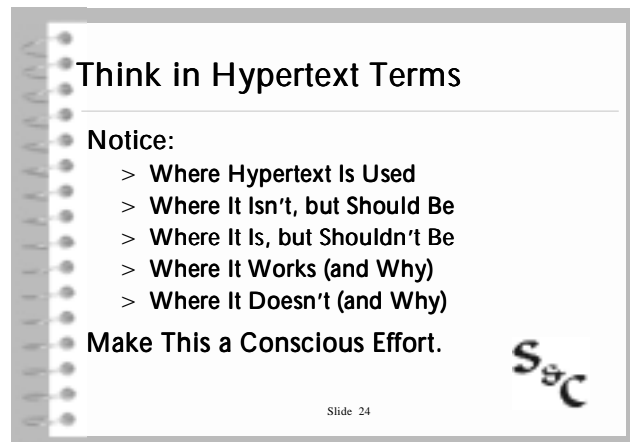
5. Charting Directions



This section isn't (quite) the *mélange* it appears. Its first three components integrate into the fourth:

1. After you start thinking in hypertext terms,
2. and understand the supercharged political/economic hypertext environment,
3. and know enough about the alternative hypertext systems,
4. then you can begin to plan at least the next six weeks of your rapidly changing career.

Think Hypertext. Spend a day or two working on the points on this slide (If you're a Type A, during vacation is ideal). After a little conscious thought, it will be second nature – and well worth the effort.



Where Hypertext Is Used. Get so that you spot every instance. Marvel at how small the hypertext hot spots are on the ruler of your word processor; be aware that even a brief surf of the Web employs hypertext dozens of times; check what part of a rectangular state like Colorado is a hot spot on an interactive map (and then check an irregular state like Florida); know that the touch-screen at Arby's (or the kiosk in your hotel) is also hypertext.

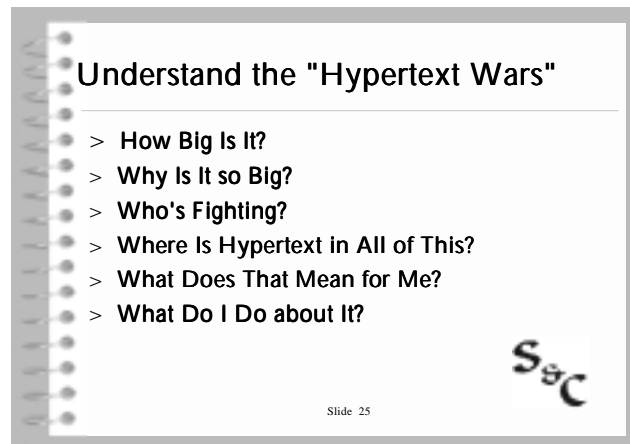
Where It Isn't, but Should Be. This exercise is harder, but shows you're thinking. Would the training video you saw last week have been more effective in interactive hypertext? (If you're an independent, there might be a contract for you in one of these.)

Where It Is, but Shouldn't Be. Now you're getting discriminating (And proving to a skeptical client that you're not a pro-hypertext fanatic.)

Where It Works (and Why). Understand why good hypertext was appropriate and why it was effective. (On the Web, **Show Source** can answer how, but you need also to know why.)

Where It Doesn't (and Why). Here you're looking for techniques to avoid.

Understand the Hypertext Wars The term's mine, and I've got some pretty definite views on the subject. But not here; I've no right to involve Jay Mead and STC-RMC in my personal heresies. But I'll paint a general outline for you – and tell you that S&C publishes a hypertext newsletter for which my partner and I are solely responsible; see § 1-Per. in the "Resources".



How Big Is It? Huge. Bulls have never rutted over more.

Why Is It So Big?. This is the dawn of the Information Age. Information is (or soon will be) the major source of value, and they're fighting over the delivery system(s).

Who's Fighting? There are two contests: over computer operating systems, and over the telecommunications pipe. Both affect hypertext authors, but the impact of the O/S contest is more direct and immediate. It's between Microsoft (and its minions) and what's been called "The Gang of Four" – but that should be 3, 3½, or 4, depending on whether you want to include the ambivalent IBM and/or the clueless Justice Department (neither of which deserves a full point as a Microsoft opponent), along with Sun, Netscape, and Oracle (all of whom do).

Note: There is recent evidence that DoJ has broadened its case against Microsoft to more winnable issues. [Print deadlines come too early; had this syllabus been posted online just before the conference, you would have more than this intruded note.]

Where Is Hypertext in All This? Stymied, until the log jam breaks.

What Does That Mean to Me? You're inconvenienced at least, and your decisions are made more difficult:

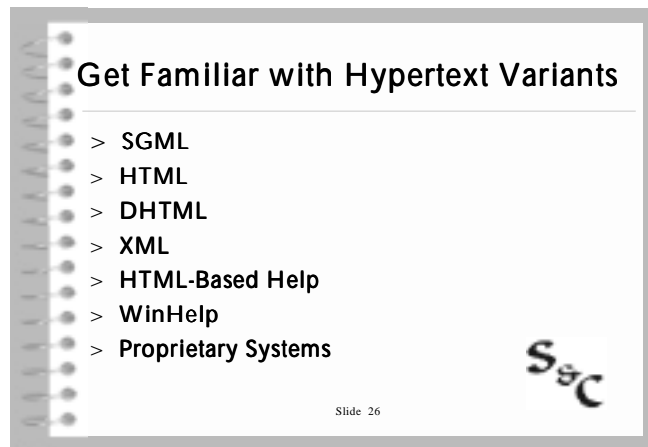
- In Windows, things don't go bump in the night if Microsoft is your mail program and IE is your browser. Otherwise, they probably do.
- Websites have to be produced in multiple versions in order to take advantage of all the power of HTML 4, DHTML, Active-X, and JavaScript. Either that, or emasculate most of the latest features.
- Full cross-platform portability is delayed.
- You have to hedge career plans more carefully than a fund manager does investments.

What Do I Do about It? Learn to read the tea leaves:

- Know why Microsoft is putting so much effort into Visual J++.
- Understand the difference between Justice going after Microsoft for predatory pricing, for bundling its mail server, and for bundling IE.
- Know why the W3C was stymied for a year and then released drafts or specs of HTML 4, DHTML, and DOM in a 2-month torrent.

It will take a lot of reading to get a balanced perspective. We offer you an opinionated one quickly and easily in our newsletter.

Get Familiar with the Hypertext Variants. Partly due to the commercial rivalry alluded to above, partly due to experimentation with new techniques, and partly because hypertext is becoming as diverse as print, there are more varieties of hypertext than is possible to master.



I'll be a little more candid in this section than I was in the last. My caution now is that these issues are far from settled, and it's your career involved. You should make those decisions, not someone else. (**Note:** A lot of material cited in § 2 of the "Resources" deals with these forms of hypertext.)

SGML. The parent (1985) of HTML, it is powerful, difficult, and an ISO standard – but not really hypertext. It is supported by big companies (with deep pockets), but it is not user-friendly enough to dominate in the egalitarian environment of the Internet. Its combination of power and flexibility is provided by a customizable but complex Data Definition set that precedes the rest of the document.

HTML. Created in 1989 by Tim Berners-Lee (now head of the W3C) when he was trying to distribute academic papers among his colleagues at CERN (the European particle lab). Versions in use are 2.0 (1994), 3.2 (1996) and 4.0 (released this year, but not fully implemented yet).

DHTML. A 1996 spin-off from HTML for the purpose of providing standards for the dynamic updating of HTML documents. Its envisioned primary purpose was the display of database material in response to queries, but dynamically updated commercial Websites are now the most common use.

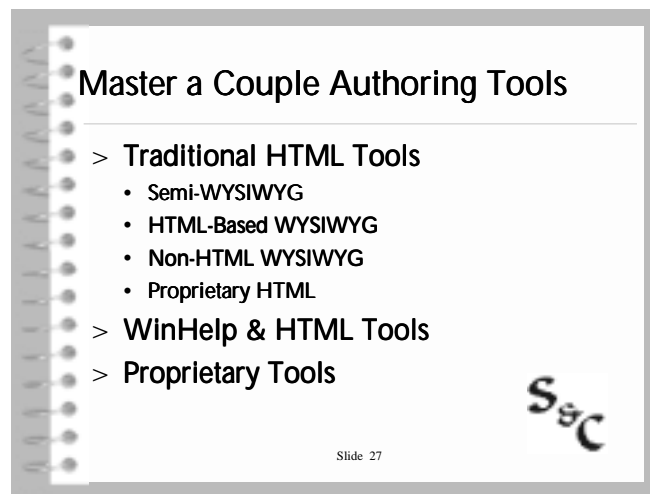
XML. 90% of SGML's power at less than half the cost in complexity: an attempt to provide a compromise between SGML and HTML. The compromise is mainly in its streamlined data definitions. Its importance is underscored by the 1997 deadlock between Microsoft and Sun, and by the number of XML books suddenly appearing in stores.

HTML-Based Help. With the demise of NetHelp, there are three major variants: Microsoft's *HTMLHelp*, Sun's *JavaHelp*, and Oracle Help for Java. Ralph Walden, Microsoft's long-time hypertext guru retired last year and they've been re-evaluating the project; but not their commitment, as indicated by the arrival of Shane McRoberts, Blue Sky's wunderkind. The main problem this genre faces is satisfying the demands of help authors who came to accept WinHelp 4 as the norm and won't accept losing anything in the transition to TCP/IP.

WinHelp. Microsoft brought out WinHelp 3 the same year HTML 1.0 appeared, and the two have led hypertext camps ever since. Never really in conflict, the two developed very different implementations. WinHelp had more features (it operated on a single platform); but it was not TCP/IP-based, and the explosion of the Internet in 1995 sealed its fate. WinHelp will not be developed any further, but both 3 and 4 will be supported through *at least* through Win98/NT 5 (as long as anyone will want to develop with it). Since it also works just fine as a stand-alone, users confined to Windows platforms can use it to buy another year or two while the dust (hopefully) settles in the larger war.

Proprietary Systems. Most of these are only proprietary extensions to HTML 3.2 and/or 4.0: FrontPage, ColdFusion, etc. But there are also entire systems that are proprietary; Acrobat is the best example.

Master a Couple Authoring Tools Partly due to the commercial rivalry alluded to above, partly due to experimentation with new techniques, and partly because hypertext is becoming as diverse a medium as print (with a corresponding spectrum of needs), there are more hypertext tools than you can possible master. Choose at least two.



Traditional HTML Tools. There are four kinds (excluding ASCII text editors):

- Semi-WYSIWYG. Tools in this category make writing HTML much easier (but do not isolate and insulate you from the nitty-gritty details). They switch quickly to your default browser (which is how you get the WYSIWYG). **Examples:** HomeSite, HotDog Pro.
- HTML-Based WYSIWYG: These process HTML behind the scenes, while presenting you with a word processor interface. The facts that many authors start here and move later to semi-WYSIWYG, and that those who don't move on often tweak with a semi-WYSIWYG, indicate that there is a price in insulation for the comfortable, familiar interface. **Examples:** FrontPage, PageMill.

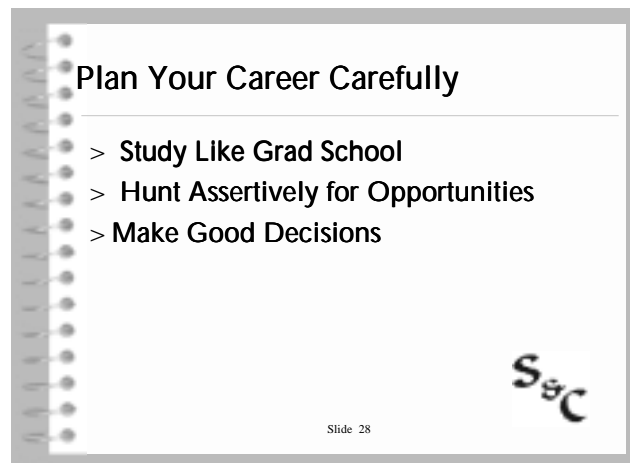
- Non-HTML WYSIWYG: Each tool in this genre processes something (which is at least partially proprietary) other than vanilla HTML behind the scenes while presenting a WYSIWYG interface, and *then* compiles the result into HTML. **Examples:** NetObjects Fusion, and ColdFusion, two of the most powerful authoring tools.
- Proprietary: These consist primarily of *tool*-specific conversions (such as Quadralay's WebWorks, which converts Frame to HTML), or *task*-specific tools (particularly those used for database mining). This is, at least for the time being, a very lucrative niche.

WinHelp & HTML Tools WinHelp still has more features than HTML, and the authoring tools that originally produced WinHelp are more robust than the vanilla-HTML genre.

Note: They also have more longevity. In the last four years the HTML tools have had four leaders (HoTMetaL, HotDog, HomeSite, and NetObjects, in succession); the WinHelp Big Three four years ago are the still the Big Three today, and at least two will be leaders in the HTML-dominated world. Don't overlook them.

Proprietary Tools. That word "proprietary" keeps popping up with perplexing frequency. Interoperability is the essence of telecommunications and the antithesis of proprietary. Therefore, it seems to me that most of these attempts (Acrobat notably excepted) to own a piece of the public domain are doomed to fail. I can't speak to them because I haven't taken the time to learn any of them. (With the exception again of Acrobat, I've not been sorry.)

Plan Your Career Carefully. It won't unfold like you planned, but more will happen than if you don't plan.



Study Like Grad School. Remember that 1980s "Miller Time" commercial? Well, I've got bad news.

- Read (no: devour) the "Resources" Supplement. Then move on.
- Subscribe to at least a half dozen relevant "push" information sources *in addition to* the STC mailing list: ZDNet, Online-Writing, Rapidly Changing Face of Computing, WinHLP-L; others that are on the "Resources" list; and still others that aren't.
- Join (and attend!) organizations. Every local computer magazine has a list. In the Denver area: Rocky Mountain Internet Users Group, Women in Technology, Windows on the Rockies UG, etc. Chambers of commerce are important if you're a contractor; but they're extra because they don't increase your technical proficiency. Sorry.
- Attend classes. The organizations have them; vendors have them, colleges have them.
- Engage in dialog. Argue with me, for starters.

You *can* do this, but it won't be easy.

Hunt Assertively for Opportunities. They are everywhere, even during hard times; always – *always* – have a current resume with you.

- Network. I don't have anything new to add, so I'll just mention it and move on.
- Move most of your job search online. Most of you from Denver probably already access the STC and BWA job lines; but depending on your specific situation there are also several others. Online authors should *not* be relying on (or even reading) the Post classifieds.
- Consider contracting. When down-sizing and bankruptcies make "secure" jobs with established companies less secure, the risks of being self employed aren't as risky. Here's an analysis by one quite content to be out where the wind blows and the sea's choppy:

Advantages

Customizable
Flexible
Pay
Stay alert

Disadvantages

Assumed to know more than you do
No learning curve allowed
No benefits
Assumed lack of scruple

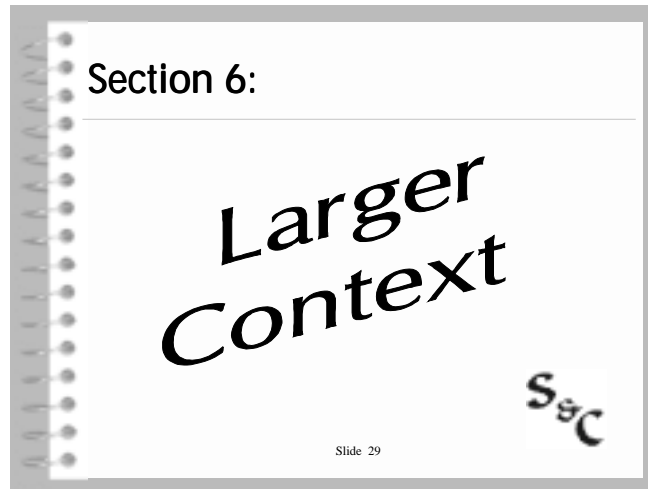
The advantages go up (and the disadvantages down) if your domestic partner's employment is stable and contains benefits.

- Make your own position. Easier as a contractor than a permanent employee.

Make Good Decisions. My generation and the one after me didn't think we had to. You, fortunately, know better.

- Anticipate the future. Where is hypertext headed? Which protocols, tools, etc. are worth your valuable time now?
This whole session has dealt indirectly with anticipating events; and this section ("Charting Directions") has focused almost exclusively on it. Let me (and STC-RMC) know where it hasn't succeeded.
- Become a generalist. There may be a niche for you now, but the chances are very strong that it won't last. If the niche doesn't limit your next move, fine; but don't let it confine you.
- Choose employers and jobs with care. Long-term growth probably beats out immediate compensation. Again, consider contracting.

6. Larger Context



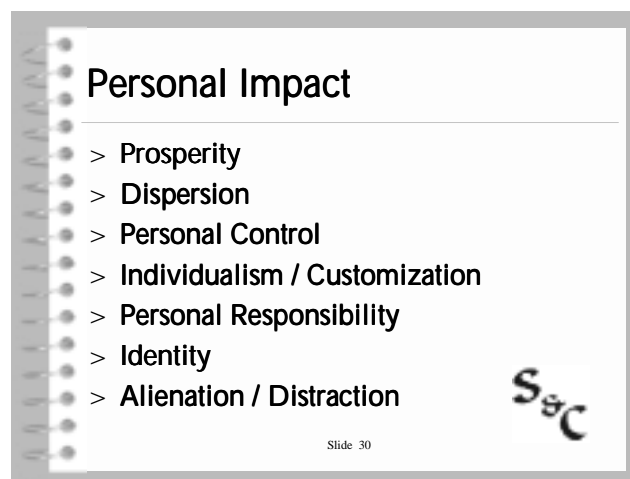
Hypertext will have a huge impact just about everywhere:

- on each of us personally
- on society and the economy
- on thought and philosophy

We'll look at each – and try to keep them separate, although they interconnect at almost every point. Unless noted, the references from here on are to § 4 of the "Resources" Supplement.

Note: Up to now it's been hard to separate hypertext from its primary means of delivery. Now it's impossible; you'll see reference to telecommunications frequently in this section. At the end of the section, I'll draw some summary conclusions.

Personal Impact. Hypertext (and telecommunications) will affect us all profoundly.



Prosperity. Without printing, we wouldn't have had the technology revolution and personal prosperity that accompanied it; hypertext and telecommunications will do similar things in the Information Age. On an immediate level (see note, below) it will increase your earnings considerably. The hypertext consumers we write to are also the "haves" of society who will prosper from the advantages of the InfoAge revolution.

Note: Due to S&C commitments preceding the conference publication deadline, this was written in late August, when the US economy was still surviving crises elsewhere. If times are very different when you read this, place yourself mentally on the recovery side of whatever is about to occur when you evaluate terms such as "immediately".

Dispersion. Industrial prosperity and the automobile started it; InfoAge prosperity and telecommunications will increase it by an order of magnitude. We privileged symbolists (Robert Reich's term) can live where we want – and increasingly that's even further from city center than suburbia. This will have important social effects we'll get to in a minute. [Reich. (*Work of Nations*); Doheny-Farina. (*Wired Neighborhood*).]

Personal Control. Hypertext gives the user control over (or at least significant input into) the document; some authors have ascribed the passivity of a couch potato generation to TV and have suggested interactive computing will partially reverse that. Will we start to think again? Even insist on controlling more of our lives?

Individualism / Customization. For those of you who think we've become too self-centered and indulgent, I've got bad news. Hypertext is immediate and almost infinitely customizable. And since the software that drives industrial production is much the same, goods and services are following suit. Almost every non-food item you consume will reflect your personal uniqueness: from last night's news (straight hypertext), to your clothes (tailored by onscreen hypertext to hide or accentuate your unique dimensions), to vehicles (soon to be produced to order by the same technology as hypertext).

Personal Responsibility. Here the verdict is mixed. Immediate feedback makes your actions clear, but it also facilitates unthinking re-actions. Flaming (even slanderous) emails are an obvious example; how about Ross Perot's electronic voting? The trek to the polling stations can be a cooling off period.

Identity. Increasingly, we're coming to define ourselves as what we're capable of doing. Leisure activities are a small facet of this, but computer literacy will increasingly be what binds us to (and separates us from) others.

Alienation / Distraction. We've all read that too many hours in front of a computer screen can be as damaging emotionally as TV. [Doheny-Farina (*Wired Neighborhood*).] And the barrage of choices presented by hypertext can scatter the self in all directions. [Talbot (*Future Does not Compute*).]

Socio-Economic Impact. Societies are collections of people, so expect some similarities to the preceding items.



Dispersion. The history of Western Civilization has been one of concentration: wealth (16th C mercantilism), political power (17th & 18th C nationalism), production (19th C industrialism), and demography (20th C urbanization). This is ending; we mentioned moving even farther from cities a minute ago, but the other concentrations are breaking up also: in industry, for example, the operating units are smaller, more autonomous, and occasionally only temporary. Departments in which leadership does not lead to upper management within the company are being outsourced *en toto*. [Castells (*Information Age*); Doheny-Farina (*Wired Neighborhood*) plus two articles; Drucker (*Post-Capitalist Society* and *Managing...*)]

Redistribution / Realignment of Power. Traditional Industrial Age groups (such as labor) won't automatically retain their position; previous "have-nots" (such as rural and underclass America, developing societies, minorities, and the handicapped) can gain power *if they take advantage of the new opportunities*. [Toffler (*Power Shift*)] Political realignment will follow. Magazines such as *Atlantic* and *Harper's* predicted a neo-liberalism / neo-conservatism realignment throughout the 70s and 80s; something similar should finally happen soon.

Polarization of Society. I said "*if they take advantage of the new opportunities*". Intelligence level excepted, the obstacles to acquiring the new sources of wealth are lower than they've ever been, but are still significant. The cost of not acquiring information skills will, for the foreseeable future, be immense. All economic statistics show that we are polarizing into a have / have not society based on education and access to information.

Generally Smaller, Always Faster. Smaller entities (whether governmental or commercial) will have an advantage. When size, diversity, and extensive resources are important, *ad hoc* alliances will be formed to accomplish a specific purpose. Some multinational companies (especially Telcos) may seem to get bigger, but the operating units will normally be smaller and more nimble than their previous counterparts. [Drucker (*Managing...*; and *Post-Capitalist Society*)]

Responsibility. The judgement here is mixed. A linear (print) argument holds one's feet to the fire; that's why demagogues and some salespeople hate to put it in writing. Hypertext, with its frenetic jumping around, doesn't do this well. But its speed has frequently held governments accountable by disseminating information overnight. Certainly a good news / bad news joke.

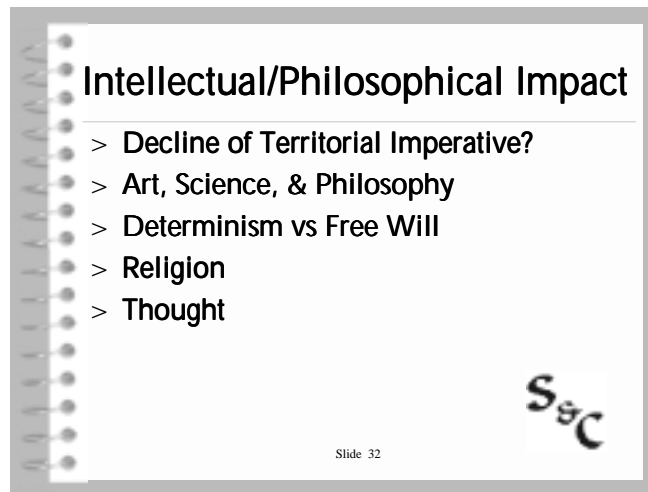
Redefinition of Proximity. The redefinition of identity will change what we feel close to. We will come to know more about someone thousands of miles away than the person who's lived next door to us for several years. This bond of commonality will come to rival those of nationality, race, religion, gender.

Voting / Representation. Electronic voting, the ability to leap huge distances in a single bound, and commonalities that transcend geography are going to remake political boundaries. (In Mexico, social has overshadowed geographical representation for decades. I'm not recommending Mexico's model in either general or specific – but studying it does help to think outside the lines.)

Erosion of Tax Base. Information is the most mobile form of wealth we've ever known, and electronic funds transfer is the most powerful means of moving it. Taxes are based on people and things that don't move: peasants, land, factories.

Intellectual / Philosophical Impact. This non-linear paradigm shift will alter our philosophy and perhaps eventually our way of processing information.

Note: My history MA included the American West, and the first person accounts of total misunderstanding between the US cavalry and the plains Amerindians sounded at the time like talking on different wave lengths. I was assured it was the result of cultural differences, which obviously had some validity. Now I'm convinced it was deeper than that; the real differences included ways readers and talkers process information.



Decline of Territorial Imperative? We think – animals in general think – in terms of spatial relationships. This is so ingrained it's instinctive. [Audrey (*Territorial Imperative*, and *Naked Ape*).] I keep an Internet Map in my home/office and at my primary client site. It's from early 1994, so it's of no value as a reference tool. But looking at it (and watching even techie programmers get uncomfortable when they look at it) reminds me how tied we are to geography. The map, you see, is in beige and blue (looks a lot like land and water) – but the items on it are placed in conceptual, not physical relationship to each other. You have to feel your own discomfort level rise before you can understand how profound this is.

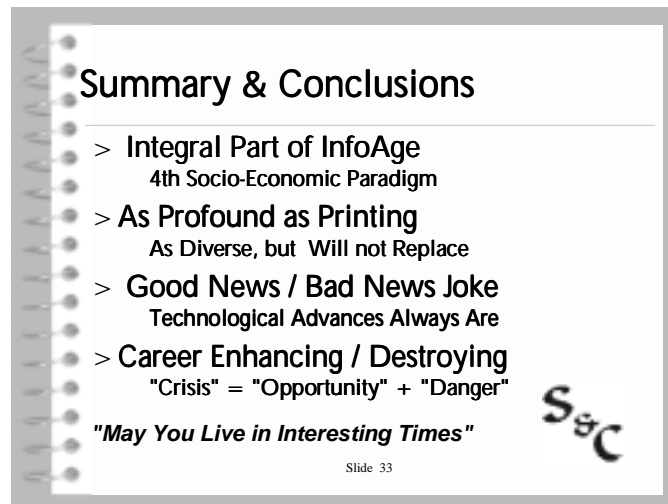
Art, Science, & Philosophy. It's amazing how consistent this all is. Renaissance art stressed a new perspective based on linearity. At the same time, printing took narrative linearity to its zenith; and only a century later, the very linear concept of progress took hold of the Western mind. I don't want to take this out of my milieu, but randomness, Chaos Theory, interactive art, and hypertext seem to have the same type of cohesion. (What's going to replace the concept of progress then? Beats me; evolutionists who accept the Chaos Theory have an answer, but I don't understand it.)

Determinism vs Free Will. Big computers (or concentrations of anything) are impersonal; personal computers are liberating. In addition, hypertext put the individual in some semblance of control. Will this have repercussions on the see-sawing debate between determinism and free will? It seems to me that it already has.

Religion. Some have said we need a new religion for the New Age, New Millennium. Not my field, except to note that no major religion has sprung up since the last millennium, nor since the beginning of the last New Age (the Industrial).

Thought. This is even more abstract, but maybe most important. Marshall McLuhan says how we receive info is as important as its contents. Previous communications have all been in one direction – chosen by the author or producer. Hypertext is immediate, tends toward scattered discourse, promotes active participation rather than passive reaction, and encourages individualism. This Brave New Thinker may differ as much from Industrial Thinker as the literate cavalry did from the oral Indian. Or as I did from the illiterate peasants whose floors I've shared. [McLuhan (*Medium*) – but read a summary instead.]

Summary & Conclusions. Really, its about half and half.



Integral Part of the Information Age. The InfoAge will reorganize society as much as the advents of agriculture and industry did. [Toffler (*Third Wave*).] – and hypertext is an integral part of it. The fact that the ages are getting shorter and more closely spaced doesn't mean they're less profound; it does, however, mean that there's more dislocation because the junctures are fault lines, not transition zones.

As Profound as Printing. In fact, hypertext is as much a part of this age as printing was of the last one; it will play a very similar role at the very center. Several people (Bill Gates among them) have said, with out qualification, that hypertext would affect society as much as printing has. But it will not replace print, any more than print replaced oral transmission: the topic of this session was hypertext, but the presentation has been oral, and the handout was printed. Even the electronic slides were linear; did anyone here change the order I set? Don't let the alarmists spook you; print will be fine.

Good News / Bad News. Every previous technological advance was supposed to save us from something. And it normally did, only to deliver us into a new host of problems. Hypertext provides immediate data retrieval – but exacerbates the attention span problem. It provides immediate feedback – but that includes irresponsible flames. Some people will prosper, others will fall behind. It can liberate or it can alienate. You can learn about two or three types of genital cancer with the same search phrases that kids can use to find porno. I firmly believe that hypertext is more good than bad; and that's a good thing, because it's here to stay.

Career Enhancing / Destroying. Print will survive and do fairly well – but there won't be enough well-paying jobs to support all tech writers who are not specialists or excellent stylists. Hypertext offers challenge, money, status and influence. And once you've got enough of those, it offers the awe of knowing that you're laboring in one of the major directions of civilization. The history written a century from now won't mention you, but it will talk at some length about what you accomplished.

May you live in interesting times