DISCOVER, RETRIEVE, FORAGE, RECAPITULATE: INTEGRATING MODES OF LIBRARY RESEARCH

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ABSTRACT

In an earlier paper (2006) the authors outlined a hypothetical model of the literature-search process that distinguished two modes of knowledge acquisition: discovery and retrieval. Taking issue with the one-dimensionality of conventional discussions of information literacy, it was argued that student research, and learning more broadly, is distorted insofar as the move to online information sources isolates information from the physical, spatial, and human cues that help searchers *frame* and meaningfully *integrate* the information they gather. Without the framing provided through what are termed the "discovery mode," research tends either to become excessively grounded in accepted, all-too-narrow venues of knowledge on the one hand, or it tends to be scattered across amorphous knowledge fields with little if any concern for what links them together and why. This paper distills the hypothetical model as a diagnostic tool, describing how the authors – one a librarian, the other a professor – designed and implemented a research assignment in a senior seminar in international studies. Mindful of the two tendencies, library instruction sessions were designed that addressed issues of content searching and emphasized the virtues of depth and breadth of the research process. Scaffolded assignments were introduced and time in every class session was given over to discussions and exercises expressly concerned with questions of intelligent knowledge acquisition. The paper includes discussion of the authors' assessment techniques and findings from an earlier and a newer iteration of the same seminar.

INTRODUCTION

The authors last year presented a hypothetical model which explained how researchers acquire information that focused on two modes of information acquisition: discovery of information previously unknown to them, and retrieval of information the existence and contours of which, at least, were fairly well known. We argued that the dramatic move over the past decade by information providers as well as researchers privileging *online* resources, relying on the idea of speed and ease of information retrieval, was short-sighted. Moreover, we argued that the shift from print to electronic sources was likely to work against the development of "critical

enlightenment"[1] in two, outwardly paradoxical ways: it risked reinforcing disciplinary norms by raising the opportunity cost of entering other, unfamiliar domains or disciplines of knowledge, yet it would also induce promiscuous foraging for information across many different domains without reflection upon the nature of the content in different, sometimes unfamiliar fields of knowledge and how this impacts the outcome of research. Therefore, we reminded instructors and librarians of the importance of providing specific cues and skills that help to establish how information is organized in larger frameworks of meaning. Information is sometimes arranged to facilitate *retrieval* of what is approximately known – good in its own right, and necessary to efficient, effective research. However, sometimes it is arranged to facilitate the *discovery* of something new, and to lead the scholar into unfamiliar fields where different meaning parameters apply.

This paper presents a more developed version of the model we earlier hypothesized and theorized. Specifically, it explains a case study of the model's practical implementation as part of a core assignment in an interdisciplinary seminar for seniors in International Studies major at Virginia Tech. More than a single, albeit hefty component of the seminar, the seminar's entire organizational framework reflected the model's essential lesson. That lesson, in a word, is that as educators we have an obligation to help students understand ever-evolving changes, if not wholesale transformations, underway in the organization of knowledge and information. How knowledge and information are organized and presented impacts epistemological practices of our students, and these have a bearing on how they delve into subjects and how much they learn through the practice of research in the true meaning of that term.

THE KNOWLEDGE ACQUISITION MODEL

[1] By this term we simply mean the capacity to question the forms and organization of knowledge presented to us – to ask where it came from, how its organization can impact its reception, and why one should strive to delve deeply and broadly in one's research.

Figure 1: Library research modes in knowledge acquisition

	Resource cues/frames		
Researcher's knowledge base		*Grounded*	*Abstract*
	Strong	Recapitulate disciplinary norms	Retrieve
	Weak	Discover	Forage laterally

Our model represents the two modes of knowledge acquisition, discovery and retrieval, and their companion tendencies that self-conscious literature researchers – and instructors who wish to point their students in this direction – ought to bear in mind.[2] These tendencies are not exactly vices, but neither are they entirely desirable as we have seen them practiced. On the one hand, the researcher and his/her larger discursive communities may miss new, useful or interesting sources if literature searching merely recapitulates disciplinary norms; by that we mean the conventional wisdom of an established body of knowledge and techniques it deploys to produce scholarship. This tendency is familiar among established scholars and also among graduate students whose approach to professional socialization more closely resembles training than education, more generally. On the other hand, researchers not consciously applying prior knowledge frameworks or "modes of understanding" may become simple mélange. We have all seen undergraduate papers in which authors grazed wide-eyed among the trays of incompatible knowledge bytes sampled liberally from the Google salad bar. Needless to say, intelligent integration of knowledge suffers in both instances.

Figure 1 distills the Library Research Modes model we are proposing. The axes contract the knowledge base of the searcher relative to the project at hand with the cues provided in the

[2] We use the somewhat narrow term "literature search" (and by extension, "searcher") to distinguish acquisition of information that has already been formally or informally published. This includes activities associated with undergraduate research papers as well as the literature search work that is essential to original, professional scholarship.

information environment – whether the physical library, the index, or the results list of an electronic search tool – which help the searcher *frame* the information he/she encounters. We emphasize that the "knowledge base" is relative to the project, not some kind of absolute state of knowledge that constitutes the researcher. It is inappropriate to assume, though certainly not uncommon in library practice in the electronic age and environment, that experts in one domain will be adept in most others.

The other dimension depends on the searcher as well as features built into the information environment by its designers and operatives. By way of illustration, contrast the representation of a package of information – the bibliographic record of a book in the library – with the results list of a Google search. The catalog record is highly structured according to voluminous rules and practices describing and situating the particular item in relation to topically related works in a particular library, as well as in many other libraries that conform to the same rules of classification and cataloging. In that sense, even though the record is a distillation of the nature of the work, it is well grounded in terms of the cues that *frame* the specific work in relation to other knowledge. This distillation is nonetheless a severe abstraction from the work itself to the extent that the library user requires training to interpret the record and locate the book in the stacks.[3] Once this skill is mastered, the conventions of the catalog and shelving in one library maps in a reasonably straightforward way the manner one would use to find works in other subjects, and on to navigating other catalogs, using other libraries, and so forth.

In quite dramatic contrast, the results list of a common search engine for the "visible," free fraction of the World Wide Web is much less grounded in existing knowledge frameworks, providing the searcher relatively few cues as to where or how a file relates to others in the field. More precisely, the cues depend on the fortuitous intersection of features on the *supply* side: first, file and site designers that conform to settled conventions describing the structure (e.g., through

[3] In general, the older the record, the more abstract the source because of the space and storage constraints in card catalogs as well as early online catalogs.

markup language standards) and content (e.g., through metadata standards), and second, the dissimilar spidering processes and relevance algorithms (not to mention business models) used among the various search engines to identify, interpret, rank-order, and represent files, standards-conforming and non-conforming alike. Such supply-side features can exercise a powerful influence on what is cued and what is not.

Leading the student through the model from discovery to retrieval is a pedagogical objective. The journey from initial quest to understanding takes the researcher from a low level of knowledge in a particular domain to a higher degree of substantive knowledge, and shifts him/her from seeing data in disaggregated, concrete packages to recognizing potential relationships among information and knowledge claims. Finally, it is hoped that he researcher is left with the capacity to discriminate and evaluate among often dramatically different and competing *kinds* of information – to adjudicate, in a word, on the basis of relevance, pertinence, veracity, comprehensiveness, and the like.

We here summarize the cells and the movement among them in the task-oriented way we approached the information-literacy component of the senior seminar in which our model was implemented. We present the implementation of the plan in a later section of the paper.

Discovery.

The naïve researcher has only a general notion of the *story* he/she will be able to tell as a consequence of the research assignment.[4] He/she needs guidance in the conceptual work of

[4] If more space permitted, we would be inclined to develop the notion of "story" as it pertains to the student, or any researcher for that matter, in his/her effort to find an analytic, a heuristic, or something as simple (though perhaps profound) as "voice." In our experience, students initially begin the research process in earnest only after they have a sense of a question, a puzzle, but in addition, and arguably overriding in its importance, they begin research only after they have a sense of their likely or possible *voice* vis-à-vis the voices of others, and, indeed, the relation of to *life.* How voice and its articulation of the problem or puzzle that sparked an initial interest emerges has little to do with browsing in a particular knowledge domain, frameworks or no frameworks. It has more to do with the student's ability to grasp a potential *story,* a narrative that

clarifying and narrowing the topic and in the practical skills of finding evidence and argument to substantiate potential stories. Research resources are introduced in detailed, utilitarian ways, using subsequent discussion and exercises to illustrate to students why it would pay to look *beyond* them as packages of information. That is, conventional, print-reference tools are presented as sources of enough basic, presumptively authoritative information to give the searchers something to write about. But instruction emphasizes how reference tools are especially rich in providing pointers to situate facts and link them with one another, with interpretations, and how they are situated within established interpretative frameworks. The pointers emphasized would include:

- Bibliographies to mine for elaboration of concepts and also for salient authors;
- The convention of representing hierarchical relations among concepts (as in back-of-the-book indexes, Library of Congress subject headings in the Cataloging in Publication data on the verso of title pages of most books, as well as in the library catalog);
- The related conventions for representing horizontal relations (as in cross-references and citations);
- The heightened importance in the online environment of taking notes and the practical cognitive advantages that come with them – both to develop lists of potential search terms and to interact with resources continuously in order to filter for relevance and generate patterns of relationships among them. This ongoing interview with search results contrasts with what we call the "information constipation effect" – namely, sucking indiscriminately on the receiving end of vast quantities or information, and then straining to make sense of it at some later stage, with dubious results.

Discipinarity/Laterality.

might unfold on the basis of a hunch, a suspicion, a worry, or a feeling of distress, and what might make for a better, richer, more *storied* contribution that he or she might author.

There is no obvious principle by which to rank order these tendencies. Experience suggests that laterality is likely to matter itself in more pressing ways. Undergraduate students on the whole are not notoriously disciplined in how they research. Electronic searches provide all too many available options. The seminar in which disciplinarity and laterality were introduced as *functions* or *aspects* of research at all levels witnessed the tendency for what we call promiscuous foraging. Perhaps this had something to do with the students' backgrounds as majors in an interdisciplinary program. Laterality highlights the tendency of students to look far and wide, rather than trying to understand in which locale of knowledge it would pay to concentrate one's analysis, mining deeply just there before moving to another potentially rich locale where one might again plumb vertically, say, chasing footnote references and bibliographic citations.

Because researchers afflicted with the tendency of laterality may not *know* much about their general topic, and may not know *what*, exactly, they're looking for, it is certainly appropriate to nudge them toward a core body of knowledge and interpretation with respect to the assigned and recommended course materials. The first step here is to suggest ways to take apart the topic or nascent story, to break it analytically and schematically into component concepts. (We describe this process below and in the appendix, worksheet 1). The next step is to introduce students to discipline-specific resources, after which they would look further a field. This introduction also fits into a recommended sequence for efficient information acquisition and the tools, tasks, and habits of thought that go with each step. This sequence builds on the naïve searchers' preference for concreteness, but also points to the convention and practical nomenclature of one or a few specific disciplines – political science, economics, international relations, and so on.

Similarly, the idea of interacting with information *resources* could be reiterated quite pragmatically: words recurring in titles and abstracts in a discipline-centered database are likely to be used in relatively less ambiguous ways than when they appear in a full-text resource, including on the Web: in a political science database, the search string "bush" is less likely to

refer to works on horticulture or baseball than in any general purpose database such as InfoTrac, much less a Web search engine. Building searches from key words to descriptors to pull together thematically related works that do not share keywords (or that show keywords differently) is a crucial objective. This is followed by the higher-order, yet very practical and efficient, skill of using descriptors to delimit universes of knowledge (we likened this to independent variables). This would then be combined in searches with key words to address more specific aspects within those universes. These, in turn, would be flipped: the formerly keyworded theme would now be rendered as a descriptor, and the former defining theme would be rendered in its various aspects as keywords.[5]

As we have suggested, laterality is not necessarily a vice. Indeed, students searching far and wide will likely bring things to the instructor's attention that he/she, trained to be efficient and focused within sometimes exceedingly narrow disciplinary parameters, would not have discovered on his/her own. Disciplinarity privileges some narratives and reifies the structural authority of the professor over the student. This is hardly a positive tendency, and risks associated with it can be addressed by introducing additional information sources, some more relevant than others to any one emerging storyline. The fact that some of these resources were barely known to the instructor until the librarian demonstrated them to the class would signal a mild disruption of hierarchy, although one that, once recognized for its positive disturbance, was most welcomed by the students and instructor and encouraged further disruptions of this kind. By design, the introduction of additional information sources would compliment online full-text resources. Indeed, effective, efficient full-text searching requires different frames of mind and technical skills; it also exploits the terms and names identified in the discovery- and laterality-limiting stages.

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[5]This technique is harder to describe than it is to accomplish. Pencek provided a graphic representation in a course-support webpage. He also suggested it in his contribution to the literature-search chapter in Jarol Manheim at al. (2006), *Empirical Political Analysis*, 6th ed. (New York: Pearson/Longman), which was based on his collaborations with the instructors of the Virginia Tech research methods courses.

Retrieval.

Each stage of the sequence that leads the student through the model points to the development of what we would call the "autonomous searcher," substantively knowledgeable, effective at retrieving information, and discerning in juding its worth and applicability to developing knowledge in any given project. We treated this as an explicit goal students should consciously be striving for. Previously, in developing a critique of the political economy and ideology of access in computer-mediated searching, we took it as given that students would try to be cognizant of the manner in which they were searching, though usually unaware of decisions taken at the corporate and institutional level that affect the manner in which they direct their research.

PLANNING AND ASSIGNMENTS

Nelson, the instructor of the seminar, specifically set aside time in each seminar for class presentations, discussions, and in-class short essay assignments (on the model of the "three-minute essay") all designed explicitly to help students reflect on the status of knowledge as opposed to information; to ask how knowledge and information are organized and why such awareness is important to understanding in the broader sense; and to reflect upon the role of criticism in assessing the choices one makes about what one reads, the questions one asks, the searches one conducts. Pencek set up the library instruction sessions (four one-and-a-half-hour sessions), various weekly exercises (sometimes constituting the three-minute essays), and other term-paper related work for students that could help them familiarize themselves with tools of discovery – especially critical in the early stages of research, and then to help students use their discoveries to inform their approach when they moved to the retrieval stage of the research process.

Course planning went in two phases. The first phase coincided with the completion of the previous paper (Nelson and Pencek 2006) in which the hypothetical model was developed and

theorized. The second phase consisted of meetings, nearly every week, during which we reviewed previous seminar sessions, identified ideas and issues that needed further attention, and developed the themes and topics for students' weekly, short in-class essays upon which discussion then frequently took place.

Seminar nature and design

The seminar was a capstone course for seniors majoring in the international studies curriculum at Virginia Tech. Seminar participants numbered 17, and the class met one evening a week for three hours. The course was modeled on a seminar the instructor had offered many times previously; it was reading- and writing- intensive: weekly analytical writing exercises were the main instruments of evaluation; they were also the coercive instrument employed to insure that students read the assigned readings and thought about specific aspects of the material. In these weekly, one-and-a-half to two-page single-spaced assignments students were asked to probe a topic, often theoretical in nature, and unearth the author's assumptions. What is Michel Foucault's critique of the repressive hypothesis? What does Edward Said mean by the claim that orientalism involves a stylized mode of reasoning? What assumptions are involved in William Easterly's critique of official development assistance and foreign aid programs, and what assumptions are embedded in his "incentives-based" approach? Six books were assembled for the course – two were theoretical in nature (Foucault and Said), dealing with a contemporary problem of politics that necessitated an historical and theoretical perspective (in this case, knowledge and its acquisition, and colonialism and postcolonialism). One historical work, in this instance Tony Judt's recent book *Postwar.* Several titles of the "high-brow journalist" variety rounded out a class given over to the theme of the seminar's full title, "Challenges of the New Millennium." These works included George Packer's *Assassin's Gate,* and Pankaj Mishra's recent book *Temptations of the West*.[6]

[6] A novel, Milan Kundera's *Slowness,* was used once or twice in earlier seminars as an interlude mid-way through the semester. It was not assigned this time around, but fiction can be used as a

After implementing the "library session" as a measure of ginning up the research component of the course in previous semesters, we decided to go one step further. The task became: how to design the seminar itself around the final (15-page) research paper? How to use the final paper as the heuristic pivot for most all of the other aspects of the course? Attention was therefore given to actually integrating the week-by-week seminar theme discussions, based as they were on one or two books under review each week, into the research component of the class. Thus, students were asked, when reading Michel Foucault's *The History of Sexuality*, what explained his concern with the rise of the sciences in the eighteenth century for our understanding of several then-emerging disciplines' concern with the concept of sexuality and the knowledge each was fashioning on the basis of a "new" concept that had incited such interest. Or, students were asked if Edward Said's critique of Orientalism implied that knowledge about the so-called "Oriental world" was simply *not* possible, or whether, alternatively, Said was instructing readers to be aware of the discursive, disciplinary-specific modes or "styles" through which this knowledge was produced, transmitted, and apprehended. Pankaj Mishra's remarkable new work, *Temptations of the West: How to be Modern in India, Pakistan, Tibet and Beyond* was used to plumb the struggles of postcolonial societies striving for, in Mishra's words, "self-confidence" in the midst of latent colonialism. Mishra's book was especially valuable for the attention this young author, not too far advanced in age beyond students in the seminar, gives to his own quest for self-understanding and self-confidence, specifically to the role that reading and criticism played in helping him understand how self-knowledge and understanding of "the world" can happen through the creative act of self-cultivation through which it becomes possible to articulate one's own unique, original *voice.*

Additional readings, one per week, supplemented the six required books. They included several *New Yorker* essays (one on Turkey, one on India, another on Pakistan), an essay on

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device to probe the contingent boundary between fact and fiction, spurring students to think imaginatively beyond the given and accepted.

fascism by Umberto Eco as well as an interview with Eco on the quest for expert knowledge in the age of the Internet, and Jorge Luis Borges's classic story, "The Library of Babel." Many of these short essays and interviews specifically engaged a number of epistemological questions related to how one knows what one comes to know or experience; how knowledge and information are or should be regarded as separate; how expertise can be sought in a Wikipedia world; why it pays to attend to the pre-ordering of knowledge and information, and so forth.

The aim in all of these reading, writing, and discussion exercises that comprised the seminar was to probe the readings under review for insights as to authors' attempt to develop a critical, even *self*-critical, understanding. For Foucault, the topic was sexuality, power, and modern science; for Said, the discourses of Orientalism; for George Packer, America's invasion and occupation of Iraq; for Mishra, the plight of post-colonial nations and societies in South Asia; for Tony Judt, Europe's efforts to remember and also forget after World War Two. Class discussions were student-driven and usually pivoted upon one or two student presentations of chapters or articles under review. Running discussions throughout the semester concerned themes the seminar was engaged with throughout, such as power, knowledge, science, epistemology, and the politics thereof. Specific attention was therefore given to how one author (say, Foucault) made it possible for Said (in *Orientalism*) to delve in the way that he did (attending to discourse and discursive modes of knowledge production), or why Said, Eco, Borges and others beside could be said to be in conversation with one another.

Information literacy component nature and design

As Nelson designed and facilitated class presentations, discussion, and in-class short essays explicitly to lead students to reflect on knowledge and criticism, Pencek set up the library instruction sessions, exercises, and other term-paper related work for students to familiarize themselves with tools of discovery, and then to use their discoveries to inform their approach to those for retrieval. Taken together, these activities would (we hoped) help the students travel the route from topic to story, from discovery to retrieval, from information to knowledge.

Working within the perspective of the larger theoretical model (disciplinarity versus laterality), which Nelson invoked periodically to orient the students, Pencek presented a smaller, more instrumental one to help the students become more discerning and efficient in their acquisition of information, especially when using online resources. Schematically, it consisted of the following sequence. For each stage that we emphasized interaction and reflection with results in order to advance, we reiterated the steps throughout the library sessions to keep everyone on task, though in conducting the sessions we did not adhere to a rigid theme-a-day schedule.

1. Articulate some plausible *storyline* hunches
2. Quickly scan the information environment
3. Assess your information needs
4. Search representations of information sources
5. Apply results of representation-searching to full-text sources the library subscribes to
6. Apply results of previous searching to full-text sources anywhere

Hunching. This is the initial reflection, based on the student's existing knowledge, upon what kinds of stories he/she might find interesting and manageable to delve into, and out of which might arise his/her own. Especially because this was a senior-level seminar, we strongly believe that advising the students to get to the *story* (theory and hypotheses, narrative, whatever), demonstrates our respect for the student's existing knowledge and capacity for analysis.

Information environmental scan. This is the articulation and development of existing background knowledge, not necessarily as "right" or authoritative but as suggestive – a source of questions and admittedly provisional and problematic information. As a practical matter, this phase includes tools students already use (probably less expertly than we would like) such as web search engines, common encyclopedias,[7] and library databases that were part of the required first-year writing class; these notably include the InfoTrac platform, which covers a lot of subjects in

[7] The issue of Wikipedia as a forum where "expert" information and knowledge exists in a "clearinghouse" is a complicated matter. Pencek and Nelson disagree about the appropriateness, pedagogically speaking, of making it an object for analysis within our vision of this course. It is becoming more complicated as Citizendium and new e-dictionary sites emerge and challenge Wikipedia's hegemony. See Richard Waters, "Wikipedia founder plans rival," *Financial Times,* 17 October 2006, p. 15.

different degrees of sophistication. To show how knowledge is cumulative and interpretive, both in principle and in the actual experience of research, this is also a phase to address the convenience of mining the bibliographies of the books assigned for the course.

Information needs assessment. This stage begins with reflection on what kinds of information might be needed to tell the story, along with who might have compiled and saved it for what purposes. It evolves as the searcher discovers what tools are available that might point to the information. In the form of the question, "What language would those people use to describe the stuff I need to tell my story?", it shapes the choice of strategies to the specific use of those tools. Students are already familiar with the bad signal-to-noise ratio that comes from Googling terms like "depression or "bush," so it is easy to call attention to ambiguity and the advantage of working through disciplinary domains in order to reduce it.

Using representations of information sources. These are the most traditional and widely practiced library tools and skills: the library catalog and indexes (both print indexes in subject encyclopedias and online indexing and abstracting databases). This phase draws especially on the use of standardized subject headings ("controlled vocabularies" in library jargon), which have several functions: most obviously, to pull together topically related materials even though authors may use different words (or spellings/transliterations), but also to provide high-probability search terms in full-text environments. The juxtaposition of concepts, both within hierarchical lists and taxonomies and in individual bibliographic records, also provides the opportunity to address our larger cognitive and theoretical goals.[8]

Applying the exploration of representations to library full-text resources. From interacting with the bibliographic records from the previous step (and, one hopes, reading the articles and books they identified), students will have author names and terms of art that are likely to be used in relevant works. This stage emphasizes the use of library full-text sources because

[8] We do not have the space here to elaborate on those goals. Briefly put: we wish to create the contexts and pointers that will enable students to consider how search technologies, frameworks, and accepted practices may actually incline us to *think* and *reason* differently. See our 2006 paper.

(1) the focus and (usually) greater structure of subscription databases simplifies the decision about where to look for higher-relevance information; and (2) the odds are somewhat higher that the sources have been vetted. For our larger goals, this phase creates the opportunity to discuss authoritativeness and the ways in which knowledge gets constructed and language becomes grounded in historical and cultural particularities. Many undergraduates are not inclined to appreciate these aspects of research, but in our experience they are not averse to discussing them.

Applying discoveries from preceding explorations to unstructured, full-text online. This aspect of research is most obvious now that web searching is a more prevalent and common practice. Again, the instrumental message is that terms that have shown their high relevance in circumscribed, structured information environments are likely to be more discriminating search terms in the open-ended, practically unstructured world of the free or visible fraction of the web. In regard to the larger purposes of the course, this phase gives additional opportunity to address the questions about the creation and structure of knowledge raised in earlier phases, with an additional opportunity to talk about the political economy of the distribution and retrieval of information.

LIBRARY INSTRUCTION

Initially, we planned three in-library research-instruction sessions followed by an assessment session, each to be conducted by Pencek. As a result of our weekly discussions throughout the semester, we added an additional (fourth) library session. The three scheduled sessions met in a library classroom for the first hour and a half or so of the weekly class meeting. The added session and the assessment session met in the regular course classroom, each lasting 45 minutes to an hour.

The first session, the third week into the semester, was an orientation to our model, followed by an introduction to the library website and services. Students were explicitly informed about our concern with the tendencies of disciplinarity and laterality. We also

emphasized the importance to research of having a *story* to tell, of making plausible hunches and developing lines of argument before throwing oneself into oncoming maelstroms of information.

The bulk of the session was devoted to in-depth demonstration of the use of the index volume of the Elsevier *International Encyclopedia of Social and Behavioral Sciences.* This was a very low-tech presentation. It used overhead projector slides, and bound volumes of that very extensive subject encyclopedia. Strikingly, students seemed oddly excited about the discussion of the index. This was consistent with our model, for an index, after all, nests entries for articles or topics in some larger information framework; it situates the searcher in knowledge space.

This session also addressed interpreting bibliographic records in the library's online catalog. As in Pencek's library instruction classes for other courses, we emphasized that the reader should actively interact – converse – with the record, chewing over subject headings, reflecting on what they might mean and how they might fit with the story the author intended to tell. Specifically, we called attention to how both subject headings and call numbers situate any particular work within the constellation of related works in the collection.

In addition, we took time to remind students of a device most of them would have encountered in other library-instruction sessions since their first year, a “concept grid” to help them state provisionally what stories they hoped their papers would tell and then to break down their hunches into discrete concepts and their related search terms (see appendix, worksheet 1). To the extent the students used them, these conceptual maps would resemble the hierarchies and cross-references we had shown in the encyclopedia index.

The second scheduled session, seven weeks into the semester, continued our attention to the idea of beginning research with representations of documents, whether books, articles or otherwise. We also reiterated how having a story to tell was a necessary part in determining what kind of information one needed, reflecting upon who might have that information or where that it might be, selecting tools to retrieve that information, and identifying search terms that would actually retrieve it. Because it is a good example of an indexing-and-abstracting (“I&A”)

database, and because of its substantive importance, we built this session around *Worldwide Political Science Abstracts*. After a brief discussion of a sample paper topic and plausible thesis, we gave each student two copies of a worksheet that would lead them through important features of this database (see appendix, worksheet 2).[9]

We added the next session two weeks later, one month before the final class meeting, because Nelson perceived that students were, if not floundering, not sufficiently developing their story lines expeditiously enough. This session was free-form, represented to the students as question-and-answer. Nonetheless, we did have an agenda: to encourage them to articulate their stories, to meet about them with their instructor and their librarian, as well as to discuss their successes and difficulties. For this session Pencek encouraged those who could not quite get around to developing a story to reflect upon how, based on what they *already knew* they may have already had one. In other words, students had but to visualize how clearly they could describe what they would say in their papers if asked to do so "by someone they were *really* interested in getting to know better" at a nearby college bar known as “TOTS.” This was done in a broad, comedic fashion in order to make it memorable. Students were asked in a three-minute essay to articulate their pick-up line, and most did a remarkable job of articulating a story, a story that some didn’t know they had.

The following week, the remaining in-library session, was devoted to searching full-text online sources. Again, we emphasized the idea of the storyline as a way to guide the choice of where to look, how to look, and how to judge the relevance of results. We reiterated that using the authors and terminology that they had discovered in their index searching would give students a useful repertoire of search terms in full-text environments. In part because many, different full-text sources could be relevant to the students’ papers, and in part to “show off” sources that they may simply not have been aware of, Pencek again used a worksheet (see appendix, worksheet 3).

[9] Pencek learned in previous courses that students like having a copy of a worksheet to take home with them, in addition to one that would be turned in to us for our diagnostic and assessment purposes.

Necessarily, in less detail than in the first worksheet, devoted to only one database, this one called attention to salient buttons and menus-switches and quirks of five library subscription databases *Europa World Plus*, and Economist Intelligence Unit *Country Profiles/Country Reports* (both in-depth, country-specific reference sources), *Factiva* and the world news section of *LexisNexis Academic* for journalistic sources, and *Columbia International Affairs Online (CIAO).* Beyond the worksheet, in the world of free web resources, Pencek called attention to the possible relevance of H-Net lists and paper servers such as *PROL* to make students aware of the processes of scholarly communication.

ASSESSMENT

As in the previous version of this course, we used a technique to assess the library component that several Virginia Tech librarians, beginning with Pencek and the former education librarian, had used for several years. Informally called "retros" (for retrospective interviews"), these simply consist of two librarians interviewing the class about what had worked and what hadn't in their use of library resources and the applicability of the library instruction materials in completing the research paper. Customarily, the course instructor (Nelson) is present, along with the library instructor (Pencek) who takes notes and functions as a resource person, but the interview is conducted by a librarian who had no part in the class.[10]

RESULTS

We should again emphasize that considerable time was spent with the students on several facets of the research process beyond the instructional lessons devoted to how one conducts responsible research in high-tech environs. Starting with the very beginning stages of conceptualizing a topic, developing hunches, articulating a storyline, locating competing stories

[10] In addition to their diagnostic role for the library, retros are intended to reinforce library instruction by causing the students to reflect and speak about the tools, and to provide answers to any lingering questions they may have about the tools or library practices and policies. In four years of conducting retros, Pencek and other Virginia Tech librarians have been surprised at how forthcoming students are in their comments – and criticisms – even though two interested parties, their professor and their librarian, are present in the room (Pencek, Ariew, and Burge, 2004).

among those already existing in highly differentiated locales of knowledge, and on to the specific research protocols we have highlighted in this paper, the attempt was made to help students understand *why* concerns related to knowledge acquisition matter in a larger epistemological sense.

We were specifically interested in four major metrics: first, clarity and cogency in the development of a substantive research problem and the presentation of the problem as a query deserving of analysis. Second, the articulation of the specific approach the author would take to analyzing manageable aspects or characteristics of the research problem, as well as a statement explaining why the approach was original and could be expected to yield important outcomes. Third, a specification of the general research areas that have brought the problem under analysis and subjected it to some form of controlled discussion, with comments on how it has been approached from different perspectives and why these have yielded different though sometimes overlapping results. And fourth, some demonstration of sophistication in the handling of research materials according to which the author positioned her/his analysis and made reference to existing and often competing contributions in the field.[11]

To give the reader an idea of the nature and range of the topics students approached, we present here several topics which specific students chose:

- An analysis of the "Macedonia question" in the post-Yugoslavia era, specifically the role of national identity in the construction of cultural myth and historical memory;
- The impact of tourism on Costa Rica's economy with specific attention to the equalization of income disparities as tourism sectors have improved the country's economic situation since 1990;
- The treatment of bi- and multi-racial minorities in Vietnam after the wars of 1960-1975 with special attention to children of American servicemen after the war;

[11] We should mention that specific research guidelines were distributed to the students five weeks prior to the due date in which students were instructed how many refereed journal articles they need to include, versus monograph university-press books, co-authored and commercial press books, edited volumes, newspaper and high-brow publications, and so forth. The guidelines are included in the appendix.

- Russia's bid to join the WTO and the U.S.'s effort to delay if not prevent Russia's ascension;
- The emergence of genocide in the Darfur region of Sudan (two papers);
- Robert Mugabe's stature as post-colonial hero to many Sub-Saharan Africans in spite of his gross mismanagement of Zimbabwe's economy;
- The emergence and development of civil society and substantive democratic renewal in South Korea.

We were modestly but not overly surprised by the overall quality of the papers on the basis of the four above metrics used for assessment. The papers displayed considerable depth of analysis, an effort to draw upon existing knowledge in and across several fields, and serious, self-conscious attempts to specify a well-defined and well-bounded research area. The overall quality of research marshaled for the papers was quite good, though in most cases it did not approach excellence. Not surprisingly, the papers were well written and clear on many points that reflected careful, serious confrontation with the research problem, however vague its articulation.

One significant and pleasant finding was that the papers did *not* display significant disciplinarity. Most sources were of quite a wide variety, many of them outside of the traditional sectors of North American political science. One particularly pleasing outcome related to overcoming disciplinarity is that several students made an effort to bring in non-English sources if their topic called for it, even if this required translations on the students' own part. (All students in the seminar were multilingual with varying degrees of competence.)

Laterality was somewhat more difficult to judge, especially among papers delving in areas outside of the instructor's realm of expertise. The authors have not yet pored over the bibliographies to inventory how far and wide students ventured in their research, and, perhaps more importantly, *how they got to* the sources they brought to bear. In a future implementation of this model it would be interesting and useful to require students to provide a brief commentary on *how they found* the sources they included in their analyses, especially those that were important to the very framing of their arguments and not simply brought in for the sake of bringing in a source. It is safe to say that all but a few papers displayed apparently quite knowledgeable

selection criteria with respect to what sources made the final cut and were brought into students' analyses. In a comparative sense, the papers were a dramatic improvement over a previous seminar in which one (and only one) library session was integrated into the course.

CONCLUSION

The implementation of our knowledge acquisition model gave us an appreciation for two overriding concerns that to a significant degree fell outside the orbit of the principal concern of with how students research and access knowledge and information. These concerns involved, first, the importance that must be attached to helping students grasp the significance of formulating a basic research storyline and an understanding of how the *discovery* mode, undoubtedly a critical heuristic at an early stage of *thinking* about a topic, can lead to the formulation of a basic research question, the construction of which should lead students in any number of useful directions in terms of the nature and form that inquiry, generally speaking, might take. As noted above, we did spend considerable time with students on this aspect of the research process – indeed, on this critical aspect of a research paper that *precedes* the type of research more familiar to students, namely casting a large gill net and hoping that among the wide variety of things hauled in, something will trigger the imagination.

The second concern involves the task of *integrating* sources into an emerging argument that can be said to properly belong to the student. It would be interesting to learn more about how, in a research paper of this kind, students come to articulate *their* question vis-à-vis competing perspectives on the problem, and how they then are able to *integrate others'* perspectives, culled from rich or not-so-rich sources, into their papers. This seems to us a fundamental aspect of learning – adjudicating among competing notions, perspectives, and approaches, evaluating what is said and what is not, and assessing where one's own argument, and indeed, one's own *voice,* stands in relation to the cacophony of voices bearing upon a topic or a *problem* that does not yet enjoy the status of a bounded, coherent "issue" as such.

Our plan now becomes one of implementing this model again in future seminars of this kind, and also in larger classes. In later implementations we plan to concern ourselves with the broader range of issues related to the *craft* of a research paper stretching beyond the trials and tribulations of conducting responsible research in the strict sense, many though those are.

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APPENDIX

Three worksheets structured the activities of the in-library sessions. Presented in order of use, they have been reformatted from the originals to save space in this paper.

They are followed here by guidelines about sources for the term paper and the topics developed over the course of the semester for the in-class three-minute essays.

Worksheet 1.

Virginia Tech Libraries Information Search Worksheet **Bruce Pencek**

Write a preliminary (or working) *thesis statement* for your topic in the box below. This is a declarative statement of what your research will demonstrate – the story you expect to tell. It might begin with a hunch, based on your background knowledge (from class readings, lectures, encyclopedia entries, news stories, etc.). The simplest form is like this: "*A* is related to *B* in this (*C*) way [or because of *C*]." Expect to refine your thesis as you review the available information. The more you can frame your thesis and search terms in plausible cause and effect patterns, the better you'll be able to decide who has the kinds of information you need, plan where and how to look for information, and judge the relevance of whatever your searches uncover.

If you're searching literature to accompany your analysis of empirical data, express your thesis as a *theory* and your concepts as *variables*.

Preliminary thesis (or **theory**) **statement**

Write in the crucial concepts (or variables) of your thesis (or theory) in the first row, below. Concept terms may describe actions and relationships as well as things. Beneath, in each concept column, write related search terms that you think would be effective for searching for information dealing with that concept in an index or database: keywords, then synonyms, alternative spellings (including suffixes) of search terms, then broader or narrower terms. From the full records in the library catalog or indexes, add relevant subject headings (descriptors) of works that relate in some important way to this thesis. Add "operators" like AND or NOT or promity commands to rows to show relationships across search terms. Columns each comprise relationships within one concept; join them with OR in your searches

Power tools: In many online indexes "search history" or "previous searches" tools let to you search for your terms one at a time, then combine them afterward without further typing. Some full-text databases offer "proximity" searching, to find words occurring near one another.

SEARCH CONCEPT/TERM GRID

Concept Categories:	***A*. Primary concept** (or variable)	*relates to*	***B.* Second concept** (variable)	*how (or because of…)*	***C.* Additional concept** (variable)	*Which may relate to*	***D.* Additional concept** (variable)
Search Terms:	**keywords to search related to this concept** *……OR……* **synonyms/ equivalents to search** *……OR……* **other spellings to search** *……OR……* **Related terms to search (broader/ narrower, subject headings, etc)**	*AND / NOT/ prox-imity**	**keywords to search related to this concept** *……OR……* **… synonyms/ equivalents to search** *……OR……* **other spellings to search** *……OR……* **Related terms to search (broader/ narrower, subject headings, etc)**	*AND / NOT/ prox-imity***	**keywords to search related to this concept** *……OR……* **… synonyms/ equivalents** *……OR……* **other spellings to search** *……OR……* **Related terms to search (broader/ narrower, subject headings, etc)**	*AND / NOT/ OR/ prox-imity**	**keywords to search related to this concept** *……OR……* **synonyms/ equivalents** *……OR……* **other spellings to search** *……OR……* **Related terms to search (broader/ narrower, subject headings, etc)**

Worksheet 2.

Exploring *Worldwide Political Science Abstracts*

This week you'll explore the primary online index for searching the political science literature, *Worldwide Political Science Abstracts (WPSA)*, applying the search techniques summarized at <http://www.lib.vt.edu/help/subjects/poli/SoSciMethods.html>.

The honor code does not govern this exercise: working with a partner or two, you'll have roughly 30 minutes to complete as much as you can of this worksheet. Then we'll talk.

Suppose your background reading and thinking led you to this tentative thesis of your paper:

> *Robert Mugabe is strongly admired in other parts of Africa, despite the mess he seems to have made of Zimbabwe, because his anti-colonialist and Pan-Africanist rhetoric trumps Western notions of individual rights and the rule of law.*

Turn this statement into some related, declarative statements – hypotheses, if you like -- for example:

1. *Robert Mugabe is widely admired in Africa.*
2. *Zimbabwe is a "mess" [Translated, from your "because" clause: Zimbabwe has been widely criticized for violations of individual rights and the rule of law.]*
3. *Mugabe effectively uses anti-colonial, Pan-African rhetoric.*

These and similar factoids will provide core concepts to guide your systematic searches for academically respectable information.

For this exercise, concentrate on the third statement. Note that it comprises two core concepts: Mugabe and his rhetoric. "Mugabe" is a very specific search term, so you might need to look into broader and related terms that put him in a larger context of rulers or African culture. Conversely, to address his rhetoric, you'll need think of words signifying its content or nature. (Remember, too, that most English-literate people don't use American English, so think about alternative spelings as well as synonyms.)

1. Go to the **Advanced Search** interface in *WPSA* and do a couple "anywhere" searches relating to the concept, Robert Mugabe.
    a. What search word(s)/phrase(s) did you use for that concept?
    b. How many results (publications and otherwise)?
    c. What "publication types" did your search identify?
    d. What is the year of publication of the latest journal article your search retrieved?
    e. Of the earliest journal article? _____
    f. Does anything look unusual about that earliest record?
2. Click on the **Edit Search** link, then adjust the pulldown menu, and use the same search term(s) as *keyword* searches.
    a. What keyword(s)?
    b. How many results?
    c. Aside from quantity, how do "anywhere" and keyword search results differ?
    d. What accounts for the difference?
3. Click on the Advanced Search tab and repeat step 2 for keywords relating to the *other* sample concept, Mugabe's rhetoric or discourse. If your search term consists of a multi-word phrase try searching with and without quotation marks around it and note any differences in the results.
    a. What keywords (and/or phrases) gave you the most relevant results?

   b. How many results for each word (phrase)?

4. Click on the titles of at least two scholarly journal articles from step 3 that look relevant to the preliminary thesis statement, and view their **full records**.
   a. What evidence do the full records provide that leads you to think they are scholarly articles?
   b. List several "**descriptors**" (subject headings) from records that deal with the concept. (Note: descriptors are listed -- and searchable -- in a couple ways, depending in whether you're viewing the brief or the full record.)
   c. What descriptor should you use to restrict your results to materials specifically about Zimbabwe, no matter they may have been written or published?
5. Search on one descriptor from step 4b that seems most appropriate to the characterize Mugabe's rhetoric.
   a. What descriptor?
   b. How many results?
   c. Date of the latest item?
   d. Of the oldest?
6. Finally you get to do **searches combining the concepts** so you can efficiently cover the available literature about them. Click on the *Search History* link and note the search tip about combining terms by search number (#__) rather than by retyping.
   a. Combine one of your *keyword* searches from step 2a (above) with a *keyword* search from step 3a. How many results?
   b. Combine one of your *keyword* searches from step 2a (above) with the *descriptor* search from step 5a. How many results?
   c. Combine the *descriptor* search from step 2a (above) with a *keyword* search from step 3a. How many results?
7. Using the search with the most results from steps 6a-c, **sort the records by date**. Write the citation for the most recent article, using *American Political Science Review* style:
   Author last name, First name. Year of publication. Article title. Journal Title volume (issue number): first page-last page.
   a. How does the database tell you if the full text of the article is available online to Tech users?
8. Sort them again by the database's relevance estimate. Provide a brief citation of the most relevant **scholarly article** in *APSR* style:
9. Use **checkboxes** to select at least two relevant records, preview them in full format, and use the appropriate link to **email** them to yourself. Did they reach your inbox successfully?

Optional: Return to the Advanced Search screen, click on the "change databases" link, check off *Sociological Abstracts,* un-check *Worldwide Poli Sci Abs*, and click the "continue to search" link.
   a. Repeat step 2
   b. Click on the "search history" link and combine your last search in *Soc Abs* with the search from step3.

Worksheet 3.

Exploring various full-text resources

Several kinds of information sources were mentioned in our talk last week. Rather than a detailed worksheet for one, here are some starter exercises for various ones. The habits of mind you bring to searching full-text library databases also apply to searching the free fraction of the World Wide Web.

Work through these quickly with a partner.

Country background information

These are authoritative reference sources. Most of the time, you'll browse to the country information you want, then read on through. That is, searching is more appropriate *within* the article on a country than it is to try to search *across* countries.

Economist Intelligence Unit (EIU) Country Reports and Country Profiles (online to 1996, print sometimes to late 1970s)

- According to its EIU Country Report, what's the outlook for Nicaragua's international relations next year?
- According to the regional profile in its EIU Country Profile, what concession has Nicaragua extracted from the US under DR-CAFTA?
- How do you find EIU analysis by region and country, and how does that differ from the information you get by drilling down from a Report or Profile?

Europa World Plus (online for 2006; print *Regional Survey of…* volumes go back several years; titles and call numbers vary)

- How many kinds of "left" is Latin America turning toward?
- According to the "recent history" its Europa country profile, Nicaragua has come before the International Court of Justice on what issues?
- Who is the editor of *La Prensa* (Managua)?
- What sources did Europa use for its statistics on Nicaraqua's external trade?

Journalism

Journalists like to think they write "the first page of history." Well, maybe. But for contemporaneous coverage of what's on the ground – with all the problems that go with it – the popular press is a good window.

Factiva (Compare the content with LexisNexis Academic, which you've probably used already)

1. Do a "free text" (that is, keyword) search for *Frente Sandinista*. How many articles?
2. What is the topic of the "most relevant" article? Its publication date?
3. Modify the search to restrict it to the last month. What is the topic of the "most relevant" article? Its publication date?
4. Modify the search and sort the results to locate the oldest article. Topic and date?
5. Modify that search: change the source category to restrict your search to publications by region. Click once on the words "Caribbean Countries" and "Latin American Countries" and repeat the previous search. Are all the articles journalistic?
6. Modify that search and scroll to the language field. Click on the "English" link there. What languages will Factiva now search?

7. Click on the plus sign next to the word "Language," scroll down, and click on the word "Spanish," and run the search. How many articles? What's the date of the oldest? Of the most relevant? Of the newest?
8. Start a new search for articles on *Pedro Juaquin Chamorro*. How many articles come up for a search on his full name? On "Pedro Chamorro"? On "Pedro w/3 Chamorro"? ("W/3" is a proximity search to find the work "pedro" within three words of "chamorro." Proximity searching is one of the great power tools of full-text library databases.)

Think tanks and gray literature

Professors and otherwise-employed PhDs don't speak only through academic journals. Though specialized research institutes like Brookings and RAND date back many decades, in the past 25 years of so the number of "think tanks" – some focusing on particular topical areas, some motivated by political agendas – has mushroomed.

> ***CIAO [Columbia International Affairs Online]*** Clumsy interface gets in the way of effectively locating the excellent content, which includes policy papers and timely analyses by academics and non-university researchers with academic credentials, as well as academic journals and online books.
>
> Explore it quickly for resources that fit the story you expect your paper to tell
> - Examine the search screen. What are the differences among the "content areas" that *CIAO* offers for limiting your search?
> - Look through the subject headings in the search box reflect how you would divide up information you have already acquired on your topic?
> - Think back to how subject headings in library catalogs and descriptors in *Worldwide Poli Sci Abs* work. How well do *CIAO*'s subject choices link information sources to related ones?
> - In the sidebar menu on the left of the *CIAO* pages, look at how the database lays out how you can browse to the books, journals, case studies, and course packs it contains. Would you characterize *CIAO* as more useful as a place to discover information that is new to you or as a place to retrieve information you already know something about?

Scholarship doesn't happen in a vacuum. Before articles and books see the light of day, authors exchange ideas in what is sometimes called "the invisible college," then test-drive them at professional conferences. Such information has been called "gray literature" because everyone knew *that* such information sources existed but only researchers on the "inside" knew how to see them until the work had been polished and (slowly) brought to light in peer-reviewed journals. Internet services have made it relatively easy to peak into these fora for insights on the hottest topics, the newest lines of research, and the most engaged researchers.

We probably will not have time to do significant exploration of these in class, so in case we cannot get to them, I include the descriptions from the library's subject page for political science resources < http://www.lib.vt.edu/dsp/index.php?subject=107 >.

Explore these for resources that fit the story you expect your paper to tell. Compare the kind of information they bring out. Contrast their content and retrieval methods with what you have used in Google, Clusty.com, or other standard search engines on the free Web.

- ***H-Net: Humanities and Social Sciences Online*** < http://www.h-net.org/ >: Clearinghouse for more than 100 discussion networks (listservs) (listed at < http://www.h-net.org/lists/ > in history, social sciences, and the humanities, including those lists' book reviews, teaching resources, professional announcements, and a job service.

- ***PROL: Political Research OnLine*** < http://www.politicalscience.org/ >. Comprehensive archive of "emerging research" in political science, public administration, and international studies featuring conference papers, working papers (preprints), and occasional papers from research centers and institutes. Contents distributed for comment and refinement -- they are not final, refereed articles. Coverage back to 2003. Requires free registration. A collaborative project of consortium of political science and related associations.

- ***PROceedings*** < http://archive.allacademic.com/publication/apsa_index.php >. Searchable and browsable database of papers presented at the annual meetings of the American Political Science Association since 2003. For previous years, see < apsaproceedings.cup.org/index.htm >. For papers from other conferences and pre-prints, see *PROL: Political Research Online*.

Potentially important, albeit not a full-text resource, though searching it (as many other sites on the free Web) has a more in common with unstructured, full-text library databases than it does with highly structured library catalogs and indexing/abstracting databases:

- ***OAIster*** < http://www.oaister.org >. Searchable catalog of freely available, academically oriented digital collections from around the world that are often invisible to conventional web-search technologies. The 10+ million items recorded in *OAIster* cross many disciplinary lines. Genres range from datasets, to books, articles, and electronic theses and dissertations, to government technical reports, to online museum projects, and more. Formats include text and various audio and visual media. (The name derives from how the resources conform to the *O*pen *A*rchives *I*nitiative standard.)

Sources guidelines.

These guidelines are meant to specify what you should aim for in the way of bibliographical sources for your final paper. The grade you receive on this paper will take into consideration the strength, merits, nature, number and diversity of sources you bring to bear on your topic.

Books

- Between five and eight single- or co-authored books dealing with your topic area.

  A book is a book is a book. *Not so!* You should try to incorporate scholarly books written by academics with expertise in your topic area. Be mindful of who the author is and whether s/he is an academic, a policy analyst (employed, say, at a research institute or think tank), a journalist, or perhaps all of the above rolled into one. Also, consider the press. Academics often publish with university presses. Chicago, Princeton, Stanford, Harvard, Yale, Cambridge, Oxford, Duke, Michigan, Cornell, MIT, and a few others are regarded as the premier university presses.

  Non-academic press books are often as good as university press titles. Journalists often publish with such esteemed publishers as Random House, Viking, Knopf, Farrar, Straus and Giroux, Harcourt, and others. But so do academics. Paul Kennedy and Edward Said, certainly academics and experts in every sense, published many of their books with such commercial presses.

Scholarly, peer-reviewed journal articles

- Between six and eight single- or co-authored journal articles dealing with your topic.

  These would include such journals as: *International Studies Quarterly, Foreign Affairs, World Politics, International Organization, Foreign Policy, Millennium, World Policy Journal, Political Theory, Public and International Affairs, the American Political Science Review,* and many others. You will know if these are peer-reviewed by looking at (usually) the inside cover where the editorial board is listed, along with institutional affiliations.

"High-brow" news magazines and periodicals

- Aim for between three and five of these articles, or what might be called "news analyses."

  Such publications would include *The Economist, The Atlantic Monthly, The New Yorker, Harper's, The New York Review of Books, and The London Review of Books.*

News sources

- Depending on your topic, aim for at least five news articles from a major daily or weekly international newspaper.

  These would include but is not limited to the *New York Times,* the *Washington Post,* the *Financial Times, Le Monde,* the *Frankfurter Allgemeine Zeitung,* the *Chicago Tribune,* the *Los Angeles Times.* Extra credit will be given to news dailies and weeklies from the region or country on which your analysis concentrates, and extra, extra credit will be given for sources not in the English language if this pertains to your topic.

Three-minute essays.

Each week we set aside 10-15 minutes specifically to address epistemological questions and issues. Students are invited to think and reflect on what they have learned since the last week's meeting. Below are some of the one we used.

1. What is the difference between knowledge and information?

2. What's an index and what is it used for?

3. What did you make of Borges' essay "The Library of Babel"?

4. You may have heard the cliché that in analysis one can be a mile wide and an inch deep.

Conversely, analysis can be a mile deep and an inch wide. Neither would seem desirable. One should strive for both breadth and depth in research and analysis.

Does journalism afford depth as well as breadth of analysis, or does one take primacy over the other?

In scholarship, does depth of analysis take primacy over breadth?

5. Mini-essay task for 4 October 2006

You're a World Bank economist who receives the following email from a college student you've never met. "I'm looking for statistics on the economy and political development of Taiwan and Tanzania. Please help."

Task 1: *What questions would you ask the student in order to determine what information s/he really needs?* (The student left too many parameters open).

While you're waiting for the student to answer (or go away, intimidated by your analytical acuity), you ponder the various research questions that could underlie the request. You write down a couple, which you send Prof. Nelson to forward to the student at a *suitable* time.

Task 2: What are some of the questions that might underlie the student's request?

The draft assignment, then, falls here: go from identifying potential research *problems* to recasting the research question precisely.

6. What is your interpretation of the following quote?

His face is turned toward the past. Where we perceive a chain of events, he sees one

single catastrophe which keeps piling wreckage upon wreckage and hurls it in front of his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing from Paradise; it has got caught in his wings with such violence that the angel can no longer close them. This storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we call progress.

Walter Benjamin, in *Illuminations,* writing about the Angel of History

7. TOTS, Act 1

   You're at a bar. You're approached by someone *you really want to get to know* about Dr. Nelson's senior seminar. S/he asks you about the final paper: what is your topic and how are you approaching it?

8. TOTS, Act 2:

   You've now been subjected to rigorous exercises acquainting you with searching indexes and full-text databases with various kinds of results. What could you teach someone *you really want to get to know* about making sense of an index as a tool for searching as opposed to a full-text database? Put differently, what are the disadvantages of searching using an index as opposed to a database?

9. Tony Judt's book *Postwar.*

   What do you think of the way Tony Judt handles references? (None is given in his book; he has posted them on a website, but only a long bibliography of sources he is said to have consulted. The book contains no footnotes, so there is no way to refer from the text to the bibliograpahy). Did you look at them? How credible are they? How credible is the book based on what you found?

10. Why wouldn't Katie Couric have attempted your final research paper?