Cure For IKIA Syndrome?

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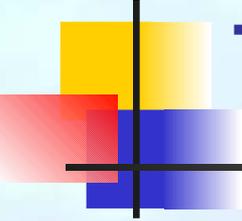
The Problem

- Today's students (the "Millennials") have integrated technology into every aspect of their lives.

- They think they already know how to retrieve useful information—the "I Know It Already" (IKIA) Syndrome.

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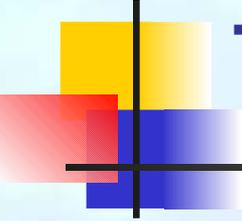
The Problem

- IKIA Syndrome is often compounded by:
  - They are not graded on their library skills.
  - They don't see library skills as relevant.
- Our efforts are hampered because we don't know what they don't know.

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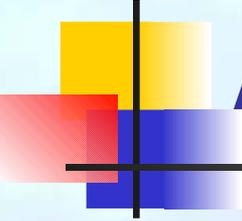
A Solution

- Create a learning crisis for the students.
  - Give them an information-seeking assignment *before* library instruction.
- Base library instruction on the outcome of the crisis.
  - Assess results of instruction through an other assignment.
  - Optionally, conduct a second instruction session based on assessment of the first.

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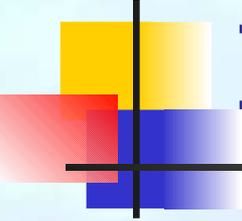
Implementation

- Working with faculty in the Department of Civil, Architectural, & Environmental Engineering (CAEE), we integrated 3 assignments & 2 instructional sessions into CAEE 100 during the fall semester of 2007.

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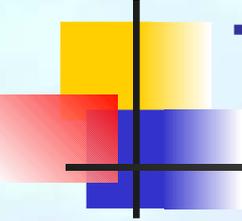
The Crisis

- A graded paper, requiring the use of basic research skills, was assigned *before* library instruction took place.

- Librarians created the assignment & were responsible for grading it. No class time & little faculty involvement required.

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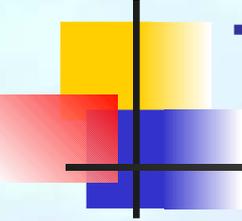
The Crisis

- Assignment consisted of 3 parts:
  - The actual research question.
  - A log of the student's research processes.
  - Reflection on the research experience.
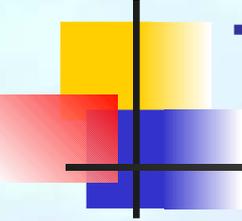
The Crisis

- Topic chosen for this class: engineering failures.
  - Relevancy to students.
  - Google produces too many or too few hits.
  - WWW sites of limited use.
  - Individual failures not typically searchable by name in OPAC.
  - Create frustration.

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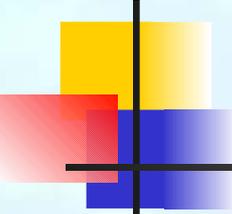
The Crisis

Hartford Civic Center Arena Roof Collapse (1978)
Allstate Arena (Rosemont Horizon) Roof Collapse (1979)
Hyatt Regency Kansas City walkway collapse (1981)
Boston "Big Dig" Tunnel Ceiling Collapse (2006)
New Orleans Levee Failures during Hurricane Katrina (2005)
Space Shuttle Challenger disaster (1986)
Lincoln Park (Chicago) Porch Collapse (2003)
L'Ambiance Plaza collapse (1987)
Philadelphia Pier 34 Collapse (2000)
World Trade Center Collapse (2001)
Schoharie Creek Bridge Collapse (1987)
St. Francis Dam Failure (1928)
Teton Dam Failure (1976)
Quebec bridge collapse (1907-1916)
South Fork Dam failure & Johnstown Flood (1889)
de Havilland Comet crashes (1952-1954)
La Torre di Pisa (1173-1373)

Tacoma Narrows Bridge failure (1940)
R.M.S Titanic (1912)
Cave Creek disaster (1995)
Dee Bridge failure (1847)
Kemper Arena roof collapse (1979)
Boston Molasses flood (1919)
Iroquois Theater fire (1903)
Silver Bridge collapse (1967)
Beauvais Cathedral collapse (1284)
Aloha Airlines Flight 243 (1988)
Ford Pinto design problems (1970s)
Tay Bridge collapse (1879)
Willow Island WV cooling tower collapse (1978)
Chernobyl Nuclear Power Plant accident (1986)
Bhopal chemical plant disaster (1984)
East Chicago IN highway ramp collapse (1982)
Mianus River Bridge collapse (1983)
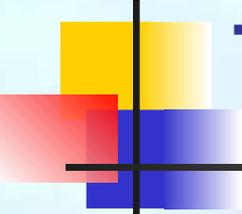
The Crisis

- *20 points:* Keep a detailed log of your research process. Include the decisions you made along the way and *why* you made them in relation to how you went about finding your information—what kinds of resources you used (books, websites, magazines, other people, TV shows, etc.), how many relevant and irrelevant results you got, how long it took. Include anybody you asked for help (teachers, friends, classmates, librarians, strangers on the bus...), and the search terms you used in on-line or library searches. Don't avoid being honest about getting stuck or confused—this portion of the assignment will be evaluated according to the depth and detail you provide in documenting your search *process*.

- *15 points:* Summarize, in 1 – 2 pages, the engineering disaster you researched. Include a bibliography of the sources you used.

- *25 points:* Write one or more pages reflecting upon your experience searching for information. The focus is not if you were successful. Instead, describe what proved predictable and what surprised you. Did you find any part of the process particularly frustrating and *why*? What aspects or features of the research tools you used (e.g. Google) did you like or appreciate the most or the least and *why*? Did you have trouble finding enough information or was there too much information to filter through? Did the information seem relevant to your needs? Again, this portion of the assignment will be evaluated on the depth of description provided, reflecting on your perceptions of the experience (not the why and how which is addressed in Part 1.)
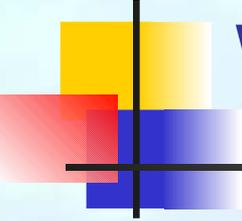
What the Crisis Showed

- To the extent that the goal was to make the students aware of what they didn't know, it was successful.
  - Students found that the research process was different than they thought it would be.
  - Many assumed their difficulties lay with the library or the resources, not their skills.
  - They recognized that they didn't know it already.

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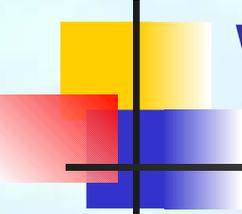
What the Crisis Showed

- Use of the Library
  - 89% used a library.
    - About half of these used their local public library.
    - 3 students did not use the university library at all.
    - 36% say they had a positive experience.
    - 28% mention it being less than helpful.
  - 40% used it first (prior to internet resources or a person).
  - 53% mention asking for help- greater than one might expect?
    - 32% were pleased with the help they received.
    - 20% were less than satisfied with staff response.

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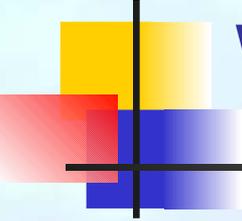
What the Crisis Showed

- Recurring themes:
  - Those who were assisted may not have been assisted by a librarian even though the student assumed so.
  - If they couldn't find it, they assumed the library didn't have it.
  - Thought their assignment was a success but frustrated by the library.
  - Even though they seemed pleased with the help they received, a significant number were frustrated in general.

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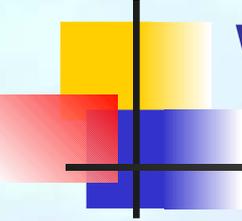
What the Crisis Showed

- Using the catalog
  - 57% mention using the catalog.
    - several mention using the library search engine?
  - 18% use the catalog before any other resource (Google, Wikipedia, a person).
  - 36% mention being frustrated or disappointed.
  - 16% had a positive experience using the catalog.
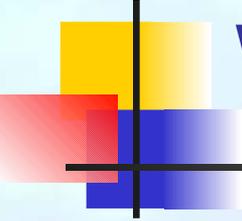
What the Crisis Showed

- Recurring themes-
  - Even if students found something that appeared useful at first glance, it often turned out not to be relevant.
  - All searched using only the topic terms given in the assignment.
    - Name of specific failure, not more general concepts.

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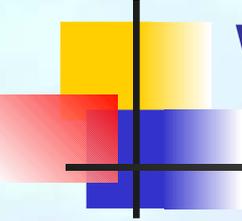
What the Crisis Showed

- Databases
  - 61% mention using them.
    - Terminology sometimes made this unreliable so only when it was clear they had used an actual database versus the catalog was it counted.
  - 50% of these mention being introduced to the databases by staff.
  - 73% had a positive experience using the databases.
  - 25% were really blown away by what the databases had to offer.

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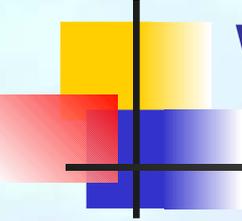
What the Crisis Showed

- Recurring themes
  - Confusion between search engine, database and catalog.
  - Said they wanted to learn more about the databases!
  - Searched only by the name of the specific failure.

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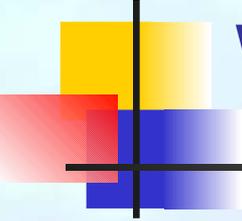
What the Crisis Showed

- Google
  - 80% used Google first (no big surprise here).
  - A few did not use Google at all.
    - in these cases they state their surprise.
    - it seems these people were being assisted by a librarian early on.
  - Of the many that did use Google more than several mention:
    - being overwhelmed by the number of results.
    - disappointed by the lack of results or relevant results.
    - concerned about reliability.
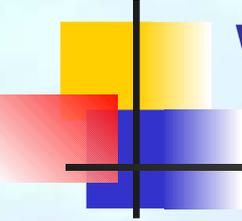
What the Crisis Showed

- Wikipedia
    - 44% reported using it.
    - 16% used it first.
    - Only 54% of those who used it found it helpful.
    - 22% mention reliability as an issue.
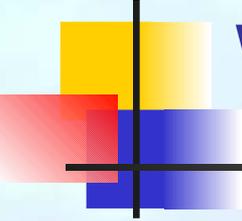
What the Crisis Showed

- Recurring themes
  - Students were aware of the unreliability of web resources such as Wikipedia, but used them anyway.
  - They were able to distinguish biased & sensationalized sources.
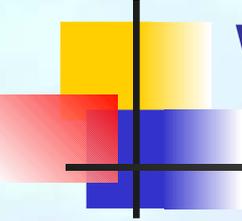
What the Crisis Showed

- Other people: friend, sibling, parent, Facebook
  - 5% consulted other people (not counting librarians or faculty) for facts or assistance.
  - About half of these consulted a friend or family member first in their research process.
  - One student put a query out to 20 people in their Facebook contacts: only 2 responded but without helpful information.

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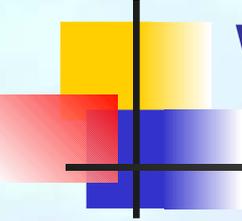
What the Crisis Showed

- Consistent themes regarding the assignment from the reflections.
  - Realized didn't know where/how to start even if familiar with libraries in general.
  - Assignment took much longer than anticipated.
  - Thought they knew "how things would go" but this was not the case.
  - Several said they were glad to have this assignment because they had no idea research would be like this .

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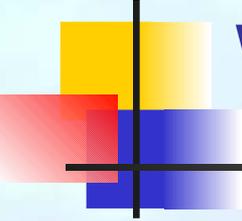
What the Crisis Showed

- Consistent themes regarding the assignment from the reflections (cont'd)
  - Most put together decent bibliographies- however the Wikipedia entries don't include the author(s).
  - Some mention results from the various search tools being too broad or too narrow and recognize they don't know what to do about it.
  - Overall lack of considering alternate vocabulary regardless what resources they were using.
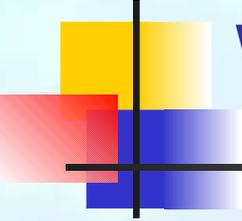
What the Crisis Showed

- Students were not familiar with technical information or technical writing.
  - In many cases they complained that all the sources they found said the same thing.
  - They tended to concentrate on the human, legal, or sensational aspects of the failures.

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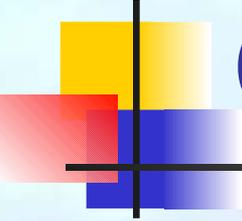
Our Response

- Instruction was targeted to address students' frustrations & not cover what they already knew:
  - Emphasize searching library resources.
  - De-emphasize evaluating web resources.
  - Discuss the nature of technical information.
  - Discuss the use of web resources to get a feel for a topic.
  - How to broaden & narrow searches.
  - A research example: collapse of the Harbour Cay condominiums
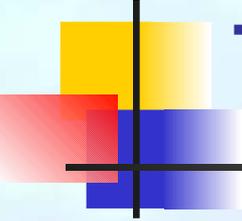
The 2ⁿᵈ Assignment

- As a second assignment, the students were asked more specific questions about their failure.

- Again they were asked to keep a log & reflect on their experience.

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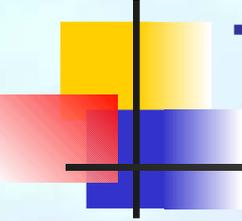
The 2nd Assignment

1. 20 points. Write a one paragraph summary of the failure focusing on the aspects of the structure or system's design, construction, or use that led to its failure. Answer as many of the questions listed below as you can as part of your narrative. Be sure to document the sources you use to find this basic information.

   - Is this failure still being investigated? Is it still being studied?
   - Did an individual component fail, or did many different factors contribute to the failure?
   - Did bad design or faulty construction cause or contribute to the failure?
   - Are any specific types or modes of failure mentioned or discussed? If so, name them.
   - Was the structure or system being used appropriately when it failed? Was it being used beyond its design limits, either intentionally or accidentally?
   - Had the system or structure been modified from its original design, either during construction or after it was built?
   - Had it been properly maintained and/or repaired?
   - Was the design so advanced that factors not previously considered or even known about contributed to the failure?
   - As a result of this failure, were engineering practices changed?
   - Did the failure result in an advance in knowledge or theory?

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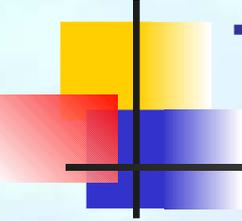
The 2ⁿᵈ Assignment

1. 20 points. Find three (3) books and three (3) scholarly journal articles that appear to be relevant to your failure. Print out the catalog records for the books & the citations and abstracts for the articles. To be relevant, the books or articles should:
   - analyze or discuss the engineering or technical aspects of the specific failure, OR
   - discuss or describe in general the type or mode of failure that occurred (or one of the types if more than one was involved), OR
   - describe in general the proper design or construction methods for that type of structure or system, OR
   - list or describe the properties of the material(s) that failed or contributed to the failure.

   One of the books must be available in the IIT library, one in I-Share but not IIT & one in WorldCat but not in I-Share. All of the articles must be located using one of the library's research databases or indexes.

- 20 points. Write one or more pages reflecting upon your experience searching for the information you needed to complete parts 1 & 2. The focus is not if you were successful. Instead, describe what proved predictable and what surprised you. Did you find any part of the process particularly frustrating and *why*? What aspects or features of the research tools you used (e.g. Google) did you like or appreciate the most or the least and *why*? Did you have trouble finding enough information or was there too much information to filter through? Did the information seem relevant to your needs? Did the resources and techniques covered in class help? Again, this portion of the assignment will be evaluated on the depth of description provided, reflecting on your perceptions of the experience

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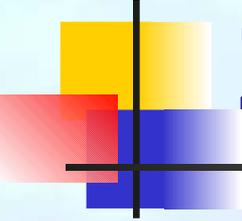
2nd Assessment

- 100% used the university library
- 98% were able to find books and journal articles related to their topic.
  - Book chapters on their specific failure.
  - Books and articles on related topics.
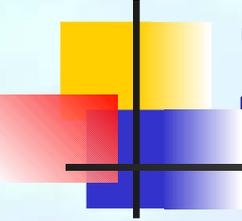
2nd Assessment

- Nearly all students remarked that attending the session made the research process easier or take less time.
  - Since students could predict this was a desirable response this is probably not a reliable measure!
- 57% describe one or more specific concepts introduced in the first instruction session.
  - More than half of these describe transferring a concept or tactic from one tool to another or gathering information from one source that informed how they continued their search in another.

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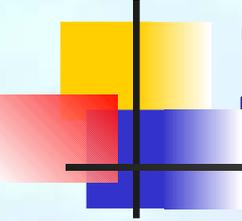
2nd Assessment

- 14% had some kind of complaint – some of these were useful feedback, some just whining that they had to do "the same thing twice."

- 40% described in detail how surprised they were that they found researching easier after the instruction session and the resources they didn't imagine were available or even existed.

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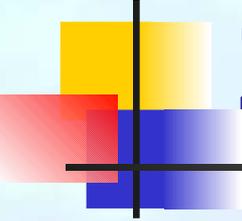
2nd Assessment

- Recurring themes
  - Repeatedly mentioned that gathering keywords and using searches other than "title" made things easier.
  - Now know where/how to get started.
  - Knowledge of databases.
  - Breaking down information for component concepts (as fundamental as "steel beams") to move forward in their research process

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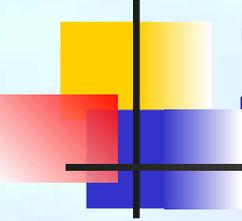
2ⁿᵈ Assessment

- Recurring themes:
  - Used information found in the bibliography of one source to look for other relevant resources.
  - Found fewer results but most of these results were more relevant.
  - Many still expressed frustration with library.
  - Some still complained that the research process was harder and more time consuming than they anticipated.
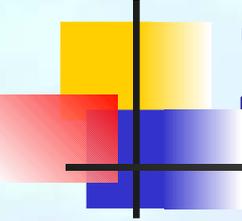
2nd Assessment

- Unexpected comments from students
  - A number of students commented that starting out on the second assignment they didn't think the session would make a difference but then they were quite pleasantly surprised.
  - Some students stated that it didn't occur to them that they would need to do this kind of research, then described transferring their new skill to an other context.
  - Writing about how they felt more confident finding what was needed AND asking for help
  - Many students remarked with surprise that they didn't need to use Google, of these several mention that this was a relief because sifting through all the results took so long.

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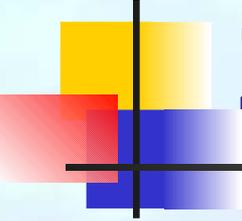
2ⁿᵈ Assessment

- Unexpected comments from students
  - One satisfying reflection, an example of detailed description giving evidence of acquired new skill and awareness:
    - "something else that surprised me was how slow the researching began in the start of the researching process. When I had researched for the first library assignment, I had started out quickly using Google, and the slowed down once I started looking for valid resources. In this situation (the second assignment) I began slowly while navigating through the different databases, and then I sped up once I found a database I like, such as EBSCO. There seems to be an inverted learning curve this time compared to my research process for the first assignment."

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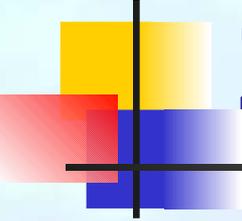
2nd Assessment

- A second instruction session was held to review basic search techniques & cover some more advanced topics.

- At the request of the professor, patent searching was incorporated in this session.

- A third assignment was given to directly test students' skills at using library resources.
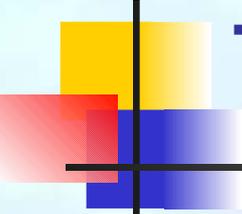
The 3rd Assignment

- 20 points. When we discussed the collapse of the Harbour Cay condominium building in class, we found that something called "punching shear" was a contributing factor. If we want to learn more, there's an organization called the American Concrete Institute that publishes some important journals about concrete construction and concrete structures. One of these journals is called the *ACI Structural Journal* and it has included articles about punching shear several times. How many articles can you find that have been published in this journal with *punching shear* in the title? Using all three of these search tools – COMPENDEX, CSA, and Google – answer the following questions:
  - Are you able to find ONLY articles that were published in *ACI Structural Journal* with *punching shear* in the title?
  - What search terms gives the best results for each search tool?
  - How many articles did you find with each search tool that were published in *ACI Structural Journal* and have *punching shear* in the title?

Hint: the jargon for looking up the name of the journal isn't always as obvious as using "author" for the name of the author. COMPEDEX uses "serial title" while CSA uses either "journal name" or "source."

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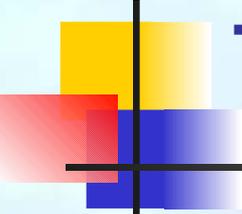
The 3rd Assignment

1. 20 points. In class, I talked a bit about the technology Google.com uses to find & rank websites. If their technology was truly unique and special, we would expect that Google.com has patented it. Using either the U.S. Patent Office (http://patft.uspto.gov/netahtml/PTO/search-bool.html) or Google patents (http://www.google.com/patents) answer the following questions.

   - How many patents does Google.com hold?
   - What search query did you use to find Google.com's patents?
   - What search query would you use to find patents Google.com holds that are specifically about ranking?
   - How many patents does Google.com hold on ranking?

   Hint: patents have their own distinct jargon. Under patent law, only a person— not a company—can be the author or "inventor" of a patent. A company that holds a patent is known as the "assignee." In Google patents, the "advanced search" option works best.

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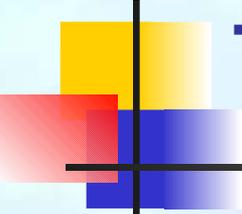
The 3rd Assignment

1. 20 points. A friend of yours in another class is trying to find some articles but she's having trouble. Her professor told her to read two articles written by David McCullough about U.S. naval history, but he couldn't remember the titles of the articles. He did say that both of them could be found in the library's "Academic Search Premier" database. Since you learned how to do effective searches in CAE100, your friend knew she could count on you for help. The search she tried is shown in the attached printout.

   - How would you advise your friend to change her search query?
   - Attach a printout showing the search query that returns exactly the two results your friend was looking for.

   Hint: the author's name is spelled correctly.

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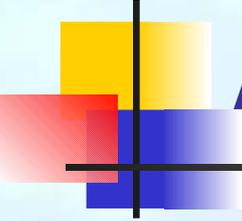
Assessment

- All students were able to successfully complete this assignment

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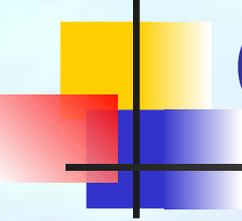
Conclusions

- It worked! This format encourages students to pay attention, potentially curing the IKIA syndrome.

- In this particular instance we were working with an ideal faculty member, but the evidence from the assignments was so compelling we think that one supportive faculty member could seed an organic response over time.

- Although multiple sessions would be ideal, one-shot instruction will also work.

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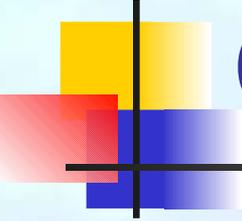
Conclusions

- Faculty participation:
  - At a bare minimum faculty must make at least 2 assignments part of the course grade; assignment #1 needs to be distributed and returned for grading prior to library instruction
  - Faculty need to make time for preliminary planning to ensure that the assignment is relevant to course work.
  - Investing time to collaborate outside of class with the librarian(s) may serve for more than one semester. Hopefully since the librarian is taking time to create and grade the assignments, faculty will find the trade off attractive.

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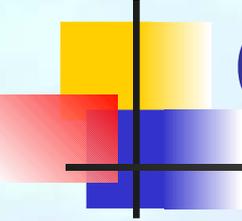
Conclusions

- Librarian planning: time, time, & more time...
  - Time to meet with faculty and see how we can mold to whatever degree pragmatic to particulars of the course and serve the students well.
  - Time to isolate and confirm sources available when creating the criteria for assignment #2 since assignment #2 confirms to some degree that they have exercised a set of skills and become familiar with library resources.
  - Time (and obviously it's significant) to read through all those assignments – not only to grade them but to capture any other useful information.

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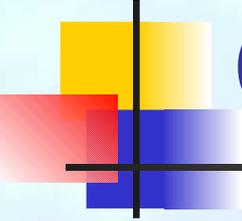
Conclusions

- **Assessment and evaluation for both parties**
  - Student frustrations were generally predictable, however some of their responses inform ways we could serve them better.
  - A few examples:
    - It was difficult for students to differentiate between different digital tools on the website.
    - Students have no way of knowing if the person assisting them is a librarian unless they ask.
    - Students mentioned how the first instruction session included too much information.

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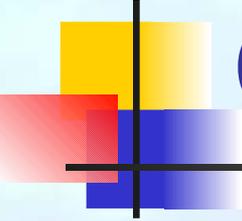
Conclusions

- Biggest issues for the students:
  - Don't know how to start.
  - Rarely did it occur to students to gather and combine different terminology related to their topic.
  - Rarely did they transfer something identified as helpful in their search process from one tool to another .
  - Unaware of interlibrary loan and the amount of time it may take.
  - Journal articles are not available via the catalog.
  - The needed information may not be neatly packaged in one item.

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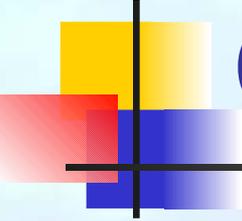
Conclusions

- Things we would we do differently:
  - In a two assignment / one session environment, simplify the sencond assignment so less material need be covered in the instruction session.
  - Given the three assignment / two session approach, we would likely switch the order of the 2nd & 3rd assignments. This would allow us to cover less material in the first session.

Questions?

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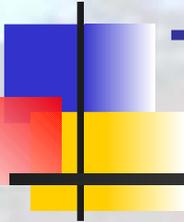
Thank you

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