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FOURTH EDITION

RESEARCH STRATEGIES

FINDING YOUR WAY THROUGH THE INFORMATION FOG

WILLIAM BADKE

Research Strategies:

Finding your Way through the Information Fog

William Badke

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Research Strategies

Finding Your Way through the Information Fog

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See the Research Strategies Website for updates, live links, keys and teaching aid **https://sites.google.com/site/researchstrategiesweb/**

See the Research Strategies Textbook site for courses, syllabi, etc **http://acts.twu.ca/Library/textbook.htm**

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APPENDIX TWO – This Textbook and Information Literacy Competency Standards for Higher Education *(ACRL)*

Preface

Everyone does research. Some just do it better than others.

This book is definitely for you if you are:

- a university student whose term papers have been patented as a cure for insomnia;
- a Dilbert of industry who's been told to do a feasibility study on the expansion potential of ic cream bar sales in Nome, Alaska; or
- a simple honest person trying to find the truth behind the advertising so that the next car yo buy won't be like your last disaster-mobile, the car that made you *persona non grata* at th automobile association.

Are you ready for your next research project? Really ready? Do you have the skills and strategies get the job done efficiently and effectively without panic attacks and the need for a long vacatio when you're done? Do you have confidence that you can start with a topic about which you kno nothing and end with an understanding of it that is neither trite nor superficial? Are you prepared enjoy the experience? [Yes, I did say "enjoy."]

If the previous paragraph has left you feeling somewhat queasy, this book is for you. Even if yo think you have significant research skills, you can learn better ones if you take the time to read o You have the privilege of living in the information age, with boundless opportunities all around you find out anything about anything. But faced with a humongous number of Internet sites, not mention academic and commercial databases of increasing size and complexity, knowing how navigate through the information fog isn't something you can pick up easily on your own. Truth tell, research is telling us that most people have vastly higher opinions about their research abili than actual tests of that ability can demonstrate.

Yet you can hardly call yourself educated if you don't have really good skills in handling comple information systems and doing research effectively, not in a world in which most careers are bui more on what you can find out than what you already know.

Who am I to try to teach you about research? Just someone who has taught the strategies in th book to thousands of anxious university students, both undergraduate and graduate, for 25+ years, an who likes nothing better than to walk people through the information fog. I am Associate Librarian fo Associated Canadian Theological Schools and Information Literacy at Trinity Western University Being the author of a number of books and scholarly articles myself (see my bio **http://www.acts.twu.ca/library/badke.htm**), you can rest assured that I've devoted a lot of my life doing research and not just teaching it. So I understand what you're going through.

One caution: This book is about *informational* research. It won't teach you how to do a scien experiment or determine the best way to train a rat how to ride a bicycle (though it will help you do literature review). But if you need to identify a problem, and then acquire and use information address the problem, this book is for you.

Learning how to do research does not have to be painful. It can be fun. Honestly. Personall research gives me so much pleasure that my family has to kidnap me out of the library whenever the

want to go on an outing or buy groceries. You can have the same joy that I have. Read on.

Updates to the textbook will be posted a
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1.
Welcome to the Information Fog

At one time we thought we knew what information was. Now we're not so sure. These days we' buried in the stuff, and defining what is and what is not good information is getting to be more of challenge all the time.

Information is supposed to inform. That means it has to be reliable, relevant, current, and so o There was a time when people believed that, given the right information, we could solve any proble the human race encountered. They thought that the power of reason could be used in a totally objecti way to wade through all the data and come up with the right answers, even with the truth. Now we' no longer even sure what the questions are (and we can't remember last Tuesday).

To be sure, we've always known that some of what passes for information can't be trusted. That why we have law courts to determine the truth of a matter, though the best liar often wins.

We've come to understand over the past hundred years that information is colored wi subjectivity: What we know depends on how we interpret our information base. Even the best autho of information bring their own biases into the mix. Thus, for good or ill, we are no longer as trusti when it comes to interacting with information. It's like buying a Rolex from a man in an alley – might be a real Rolex coming from somebody down on his luck, but, unless you know Rolexes, yo could well be getting a knock-off.

I'd like to take a bit of time to trace the events that have led us to this place. Textbooks, after a are supposed to lead you on a nasty journey through history and philosophy-of-whatever before the get to the good stuff. But in the case of information, the next few pages really are essential to doi good research. Believe it or not, you need to understand our world of information if you want to c intelligent research within it.

1.1 Before there was print

Throughout the entire history of humanity, knowledge has been passed down from one generation t another. Before this was done in written form (and in preliterate societies today), ***speech a demonstration*** were the source of humanity's information – historical tales told around campfire children learning about agriculture by doing it with their parents, and so on. These were "tradition societies." I use the word "traditional" not in the sense of 1920s country music and picket fences, b in the sense of knowledge viewed as a *tradition* to pass down from generation to generation, for th very survival of the society.

Here's an example of why these kinds of societies need traditional information: When I lived for couple of years in Africa, people would point to this plant or that one and tell me, "You could e this." It happened often enough that I finally asked someone why it was so important for me to kno what plants I could eat. He explained that during the recently ended civil war, the people had bee driven from their city homes into the jungle. They were starving, because no one knew what w edible and what was deadly. Their ancestors had carried this knowledge with them, but these ci dwellers had stopped passing it on to their children, and the knowledge had died.

So the former urbanites, now living in the bush, cooked various plants and fed them to the chickens to see if the chickens would cluck or croak. And gradually they rebuilt their knowledge bas "We have decided," my friend told me, "that we must never again forget what we can eat, so that why we tell one another what is edible." Their traditions had meant survival to the society. If yo forget what you can eat in the jungle, one day you may have to choose between possibly poisonin yourself and starving.

Clearly, though, traditional information has to be reliable. Thus, in societies that depend on the traditions, knowledge is passed down only by people qualified to do so, and unregulated production new information is not encouraged. There is an emphasis within traditional societies on memorizin the information that exists rather than using existing information to create new knowledge. Th development of new knowledge in such cultures is a deliberate and slow process performed with ca and authorized only by experts in the existing tradition. Otherwise, the next plant you eat could we be your last.

1.2 Reading and inscription

The development of *written* language brought a number of changes to the world:

- Knowledge could be preserved in print, thus there was less of a need to pass it on oral (though the oral element remained important), let alone a need to memorize huge amounts information. Memorization continued, to be sure, but you didn't need to know everythin because it was possible to look it up if you had access to written documents.
- Since the knowledge base was more secure, people could pay more attention to discovery, thu hopefully adding to the knowledge base.
- The keepers of knowledge (i.e., the tradition experts who actually had the books) were mo elite than they had been in an oral society. Now only people who could read could stay close the tradition. What is more, there were few copies, because everything had to be transcribed b hand. Thus a small group of people in the society controlled the knowledge base, and the people (recognizing that knowledge is power) generally worked against the forces of discove (who tend to take the power away from the people who control the knowledge base). As long a access to documents was controlled, most people continued to rely more on oral tradition. Th full transition from oral to written cultures took many centuries.

1.3 The printing press

The Chinese actually invented the printing press centuries before the Europeans did (as was the ca for many things, including gunpowder), but it was the Europeans who used it to revolutionize the u of information in society. In 1447, Johannes Gensfleisch zur Laden zum Gutenberg (Gutenberg fo short) created a moveable type press, a development so revolutionary that the A & E Televisio Network in 1999 named him #1 in its list of "People of the Millennium." The printing press was suc a big deal because:

- From a "preservation of the tradition" standpoint, it meant that multiple copies could b produced, thus making the tradition more secure (previously, it would have taken only one matc lit by a careless monk to burn the single manuscript that had everything you needed to know sort of a medieval hard-drive crash of massive proportions).
- More people could actually get their hands on the knowledge base, thus creating a bette informed society that was not as dependent on oral tradition. The elitism of knowledge w

attacked as “holders of the tradition” found they no longer had an exclusive right to control wh
saw the knowledge base and who added to it.

- The possibilities of discovery were greatly increased, because so many more people had acce
to existing knowledge. It was thus much more likely that new knowledge would be built on th
foundation of the old.

The multiplication of knowledge in the centuries that followed, along with all the major discoveri
and inventions that make our lives what they are, owe most of their existence to the printing press. Y
there were pros and cons to this invention. The pros are obvious, the cons not as much.

First, on the con side, the printing press was only as useful as the population was literate. We a
still working on that problem.

Second, a new form of elitism developed, and whether it was good or bad remains a matter
debate. It came from the fact that production of new information depended on two things: brig
people to make the discoveries and money to publish their words. The bright people created th
elitism of universities and the money people determined what would be published and what would no

The money issue also put a limit on who could get his or her ideas into print. Publishers, wanting
be sure they didn’t lose their shirts, added “gatekeeping” processes to their requirements. Gatekeepe
ask two key questions: First, is the information worthy to be published? This is a value judgmen
usually based on level of scholarship or reliability or entertainment value, but sometimes based on th
aims of the publisher or the demands of the marketplace (thus the existence of romance novels
Second, will it sell? Many a worthy manuscript goes into the trash can simply because the publish
doesn’t think there’s an audience to sell it to. Alternately, there might be a small audience that has t
pay a large amount for each copy published (as with most scholarly books).

Gatekeeping is a good thing when it helps to preserve quality. No one wants our knowledge base
be filled with shoddy stuff that no one can trust (or so the wisdom of commercial publishing wou
tell us). On the other hand, gatekeeping has been used to censor valuable information, keeping it awa
from the very people who need it most. This has prevented perfectly good ideas from seeing the lig
of day, simply because someone viewed those ideas as unacceptable or there wasn’t a good market fo
them. Thus gatekeeping has often tended to maintain the status quo, because new, radical concepts a
not as sure to sell as the tried and true. On this, see Brian Martin, *The Politics of Researc*
www.uow.edu.au/~bmartin/pubs/98il/il07.pdf.

Certainly, people have always been able to self-publish material that the gatekeepers rejected, b
distributing self-published books is a tough game. Would-be buyers often ask, “If this is such a goo
book, why didn’t the commercial publishers want it?” Thus self-published material tends to stay mo
or less underground, though much of it is of high quality. More recently, print on demand and the ro
of several very entrepreneurial self-publishing companies has made it possible to produce your ow
book at minimal cost and without the need to stock thousands of copies in your basement. Thus sel
publishing of books is beginning to come into its own, so much so that we now find that there a
more self-published books on the market than there are commercially produced titles. Still, getting
self-published book into the hands of purchasers remains an uphill battle.

Along with the printing press has come development of the “subject discipline,” allowing people
specialize in particular fields of discovery. The idea of a “discipline,” a defined subject area with
which discovery is made, has its good points (the main one being the ability to focus narrowly
provide more depth of research) and its bad points (the main one being the separation of knowledg
into categories that don’t talk much with each other). But the fact is that most advancement
knowledge these days is done within disciplines.

What does that mean for people doing research?

- Each discipline has its own "language" which is more than just its technical words but als involves the ways in which that discipline communicates information. A historian has a differe mode of expression than that of a physicist (or an expert in the sex life of nematodes).
- Each discipline has its own method of doing research. While method, even in the humanitie has some connection with the scientific research process, there are distinct features that mal research in English literature different from research in Korean history or in the biology nematodes.
- Each discipline has its in-crowd, its elite group of highly regarded scholars. Knowing whi writers and which works are the most highly regarded is very important to doing research witho looking like an outsider.

1.4 Enter the World Wide Web

A revolution as revolutionary as that of Gutenberg has happened within our own generation – th creation of the World Wide Web, a popular subset of the larger Internet. In the short span of tim since the early 1990s, the WWW has blown the lid off much that we've known about informatio since the beginning of time. Why? Because it has pushed aside most of the boundaries that on prevented us from having all the information our knowledge-greedy little eyes could want.

It comes down to one basic fact – ***On the WWW, anyone can publish almost anything he or sh wants to say, without impediment***. Let me unpack this a bit:

- On the WWW, gatekeepers are no longer required. They still exist, and they still have gre value, but we can publish without them. Whether or not it's advisable to do so is another issu but for the first time in human history we can have our say without anybody stopping us. Th Internet, for good or ill, is the greatest vehicle for free speech the world has ever known.
- We can publish and acquire information at a level never before possible. The Web enables u to have access to so much, in fact, that we can easily be overwhelmed by it. As far as getting ou own message out, we have a potential audience that can number in the millions.
- What we lose (perhaps) is certainty. If anyone can publish on the WWW, we lose all th normal checks and balances that once kept the world from being inundated by nonsense. Th isn't a new problem, because even with gatekept print material, readers should always h exercising discernment. But we now have the challenge that, for a large portion of Web-base information, no one except the author has done any gatekeeping at all. This is a classic two-edge sword – if anyone can publish on the Net, then we have an amazing resource for freedom speech and the democratic way of life. The old elitism is gone. But it also means that ***we, th readers, have to become the gatekeepers to an extent never before seen.*** This demands that v enhance our evaluation skills.
- One more concern – if we are not careful in our gatekeeping, the whole concept of authori can disappear. What do I mean by "authority?" Simply the fact that every field of knowledge ha its experts, its powerful voices, its people who understand that field better than the rest of u because they have immersed themselves in it. We might normally be resisters of authority, bu the people who really know a subject area are assets we can't afford to ignore.

The WWW tends to level authority. A Google search presents the work of an expert in the fiel alongside a website produced by Mrs. Jackson's third grade science class. To fail to discern th difference is to miss the power of getting our information from people who really know what they a writing about. This is not to say that every great scholar is right all the time, but ignoring that schol

in favor of a website on the same topic from your uncle Frank is going to put you at a disadvantag
Right now, the average person selects the first five results from a Google search and does very litt
evaluation of their relative quality. For more on this, see the excellent article by MaryBeth Meszaro
"Who's in Charge Here? Authority, Authoritativeness, and the Undergraduate Researcher,
Communications in Information Literacy 4.1 (2010): 5-1
http://www.comminfolit.org/index.php/cil/article/view/Vol4-2010PER1/110. She has a bit of fun
my personal expense, but I forgive her.

Before you accuse me of being overly simple-minded (something I've heard a lot), let me point o
that it's not as "either-or" as I may have implied, so that you either love the Net or you hate it. Yo
see, the WWW is really less a content-provider than a ***vehicle*** for information, like, for example, th
phone system. Thus it is also used by publishers who still demand rigorous gatekeeping procedure
Commercial E-Books and scholarly articles are carried for a fee by the same system that provides
with a free copy of Aunt Bertha's remedy for lumbago. Many of these resources are part of th
"hidden" or "invisible" Internet (found behind password gates so that only authorized users can s
them), but they have as much of a home on the WWW as your cousin's jumpy YouTube video o
river-rafting last summer.

1.5 Information today – The state of the art

Let's look at some of the main sources of information today:

1.5.1 Books

Book publishing is continuing, with no hint of a slowdown in the process. The big story in recent yea
has been the rise of the e-book. To say that the years from 2008 on have been confusing for publishe
and readers alike would be an understatement. In a short period of time traditional hardcopy boo
publishing has been challenged like never before, starting with the creation of Amazon Kindl
followed shortly after by the Sony Reader, Barnes & Noble nook, Kindle 2, the iPad, numerou
Android tablets, and so on. I don't intend to spell out the wondrous features of each, but we need
understand what is going on here, if we are going to be able to make sense of the options a
opportunities facing the e-book future.

First, Kindle, then Sony Reader, Nook (now in color from Barnes & Noble), Kobo (Borders), et
introduced a fairly old technology called "e-paper" but in a new way. E-paper is not a LED screen (
in computers and cell phones), but something much more physical. Imagine a multitude
electronically charged particles squashed between a screen and a back plate. One type of charge w
make these particles move toward the screen, making them appear white. Another type of charge wi
move particles to the back plate, making them look dark. Thus, if you program a book into the syste
the particles get various charges that form dark areas and white areas – letters and background
making it possible to read words off the screen. The particles themselves are not light-emitting pixel
but real pieces of matter, so there is no glare.

One serious drawback of e-paper is that it is a lot like regular paper, thus unable to function like
screen on a phone or iPad. While some readers will allow you to do note-taking and highlighting, et
the e-paper book readers lack the ability to interact with the world of the Web the way an iPad ca
Nook's release of a color reader in late 2010, however, shows that e-paper technology is sti
advancing.

Another path to e-book success is typified by the Apple iPad, a tablet that uses LED technology b
offers more than static text devices that can do nothing much else. Similar products are the Blackber
PlayBook and several Google Android tablets. (Of course, by the time you read this, you'll be usi
iPad37, and there will be 532 similar products. Such is the speed of change in this area). The creatio

of these types of devices has paved the way for the so-called “enhanced e-book” that will embody, n
just text, but video and audio clips, even gaming.

Each of these readers has hung onto its own turf, making its own deals with publishers. Custome
buy books from the site related to whatever reader they are using and the site downloads those boo
onto their reader. While it is possible to transfer content from one reader to another, it isn’t easy. iPa
has moved in the right direction by not using its own format for the books it sells (as does Amazo
Kindle), but choosing a more widely available format called e-pub. This will make it possible for
books purchased from Apple to be read on any reader that uses e-pub format.

Then along came smart and savvy Google. Google, for many years, has been digitizing old book
creating digital copies of newer books (**http://books.google.com/**), out of which the famous Goog
lawsuit arose), and making plans to begin commercializing their operation. One result at the end
2010 was the creation of Google eBooks (**http://books.google.com/ebooks**), which like Kindle a
iPad, has made deals with publishers to sell e-book versions of published works. Google has its ov
Android reader software (manufactured by various companies), but Google eBooks can be read
whatever reader you own except Amazon Kindle (at least at the time I am writing this, though Goog
would welcome Amazon opening Kindle to Google eBooks). At this point, it is not clear how much
Google’s digitized repository of books will be made available.

All of a sudden the monopoly each reader had over its list of books to sell has been challenged by
site that will sell to almost any type of reader, from Nook to iPad. With Kindle not being included
the books sold by Google eBooks, it is clear that a Google vs. Amazon war for the e-book business
upon us. Amazon has responded that it intends to make its Kindle volumes available to any e-reade
What will count now is which vendor has the most books available to sell, and thus the best selection

Meanwhile Google Books continues to digitize large libraries of books, some of which a
deliverable to your computer for free, as long as they are not in copyright, and some of which Goog
will sell, in whole or in part, in electronic form or even as cheap paperbacks (what irony – you digiti
a paper book, then print it and sell it as a paperback). Aiding e-book to paperback production is th
Espresso Book Machine® which, somewhat like a snack food vending machine, will create
paperback book from a digital master on the spot for $8 - $1
(**http://www.ondemandbooks.com/hardware.htm**).

Large scale book digitizing projects are growing. Beyond Google Books, on a less commerci
front, the Open Library, which is devoted to free access to public domain (out of copyright) books an
to proper cataloging of them, has close to 2,000,000 books available for online viewi
(**http://openlibrary.org/**). The Open Content Alliance (**http://www.opencontentalliance.org/**)
quietly snagging key contracts to supply out of copyright and open access e-books to major librari
and library systems that are uncomfortable with Google’s growing control in the e-book market.

As of the end of 2007 (the last date for which statistics are available), the Universal Digital Libra
Million Book Project (**http://www.ulib.org/**), another non-commercial enterprise, with backing fro
Carnegie Mellon University and other groups, had 1.5 million book titles digitized. Items not
copyright are available in HTML, TIFF and a type of PDF format. Those under copyright offer only a
abstract. A significant feature of this collection is the number of Chinese, Arabic and Indian languag
titles in it. The Online Books Page (**http://digital.library.upenn.edu/books/**) offers over 35,00
books for free, though most are out of copyright and thus old. The Oxford Text Archiv
(**http://ota.ahds.ac.uk**/) offers several thousand carefully chosen books important to academic stud
One of the oldest enterprises offering free e-books is Project Gutenbe
(**http://www.gutenberg.org/wiki/Main_Page**) which has 30,000 titles of its own and offers 100,00
titles through its affiliates.

What about the grand dream that everything will one day be online for anyone to read? Well, I thi

you can put that one to rest alongside the story of the baby alligators, once dumped into the sewers
New York, that have become twenty foot student-eating monsters. Even if all the books in the wor
were digitized, the full text of anything in copyright would only come to you at a cost. Authors like
get paid, and well they should, because they are all wonderful people who deserve it. Thus it is futi
to believe that any book you want to have can be accessed electronically for free. Publishers don
want to give away their books any more than music producers want to give away their songs (thoug
book piracy may one day make a liar out of me). As well, many older books are not commercial
viable for digitization unless they end up in a project like Google Books.

Even with all these efforts, though, the e-book is still finding its way. Students, for example, sti
generally prefer a print textbook to digital one (though no textbook at all is first choice, sigh…). Don
expect that everything you need will soon be available to you electronically at home in the middle
the night while you're munching on a pickle and desperately trying to finish that research proje
before the doom of morning strikes.

There is another growing movement, fed by newer "print on demand" technology, which suppor
self-publication without the enormous cost and distribution problems that once existed. You can nov
for $1000 or less, publish your own book (even having it editorially reviewed) and have it distribute
through normal book distribution channels without the need to have 5,000 copies in your basemen
You can also publish e-book versions through such companies or through dedicated e-content website
like Scribd. Other than some editorial help, most such options have little if any real gatekeeping
them. Does quality suffer in the process? Possibly, though even without gatekeepers a lot of sel
published authors are putting out high quality material that traditional publishers did not consid
marketable.

1.5.2 Journals and magazines

The handwriting is on the wall for paper versions of scholarly journals, magazines and newspaper
Most scholarly journals now have electronic versions and offer subscribers the option to get
subscription in print or in electronic form. As the popularity of electronic versions grows (and
definitely is growing), more and more journals will begin appearing electronically only.

Does all of this electronic publishing diminish quality? No. Most scholarly journals continue to u
the gatekeeping process of ***peer review***, by which submitted manuscripts are evaluated by scholars
the subject discipline in order to determine whether they are worthy to be published. This is a ke
distinction between a scholarly journal article and what you might find through the average Goog
search. A website on a topic may be as electronic as the journal article on the same topic, but th
journal article has been evaluated by experts before it ever sees the light of day. Maybe those exper
were biased or missed something important (like faked lab results), but on average the peer revie
process does provide more confidence that the article is reliable than you would have from a websi
on the same topic written by your uncle Fred.

A serious challenge to the availability of scholarly journals has been price. The average annu
journal subscription can range from fifty dollars to the cost of a new Toyota Corolla. Only the maj
universities can afford a full range of journals, thus limiting who can get access. A number of publi
bodies that fund research have done a double take and said, "Wait a minute. If we fund the researc
out of public money so that scholars can publish articles (getting paid nothing for doing so) and the
publicly funded universities have to pay through the nose for the journals that present the researc
we've already paid for once, where is the justice in it all?" Thus, increasingly, funding bodies a
demanding that articles based on the research they have paid for must be made available online at n
cost a set number of months after being published in a journal.

This open-access journal movement is growing in opposition to the outrageous costs of scholar journals. Many new journals are being published directly online (after proper peer review) and a available for free to anyone who wants to read them. In this we have the best of the gatekeepi approach of traditional publishing and the free dissemination of information provided by the Interne For searchable databases of open access journals, go to Open J-Gate (**http://www.openj-gate.com/**) Directory of Open-Access Journals (**http://www.doaj.org/**). Cornell University has **arXiv.org**, collection of hundreds of thousands of papers in the sciences, computer science, and finance.

The pay/open access distinction may not mean much to you if you are a student in higher educatio because your institution provides the journals as part of those incredibly high tuition fees you pay. B unrestricted access to even more journals will increase over the next couple of decades due to the op access movement. The Compact for Open-Access Publishing Equity (COPE **http://www.oacompact.org/**) represents a movement within universities to provide scholars wi funds to publish their journal articles within open access venues, thus taking funds from expensiv journal subscriptions and using the money to support open access.

I am noticing, as well, that an increased number of scholars are self-archiving their publishe articles, putting them into their own websites. A good tool to find such self-archived material Google Scholar (**http://scholar.google.com**).

Despite this growing trend toward open access (free) journals, the majority of journals a magazines are not available full text through a Google search. Using a search engine on the N generally gets you a very different class of information than does using a journal database through a academic library database. That is why using a search engine for a large portion of your academ research will greatly limit your ability to do good work.

1.5.3 Government and corporate documents

Governments and other corporate groups continue to publish vast amounts of information. Due to t convenience of the WWW as a vehicle for such information, more and more government informatio is moving to an online environment where it is usually freely available. For directories to su resources, go to **http://www.lib.umich.edu/government-documents-center/explore/.**

1.5.4 The World Wide Web

We have already looked at advantages and dangers of the Web. Ongoing issues include use of the We for highly negative purposes (terrorism, child pornography, etc.), quality challenges which are reall evaluation skill problems, the need to catalog the more important websites in order to provide mo search ability, a demand for search engines that are more able to identify the information we mo need, and better instruction for users so that they can optimize the Web experience.

1.5.5 Web 2.0

Web 2.0 is really a concept rather than a defined area of the Internet. If you imagine the average we page to be a publication, a one-way communication from the author to the reader, Web 2.0 form those parts of the WWW that are interactive. We can include here blogs, wikis, RSS feeds, soci networking sites, forums, chat, messaging, e-mail, and so on. As a concept Web 2.0 doesn't mean to much unless we look at what it does for information.

Take the wiki, cool software that enables you to create web pages that others can edit. One scholar use for a wiki is in collaborative research projects where several people contribute to an article some other piece of writing. Another is embodied in Wikipedia, an online encyclopedia that is shape and revised by its users (and its smaller but more upscale cousin, Citizendium).

Blogs offer opportunity for one person to post ideas and others to comment on those posts. Forum

and chat enable two or more people to share information that can then be revised as the discussio proceeds. Social networking websites like Facebook, Twitter and Second Life are enhancin opportunities for people to group-think about information that is of interest to them.

The assumption within Web 2.0 is that connectivity and collaboration create better ideas and mak a better world than did one-way communication. This, of course, is not a new insight. Those pr literate people who recounted their history around the campfire so many centuries ago were doing th same thing, but without our technology. We need to be careful, however, not to put Web 2.0 abov Web 1.0 and traditional publishing as if collaboration gives our information an edge or credibility th one-way publication could not do. Certainly, a meeting of minds can often result in something bette but that is only the case if the collaborators actually know what they are talking about in the fir place.

Truth to tell, much of what you find on Web 2.0 is simply the same old shallow thinking you find i a lot of person to person conversations. Information is no more valuable than the ability of its autho to know something about their subject and to think well. One thing a researcher must guard against the assumption that because a number of people believe something, it is actually to be believe Shared opinion is not fact. To move to a level of certainty you can live with, you need to evalua information by acceptable standards.

If you want to see visions of the information world of the future, try these YouTube videos **http://www.youtube.com/watch?v=xj8ZadKgdC0** and **http://www.youtube.com/watch v=PY5hBd8_Q-E&feature=related** (Which I hope will still be there when you read this. If no search on **Prometeus, the media revolution**)

1.6 Primary and secondary information sources

Books and articles that come right from the context of a subject, straight out of the horse's mouth, s to speak, are *primary sources*. Books or articles that comment on subject areas but do not com directly from that subject area are *secondary sources*.

Here are some examples:

Primary	Secondary
Text of Homer's *Iliad*	A modern study of Homer's *Iliad*
A scientific report written by the researcher	Analysis of that researcher's experiment
Firsthand account by a witness of 9/11	Book on 9/11 by someone not there
Street person's account of street life	Analysis of research on street people
Text of the Trials of Galileo	Commentary on the Trials of Galileo

Your professor may well want you to consult primary sources on your topic. The key to figuring ou what is primary and what is secondary is to ask whether it is an eyewitness account, comes from th subject's time period, is written by a key scholar who developed the subject area, is a direct report o an experiment done by the author of the report, and so on. If so, you have a primary source. If not, yo likely have a secondary source. Secondary sources, in general, comment on, analyze or explain th material you would find in a primary source.

1.7 Warning - Not all information is informative

We live in a world in which there are many words. The sheer number of words we encounter every da is far greater than it ever has been in all human history. Some of those words come together in information that we can use. Others come together into nonsense. ***Not all information is equal.*** A you enter the information fog, there are signposts that can help you to discern genuine informatio from everything else that passes for the real thing. Ask yourself:

- What are the qualifications of the author of this information? (usually your best measure quality)
- Who else believes this?
- Has this information been subjected to some kind of peer review or other form of gatekeeping
- Are there vested interests at stake? For example, is that glowing description of the latest mp player actually authored by the person who wants to sell it to you and knows that you hav money?
- What are some good reasons for ***not*** believing it?

Get ready. We are about to enter the information fog. I hope you enjoy the journey.

1.8 For further study

Study guide

1. 1. How do traditional societies handle information?
2. 2. How did the invention of writing change the pre-writing methods by which a society handle information?
3. 3. Name several significant changes to the world of information brought about by the printin press.
4. 4. In the process of publishing information, what is “gatekeeping” and why is it significant?
5. 5. In what ways is the creation of the World Wide Web a “revolution” for information?
6. 6. What did Google eBooks do to open up e-book reading?
7. 7. Name some advantages of e-books. Can you think of drawbacks?
8. 8. What is peer review in journal article publishing?
9. 9. What is the open access movement and why was it seen as necessary?
10. 10. Where is the best place to find government documents?
11. 11. What are the advantages and limitations of Web 2.0 for information?
12. 12. Why is not all “information” actually informative?

2
Taking Charge

You may be saying to yourself, “I’ve never been good at this research thing. In fact, I don’t think have a good research project in me.”

My response is, “Of course you don’t. A good research project is *out there*, not inside you. Wh you have to do is get out there, find the data, work with it, and use it to make a difference.”

At this point, be aware that we are talking about a certain kind of research here, not the soci scientific or scientific research that involves experiments, but informational research such as you wi find in the humanities or in literature reviews in the social sciences and sciences. This kind of researc is all about data and information, its discovery and use.

Now, before you run off to a dark alley frequented by black market sellers of data, let me offer yo a safer alternative. What follows is a list of basic things that you need to have working for you order to turn your anxiety into a brilliant project, leading to an excellent product.

1. You need an intense desire to do a brilliant project, not just an average one. By definition, mo people can do an average project.
2. You need to take your time and plan your research as a *strategy* rather than as a mad das through libraries and databases. Google can provide you with a lot of resources, but Goog results have a nasty tendency to be academically weak. Libraries know when you have reache the panic stage. The books close ranks and refuse to be found. Titles in the catalog trade places s that you can’t locate them. The smell of musty books renders you numb and silly. Databases ca do even worse things to you (don’t ask).

Don’t panic. Take it easy. Work out a plan and show that data who’s in charge here.

3. You need to become a friend to structure. If you’re the kind of person who might follow you schedule if you could remember where you put it, or someone who views a library overdue fi as a reasonable price to pay for never having to think about a due date, research is going to be battle for you. Structure and organization, from the beginning of the process all the way to i triumphant end, is crucial, no matter how much pain it will cost you to change your ways.
4. You need to develop *lateral thinking*. Lateral thinking is akin to what happens in a footba game: The quarterback has no openings at all. If he runs with the ball, he’ll be flattened. S instead of moving forward, he throws the ball sideways to another player who can move forward. These are the steps:

- Recognize that your advance along one line is blocked.
- Abandon your approach and look for another that is completely different.
- Run with your new approach and make it work (or try yet another).

It's like the old story of the truck that got stuck in a highway underpass. No towing vehicle of an kind could get it out, and so the workers were left with the option of dismantling an expensive truck tearing down an even more expensive underpass until…

…until the light bulb went on and some bright lateral thinker suggested letting the air out of th truck's tires to *lower* it. Lateral thinking works beyond the obvious, in the realm of the creative.

Nurture this gift of lateral thinking within you. It will help greatly in that moment when all yo cherished strategies have failed you and you still don't have the information you need.

Here's an example: Suppose you were doing research on the legal trial of Galileo and discovere that every book with the texts of the verdicts against him was already signed out. Rather than thinkin that the library has let you down and you are doomed to wander the streets as a pathetic warning others, think beyond the library (a lateral) and check to see if someone has posted the verdi transcripts on the Internet (they hav **http://www.law.umkc.edu/faculty/projects/ftrials/galileo/galileo.html**). That's the sort of thinkin that can save you from the disaster which often lurks, ready to bite the unsuspecting.

2.1 Wrestling with a topic

"I have to write a research paper on California Gold Rush. Right now I don't know much about it, so better get into Wikipedia, then find two or three books. Hopefully it's not a lot of work to pu everything together, but I hope I have enough for ten pages. Seems to me that it shouldn't take th many words to explain what happened."

Oh, if I could only take the speaker of these words aside and explain a few things myself…

Do you know how many glaring errors I found in that one brief comment? The most serious one that our California Gold Rush, research-paper-writin' student is not going to end up with a researc paper, because reading up on a topic and explaining it is not research.

"What?" you say. "Not research? The student has a topic – California Gold Rush – finds some stu on it, and writes it up. If that's not a research paper, what is? Don't tell me it's not research."

All right, I won't. If I were a member of the tough-love school of thought, I would say somethin like this to you: "Go ahead and write your paper and retell the story of the California Gold Rush (a story your prof has read a thousand times in a thousand papers just like yours). Turn it in and wait fo your professor to read the thing and give you the usual dreary mark. Obviously, you don't like you prof anyway, and that's why you keep doing this to him or her. Professors are no strangers to the kind of boredom you inflict on them. In fact they're quite used to the tedious task of marking your essay You bore the professor, and the professor pays you back by giving you a C. Any illusion that yo actually did research will be dead by the time you get the essay back."

Not *ever* wanting to be as harsh as that, at least without providing some help, let me ask instea "What is good and useful research if it's not what you've been doing?" To answer, let's begin b looking at what it is not.

2.2 Elements of inadequate research

- Inadequate research assumes that the task is merely to gather data and synthesize it (the dat as-goal philosophy). Thus the typical student "research" project involves amassing data, readin and absorbing it, then regurgitating it back onto a fresh piece of paper (sorry for the disgustin image). The purpose of the project is simply to study up on something and then explain it, usin other people's writings as a guide.
- Inadequate research deals in generalities and surveys. It loves a superficial look at a big topi and it abhors depth and analysis.