Powerful literacies:

Why & how vasty knowledge matters more than ever

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Resources for this presentation

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title: Powerful literacies: Why & how vasty knowledge matters more than ever

abstract: We have created tools for the mind that require a certain level of literacy to use. But those tools are constantly evolving and changing even as the things they operate on change as well. This puts us in the position of having to understand the literate skills needed to operate these tools, to learn how to find tools, and to understand the substrate on which they work. Literacy in these days is not just reading and writing, but also understanding what knowledge tools are available, and how they can be used in interesting new ways. Literacy entails knowing about the world deeply, but then, it always has.

bio: Daniel Russell is the Ūber Tech Lead for Search Quality and User Happiness in Mountain View. He earned his PhD in computer science, specializing in Artificial Intelligence until he realized that magnifying human intelligence was his real passion. Twenty years ago he foreshore AI in favor of HI, and enjoys teaching, learning, running and music, preferably all in one day.
I had a problem...

Suddenly, my students were too ... \textit{facile}
Key points:

- Research attitude
- Informacy
- Meta-literacy
Tools of literacy...

- Didn’t change much for a long time:

  - Egyptian scribe’s palette and brushes ca. 1500 BCE
  - 18th century American quill pen
A quest to understand what “literacy” means...

- **Classical definition:** “able to read and write”
I think that’s woefully out-of-date.
Literacies

- By looking at usage patterns in searches:
  - Ocean
  - Kitchen
  - Legal
  - Information
  - Financial
  - Computer
  - Health
  - Statistical
  - Media
  - Social
  - Emotional
  - Scientific
  - ...etc...
And... a relatively recent concern...
Which of these can you read & write?

لا أتكلم العربية

我不會漢語

\[ b[A-Z0-9._%+-]+@[A-Z0-9.-]+.[A-Z]{2,4}\]

life←{↑1 ω ∨ . ∧ 3 4=+/,−1 0 1°θ−1 0 1°. ⊏ ⊆ ω}
BOARD_SIZE = 8

class BailOut(Exception):
    pass

def validate(queens):
    left = right = col = queens[-1]
    for r in reversed(queens[:-1]):
        left, right = left-1, right+1
        if r in (left, col, right):
            raise BailOut

def add_queen(queens):
    for i in range(BOARD_SIZE):
        test_queens = queens + [i]
        try:
            validate(test_queens)
            if len(test_queens) == BOARD_SIZE:
                return test_queens
            else:
                return add_queen(test_queens)
        except BailOut:
            pass
    raise BailOut

queens = add_queen([])
print queens
print '\n'.join(".*q + "Q" + ". "*(BOARD_SIZE-q-1) for q in queens)
Literacy: a changing and continuous concept...

- The ability to read and write in a symbol system

- Operationally defined with respect to your cultural group

- Has an assumed, associated body of contextualized knowledge

- ... knowing enough about a domain to be able to read, write, answer questions, and function critically in that domain...
Was Socrates illiterate?
Plato, on writing: (Phaedrus, 370 BCE)

“...[what] you have discovered is an aid not to memory, but to reminiscence, and you give your disciples not truth, but only the semblance of truth; they will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality...

.....and once [facts are] written down, they are tumbled about anywhere among those who may or may not understand them....
Literacy and technology...

- As we develop tools & technologies, we invent them, then they change us

- Reading and writing are technologies in use
  - We don’t think of symbol systems as technology, but they are
  - They establish the basis of inference, access, and retrieval
  - Alphabetization is an algorithmic indexing technology
Literacy #2: “how to use” indexed knowledge
BRUXELLES, le 30 mai 1939

A L'Institut International de Bibliographie
Palais Mondial - Cinquantenaire
BRUXELLES

Messieurs,

Vous nous obligeriez beaucoup si vous pouviez nous faire connaître quels seraient les ouvrages, revues et documents qui pourraient nous être utiles sur la publicité.

A vous lire, veuillez agréer, Messieurs, l'assurance de notre considération la plus distinguée.

LE DIRECTEUR
B. CONSULTATIONS PAR CORRESPONDANCE.

Le Répertoire Bibliographique Universel

Bibliographie des ouvrages sur les différentes sciences, papiers et documents importants et secrets des différents pays, dans cette bibliographie on se conforme aux lois, en se conformant à ceux qui comme il est dit plus haut, sont à tolérer la reproduction en plusieurs exemplaires, et par partie correspondants aux cahiers français des écoles, en tant que

Le Répertoire Bibliographique Universel.

Encyclopédia universalis Mundaneum, collections of the Mundaneum, Federation Wallonia-Brussels, Belgium.
The world IS different

Reader’s Guide to Periodical Literature
high technology industries

High tech - Wikipedia, the free encyclopedia
Jump to High-tech industries: Medium-High-Technology ... It can be concluded, that companies in a high-technology industry do not necessary ...
-Origin of the term - Economy - High-tech society - See also

[PDF] High-Technology Industries and Market Structure - School of ... 
people.ischool.berkeley.edu/~hal/Papers/structure.pdf
File Format: PDF/Adobe Acrobat - Quick View
by HR Varian - 2001 - Cited by 63 - Related articles
Sep 4, 2001 – tant in high-technology industries, such as personalization of products and pricing, versioning, bundling, switching costs, lock-in, economics ...

[PDF] Report]High-Technology Industries
www.thinkkentucky.com/kyedc/kpdf/high-technology_industries.pdf
File Format: PDF/Adobe Acrobat
High-Technology Industries Report. Introduction and Methodology. The Kentucky industry reports provide a list of facilities (with 10 or more employees) normally ...

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www.ftc.gov/be/workpapers/rdactive.pdf
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R&D Activity and Acquisitions in High Technology Industries: Evidence from the U.S. Electronic and Electrical Equipment Industries. Bruce A. Blonigen ...
LIFE BEFORE GOOGLE: A SHORT STORY

I JUST THOUGHT OF SOMETHING I'D LIKE TO KNOW MORE ABOUT.

THAT'S A DAMN SHAME.

THE END
Key idea: Informacy

1. Knowing what the information is... what/where/kind

2. How to use and interact with the information

- For example: What is an index? How do you use it?
- Can you filter it? Sort it? Visualize it? Query it? What operators do you have on the index?
Literacy #3: Find text

- Fundamental online reading skill
- Control-F / CMD-F / Edit>Find>
- Lets you find a piece of text in an online document very quickly

Find how long Beth Assuange took to run this race.
Study #1

Frequency (10-second buckets)  n = 85

Beyond 120 secs, 25% of answers are incorrect.
Study #2: How many people know Control-F?

- Survey of 2,225 US-English internet users:
  - 90.5% do **NOT** know how to “find” on a page

- Survey of 545 US-English internet using teachers:
  - 51.1% do **NOT** know how to “find” on a page

- Analysis of over 50K Firefox users (worldwide):
  - 93% have **NEVER** used the “find” command on a page
How knowing Control-F changes things

- Question: How many times does the word **behold** appear in the King James bible?
A Googler wonders...

C: What can I do to stop my phone’s volume from constantly changing?

B: I wish I could do that too!

Dan: Did you think about searching for an app for that?

A: How?
Search for app...

**Volume Locker | AppBrain Android Market**

[www.appbrain.com › All apps › Tools](https://www.appbrain.com)

5 stars 18 votes - Free - Android - Utilities/Tools

Get the Volume Locker Android app (⭐⭐⭐⭐½, 100000+ downloads) ⇒ This app helps ... Features: unobtrusive, auto-start, call friendly, multiple **volume lock**...

**VolumeLock - Android Apps on Google Play**


4.5 stars 101 votes - Free - Android

Jun 23, 2010 – Home Widget 1 x 1 block volume bar and **volume lock** ringer mode

lock **volume lock** v3.1 you can select a stream type for Android OS 1.6.
Dan’s request...

**Dan:** Wish I could do Control-F for more than one thing at a time....

**C:** Try doing a search for [Chrome regexp search]

“regexp” = “regular expression” – a language for specifying patterns to match in text files
Turns out, there is a regexp “Find” extension
French Airstrikes Counter Northern Mali Islamist Insurgency

French airstrikes sought to halt an offensive by Islamist rebels in northern Mali as west African nations pledged to send about 2,000 soldiers to oust the militants fully.

From France: 12/01/2012 Hollande tightens security in France after Mali, Somalia action

Opinion: AP Interview: UN chief says France, Senegal, Nigeria offer help to Mali to defeat ... Washington Post

Related Hollande » Mali » France »
You can ask impossible questions...

Where is this?
Search by Image

Search

About 235 results (0.52 seconds)

Everything
Images
Maps
Videos
News
Shopping
More

Search by image
Visually similar
More sizes

Best guess for this image: red rock canyon

Red Rock Canyon Interpretive Association
www.redrockcanyonlv.org/

Red Rock Canyon...This site is informational about Red Rock Canyon National Conservation Area and the Interpretive Association. 29 images

Red Rock Canyon SP
www.parks.ca.gov/?page_id=631

Red Rock Canyon State Park features scenic desert cliffs, buttes and spectacular rock formations. The park is located where the southernmost tip of the Sierra ...

Visually similar images - Report images
What kind of a caterpillar is this?
Informant skill: Search-by-Image

1. Drag the image into Image Search
2. Add a couple of keywords...
What you need to know:
Knowing cultural conventions : Genre/Media

- Home page
- Bookmarks page
- Product page
- Product reviews site
- Online textbook
- Web directory
- Open source project
- Draggable maps
- Online survey
- Online news
- FAQ
- DIY guide
- Vines
- Pintrest posts
- Photo gallery
- Calls-For-Papers
- API docs
- P2P listings
- 3D object viewer
- MMORPG
- Internet memes
- Readme.txt
- Lolcatz
- Pinboard site
- Video
- Spoof site
- Etc etc etc...
Spoof sites

The Pacific Northwest tree octopus (Octopus pacarbois) can be found in the temperate rainforests of the Olympic Peninsula on the west coast of North America. Their habitat lies on the Eastern side of the Olympic mountain range, adjacent to Hood Canal. These solitary cephalopods reach an average size (measured from arm-tip to mantle-tip,) of 30-33 cm. Unlike most other cephalopods, tree octopuses are amphibious, spending only their early life and the period of their mating season in their ancestral aquatic environment. Because of the moistness of the rainforests and specialized skin adaptations, they are able to keep from becoming desiccated for prolonged periods of time, but given the chance they would prefer resting in pooled water.

An intelligent and inquisitive being (it has the largest brain-to-body ratio for any mollusk), the tree octopus explores its arboreal world by both touch and sight. Adaptations its ancestors originally evolved in the three dimensional environment of the sea have been put to good use in the spatially complex maze of the coniferous Olympic rainforests. The challenges and richness of this environment (and the intimate way in which it interacts with it,) may account for the tree octopus's advanced behavioral development. (Some evolutionary theorists suppose that "arboreal adaptation" is what laid the groundwork in primates for the evolution of the human mind.)

Reaching out with one of her eight arms, each covered in sensitive suckers, a tree octopus might grab a branch to pull herself along in a form of locomotion called tentacle-pulling; or she might...
Spoof sites

Dihydrogen Monoxide FAQ

What is Dihydrogen Monoxide?

Dihydrogen Monoxide (DHMO) is a colorless and odorless chemical compound, also referred to by some as Dihydrogen Oxide, Hydrogen Hydroxide, Hydronium Hydroxide, or simply Hydric acid. Its basis is the highly reactive hydroxyl radical, a species shown to mutate DNA, denature proteins, disrupt cell membranes, and chemically alter critical neurotransmitters. The atomic components of DHMO are found in a number of caustic, explosive and poisonous compounds such as Sulfuric Acid, Nitroglycerine and Ethyl Alcohol.

For more detailed information, including precautions, disposal procedures and storage requirements, refer to one of the Material Safety Data Sheets (MSDS) available for DHMO:

- Kemp Compliance & Safety MSDS for DHMO
- Chem-Safe, Inc. MSDS for Dihydrogen Monoxide
- Applied Petrochemical Research MSDS for Hydric Acid
- Or visit DHMO.org - Material Safety Data Sheet
Knowing the conventions of the culture

- Knowing the language
  - Emoticons: :-) :P :-(
  - Acronyms: ROTFL, LOL, BRB, TTYL, POS, OOO
  - Terms / concepts: index, key, metadata, filters, sort, ranking...
Why you need to understand emoticons

Is it true that Rosa Parks would have moved to the back of the bus but she was listening to her iPod?

My sister is helping me with a class presentation but she likes to joke she says it is true. She also said Lincoln gave the slaves bus passes, but they thought it was a trick so just kept sneaking on the back like they do today?

1 year ago

Best Answer - Chosen by Asker

..... yeah it's true :P

1 year ago

2 people rated this as good

Asker's Rating: *******

Thank you, I'll put that in my report. I trust you you have the nicest avatar
What’s that funny word in the title?

GLENDOWER

I can call spirits from the vasty deep.

HOTSPUR

Why, so can I, or so can any man,
But will they come when you do call for them?

Henry IV, Part 1 (Act 3, Scene 1) 1596
Here’s the gotcha...

- It’s not just that there’s a lot, it’s also that there are great compendiums of topic information.
Here’s the gotcha...

- It’s not just that there’s a lot, it’s also that there are great compendiums of topic information.

- **Think of it this way:** Library of Congress is added each day... everyday... and the rate of acquisition is accelerating
It’s now 1 LOC/day/week
Every minute 100+ hours of video are uploaded.

3 billion videos watched every day.

70% of traffic is international.
Tools evolve
Tools evolve
Pizza
Categories: Pizza Restaurant, Pizza Restaurants
Sponsored Links
New York Pizza
Free Delivery. Call 650 344.3444
Home of the 24" King Kong pizza
www.newyorkpizza.biz
Palo Alto, CA
Patxi's Chicago Pizza - more info
441 Emerson St, Palo Alto, CA - 473-9399
***** 36 reviews - Write a review
"My family's from Chicago, so I know my pizza. I usually go to the Hayes Valley..."
Pizza My Heart - more info
220 University Ave, Palo Alto, CA
- (650) 327-9400
***** 17 reviews - Write a review
"I love Pizza My Heart's thin, crispy crust pizza. If you want a thick, ..."
California Pizza Kitchen - more info
531 Cowper St, Palo Alto, CA - (650) 323-7332
***** 19 reviews - Write a review
"It is CROWDED on Friday and Saturday evenings. Do not expect same level of ..."
New York Pizza - more info
325 Hamilton Ave, Palo Alto, CA - (650) 328-6800
4 reviews - Write a review - 1 coupon
"This thing was so huge it had to fold the slice in half. They make it with all ..."
Domino’s Pizza - more info
2400 Cambridge Ave, Palo Alto, CA - (650) 326-6552
1 review - Write a review
Spot A Pizza Place - more info
865 El Camino Real, Palo Alto, CA - (650) 324-3131
2 reviews - Write a review
"Pizza lives around. Definitely worth it when you're craving a delicious ..."
5 years... many changes
Key idea #3: Meta-literacy

- Knowing how to be literate about being literate....
  - *Literate = able to read, write, answer questions, and function in domain*

- That is, “being literate about being literate”

- Knowing what the UI is; that is, how to READ the UI
- Knowing how learn new topic areas
- Knowing what’s possible to ask / search / possible
Meta-literate: How do you read a tool?
Tools are evolving... rapidly
What’s possible to ask about the world?

- Just as you had to know what was possible in the card catalog, now you need to know what’s possible in the Google world...

- What can you query?
- What is possible now?
- What will be possible next week?
Google Goggles

- Visual queries about the real world
The evolution of asking questions

- A story about what you can ask...
The crowd chants wildly along with a piece of music. Unfortunately, there are no words. How do you find the music?
How do you search for something like this?
How do you search for something like this?
Find an aerial image of the Squire House before 1977

- N = 250
- Success = 0
- Time called at 7 minutes (420 seconds)
And the solution you should have known...
Meta-literacy

- ... is the skill of knowing how to be literate about your own information literacy...
What’s possible: Beyond genres... media kinds

- Web pages
- News streams
- News archives
- Patents
- Images
- Videos
- 3D-models
- Code
- Blogs
- Financial
- Public data
- Reviews
- Product data
- Maps
- Groups
- Magazines
- Scholarly papers
- Calendars
- RSS feeds
- Books
- Local info (geocoded events)
“Every man should have a built-in crap detector.”

Ernest Hemingway

From: Hemingway in Cuba, Atlantic, August, 1965
Change is constant / has been constant / will continue to be constant

- Searchers search for new kinds of things...
  - There are new kinds of things to search for
    - (real-time updates; social content; etc.)

- Tools & systems change to offer new capabilities

- There will be new media... and new properties of old media
And all of this is searchable in ways you might not have imagined...
Key idea #3:
This will continue to change and evolve
Informate: Use tools in unanticipated ways

What is the phone number of the office this image was taken from?
Now, which office are you in?

Search [google offices warsaw] to find that the information is at:
http://www.google.com/about/company/address.html

**Google Warsaw**
Warsaw Financial Center
Emilii Plater 53
00-113 Warszawa
Poland
Phone: +48 22 207 19 00
Fax: +48 22 207 19 21
Informate skill: Search for tools
opposite / adjacent = \tan(\Theta)

1.45 / 8.80 = \tan(\Theta)

1.45 / 8.80 = 0.1651

[ \arctan(0.1651) ]

[ 0.16362 radians in degrees ]

9.3749 / 0.27 = 34.7 minutes .... Or 7:39AM
BUT....

[ right triangle angle calculator ]
An important settlement for more than two millennia, by the late 12th century Paris had become a walled cathedral city that was one of Europe's foremost centers of learning and the arts and the largest city in the Western world until the turn of the 18th century. Paris was the focal point for many important political functions throughout its historical past.

Over a couple of millennia, by the later 12th century Paris experienced a turn into a walled cathedral city that has been considered one of Europe's main facilities regarding research in the disciplines, along with being the largest city in the western world until the turn in the...
And your students can use tools too...

Sample text
(from Wikipedia article on Paris)

An important settlement for more than two millennia, by the late 12th century Paris had become a walled cathedral city that was one of Europe's foremost centers of learning and the arts and the largest city in the Western world until the turn of the 18th century. Paris was the focal point for...
Lesson: Assume learning for all of your life

Power Searching with Google

Another live session of Power Searching with Google begins on September 24!

Register now to complete the course alongside a community of global participants and when the course begins you’ll receive:

- Access to community discussion forum
- The opportunity to put your new skills to test with mid and post class assessments
- Support from Google course staff
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<table>
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<tr>
<th>Course Code</th>
<th>University</th>
<th>Course Title</th>
<th>Start Date</th>
<th>Duration</th>
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<td>NEW 7.00x</td>
<td>Ludwig-Maximilians-Universität München (LMU)</td>
<td>Volcanic Eruptions: a material science.</td>
<td>Jul 23rd 2013</td>
<td>10 weeks long</td>
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<td>UT 2.</td>
<td>Ludwig-Maximilians-Universität München (LMU)</td>
<td>Introduction to Mathematical Philosophy</td>
<td>Jul 29th 2013</td>
<td>8 weeks long</td>
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<td>NEW UT 1.</td>
<td>The Museum of Modern Art</td>
<td>Art and Inquiry: Museum Teaching Strategies For Your Classroom</td>
<td>Jul 29th 2013</td>
<td>4 weeks long</td>
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<tr>
<td>NEW UT 4.</td>
<td>Wesleyan University</td>
<td>The Modern and the Postmodern</td>
<td>Jul 29th 2013</td>
<td>14 weeks long</td>
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<td></td>
<td>Johns Hopkins University</td>
<td>Mathematical Biostatistics Boot Camp 1</td>
<td>Jul 29th 2013</td>
<td>7 weeks long</td>
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<tr>
<td>ET 30</td>
<td>Stanford University</td>
<td>Practical tips to improve Asian American participation in cancer clinical trials</td>
<td>August 2013</td>
<td>11 weeks long</td>
</tr>
<tr>
<td></td>
<td>Columbia University</td>
<td>Virology I: How Viruses Work</td>
<td>Aug 1st 2013</td>
<td>11 weeks long</td>
</tr>
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Desiderata

- We **NEED** to understand information content—how it’s organized and what is possible

- We **NEED** to emphasize these skills in our students and in ourselves...

- We **NEED** to become a meta-literate people... and plan to continually develop these skills going forward
What’s changing, really?

… the world we live in, the tools we use, and the information space we inhabit IS changing.
WE are in the business of making information into something people truly, and deeply understand.
WE are in the business of making information into something people truly, and deeply understand.

WE need to become informate / meta-literate users of information.
WE are in the business of making information into something people truly, and deeply understand.

WE need to become informate / meta-literate users of information.

WE need to build the best next generation tools that make information use simple, easy, fast and precise. Who has time for slow/low-quality content?
...Tomorrow’s illiterate will not be those who cannot read and write, but rather those who cannot learn, unlearn, and relearn...

Alvin Toffler, *Future Shock* (1970), remixed slightly...
WE need to teach our students what’s possible, what’s best, why, and how.
Schools are critical institutions in moving the culture forward into a rapidly evolving new age of information.
One last story... Armando

Dear Grandma,
I miss you. I love you!
Armando

Translation: English » Spanish
Querida abuela,
Te echo de menos. Te quiero!
Armando
end

G+: Google Online Courses
My blog: SearchResearch1.blogspot.com
Sign up for live classes: bit.ly/GoogleSearchClassList
My web site: bit.ly/DanHome