Information Literacy Instruction and Humanities Undergraduates: Are Current Models Appropriate for Scholarship in English Literature?

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Introduction

Information literacy (IL) is described by Marcum as “a central purpose for librarians, especially academic librarians (2002, 1). Grafstein notes that “there is an “extensive literature on IL that has mushroomed since the 1990s” (2002, 197). Studies have been published both to increase understanding of the research practices of professional scholars and of students, and also to develop resources to aid or improve these research practices. In this paper, I will evaluate studies of scholarly research methods in general, and then focus on humanities scholarship, using English as an example. I will then review sources about student research in the humanities, at both undergraduate and graduate levels, again focusing on English. Finally, I will review the recent literature in IL, with a particular focus on the outcomes proposed for undergraduate information literacy, and the effects on students if these outcomes are achieved.

Student research, or the success of their information-seeking methods, can be evaluated in two general ways: in the aggregate, and as individuals. Individual evaluations depend on the expectations of the particular professor involved, and are typically only discussed as anecdotal evidence, which tends to focus on the harmful effects of the Internet and the steady decline in levels of scholarship, though some responses are more positive. Evaluation of student research in the aggregate has typically relied on citation analysis, which usually stops at the source description level. If the student cites scholarly sources, then the researcher assumes that the student is on the right track. For the humanities in particular, however, this type of aggregate analysis does not provide any information about the primary goal of scholarship: engagement with and understanding of the primary text. Students, offered techniques to find secondary sources, may be able to find sources which are applicable to a particular question, and yet be unable to evaluate or integrate them meaningfully, if they lack a deep understanding of the primary source. The temptation will be to use the secondary

sources not as a way to increase understanding of the primary text, but rather as a way to replace that understanding. Finding high quality sources and citing them properly cannot replace the lack of a personal response to the work in question.

Information literacy, then, may need to be approached differently for different areas of scholarship. Strong reference to secondary sources is perfectly appropriate at the undergraduate level in both the sciences and social sciences. In the humanities, however, secondary sources cannot be evaluated or included on a meaningful level without an understanding of the primary text in question. While there is no doubt that humanities undergraduates can learn the technical aspects of information literacy – citation, source evaluation, and information-seeking methods – there are important questions to be asked about their abilities in terms of critical thinking, and developing a critical perspective of their own. Moreover, we need to be sure that we understand the impact that any IL instruction will have on these skills. Since information literacy is growing both as a topic of research and as a component of university curricula, understanding the effects of IL courses on students of different disciplines is crucial. More particularly, if information literacy does need to be approached differently for different disciplines, decisions need to be made about how information literacy is taught to students in those disciplines.

Scholarly research

General methodologies for sciences, social sciences and humanities

In order to develop an understanding of some of the basic requirements of research in the humanities, it is important to describe the differences between the humanities and other subject areas. We will deal with three broad areas of scholarship in this paper: sciences, social sciences, and humanities (Case, 2002, 238). Sciences will refer to hard, or physical, sciences such as chemistry, biology, or physics. Social sciences will refer to the soft sciences, such as political science, sociology, and management (or business). The humanities encompass languages and literature, philosophy, newer disciplines such as film studies, and other fine arts. There are certainly disciplines which are difficult to place in this scheme, such as history (which

can be described as both a social science and a humanities subject). For the purposes of this paper, history will be considered one of the humanities. Other disputed areas can safely be ignored here, as the focus will be on the humanities and this initial division will only be used to paint the broad strokes of research practices in each of the three areas.

Each of these broad areas of scholarship has different methodologies, and different expectations for primary and secondary sources. In the sciences, primary research is carried out via experimentation. These experiments, if they are valid, can be replicated by any other researcher at any time. If the results cannot be verified in this way, then that experiment is considered invalid. This is not to say that false results (whether intentional or not) do not ever get published, but rather that there is a clear mechanism for establishing the truth or falsity of a given set of results. In the sciences, then, given a set of results which have been verified by others, there is no need to perform the experiment in order to accept the results as being true. Secondary research, then, provides an amazing resource of facts which do not require further validation or interpretation. One of the main functions of such research is to avoid duplication of effort, and to allow all scientists to progress past a difficult problem once one scientist has solved it.

In the social sciences, the methodology is quite different. Though experiments may be carried out, they often deal with opinions of people surveyed or observed, and are more rarely susceptible to replication. This is understood by social scientists, who go to great lengths to develop representative samples of a given population, so that results can be considered meaningful. The difference between observations in the sciences and observations in the social sciences is a crucial one, however. Secondary literature, in the social sciences, deals with researcher's conclusions based on results which typically cannot be verified in the same way that results in the sciences can. So, secondary research can provide support for an idea, or an opinion to argue against, but cannot be said to offer proof in any complete sense.

The humanities, and literary studies especially, deal to a large extent with opinion. Any view which can be supported by a reasonable argument (and even some without this support) may be worth discussion. This openness to personal opinion is at

once a weakness and a great strength. It is a weakness because there is no possibility of anyone ever being definitively right about any interpretation of a source. At the same time, the ability to include and reflect different interpretations of a work provides the possibility of meaningful interaction between an individual and a source in a very different way from the interactions of the sciences or social sciences. In the humanities, there is usually a primary source which is interpreted in different ways (though philosophy can be an exception in some cases, like the rules of logic). Secondary sources record the opinions of other scholars, which are not necessarily any more valid than the opinions of the researcher, though some scholars are certainly more respected than others. These opinions, and the arguments for them, have to be answered if one's own interpretation is to be considered meaningful.

These, then, are the three main areas of scholarship, described in a very general way. The sciences deal, in the main, with verifiable facts. The social sciences deal with opinions in the aggregate, which are often not directly verifiable, but which are dealt with as facts. The humanities deal with opinions, which are all as valuable as the arguments supporting them. Each of these approaches results in a different motivation for the use of secondary sources, and a different importance being placed on those sources.

Given this description of the areas of scholarship, it may be meaningful to examine the idea of the scholar, and the current scholar in particular. Given the differences between disciplines noted above, the ideals of the scholar are remarkably consistent across disciplines. The scholar is one who searches for truth, who is always open to arguments for or against his or her current beliefs, and who is willing to change his or her beliefs if the “arguments for doing so are logically sufficient and compelling” (Podgórecki, 2). Modern scholars, while subscribing to these beliefs, may tend to do research not so much because of a search for truth, but because it is expected of them (Podgórecki, 43). Research, in this mode, is at least partially a condition of success as an academic rather than exclusively an effort to develop “a more comprehensive picture of natural or human reality” (Podgórecki, 43). Cain discusses the importance of leisure, reflection and originality for scholarship (2002, 116). In her view, the decreasing time available to modern scholars for leisure and reflection, and the pressure to “develop

ideas" in order to ensure job security or advancement, can lead directly to a lack of originality in their work (2002, 117).

This type of profit-focused outlook can be seen in students as well, who "look predominantly for knowledge that allows them to enter the job market and start their [...] careers," and hopefully "to find a respectable and lucrative position in society" (Podgórecki, 128). Students who have adopted this view "want quick fixes presented to them in an intellectually simplified manner" (Podgórecki, 128). This approach, if catered to by the university, would result in a very different graduate than the one represented by the traditional view of an educated person, who could "speak and write well, think critically, act professionally and ethically in a career, and appreciate learning and wisdom" (Roth 43). Cain notes that "the habit of consumption [...] differs from the habit of reflection," and thus that simply finding and "consuming" information is not at all the same thing as understanding that same information (2002, 188). We will return to the expectations of and for students later in this paper, but the distinction between the traditional view of the scholar and current trends of production and consumption should remain in the background throughout the discussion of humanities scholarship.

Expectations for the humanities in particular

Over the last quarter of a century, studies of the information-seeking habits of humanities scholars have developed a remarkably consistent description of research processes in the humanities; processes which have changed very little given the impact of technological developments on other areas of scholarship. Stone's seminal study, dating from 1982, describes a researcher who works independently for the most part, and carries out his or her own research rather than delegating it to assistants (294-5). Stone also notes the prevalence of "browsing" behavior, which may consist of reading broadly and extensively around a subject area, or of actual browsing in the stacks of the library (1982, 295). Finally, Stone discusses the importance of primary sources, and the perceived need to see the "original document or work of art" which one is studying, as opposed to working solely from a reproduction – however faithful (1982, 296-7). All of

these aspects of humanities scholarship remain valid today, as indicated by more recent studies.

Brockman, Neumann, Palmer and Tidline, writing in 2001, note that the use of electronic resources has become fairly standard amongst humanities scholars by this time, and that browsing behavior has expanded to include browsing in electronic sources as well as print sources (19, 24). They also note the use of email as an important method of communication between scholars (2001, 28). Whether this constitutes a change in humanities scholarship from an independent model to a more collaborative one is not discussed, and should not be assumed. Ellis and Oldman also note the importance of email, especially in terms of collaborating on publications with distant colleagues, as well as the continuing use of electronic databases for research (2005, 34-5).

Generally speaking, then, scholarship in the humanities has remained quite consistent over the past twenty-five years, though some areas have changed due to technological developments. The importance of primary sources and the development of a deep personal understanding of those sources has not changed. The pattern of individual, independent scholarship also remains consistent, though email may allow for more collaboration than was once convenient. The goal of humanities scholarship is still to develop a personal opinion or view of a work. This opinion may be based on the work of other scholars, but may just as easily be a completely independent product. Secondary sources, then, are far less important than primary sources. Since humanities scholars “seek to provide a new interpretation of a subject” and “the emphasis is [...] on the direct interaction between the scholar and her or his material,” the reduced focus on secondary sources should not be seen as a fault in humanities scholarship, but “may instead reflect a general lack of need” (Watson-Boone, 1994, 213).

Before moving on to examine student research in English literature, and the problems and challenges inherent in this subject area, it is important to develop an understanding of the methodology of research in this discipline: the application of critical thinking to literary texts. Most importantly, “the reader must face the work alone, if his or her ideas are to have any penetration or vitality,” since “to submit to the opinions of others is to lose the freedom and individuality of one's own sensibility and

the life of the work" (Manlove, 1989, 11). Adler and Van Doren go further than this, saying that "we must act in such a way, when reading a story, that we let it act on us" (1972, 205). Later, they state that "the beauty of any work of art is related to the pleasure it gives us when we know it well" (1972, 213). Similarly, Bloom says somewhat poetically that "Shakespeare speaks to as much of you as you can bring to him. That is to say: Shakespeare reads you more fully than you can read him" (2000, 28). These views support completely the importance of developing an individual response to, and view of, a work (as opposed to merely joining in with popular opinion – or even reacting against it). This focus serves to emphasize the individuality of literary scholarship, which will be a crucial element in the discussion of student research to follow.

This individual scholar, then, reads in order to develop a personal understanding of the work. This reading is active, both mentally and physically. Physically, the reader makes notes and marks passages or key words (Garrett-Petts, 2000, 39). Mentally, the reader notes "imagery, setting, point of view, characterization, plot structure, narrative voice, mood, and prose style" (Garrett-Petts, 2000, 48). These elements can then be addressed from a social stance (discussing with others), a textual stance (markup of text elements and features), an institutional stance (level of formal analysis and academic rigor), a field stance (issues, attitudes, language of the discipline), or a combination of any or all of the above (Garrett-Petts, 2000, 23-28). All of these approaches, however, are predicated on the personal interpretation of a primary source, developed by an individual scholar.

Student research in English literature

Undergraduate research

Just as there have been numerous studies of scholarly research methods, there have also been studies focusing on various aspects of students' research. For the purposes of this paper, I will provide an overview of undergraduate research, as well as a brief description of the developments expected at the graduate level, and then discuss some problematic areas for undergraduates with reference to IL instruction.

As Fister observed in 1992, students are not experts in their discipline, and are unable to “make the connections and critical judgments that are second nature to specialists”. In Fister's study, she notes that students do question the currency and relevance of sources, but may be unable to place a work within the larger field of scholarship (1992). She also discusses the importance of finding a focus for research. While expert researchers know enough about the field to recognize gaps and areas for exploration, novice researchers do not have the knowledge to be able to do this, and thus often end up researching unworkable or uninteresting questions (1992). Similarly, students may find – as expert researchers often do – that citation tracking is far more profitable in terms of quality sources than more stereotypical database searches (1992). At the same time, many students do not recognize this as a viable research method, and may feel that they are cheating or taking shortcuts if they use bibliographies in this way (1992). Fister's study, though over ten years old now, still provides valuable information about the undergraduate research process. Many of these conclusions are echoed by Leckie in her 1996 article, who also adds that undergraduates are likely to have difficulty with the concept of the scholarly network, as well as with disagreements between experts in a given field (204).

A second common theme in studies of undergraduates' research habits is the increasing use of the internet, and the corresponding decrease in the use of print resources. The question of electronic versus print versions of a source will be discussed in relation to information-seeking later on, but the aspects specifically affecting student research are more appropriately discussed at this point. There is a large body of published work which parallels the main topic of an article entitled “How the Web destroys student research papers,” written by Rothenberg in 1998. Rothenberg concludes by stating that he has a responsibility to teach his students to read, to think critically, and to care about their own research (1998, 61). The section of the article which tends to be quoted, however, is the section which describes the poor papers produced by students who make uncritical use of internet resources, which Rothenberg describes as “the hunt-and-peck method of writing a paper” (1998, 60). Davis's five year study of undergraduate citations shows that students are indeed using internet resources, but that many of these are valid sources – with results improving further

when professors give careful guidelines to students (2003, 47). Dilevko and Gottlieb, taking a somewhat different angle, argue that students do recognize the importance of print resources, given that they have the time available to evaluate and make use of them (2002, 391). In their study, students expressed a preference for print sources in many situations, and associate the use of print resources with “high-quality work,” although convenience or ease of searching may motivate students to use electronic resources exclusively in some cases (2002, 391). On the whole, Davis and Rothenberg come to the same conclusion: at least some of the responsibility for the quality of students' research belongs to the professor. From Dilevko and Gottleib's perspective, the time students allot to research, and their relative desire to produce a high quality paper, also play an important part in this process.

Whitmire's 2004 article relating epistemological development to research is an example of a third area of publication about undergraduate students. This type of developmental study is very important, especially in terms of attempting to motivate students, or helping them develop their own research style. Whitmire describes a model based on development in two areas: epistemological beliefs and reflective judgments (2004, 101). For a student at a lower stage of epistemological development, knowledge is assumed to be “certain or absolute,” based on a system of facts, of right or wrong answers which are provided by authority figures (2004, 101). As the students matures, they develop the ability to deal with uncertain knowledge, conflicts, multiple “correct” answers, and contextual knowledge (2004, 101). Thus, students who have not developed these more advanced epistemological outlooks tend to have problems when dealing with scholarly debate on a topic, where two experts disagree about the correct answer. Cognitively immature students, placed in this position, may tend to ignore sources which disagree with their own views, or may simply become confused and frustrated (2004, 104). Another problem with undeveloped thinkers is the assumption of expertise in contexts where it does not exist; for example, students may tend to choose the first sources listed in a search because they assume that the search engine will provide the best sources first (2004, 106, 108). These are not exactly problems with research methods, as such, but rather problems with how the students think about the

world; these weaknesses cannot be addressed by simply demanding better quality research.

Weiler's 2004 article about “Generation Y students” deals with some of the same concepts. She notes that some of the cognitive weaknesses in this group may be attributed to the prevalence of passive media (such as TV and music) over more active media (such as books or conversation) (2004, 46). She notes that students may tend to research areas where they already have strong opinions, seeking validation rather than alternative viewpoints or increased understanding (2004, 47). Similarly, the students she studied did not deal well with disagreements, and felt that debate – seen as “conflict” – should be avoided, even when it might lead to increased understanding (2004, 48). These same students tended to label sources as either “good” or “bad” based on their agreement, or lack thereof, with the instructors' views (2004, 48). There was little appreciation of the possibility that both groups of sources could contain valuable information, or that there might be sources which agreed with both sides – or neither (2004, 48). Weiler emphasizes the point that individual students entering college are bound to have different cognitive abilities, and that these differences will continue – to some extent, and for some students – through graduate studies as well (2004, 52). Like Whitmire's article, Weiler's research shows that failures in undergraduate scholarship may have more to do with the undergraduates' mental development than with the difficulties inherent in research as such.

One last source to be discussed before moving on to a summary of undergraduate research is the Boyer Commission report on “Reinventing Undergraduate Education” (2001). Though the concept of active learning – also described as student-centered learning – has been discussed for some time, the Boyer Commission's report deserves mention as one of the most emphatic calls for this type of education for undergraduates. The report decries the “cosmetic” changes that have been made in higher education thus far (2001, 6). The Commission's goals – to produce articulate and competent scholars – are undoubtedly valid ones. The methods proposed, however, consist of integrating undergraduates fully into the research life of the university in a way that they have never been integrated before. Making learning by discovery the standard for all post-secondary education sounds attractive, especially to

the student – who tends to overestimate his or her cognitive and developmental level (2001, 15). Given the information above about the problems with research, especially for immature students who do not have the epistemological development to be able to deal with controversy (and thus with true scholarly research), is it realistic to expect undergraduates to be able to make an original research contribution? There is no doubt that students may be encouraged and instructed by observing “real” researchers at work, but their own abilities to contribute may be limited, especially in the earlier stages of their undergraduate degrees.

The popularity of research-centered learning, or at least the surface trappings of it, have led professors to move away from the lecture, and toward group activities, discussions, and the like. Similarly, undergraduate curricula have moved away from a standard set of courses and toward a more elective-focused format. Because of these changes, there is a reduced emphasis on developing a general understanding of the discipline as a whole, and more of a tendency to focus on areas where the students already have an interest (and have probably begun to develop views which they may have trouble changing). The increased emphasis on research, especially in terms of using secondary sources, potentially exposes students to the whole realm of scholarly debate when they are mentally unable to deal with contradiction, and may be unable to recognize important sources for their research in the first place.

All of this, it seems, may well feed into the short-term, problem-focused form of research noted by Fister ten years ago, and others since then. Practicing this type of research may not help students develop a scholarly research model, as it is directly opposed to the scholarly method of developing a general understanding of the field, and only then discovering areas of research based on that general knowledge. Finally, students may not have developed the ability to do a close and critical reading of a primary source, and may not understand the source well enough to be able to recognize relevant secondary sources, even if they were able to deal with the uncertainty of knowledge. Faced with these difficulties, which may seem insurmountable to the undergraduate, students may simply give up on developing and defending a personal view, and end up replacing their own careful reading (which is relatively difficult) with the opinions of others (which is relatively easy). This is extremely

problematic in terms of producing students and graduates who are able to research – or even think – at an advanced level.

If it is not too presumptive, an alternative focus for undergraduate English literary studies can be briefly outlined, in terms of avoiding the problems mentioned above as much as possible. To begin with, students should be introduced to primary texts, and taught how to read them as outlined by the scholars quoted above. They should be taught the importance of close and critical reading, the primacy of their own response to a given text, and the methodology of developing a view of the author's intentions and achievements. This type of instruction should be applied to sources of different types – prose, poetry, and drama – from all different eras and areas of the world. As much as possible, undergraduates should be taught to develop their own appreciative and critical faculties, and to argue for their own opinions about a text – using evidence from the text itself – before being forced to defend their views against the views of others outside their own classroom.

For students who intend to continue on to graduate-level studies, an honors-level program would begin to introduce the scope of the field, and the major schools of scholarly work with which the student will have to interact. Students should be introduced to influential thinkers in the field, and should begin to see where their own conclusions coincide or disagree with other researchers. Given the primacy of the individual viewpoint in literary studies, the importance of developing their own view before going to secondary sources must be continually emphasized. This honors program, then, would provide a meaningful transition to graduate studies for those who intend to continue, without risking the frustration or capitulation caused by having to deal with the full range of secondary sources before they are truly useful.

Graduate research

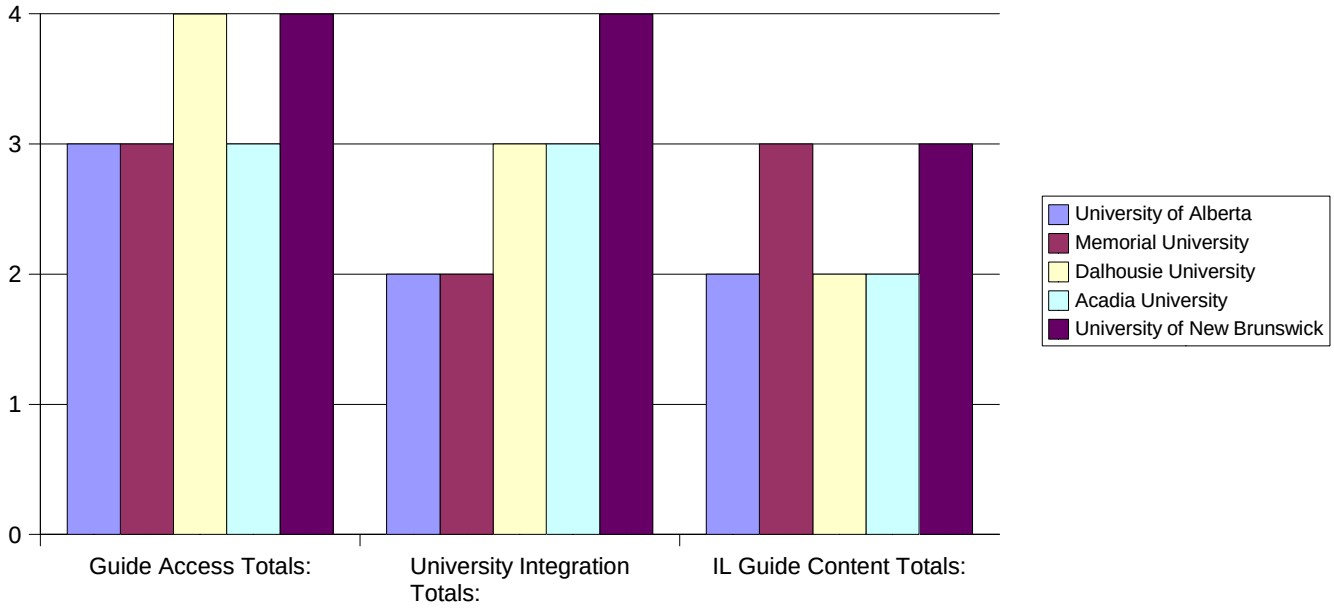
Very briefly, then, a graduate student begins to develop a true and deep understanding of the field as a whole, with all of the complications and contradictions inherent in studies at this level. Graduate-level students should not only be able to read and understand a given text in a sophisticated and nuanced way, but should be able to

understand how their own view of a text compliments or contrasts with other major schools of thought in the field. At this level, the student needs to be able to interact meaningfully with secondary sources, though the student's own view of the text is still the most important concern. With this level of understanding, it is possible, and even expected, for the student to make an original contribution to the field.

Current Web resource guide survey

Before moving on to discuss information literacy, I will discuss a survey of Web resource guides at five Canadian universities, performed on August 4, 2005. These resources are meant to be an aid to students doing research, and an understanding of the resources provided by different schools in Canada will allow for a more meaningful examination of some aspects of IL instruction discussed later. The survey questions and instrument are included in Appendix A, while the numerical results of the survey are included in Appendix B. Appendices C through E are screen captures from several of the web sites. The results of the survey are also tabulated in Figure A, below. The purpose of this survey was to evaluate the number of mouse clicks required to access information literacy resources at each institution, the integration of these resources within each university, and the content of each set of resources. The first section of Figure A reflects the number of mouse clicks required to get to a listing of IL resources. In this section alone, a higher score is a negative rather than a positive. In the second and third sections, reflecting integration and content, higher scores will reflect better integration and better resources. I will discuss each university in the order evaluated, including points of similarity to other institutions, and points where each was different from the others.

Figure A



We begin, then, with the University of Alberta (<http://www.ualberta.ca>). This institution had what became the standard guide access score, requiring one mouse click from the university's main page to the library's Web site, and one click from there to the information literacy resources, which were described as “research guides”, and also as “writing guides and tutorials” under the “library research” heading on the library site's navigation bar. The score for integration of information literacy throughout the university was, however, less positive. The only positive point, aside from the fact that IL resources were hosted by the library, was that the free text search under “information literacy” did turn up some relevant resources . There was no attempt to promote IL to the school as a whole, and no interaction between humanities faculties and the library's resources, though links to the library site were provided. Content did not stand out either, as guides dealt with evaluating sources critically, and with citation styles, but did not make any attempts to deal with higher-order subjects such as critical thinking. The resources from the University of Alberta were not particularly attractive, and offered a very basic coverage of IL elements. Some guides were offered in PDF format, which

would improve the quality of a printed copy. The only subject-specific guide offered from the library's site was for English literature.

The second institution surveyed was Memorial University (<http://www.mun.ca>). Like the University of Alberta, Memorial had a direct link to the library's site, and from there a direct link to some IL resources, described as “guides and instruction”, and thus received the same access score as Alberta. The free-text search did provide meaningful links to the library's resources, as well as to IL classes and workshops. Another interesting search result was several articles in the school paper, discussing information literacy. In terms of integration, however, Memorial did as poorly as Alberta. There was no linking back to faculty pages from the resource guide. There were no subject-specific guides, no links between humanities departments and the library's resources, and no mention of IL tutorials or classes. Though this was the only institution to provide a definition of IL from the resource page, via a link to the ACRL guidelines, the other resources offered were not impressive in terms of content. There was an outline of the six-stage research process, but each stage was on a separate web page, and there was no compilation or PDF version, making this guide difficult to print or save on disk. Though Memorial's IL resources were easy to access, they provided little reward for doing so.

Dalhousie University (<http://www.dal.ca>) was the third institution to be surveyed. Dal had a high (poor) score in terms of clicks required to access the IL resources. It takes two clicks from the Dalhousie home page to get to the library sites, because Dal has five libraries to choose from, and the user must first click on “libraries” and then on the library of their choice. The library used for this survey was the main university library, the Killam. Once at the library page, though, it takes only one click (through “how do I?”) to get to a list of IL resources, which includes guides dealing with searching, citation and other topics. The same page has a link to the IL online tutorials, discussed below. Integration with the university was better than average, thought there was no attempt to promote IL to the institution as a whole, and no specific links to or from humanities faculty pages. The positive points were that the full-text search from the main university site led directly to the IL online tutorials, which was quite impressive, and that the IL resource page had a link to IL classes. The content of the guides dealt

with evaluating web sites and citation styles, but did not deal with higher-level thinking skills at all, or provide a definition of IL. PDF versions of the resources were quite common. The online tutorials were impressive (a screen capture of the tutorial menu is included in Appendix C). They were all linked together, and provided an eight-stage tutorial which covered all the basic (or lower-order) aspects of IL. The tutorials were easy to use, and provided worthwhile information for novice researchers, but are only available via WebCT, which requires a username and password.

Acadia University (<http://www.acadiau.ca>), the fourth institution studied, required the standard two mouse clicks from the main page, or one from the library page, to access the IL resources, described as “guides”. These resources were not accessible via the free-text search on the main page, and were not linked with faculty pages. This was the only case, however, where faculty pages linked directly to the library's subject-specific IL resources, which was certainly positive. That said, there were no attempts to promote IL via the main university web site, or promotion of IL classes or tutorials. The resources provided dealt competently with source evaluation and citation styles. Acadia also provided animated online tutorials (accessible from <http://library.acadiau.ca/tutorials>) which deal with finding credible sources, plagiarism, and searching (Appendix D has a screen capture from one of the tutorials). Interestingly, only the first two tutorials are accessible from the link above, while the third is accessible from the end of the other two tutorials. I assume this is an oversight, or that the third tutorial – dealing with search techniques – is in development. These tutorials, unlike Dalhousie's, make an attempt to be entertaining and may make a better impression on students.

The University of New Brunswick (<http://www.unb.ca>) was the last institution to be surveyed. Like Dalhousie, it took two clicks to get to the library web site, but only one click from there to the IL resources, which were linked as “get help with your research”. Integration with the university as a whole was better than any other school. There was an extensive list of resources for individual disciplines (though these were all resource-based, and did not deal with stages of research or writing a paper) There was also a link from the resources page to “Cool Tools” IL classes offered from September to April by the library. The free-text search led to some IL resources, though these were from

the nursing school as opposed to the central library. As usual, however, there was no promotion of IL on the main university page, and no linking from faculty pages to the IL resources at the library. There were guides on web source evaluation and citation styles, offered as both web pages and PDF files, but nothing more advanced that was immediately obvious. With a little browsing, however, I found an excellent tutorial for students studying off-campus. This tutorial was quite extensive, and offered advice on the usual subjects (such as web source evaluation and citation). It also gave some advice on higher-level skills, such as advising students to read sources carefully, with attention to how the arguments in each source might serve to support of argue against the student's thesis (shown in a screen capture in Appendix E). This advice was fairly rudimentary, but was more than any other guide attempted. As stated, though, this guide was in a section of the site designed for off-campus students, which was less than obvious and might be missed by students who were not advised of its location.

There are several negative points which were common between the institutions surveyed, and which deserve to be emphasized here. First of all, none of these schools promoted IL skills or instruction on the main university page, and only one linked to IL resources from the literature department's pages. Given the importance of IL skills, and the amount of material published about the importance of integrating IL with the institution as a whole, this is certainly problematic. Secondly, there was only one school which even attempted to deal with any higher-level skills. Finally, only three of the five of the schools had anything more than text resources available. Online tutorials are another area of IL which is frequently discussed, but was entirely ignored by two of the five schools surveyed. On the whole, I observed that a student who knows that IL resources are likely to be found at the library's web site, and only needs help with citation styles or determining whether or not an internet source is of scholarly quality, would find the IL resources offered by these schools helpful. Anyone looking for help with higher-level analysis, however, would probably have to look elsewhere.

On the positive side, each of the institutions made it quite quick (in terms of mouse clicks) to get to the IL resources. The only access score difference between the five schools was with the two schools that had multiple libraries to choose from. The IL resources were all hosted on the library sections of the institutions' web sites, though

some had quite elaborate IL resources hosted by other departments as well, and each school offered resources which dealt quite well with critically evaluating web resources, and with citation styles and requirements. Finally, many of the poor scores in areas of this survey are not caused by major faults, and some small improvements (such as making sure that IL is included as a search term in the institution's free-text search, or linking subject-specific IL guides to their respective department's pages) would make a real difference for students using, or looking for, these resources.

Having evaluated the resources provided to help students with their IL concerns, it finally makes sense to move on to discussing information literacy itself, first in terms of defining the concept, and then with a view to successes and challenges in IL instruction.

Information literacy training

Information literacy in general

It is all but a truism in the field that information literacy combines, in the term itself, two other terms which are imperfectly understood, or at least imperfectly defined. Questions about the nature of information – especially in terms of the relation between information and knowledge – and about how media and communication affects information – or knowledge – continue to provide fodder for debate. Literacy, as well, is a term which once signified the ability to read and write in a particular language, but has come to mean much more. The debate about these terms continues, and reflects what Shapiro and Hughes called “critical reflection on the nature of information itself,” (1996).

Though I acknowledge the difficulties inherent in this foundation, the fact remains that “information literacy”, as a term, has a meaning which is more or less accepted in the field, though it may be “too broad and too far-reaching” (Owusu-Ansah, 2003, 224). The ACRL offers the general definition of an information literate person being one who has “learned how to learn” (1989). Rockman defines information literacy somewhat more specifically as “the skills required to intelligently and systematically find, interpret,

select, evaluate, organize and use information for a specific purpose," and this definition – in various broadly similar forms – is generally recognized throughout the literature (2004, 2). The main problem, given this general definition, comes more from defining the scope of IL than from defining IL itself. For example, and because it will be discussed extensively later on, the term "evaluate" is used – fairly indiscriminately – to mean everything from judging the quality of a source (scholarly or non-scholarly), to critical thinking (in terms of evaluating the arguments in a source), to deciding whether a source supports a particular argument. Each of these applications of evaluating a source requires different, and in the last two cases quite broad, sets of skills and knowledge.

The ACRL committee report defines information literacy in an extremely broad fashion. Information literacy is shown, for example, to be a necessary area of knowledge for any citizen in a democracy, who needs to be informed if he or she is to vote responsibly, and who needs to be able "to recognize propaganda, distortion, and other misuses and abuses of information" (1989). The IL competency standards published by the ACRL in 2000 are equally broad, and deal with a long checklist of competencies and outcomes designed to cover all aspects of information literacy. These standards address the necessity of teaching "reasoning and critical thinking," and the competencies themselves include several of these skills (2000, 4). Standard 3.2.a, for example, states that an information literate person "analyzes the structure and logic of supporting arguments or methods", while standard 4.3.d says that he or she "communicates clearly and with a style that supports the purposes of the intended audience" (2000, 11, 13). These outcomes are certainly valuable, but how they are to be achieved by means of this checklist is less obvious (Johnston and Webber, 2003, 337). One difficulty with this approach is that it may seem superficial to academics, who tend to see research as a unified whole, rather than as a collection of distinct outcomes (Webber and Johnston, 2000, 394). Cain indicates that this type of approach may also tend to keep "students busy and perhaps deafened within a technologically, methodologically, and legalistically saturated environment" (2002, 119). This saturation may interfere with leisure, while "reflection may escape students as well because measurement tools [like the ACRL standards] uphold a diagram of what is deemed

assessable rather than a mirror for what might be there" (2002, 119). Owusu-Ansah also cautions that the overly broad scope of these standards results in "an inherent danger for potential obscurity" (2003, 225). A definition of information literacy which encompasses the entire scholarly endeavor assures that IL will never be taught adequately in any setting, especially within the purview of the library (Owusu-Ansah, 2003, 226).

Questions of a more appropriate scope for IL instruction can best be dealt with by examining different aspects of IL, and how these aspects are interrelated. These concepts will be discussed as a collection of skills or abilities, from what are described as lower-order skills to higher-order ones. Lower-order skills are self-contained, whereas higher-order skills depend both on lower-order skills and other related knowledge (ACRL 2000, 6-7). Before moving on to a discussion of these specific areas of information literacy, however, I will discuss the place of IL instruction in the university as a whole.

How to integrate information literacy into the university curriculum

In the literature, views on the integration of IL into the curriculum range from dropping IL instruction altogether to having it included in every class, as well as in a full-term credit course of its own. Curzon discusses several of the different models which can be used to teach information literacy, such as the introduction model (where orientation tutorials are offered to freshmen), and the on-demand model (individual professors ask a librarian to teach an information literacy session in one of their classes) which she describes as being the most common model in use today (2004, 38,43). These are two of the less ambitious approaches, but the idea of a dedicated class in IL is gaining some ground as well, with Johnson and Webber's 2003 article giving a positive evaluation of one such class. Broadly, then, approaches to IL instruction can be categorized in two ways: as modest or ambitious. The modest approaches are voluntary (on the part of students) or on request (from a professor). The ambitious approaches attempt to justify IL as a discipline with a curriculum and

content of its own. Each of these approaches is beneficial in some ways, and problematic in others.

Of course, there is a possibility which is even less intrusive than the modest approach. Critics of information literacy instruction, from Eadie in 1990 to Wilder in 2005, have argued that IL does not meet a real student need, but rather that it arose "because librarians thought it would be good for [the students]" to learn these skills (Eadie, 1990, 43). Eadie notes further that IL tends to be taught "in anticipation of questions that have not yet been asked, rather than on demand and at point-of-service," such as during a reference interview (1990, 43). Wilder makes a similar point 15 years later, stating that the difficulties inherent in the many different interfaces and search strategies for different databases indicate that "it is the library, not [the student], that needs help understanding the nature of information retrieval" in the age of Google (2005). In this sense, it would be better for the library to "create systems that eliminate the need for instruction" rather then teaching students to deal with non-intuitive interfaces (Wilder, 2005). Both of these authors, though critical of IL instruction as it is commonly approached, are in favor of helping students with their research in the context of the reference interview, as advocated by Isbell and Kammerlocker below, when the students come with a particular question in mind. These critiques do have some merit, but students may simply go to the internet to do their research, never realizing that reference librarians might be able to help them. A standardized approach to IL is more efficient, and guarantees at least a minimal orientation, if not necessarily a complete or perfect answer for all students in all situations.

If the need for IL instruction is granted, then the modest approach does the least to disturb the status quo of the university as a whole, which may be an important factor. It fits into the place which was once filled by bibliographic instruction, information literacy's long-lived predecessor. Julien and Boon's survey of five Canadian universities revealed that "none of the sites included a required library instructional component for all undergraduate students, nor a full course integrated into a curriculum program," but that classroom sessions at the beginning of term were common (2002, 144). In some cases, this requirement can be fulfilled outside of class time altogether, by having students complete online tutorials, which may or may not include an assessment.

Bracke and Dickstein describe one example of a web tutorial, which they implemented partially in an attempt to avoid the repetition of basic reference interviews inherent in assigning research questions to large undergraduate classes (2002, 332). The tutorial dealt with locating and recognizing specific types of library resources (2002, 330). They determined that this type of tutorial, when combined with an in-class exercise, was “an effective method of delivering library instruction to large classes (2002, 335). Three of the schools that I surveyed provided online tutorials for students, though only Dalhousie's tutorial had an assessment component included in it.

There are, however, some negative aspects to the modest approach. One of these is that on-demand sessions often occur long before students begin their research, and “research skills taught in isolation from any immediate implementation are generally not remembered for long” (Breivik, 1998, 89). This is the same concern raised by Eadie in 1990, that IL may “provide the answer before the question has arisen” (45). The second possible problem is that these sessions are necessarily practical and tool-based, and offer no time to cover higher-order aspects of IL. I describe this as a possible problem because this level of instruction is perfectly acceptable as long as the students, and the instructors who request instruction, know that the session will only address lower-order skills. One example of a possible problem is the confusion between critical source evaluation and critical thinking, which will be discussed below. Finally, it is important to mention Orme's 2004 examination of the effectiveness of IL instruction, which was quite troubling. The study evaluated the IL skills of groups of students: some who had no instruction at all, had access to a tutorial, had a classroom session, or had both the tutorial and the classroom session (2004, 208). The difference between students who had no training, and those who had both an in-class session and an online tutorial, were “not significant” (2004, 210). If this type of study is repeated and these results are consistent, then it may be that students' lower-order IL skills are already acceptable, which would indicate that the viability of the modest approach to IL must be called into question. Owusu-Ansah suggests that bibliographic instruction is important and should be continued, but that “more effective and coordinated procedures,” implying a more ambitious approach to instruction, would “ensure maximal results” (2004, 10).

The ambitious approach is more problematic in terms of integration within the curriculum, because it requires much more, in terms of both class time and effort from students. One approach, such as that proposed by Owusu-Ansah in 2004, is that a credit-based course in IL be required for graduation (10). This course would address IL skills which are applicable to all disciplines, and would be taught by librarians (2004, 5). This brings conflicts between faculty and librarians, especially relating to librarians acting as teaching faculty, to the fore (2004, 6-7). These concerns are mentioned by Zabel as well, who notes the difficulties inherent in getting a new course approved and added to the curriculum, especially as a required course (2004, 18). Julien and Boon note that librarians' concerns about their own teaching abilities may be unreasonable “in the light of the lack of formal pedagogical expertise among teaching faculty” (2002, 146). They suggest, at the same time, that librarians who are going to teach classes take a course in “effective teaching methods”, so as to prepare themselves as much as possible (2002, 148). Zabel states that adding a required IL course might be simply forcing students “to pay for something they do not want” (2004, 18). In Brevik's words, “students may not appreciate the extra involvement required in the resource-based learning courses over the more passive lectures-plus-textbook option in other courses. Because students may not realize the value of more active learning until after graduation, some students are likely to grade down on course evaluations or avoid the more demanding courses” (1998, 88).

At the same time, the positive aspects of this approach should not be ignored. The possibility exists, given a full term, to discuss abstract philosophical elements of information and literacy, to cover the lower-order skills of information-seeking, source evaluation and citation, and to deal with the higher-order skills of critical thinking, argumentation, and general academic writing as well. These elements could be taught in context in a way that is impossible in a more circumscribed setting, which would result in better retention and comprehension for the students. This approach also alleviates difficulties mentioned by Robinson and Schlegl, where students “perceive the librarian's [temporary] role in their courses as optional or even extraneous,” especially as librarians have no control over the assignment of grades (2004, 286). One other important aspect of the ambitious approach to IL instruction is that it works best when it

is integrated with the regular academic curriculum, as well as being taught in a dedicated course (Webber and Johnston, 2000, 384). While many IL skills can be taught independently, they will have a deeper impact if they are also used within the students' main disciplines, as well as in daily life outside academic circles (2000, 386).

Although there are many advantages to the more ambitious approach, the problems associated with it have kept it from being commonly accepted as a part of the university curriculum. At present, most IL instruction is done either in the classroom, by invitation and as an aid to research in another established discipline, or through tutorials designed to be completed by students on their own time. Having established this general setting for IL instruction, I will now discuss specific aspects of IL in terms of lower-order and higher-order skills, moving from the lowest to the highest (in my estimation). This is not to say that the lower-order skills are not important, but merely that they are easy to teach and to understand, as well as being relatively free of content in and of themselves. In the popular current model of modest IL instruction, the lower-order skills can, and should, be taught. The higher-order skills, however, require more time and attention than a single class or tutorial can possibly offer, and should be avoided entirely rather than being taught poorly. They would, as stated above, be perfectly appropriate in a full-term class, such as the ones suggested by advocates of the ambitious model of IL instruction.

Facets of information literacy, from lower-order to higher-order skills

Plagiarism and citation

Though it seems to be a continual source of shock to academics from all disciplines, citation is still a problem at the university level. There is no question that some students will consciously attempt to pass off the work of others as their own, and no amount of IL instruction will be effective against this type of malicious intellectual laziness. Where IL instruction can be effective is in making sure that students understand proper methods of citation, and how to integrate, and quote from, a source. These elements, like source evaluation, were addressed by all five of the schools I surveyed for this paper. This is the most simple of the lower-order skills, and requires

little from the instructor other than emphasizing that citing sources is required, and giving the students a style (or a choice of styles) to use. There is no need to discuss this element in detail, but it is an important and necessary element in lower-order IL instruction, especially given the severe academic penalties imposed if these standards are not met.

Critical source evaluation

Since the explosion of information that has accompanied the advent of the Internet, libraries have lost their place as the primary source of information for the public. One of the problems with the availability of information on the internet is the increasing availability of inaccurate sources. Librarians once served as gate-keepers, providing access to reliable sources, but the internet has no such body of stewards. This is not to say, of course, that there is no reliable information on the Web, but merely that the reliability of information cannot be assumed.

IL programs always include some form of critical source evaluation, and all of the five schools surveyed had online resources for students as well. Critical source evaluation refers to a methodology designed to separate high-quality information from less reliable information; in the academic framework, this equates to separating scholarly materials from non-scholarly ones. Typically, this sort of evaluation is based on a checklist approach, where searchers evaluate the source according to a set of questions. D'Angelo suggests that the students ask “How current is the information? Who wrote / published it? Who is the intended audience? What is the purpose of the document? How credible is the information? Are there references / documentation / supporting evidence?” (2001, 308). Grimes and Boening give a more elaborate model, requiring evaluations of authorship, currency, recommendations (has the source been reviewed by a reliable agency), perspective, audience, style and tone, quality of content, organization of information, publisher / source / host, and stability of information (2001, 15). The similarities between these two sets of criteria are obvious, and include the most important facets of critical source evaluation.

Although some – and arguably many – students will already realize the importance of these considerations, this type of instruction is important because there

are other students who may be more credulous. Faculty should only critique students for not using scholarly sources if the methodology for establishing reliability is explicitly taught, rather than assuming that the students will figure out the difference on their own (Davis, 2003, 49). Robinson and Schlegl support Davis's earlier study, confirming that students choose better sources when the methodology for evaluating those sources is taught, and then made a requirement of the assignment (2004, 280).

One danger with critical source evaluation – a lower-order skill – is that it is commonly conflated with critical thinking – a higher level skill – in the literature. Critical thinking will be discussed later, so at present it is enough to say that these two things are not at all the same, and that students who are being taught to evaluate sources should not be told they are being taught to think critically. The other danger, which Mann warns against, is that teaching the evaluation of web sources may lead students to believe that all the information they require is available on the internet (2001, 272). As I will elaborate later, the importance of print sources should not be ignored even when teaching proper evaluation of internet sources.

Information-seeking

IL instruction usually includes an introduction to the different information resources – both print and electronic – available at a particular library and through the internet, whether by subscription or for free. The online availability of journals and government sources should not be ignored as these sources may be perfectly valid in terms of academic research (Robinson and Schlegl, 2004, 285). In a classroom setting, this might involve a demonstration of the library catalogue, as well as databases and other sources relevant to the discipline in question. A library tour might actually take groups of students around the library, introducing them to the reference section, the journals, and so forth. A tutorial might require students to find different sources for themselves, as a way to introduce them to the range of resources offered by the library. This level of instruction might also include the construction of boolean searches, and the differences between a full-text search and a keyword search (and where each might be applicable), and perhaps even the possibilities of controlled vocabularies if

applicable to the source. Information-seeking also requires an understanding of source evaluation and citation, as described above.

Information-seeking straddles the divide between lower-order and higher-order skills, in that the elements of information-seeking already discussed (the “tools” approach) reflect lower-order skills, which could – and probably should – be taught in a typical invitational class or introductory tutorial. Once the student begins their search using these tools, however, they will be able to collect a number of sources which may or may not be helpful in terms of answering a particular question. At this stage, “higher-order critical thinking skills such as understanding and evaluating information are necessary; mere location of information is insufficient” (Behrens, 1994, 316). Critical thinking is dealt with separately below, but the question of evaluating relevance brings up a number of other questions. The first is that searches are more likely to result in too much information than in too little, to the extent that it may not be possible to look at all the available sources (Swanson, 2004, 262). In this situation, it is completely unrealistic to expect a student – or anyone else, for that matter – to evaluate all of these sources in depth. Given that students will not have the deep prior knowledge of a field that expert researchers use “as a guide for comparison” when evaluating new information, it is important to introduce students to elements of the expert research model which they can make use of (Swanson, 2004, 261). One important example is the methodology of citation tracking, whether in the sense of finding a useful source and then using that paper's bibliography to find more sources (which will hopefully also be on topic), or in the sense of searching for sources which are cited frequently in a particular area (possibly indicating the importance of a source). Both of these methods can be effective, and can help students pick useful sources out of the sea of possibilities that may result from any given search.

In terms of information-seeking, it is important to remember that academic research models are not necessarily the same as librarians' research models. The academic model depends on a knowledge of the discipline, and is designed to develop a deep understanding of particular aspects of the field, as opposed to answering a particular question. Librarians, on the other hand, are trained to find relevant sources, even when they know little or nothing about a field. This is accomplished through the

use of techniques to narrow a topic, and by knowledge of controlled vocabularies and about different information sources. In this sense, given that undergraduate students also know little about their field, it might seem better to teach students to search the way that librarians do, using what Gibson describes as “a mechanistic, tool-based approach”, rather than encouraging a more scholarly model of wide reading (1995). We must keep in mind, however, that students are learning to be scholars in their fields. Students, like scholars, see information-seeking as a necessary element of a far larger research process, not as the end goal (Wilder, 2005). They must learn the forms of research that will serve them best in the long term, allowing them “to absorb and add to their disciplines in ways that make them more like their professors,” rather than learning to search like librarians (Wilder, 2005). It is possible that scholarly research methods could be improved by the addition of some searching techniques, but it is quite clear that the methods scholars use – as outlined in the first section of this paper – are quite different from the more tool-focused librarian's approach, and that these methods have not been materially altered by the advent of technology.

Finally, students should also be encouraged to make use of print sources – and especially books – if they are applicable to the discipline, rather than simply using electronic sources because they are perceived as being more convenient. Studies show that retention of information gleaned from electronic sources is not as high, and that it is very difficult to read a lengthy source this way (Dilevko and Gottlieb, 2002, 390). An over-reliance on electronic sources is likely to lead to shallow reading, skimming, or simply searching for keywords rather than a deep interaction with a text. Bishop describes this process of disaggregation as a natural, though not necessarily positive, extension of the common practice of using bibliographies without reading the full work, or of reading abstracts in order to evaluate the applicability of an article (1998, 31-2). Print sources, as well as not allowing a full-text search, make it easier to concentrate, given that there is no mouse to be clicked and no screen glare to deal with. Cain notes that “a modern researcher is compelled to hit keys, massage mice, drag arrows, scroll up and scroll down, print, and heed prompts of computer generated clamor,” all of which is “incompatible with the silent inactivity of leisure” and reflection, so necessary if one is to develop a deep understanding of a source (2002, 118). Mann elaborates that

"doing keyword searches of their texts for particular passages is simply not the same as the much more important work of actually reading and absorbing their intellectual content as interconnected wholes" (2001, 270-1). Gibson, similarly, indicates that critical thinking "takes time" and attention, and that "superficial coverage" of a large amount of information will tend to diminish "the opportunity for critical thinking" (1995).

Students surveyed associate print sources with quality work, while associating electronic sources with being in a hurry (Dilevko and Gottleib, 2002, 391). With this in mind, it is important to note that the original format of the source is not the issue, but rather the form in which the researcher actually studies it. Personal experience, as well as an abundance of anecdotal evidence, suggests that people tend to evaluate electronic sources briefly, as described by Bishop, and then print them out of they seem to be useful, in order to facilitate a deeper reading. Though there are certainly people who call for "an evolutionary step, perhaps a radical step, away from the print-based model," this may be more a case of giving in to a technological trend than a studied evaluation of the media themselves (Swanson, 2004, 259). In this sense, finding information "regardless of format" always seems to be used most in reference to "moving away from the print-based model," as opposed to using print or electronic sources as appropriate (Swanson, 2004, 263). Mann, who opposes this trend, argues that "the provision of free access to books, particularly copyrighted books, needs to be the central [,albeit not the only,] concern of general libraries in the 21st century" (2001, 269).

Critical thinking

In the earlier section dealing with critically evaluating sources, I emphasized that this type of evaluation is different from critical thinking. As a negative definition, then, critical thinking is more than simply evaluating a source to determine whether it is of scholarly quality or not. Curzon states that lower-order information literacy (such as source evaluation) "supports critical thinking since it emphasizes assessing search results for quality and relevance, and evaluating information choices for reliability, validity, authority, and timeliness before making judgments based on them" (2004, 33).

Appropriately, lower-order skills support higher-order ones, allowing a researcher to narrow the field before examining the sources in depth.

It is important at this point to discuss the conflation of critical source evaluation and critical thinking in the literature. Doherty, Hansen, and Kaya, for example, describe a course where students “are asked to apply critical thinking skills to information by assessing such factors as authority and bias” (1999, 5). One goal of this course is to “create students with an attitude – a critical attitude toward every piece of information they encounter” (1999, 5). Olson describes a one-session IL instruction model in which he proposes to teach “what constitutes an argument,” and the methodology of reasoning “by deduction and logical conclusions” through a Socratic dialogue with the class (2000, 310, 312). D'Angelo's article proposes to promote critical thinking by “helping students to think more critically in their selection, evaluation, and use of resources” (2003, 307). It is crucial, in terms of maintaining the academic respectability of IL instruction, that this type of mistake be avoided. Students who complete a course with “critical thinking” as one of the student outcomes need to learn a great deal more than how to recognize whether a source is scholarly or not. Furthermore, a “critical attitude” may be a valuable outlook to foster, but cannot provide students with the tools required to use their critical attitude to judge the content of a source. Students must be taught to read attentively, and to think analytically, if this critical attitude is to do anything more than foster a series of meaningless surface reactions to sources they encounter.

This deeper analysis, which I will refer to as critical thinking as opposed to critical source evaluation, implies some factual knowledge, and a range of mental skills that work together to allow one to recognize, analyze, and formulate arguments. As Kahane and Cavender put it, the question is “how to reason well in everyday life,” as well as in one's scholarly work (1998, 1). Critical thinking involves recognizing inductive and deductive arguments and their components (premises and conclusions), evaluating the validity and cogency of these arguments, and – just as importantly – recognizing fallacious arguments, and the faults in them (1998, 1-19). Most people who are familiar with academic discourse are familiar with terms like “begging the question” or “slippery slope,” but how many are prepared to teach a class about how to recognize and deal

with these forms of faulty reasoning? Worse yet, how many believe that a fifty-minute IL session is the proper place to do this?

There are a couple of specific examples from the literature which demonstrate a lack of critical thinking, and thus may be useful here. Mann goes to some lengths to describe an argument about the failure of the railroads, and the efforts that have been made to use this example as a parallel to the (so the argument goes) inevitable failure of books in this electronic age (2001, 269). Mann concludes his example, however, by showing that this argument is based entirely on faulty reasoning and inaccurate premises about why railroads failed, and that the argument proves nothing about the future of the book at all (2001, 269). The point Mann makes is that all arguments, and the premises which support them, need to be examined critically – even when they come from respected sources.

A further example comes from Davis's 2003 article about bibliographic analysis. He notes that students have less and less time, and thus have a tendency to use electronic sources, which are perceived as being more convenient (and if one is doing research the night before a paper is due, they are indeed more convenient) (2003, 49). Later on, however, he notes that the number of sources cited has increased in three of the four years of his study (2003, 49). He does not remark on the problem inherent in students with less and less time using more and more sources, and neither do any of the sources which cite his rather well-known study. It seems obvious to me that students cannot be reading more and more sources carefully in less and less time, and that this trend, should it continue, will result in a steady decline in terms of the quality of student work. Indeed, there is no reason to assume that the trend will not continue, if those with the data before them do not recognize the problem, and seek out ways to remedy it. Davis's study, along with Robinson and Schlagel's which followed it, required that students use a certain number of scholarly sources (Robinson and Schlagel, 2004, 278). It may be that this sort of artificial requirement leads to superficiality, and that students are simply citing sources they did not read because the sources themselves are required to get a good mark. If this is the case, then this approach is not nearly as positive as the researchers concluded in their studies. Rather, it seems to describe a trend toward the negative aspects of disaggregation, where students don't read to

understand, but rather to answer a question. Electronic texts may be especially susceptible to this sort of approach, given the ease of full-text searches for keywords, resulting in quotes which may be taken out of context, or indeed be entirely peripheral to the intended argument of the source. Quotations cited in this way may be entirely correct in terms of citation styles, and are not exactly plagiarism, but are certainly indicative of a faulty, and definitely not scholarly, research model.

Given a full-term course, critical thinking is one area that should be given some serious time and effort. A course that dealt with critical thinking properly would teach the specifics of diagramming an argument (recognizing the argument in a particular source, and marking it or extracting it in such a way that it can be analyzed in terms of cogency and validity). It would also deal with the requirements for an argument to be valid, and with at least the most common of the fallacies. Finally, it would deal with the purposes of constructing arguments, and with ways to put together valid arguments to fulfill these purposes. The ACRL standards, as described above, certainly outline skills and give examples which fall within the purview of critical thinking as it is defined here. I think that it is perfectly appropriate to talk about, and to teach, critical thinking in an information literacy framework. I also believe, however, that we should be careful about what skills we are going to promise to our students, especially if we are not prepared to dedicate the time and effort to teach those skills at a meaningful level. Without addressing the aspects of critical thinking outlined above, I do not think that it is reasonable, or honest, to include critical thinking as a student outcome.

Finally, though each discipline has specialized forms of critical thinking, as shown above with Manlove's and Garrett-Petts's critical reading models for literature, the elements relating to logic and good reasoning apply across all disciplines. Moreover, they can be taught using examples from current media, giving students a chance to use their newly-learned skills on topics of the day (Ward, 2001, 924). In this way, and given a general IL course for all students, all undergraduates could be expected to have the same foundation of basic intellectual skills, which they could apply to their discipline-specific studies. Critical thinking also involves learning to construct cogent arguments of one's own, along with the skills to present them convincingly to

others. This ties in with the next two higher-order skills as well, but the foundational importance of critical thinking for both of the following skills cannot be overemphasized.

Literacy, fluency, and articulate communication

Several of the sources studied in preparation for writing this paper state quite baldly that the ability to read and write is not sufficient in this day of electronic media. Roth wrote about “the shift from a print- to an image-based culture,” stating that “the visual image – not the word – is the primary means of communication and the unifying cultural force” in 1999 (42). Due to these perceived changes in society, technologically intensive skills are described as being just as “essential to the mental framework of the information-age citizen as the trivium of basic liberal arts (grammar, logic and rhetoric) was to the educated person in medieval society” and long after (Shapiro, 1996). Marcum states that “reading and writing – even in more than one language – no longer suffice,” adding that Web page design and navigation are now “required basic skills” of a literate person (2002, 13). Marcum adds, however, that “reading and writing remain fundamental skills even if they are no longer sufficient unto themselves” (2002, 15). For all of the expansive claims about the new visual media, however, the web is still largely text, or hypertext if you prefer. A traditionally illiterate person – that is, someone who is unable to read English – would no more be able to navigate the average website intelligently than they would a book. Even if they could find their way around, they would get no more from the content than would someone who flipped through a magazine, looking only at the pictures. Text is everywhere. Where people once communicated across distances by talking over the telephone, email is now ubiquitous. Where your writing once had to pass through the hands of editors before it was sent out into the world, the Web allows anyone and everyone to publish their own writing, unexamined by anything more than the spell-checker in their word processors. Traditional literacy is not an unneeded skill in today's world; it is even more necessary now than it ever was.

Reading and writing continue to be absolutely central to the scholarly life as well, and there is no reason to expect that this will change. Behrens describes information literacy not as a replacement to, but as a necessary extension of, the “literacy realm” (1994, 316). This being the case, we need to recognize the differences between the

abilities students will have brought with them from high school, and the skills required for reading and writing at a university level, or in later lifelong learning situations. While it is not reasonable to have to teach students how to read as they enter an undergraduate IL course – though this is certain to come up from time to time, and institutions should have programs ready to help in these situations – it is certainly reasonable to expect that someone will have to teach them how to read at a post-secondary academic level. Academic reading at this level requires “sustained attention and enjoyment” of the source and the subject, as well as the use of all of the skills described above, as the students read (Cain, 2002, 115). They must be able to find appropriate sources, evaluate them in terms of validity, record their citation information if they are useful, and apply critical thinking skills to the content of these sources. These elements of information literacy comprise the basis of academic reading.

Before beginning to do research, however, a student must have a topic, or thesis question, in mind. Isbell and Kammerlocher discussed the application of Kuhlthau's six-stage research model to IL instruction (1998, 34). Their main idea is that selecting a topic takes up far more time and effort than one would think, given the focus of most IL instruction – which tends to deal mainly with searching (1998, 34). Part of the reason for this is that developing a thesis is a higher-order skill, and thus is ignored in most (modest) IL instruction. Before a student can begin to do research on a specific question, they must first develop a general question, do some general reading on the topic, and then possibly narrow the focus of their question (Isbell and Kammerlocher, 1998, 136). Only at this point does the real search for sources begin. Rockman states that “studies have shown that students are entering college and university environments without fundamental research and information competence skills (for example, the ability to formulate a research question, then efficiently and effectively find, evaluate, synthesize, and ethically use information pertaining to that question)” (2004, 9). These are skills which fall under the broad – or ambitious – definition of IL, and which should certainly be discussed in a term-length course. Academic writing, like academic reading, requires the use of all of the elements of IL addressed earlier. Critical thinking is especially crucial, since most academic writing is persuasive in nature, in that the author is attempting to convince the reader that the thesis of the paper is correct. This

requires, or should require, and argument that is presented in a series of well-supported points, which themselves form the framework for the paper. If this basic structure is lacking, or the argument it advances is flawed, then the paper will not prove the thesis and will ultimately be unsuccessful as academic writing.

It is clear, then, that reading and writing are very closely linked in an academic setting. They require time and attention – Cain's leisure and reflection – as well as interaction with lengthy texts (Mann, 2001, 271). Though professionals will tend to read far more than students do, and read in a far wider range as well, students also need to read in order to write, and need to formulate questions in order to be able to find applicable sources to read. IL instruction can, and should, be applied to both of these areas, especially in terms of using the other topics of IL (as described above) to support an academic level of literacy and communication.

Philosophical foundations

A final higher-order instructional goal should be to deal with some of the questions about information itself. This does not relate to any particular set of skills, but could be one of the focuses for instruction in critical thinking, reading, and writing. Questions about the nature of information, the difference between information and knowledge, and the place of information in society would provide some excellent and applicable topics for these discussions. Other areas of interest might include intellectual property and copyright, the digital divide, print versus digital media, and the role or influence of society on the production of information. Ward emphasizes the importance of discussing topics that are important to students, but there is no reason to sink into triviality in order to find such topics (2001, 922). Any of the topics listed above could stimulate an interesting and meaningful discussion, but the main focus would have to be on developing a valid argument to support a particular view of the topic, after having discussed it enough to bring out some of the complexities inherent in it.

Differences between disciplines

One recurring argument against the applicability of teaching higher-order skills within an IL framework is that these skills are specific to each discipline, and should be

taught within each discipline, using examples from that discipline. In this way, English majors would learn how to read literature critically, philosophy majors would learn how to read philosophy, science majors could ignore both and just read scientific articles, and computer science students could avoid reading altogether. The ACRL standards, for example, state that an information literate person “differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline” and “identifies appropriate investigative methods” (2000, 8, 9). These standards relate directly to adapting general information literacy skills to different disciplines (or other non-academic areas of inquiry, for that matter).

Still, it is important to recognize similarities between disciplines as well as differences between them. While it is certainly true that there are some forms of critical thinking which are specific to each discipline, it is also true that these specific forms are built on a common foundation that has not changed since Aristotle. A valid argument is valid whether it is in philosophy or geometry; the same rules apply, though both context and content may be different. Moreover, the trend toward preparing students for lifelong learning would seem to indicate that learning only the specific methods of thought which apply to one's own discipline may not be sufficient. This is likewise applicable to knowledge about sources of information, and the requirements of academic writing. Information literacy skills are generally applicable to all disciplines, and could – in the ambitious full-term class mode – form part of the foundation for academic work in any discipline. As Grafstein proposes, IL instruction should introduce students to “the broader, process-based principals of research and information retrieval that apply across disciplines” (2002, 197). That said, it is also important that students recognize the specific requirements of their discipline, and develop the specific abilities or outlooks which are required to meet these requirements (Grafstein, 2002, 200).

Conclusion

This paper set out to question the applicability of current information literacy models to humanities undergraduates, using English literature students as a specific example. Application of the tool-based approach to information seeking in this setting,

which is common in the current “modest” form of IL instruction, is based on a false understanding of scholarly research in the humanities. Breivik, for example, states that “English courses, especially those concerned with writing, are a natural place to emphasize research skills. What good is it for students to write well if they have nothing worth writing about? The grandest prose loses impact if filled with inaccuracies and vague, general statements.” (1998, 65). While this is true, I would also argue that the grandest research loses impact if it betrays a lack of personal interaction with the primary text. The model of scholarly research in the humanities described in the first section of this paper, and especially the part dealing with the methodology of critical reading as it applies to literature, emphasizes the importance of the primary text, and more than that the importance of a personal reaction to that text. Emphasis on information-seeking, without understanding that the process of writing must begin with a personal view of the text and a thesis which springs from that view, will result in students looking to secondary sources first, rather than to the primary source. This will not only keep students from learning to develop their own critical voice and their own critical reading abilities (as they apply to literary texts), but will result in the “disturbing decline in both the quality of the writing and the originality of the thoughts expressed” that Rothenberg condemns (1998, 59).

Given this problem, and adding to it the issues that students have with the enormous, and constantly growing, quantity of secondary literature available for any source they are likely to be introduced to in their undergraduate programs, it might well be better in the long term to require that undergraduate humanities students not do secondary research at all. This would force them to deal with the primary texts personally, and would avoid all of the problems inherent in dealing superficially with a large number of secondary sources. As stated earlier in the sections on undergraduate and graduate-level humanities students, secondary research could be added to primary research in a gradual way over the course of the degree. At any level of study, however, secondary sources will always be less important than the primary source, and this perspective must be introduced to the undergraduates and maintained throughout the course of their literary studies.

Information literacy, in its most common current form, is taught as a single class or tutorial, at the invitation of a regular faculty member. In this setting, it is quite appropriate to address lower-order IL skills, such as citation, critical source analysis, and the tool-based aspects of information-seeking. These skills are different to a certain extent in any given discipline, thought the basic elements will remain constant. For example, accepted citation styles will differ, but the content of the citations and the reasons for having and using this information remains the same. Similarly, criteria for acceptable currency may be different in literary studies than in science, but it is still a factor to be considered; the main databases for different disciplines may differ, but the general methodology for constructing searches remains – to a greater or lesser extent depending on the database – reasonably consistent. It should be possible to discuss specific requirements of a given discipline with the faculty members requesting IL sessions in their classes, and then ensure that either the IL instructor or the professor emphasizes those specific requirements, either in the session or in regular classes.

In an institution which has implimented a full-term course, whether for credit or not, whether required or not, it will be possible to cover the higher-order aspects of IL as well as the lower-order aspects mentioned before. This course, if it covered the higher-order aspects thoroughly, would be a valuable addition to any undergraduate curriculum, and would provide, as stated earlier, a common ground for students of all disciplines, which would serve them not only as students or as academics, but as lifelong learners and citizens as well.

Recommendations for further research

As I have been researching and writing this paper, two areas of possible further research have become obvious. One such area deals with the best methodology for teaching and assessing critical thinking and academic reading skills. Academic writing is assessed regularly, but the reading and critical thinking happen in the background, though it should be obvious when they fail to happen. If an IL class is to teach critical thinking, a reliable method for assessing those skill would be necessary. Philosophy courses might be a place to start looking for an assessment framework.

Given the ability to assess these skills, it would also be very interesting to test the critical thinking abilities of incoming undergraduates. These assessments need have nothing to do with admissions or with entrance to programs, but it would be helpful to have a way to gauge any improvement over the course of an undergraduate degree, or through graduate studies.

Appendix A: Current Web resource guide survey instrument

Evaluation Questions

1. Access to information literacy guides.
    a) How many clicks does it take to get to the guides from the main university home page? (#) From the library page? (#)
2. Integrating information literacy with the university as a whole.
    a) Is information literacy promoted as a requisite skill for the student body as a whole? (Link from home page, “Why you need to be info literate” or similar)
    b) Are the guides accessible by free-text search from the main university home page? (Y/N)
    c) Are there links to information literacy resources from faculty web pages? (Y/N)
    d) How are the guides categorized, listed, or described on the library web page? (Description.)
    e) Are they linked to faculty web pages? (Y/N)
    f) Are there specific information literacy resources for individual faculties or subject areas? (Y/N)
    g) Are these resources hosted on the library site? (Y/N)
    h) Are online tutorials linked to live (not online) information literacy classes? (Y/N)
3. Information literacy guide content.
    a) Is information literacy defined? (Quote if applicable).
    b) Are there guides dealing with web source evaluation? (Y/N)
    c) Are there guides dealing with citation styles? (Y/N)
    d) Are there guides dealing with anything else, like critical thinking, research methods, and so on? (If so, what?)

Institutions to be evaluated: University of Alberta, Memorial University, Dalhousie University, Acadia University, and the University of New Brunswick.

Web Guide Evaluation Record

University: _____

Access to information literacy guides.

Clicks from main page: _____ Clicks from library page: _____

Integrating information literacy with the university as a whole.

Is information literacy promoted from home page (Y / N)

Accessible by free-text search the main page? (Y / N)

Links to IL resources from faculty web pages? (Y / N)

How are the guides categorized, listed, or described on the library web page?

Describe: _____

Are they linked to faculty web pages? (Y / N)

Are there IL resources for individual faculties or subject areas? (Y / N)

Are these resources hosted on the library site? (Y / N)

Are online tutorials linked to information literacy classes or orientations? (Y / N)

Information literacy guide content.

Is information literacy defined? (Y / N)

Are there guides dealing with web source evaluation? (Y / N)

Are there guides dealing with citation styles? (Y / N)

Are there guides dealing with any higher-level skills, like critical thinking, designing and analyzing arguments, and so on? (Y / N)

Describe: _____

Notes.

Appendix B: Current Web resource guide survey

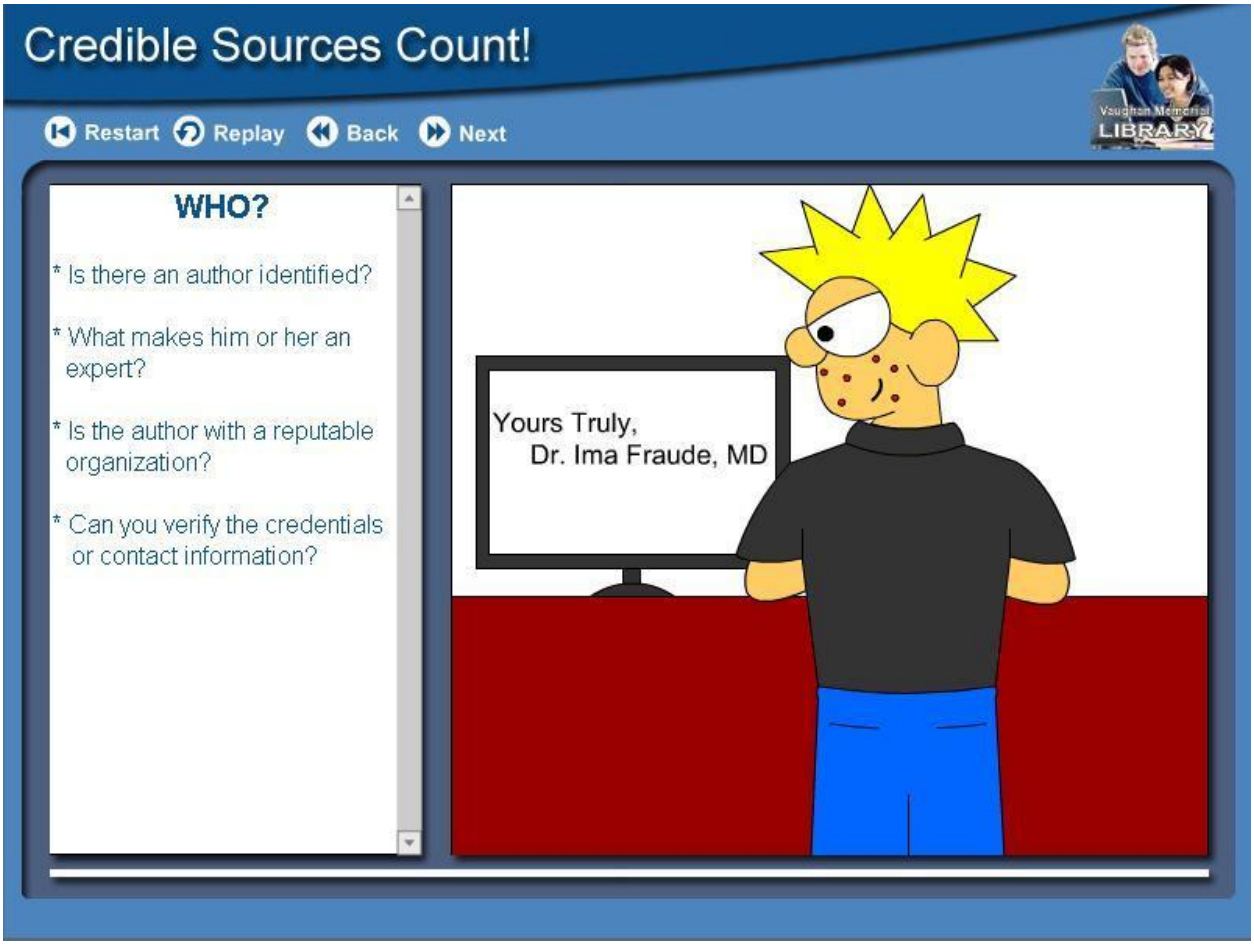
Institution	University of Alberta	Memorial University	Dalhousie University	Acadia University	University of New Brunswick
Clicks from main page	2	2	3	2	3
Clicks from library page	1	1	1	1	1
Guide Access Totals:	**3**	**3**	**4**	**3**	**4**
Promoted from home page?	0	0	0	0	0
Free-text search?	1	1	1	0	1
Linked from faculty pages?	0	0	0	1	0
Linked to faculty pages?	0	0	0	0	0
Resources for faculties?	0	0	0	1	1
Hosted on library site?	1	1	1	1	1
Tutorials linked to classes?	0	0	1	0	1
University Integration Totals:	**2**	**2**	**3**	**3**	**4**
IL Defined?	0	1	0	0	0
Web source evaluation?	1	1	1	1	1
Citation guides?	1	1	1	1	1
Higher-level thinking skills?	0	0	0	0	1
IL Guide Content Totals:	**2**	**3**	**2**	**2**	**3**

Survey results are mostly in a Yes/No format, with a 1 recorded for 'Yes' and a 0 for 'No'. The exception to this rule is the the two 'clicks from' evaluations in the first section. In this one section, higher scores reflect more mouse clicks required to access the IL resources.

Appendix C: Dalhousie University Web Capture

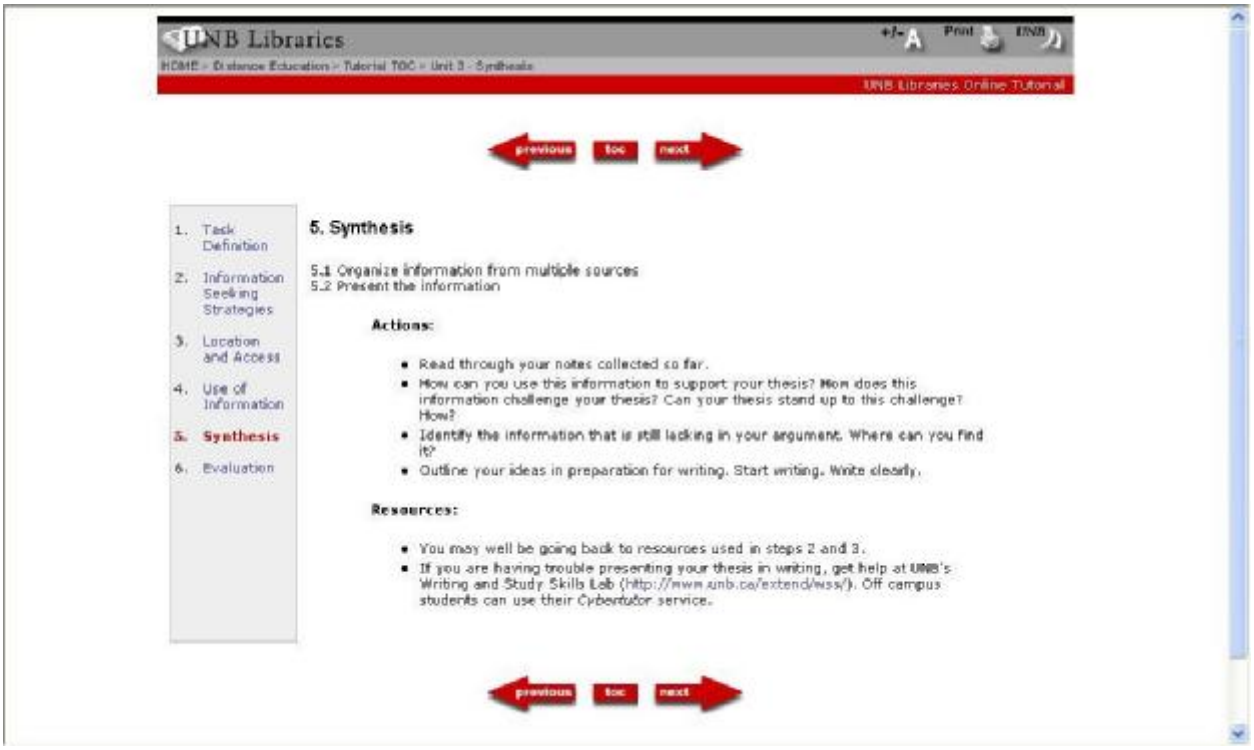
This source can only be accessed via WebCT, which requires a Dalhousie username and password. If you have them, the entry page is at <http://www.library.dal.ca/how/emodules/webindex.htm>.

Appendix D: Acadia University Web Capture



This tutorial can be accessed from <http://library.acadiau.ca/tutorials/webevaluation/>.

Appendix E: University of New Brunswick Web Capture



This particular page was captured from <http://www.lib.unb.ca/disted/tutorials/unit3/3_08.html>.

The whole set of tutorials for distance students can be accessed at <http://www.lib.unb.ca/disted/tutorials/>.

Appendix F: Annotated Bibliography

ACRL (1989). *Presidential committee on information literacy: Final report.* Retrieved July 10, 2005, from http://www.ala.org.

The Presidential committee report is quite dated at this point, but the definition of information literacy developed in this report is still very influential. Generally, the report describes the abilities of a person who has "learned how to learn". Information literacy is described not only in terms of finding information, but also in terms of recognizing faulty information - a way to resist being misled. The focus is on developing lifelong learners, which is good, but the premise that this can be done in the checklist-type learning proposed by this document is questionable, and is questioned in several of the other sources. Moreover, the premise that critical thinkers (as opposed to critical source evaluators) can be developed in this way is doubtful at best. The report also suggests several ways to evolve education in the direction of information literacy, such as allowing and encouraging students to research questions of "personal interest" as opposed to the more traditional approach. Like most proposals, this has some merits, but the move to replace fact-based learning with "learning to learn" leaves very little which can be tested, and while it adds freedom to the educational program, it also reduces intellectual discipline (which is likely to be necessary on the job). This report will provide some excellent points to argue for and against, and provide a reasonable starting point for the discussion about appropriate definitions of information literacy.

ACRL (2000). *Information literacy competency standards for higher education.* Chicago: The Association of College and Research Libraries. Retrieved July 10, 2005, from http://www.ala.org.

The list of competencies is generally quite good, following the outline from the Presidential Committee which has become the standard. The third standard, "The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system," is the one which may be problematic (11). To say, for example, that one outcome is "Analyzes the structure and logic of supporting arguments or methods" is to say a lot

(11). As stated in Rockman earlier, the 3.1.A injunction for researchers to read the text and select the main ideas may not be explicit enough for some researchers. Furthermore, 1.2.E (Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline) may be similarly problematic. This document provides the bare outlines which would solve some of the issues raised by undergraduate research in the humanities, though they may not be applied or interpreted carefully enough to actually solve the problems. Generally, this is a very ambitious list, and is arguably beyond the abilities of any one teacher or program, never mind the brief tutorials often used to teach information literacy. This document is the standard for the construction and assessment of information literacy programs, and any problems or assumptions in the document are reflected in some of the common difficulties expressed about information literacy programs, as well as student performance in this area.

Adler, M.J. & Van Doren, C. (1972). *How to Read a Book - Revised and Updated Edition.* New York: Simon and Schuster.

Adler's classic on critical reading will provide some of the examples on how to read a text attentively: how to mark a text, how to note and evaluate an argument, and so on. The book is more general than Bloom's and Garrett-Petts's, but also gives some suggestions on how to read literature in particular, giving attention to the work as a whole, and the work in its parts.

Behrens, S.J. (1994). A conceptual analysis and historical overview of information literacy. *College & Research Libraries, 55*(4), 309-322.

Behrens, writing five years after the ACLR presidential report, gives a great overview of information literacy literature from the 1970s to the mid-90s. In particular, she notes that understanding information is just as important as finding it in the first place. According to Behrens, the ACRL standards were a major factor in bringing information literacy to the public's attention, as well as to prominence in academia. She also notes the change of focus from literacy to technological literacy, and the evolution

of literacy as a general concept, especially in terms of literacy as a multi-faceted continuum as opposed to a true/false state.

Bishop, A.P. (1998). Digital libraries and knowledge disaggregation: The use of journal article components. *Digital Libraries.* Retrieved July 5, 2005, from http://portal.acm.org.

Bishop's most important theme is that disaggregation is nothing new, though it is easier to notice due to technological innovations. For example, quoting a passage and photocopying a bibliography (separately from the article which contained it) are common examples of disaggregation. She also notes the historical practice of producing "commonplace books" - essentially collections of quotes which were interesting to an individual, sometimes carefully attributed and sometimes not. Bishop described several motivations for article component use, such as improved searching (using titles or keywords) and assessing relevance (using abstracts). In this sense, abstracting is another method of extracting interesting information and ignoring the rest. She also reports a method of reading articles which applies disaggregation techniques, but does not include a thoughtful reading of the text. Some readers mentioned the importance of context, which would indicate a more careful reading, but others "claimed to use only extracted components". It is possible that the readers surveyed did read the articles after the abstracts, headings, diagrams, conclusions and so forth, but this should not be assumed. Bishop also notes that students at different levels have different used for article components - for example, undergraduates do not know who is important in the field, and are likely to focus on topics rather than authors, while graduate students may use author or affiliation to narrow or improve the quality of their searches.

Bloom, H. (2000). *How to Read and Why.* New York: Touchstone.

Bloom's book, like Garrett-Petts's, deals with the specific critical methodology involved in reading literature, poetry and drama. The introduction, in particular, deals with the question of why reading is important at all, and will provide some excellent sources for the section on the special demands of humanities scholarship.

Boyer Commission on Educating Undergraduates in the Research University (2001). *Reinventing undergraduate education: A blueprint for America's research universities.* Retrieved July 10, 2005, from http://naples.cc.sunysb.edu/Pres/boyer.nsf/.

The Boyer Commission's report has been cited and quoted frequently in the literature, and many of the proposals for the direction of undergraduate education seem to be having an effect, at least in the literature. Discussions of active learning, for example, do not all originate in this report, but many do draw on it. For example, the report discusses "the failure of research universities seems most serious in conferring degrees upon inarticulate students", noting that some students "graduate without knowing how to think logically, write clearly, or speak coherently," outcomes which related directly to the proposed higher-level goals of some IL programs. The report suggests that students receive "training in the skills necessary for oral and written communication at a level that will serve the student both within the university and in postgraduate professional and personal life". The report, however, describes the changes being made at the time as largely cosmetic, in that adding a new course to an otherwise unchanged discipline is bound to be ineffective on the whole. The report also encourages an inquiry- (or research-) based approach to all levels of university instruction. This may be more problematic, as noted by Whitmire, Cain and others, but also answers questions about sustaining student interest and allowing students to develop to the full extent of their abilities. The report encourages the use of a freshman transitional year program, designed to teach the students the foundational skills and mental habits applicable to scholarly work. This may link with the Kings Foundation Year Program. Finally, the report also suggests that all students be trained as teachers as well as effective communicators. Somewhat like the ACRL guidelines, this report is so ambitious that it is relatively unlikely that it will be taken seriously in its entirety. The cosmetic changes described above are far more likely, given that changes - especially in firmly established academic programs - may be extremely difficult to implement. That said, IL instruction, cosmetic or no, can at least help with some of the more obvious problems with the current curricula.

Bracke, P.J., Dickstein, R. (2002). Web tutorials and scalable instruction: Testing the waters. *Reference Services Review, 30*(4), 330-337. Retrieved July 5, 2005, from http://proquest.umi.com.

This article focuses on the instructional aspects of information literacy, which is at most a secondary consideration for this paper. I will not be using this source any further, though it would be of interest in a more instruction-focused paper.

Breivik, P.S. (1998). *Student Learning in the Information Age.* Phoenix: Oryx Press.

Breivik's book gives a good general introduction to the general challenges of information literacy, from student assessment to program design. Most of the topics discussed in the book have been dealt with specifically and in more depth in other articles, but Breivik pulls disparate concepts together very well. I will use several sources taken from this book, but probably only a couple of quotes (the section on discipline-specific research for English presents some interesting ideas that are worth discussing).

Brockman, W.S., Neumann, L., Palmer, C.L. & Tidline, T.J. (2001). *Scholarly work in the humanities and the evolving information environment.* Washington: Council on Library and Information Resources. Retrieved February 13, 2005, from http://www.clir.org/pubs/reports/pub104/pub104.pdf.

This paper is an extensive report on research in the humanities, and rounds out the other articles by Stone, Watson-Boone and Ellis. This report emphasizes the importance of deep, extensive and consistent reading for humanities scholars. These scholars tend to have extensive personal libraries, as well as personal subscriptions to key journals, so that libraries are used mainly for skimming as opposed to deep reading. Citation mining is still the most effective and popular method of finding sources, though the use of databases and other online source is increasing. The old view of humanities scholars as technophobes is outdated at this point, though humanities scholars still do not find electronic sources as central as do those in the sciences or social sciences, though those who do make use of them are often impressed. On the other hand, humanities scholars do make extensive use of libraries,

and especially of special collections within them, and this is not likely to change given the priority on physical contact with the original source. The report also details some search areas where scholars have are overly confident in their abilities, or in the abilities of databases they use (not knowing some of the weaknesses in the MLA database, for example). The report also discusses the differences in composing texts electronically, and publishing them that way. Prestige and control are still the main reasons for publishing in traditional journals, especially where publishing in such journals is tied to promotion or tenure. Email and bibliographic database use are cited as trends in current scholarship. The report ends by encouraging humanities scholars, who are generally concerned with textual information, to involve themselves in the technological changes in the discipline, rather than leaving all the leadership to programmers. This report, along with the others, provides plenty of information about the specific needs of humanities scholars.

Cain, A. (2002). Archimedes, reading, and the sustenance of academic research culture in library instruction. *The Journal of Academic Librarianship, 28*(3), 115-121. Retrieved July 10, 2005, from http://www.sciencedirect.com.

Cain's article is excellent, and will be a pivotal source. She deals with the idea that academic research is predicated on leisure, reflection, and originality, which are each imperiled by the hustle and pressure of the present academic context. She notes that incoming students, especially undergraduates, may not have the ability to read scholarly sources in a scholarly way, and may be under too much time pressure to be able to take to time to learn. This same pressure, increased by many students by working part-time, leads to a lack of time for reflection, which is bound to decrease their abilities to produce perceptive and original work. Similar pressures also affect faculty, who experience increased teaching loads as well as research, committee membership and community involvement. Cain emphasizes that consumption of information is not the same as reflection on it, and that this sort of consumer mentality is aimed at immediate production and satisfaction. This mentality is antithetical to the traditional attitude of the scholar, and it is not surprising that scholarship is changing in ways that reflect these societal changes. She also notes that electronic access to information

requires physical activities which are not conducive to leisure (such as the constant scrolling and clicking of the mouse), and which keep the reader's focus on the exterior. Finally, Cain takes issue with the ACRL standards, which she describes as "quasi-scientific", but "failing as both science and philosophy". This is one of the main articles which I will use to discuss potential problems with these standards, and with the idea of information literacy as it is commonly described. In the end, it seems clear that allowing students to avoid reading because they are not accustomed to it or, even worse, telling them that reading pieces on information off the internet is good enough, does a real disservice to the students themselves, as well as to scholarship in the present and the future.

Case, D.O. (2002). *Looking for information - A survey of research on information seeking, needs, and behavior.* San Diego: Academic Press.

This book offers a great overview of information-seeking literature, and especially on methods and frameworks used to study information seeking, but there is very little on information literacy as such, or on humanities scholars or students in particular. I did get some excellent sources from the bibliography, but I won't use anything directly from this source for the paper.

Curzon, S.C. (2004). Developing faculty-librarian partnerships in information literacy. In *Integrating information literacy into the higher education curriculum - Practical models for transformation* (pp. 29-46). San Francisco: Jossey-Bass.

Curzon's chapter on Developing Faculty-Librarian Partnerships states quite clearly, in contrast to Rockman's chapter, that information literacy "supports critical thinking since it emphasizes assessing search results for quality and relevance, and evaluating information choices for reliability, validity, authority, and timeliness before making judgments based on them" (33). This reflects the definition of information literacy as Curzon says it is generally taught and assessed, though not as it is defined by Rockman or by the ACRL. This definition, then, will offer a contrast to the different definitions proffered by Rockman. More importantly, Curzon also discusses several of the different models which can be used to teach information literacy, such as the

introduction model (where orientation tutorials are offered to freshmen), and the on-demand model (the most common in use today according to Curzon, this model means that individual professors ask a librarian to teach an information literacy session in one of their classes). These models are important in terms of describing and assessing the integration of information literacy sessions and materials into different curricula. They may also offer some insight when discussing the information literacy aids and tutorials that different universities offer online.

D'Angelo, B.J. (2001). Using source analysis to promote critical thinking. *Research Strategies, 18,* 303-309. Retrieved July 10, 2005, from http://www.sciencedirect.com.

This article is another example of the confusion in the field between critical evaluation of resources and critical thinking as it is defined in this paper. D'Angelo describes library instruction which teaches students to evaluate sources based on 'relevance, credibility and validity', focused on helping students understand the differences between different types of sources. There is nothing wrong with this, but it isn't what is meant by critical thinking. This article is just one example among many, and will likely be referred to as such.

Davis, P.M. (2003). Effect of the Web on undergraduate citation behavior: Guiding student scholarship in an networked age. *Libraries and the Academy, 3*(1), 41-51. Retrieved June 20, 2005, from http://proquest.umi.com.

This article is the conclusion to a five year study of undergraduate citation patterns which produced two previous articles as well. This article summarizes the content of those much-discussed articles as well as offering points of discussion. There are some questions about assumptions made in this study (such as labeling all books as scholarly sources), but the general trends discovered - or at least quantified - are of interest tot he field as a whole. In general, the number of citations per paper is increasing, and the proportion of quality sources is increasing as well (indicating some success via information literacy instruction). Davis states that students may be turning to the internet - or electronic versions of scholarly sources - because they are busier,

but the increasing number of citations makes this more than problematic. To state that students have less time but are citing more sources would seem to indicate that that are reading less carefully, as opposed to more. Davis's suggestion is to require a minimum number of scholarly sources for each assignment, but this just plays into the trend toward superficiality. On the whole, this study has provided some interesting statistics, and a look at the trends in undergraduate research. In the specifics, though, it also leads to some real problems in terms of Cain's leisure and reflection paradigm.

Dilevko, J. & Gottlieb, L. (2002). Print sources in an electronic age: A vital part of the research process for undergraduate students. *The Journal of Academic Librarianship, 28*(6), 381-392. Retrieved February 13, 2005, from http://www.sciencedirect.com.

This study establishes some of the differences in research habits between different disciplines, for undergraduate students. According to this study, while use of Internet resources is increasing, students still hold print resources in high regard. This applies especially to books, as electronic journals, or article databases, become more and more available. Books are typically understood to give more in-depth information, which is reassuring. Print periodicals are also used extensively, and significant proportions of students expressed a preference for print journals or newspapers as opposed to electronic versions. Reasons for this preference include printing costs, serendipity, and the affordances of paper. For those who did prefer electronic versions, the primary motivation seems to be time. Undergraduates surveyed chose overwhelmingly in favor of less convenient sources with better information, though this type of response should be treated with a certain amount of skepticism, even on a web survey like this one. The authors quote Mann about the importance of books as opposed to electronic texts for long-term reading, and students surveyed express some of the same opinions (basically, that reading off the screen is awkward and makes annotating or text-marking difficult). In this context, electronic sources are used by those who are so pressed for time that they are forced to use keyword searches and the cut-and-paste essay writing technique instead of putting in the time to think for themselves. If this article is correct, and the results can be replicated at other schools

and over time, then the use of scholarly books (in print form) as sources should be the single strongest indicator of quality research. This difference may or may not affect the student-s marks, but it could be an indicator of quality information literacy habits.

Doherty, J.J., Hansen, M.A. & Kaya, K.K. (1999). Teaching information skills in the information age: The need for critical thinking. *Library Philosophy and Practice, 1* (2), 1-9. Retrieved July 10, 2005, from http://www.uidaho.edu/~mbolin/lppv1n2/doherty.pdf.

The major contribution of this article is that it goes beyond the typical source evaluation model, and actually includes some critical thinking. This is, in fact, an excellent example of what someone who is not trained in classical critical thinking would produce if they were conscientiously trying to teach students how to be more critical. The main problem is that, while the motivation is laudable, the specifics are insufficient. For example, Doherty praises skepticism as a trait for students, and explains that the critical ability to recognize and question assumptions in a rational manner is one of the outcomes of the course. One method used is to have the students debate current issues, having researched one side (or both sides). This is certainly a worthwhile goal, and one method of developing the habit of critical thinking, but all of this is done as part of a seminar course which also deals with information seeking and source evaluation. Recognizing assumptions, not to mention fallacies, is a complicated task which requires a great deal of factual knowledge about logic - a real problem in a class where one hopes to avoid teaching in that most dehumanizing of formats, the lecture. While teaching source evaluation as critical thinking is certainly problematic, at least it is clear that students are not being taught logic or rhetoric, whatever the label may be. With this type of class, there may be a real danger with teaching superficial critical thinking, and developing students who believe they have learned something much more complex. Worse yet, the teachers may believe it as well.

Eadie, T. (1990). Immodest proposals. *Library Journal, 115*(October), 42-45.

Eadie's article, expressing doubts about the validity of IL instruction in general, has been echoed sporadically over the years, and still makes some interesting points.

The first is that the hard part of research is typically not finding material as such, but rather "making sense of it". IL, in Eadie's view, came about not because users asked for it, but because librarians thought it would be good for them. This is problematic because scholars do not do research the way librarians do, and in this sense IL instruction may not be helpful in terms of developing a scholarly research model. Also, because IL is often taught in isolation, concepts are not applied to specific questions of interest before being forgotten, and thus may not be used at all. All of these concerns are still relevant today, so Eadie's article is a good beginning point for a literature that is critical of IL itself.

Ellis, D. & Oldman, H. (2005). The English literature researcher in the age of the Internet. *Journal of Information Science, 31,* 29-36. Retrieved February 13, 2005, from http://jis.sagepub.com.

This article is the most recent evaluation of the information seeking habits of English literature scholars. There is nothing terribly shocking in the article, but it does have a good discussion on the problems of publishing electronically (largely concerns about recognition and copyright), as well as the growing scholarly use of email. This will not be a major source, but will provide a few interesting quotes about general research habits and preferences.

Fister, B. (1992). The research processes of undergraduate students. *Journal of Academic Librarianship, 18*(3), 163-169. Retrieved August 9, 2005, from http://homepages.gac.edu/~fister/JAL1992.html.

Fister's article is another of those seminal articles in the field which is frequently cited by more recent works. This examination of undergraduate research methods begins by delineating some of the differences between the expert and novice research models, including finding a research focus, gathering evidence, and dealing with contrast. Fister concludes that finding a focus for research is a problematic stage for undergraduates, as they "don't know enough about a field to see its holes," and that typical librarian's techniques for narrowing a topic are not helpful in terms of creativity or originality. She also notes that citation tracking can be more useful, though this is

typically described as an expert research method. This article is an excellent foundation for the undergraduate research section.

Garrett-Petts, W.F. (2000). *Writing about literature.* Peterborough: Broadview.

This book is a succinct introduction to the concepts of literary criticism for the undergraduate. It is most notable for its success in balancing the four main aspects of literary scholarship: a personal understanding of the primary text, a recognition of different aspects of scholarship within the field, discussion of personal reflections with colleagues, and the reflection of or response to previous critical work. This source will be useful when discussing the specific demands of humanities scholarship. Notably, though Garrett-Petts suggests that undergraduates can consider critical sources as well as personal responses, in the three undergraduate essays he includes as examples of successful undergraduate research papers, the only source included is the primary text. He also includes three professional essays, which typically include between six and eight critical sources. So, though Garrett-Petts talks about undergraduates including textual, field, critical, and social aspects when discussing a source, he only shows them demonstrating textual, social, and field (in very general terms) criticisms: it is the professionals who include the critical discussion as a part of their papers.

Gibson, C. (1995). Critical thinking: Implications for instruction. *RQ, 35*(1), 27-35. Retrieved August 1, 2005, from http://www.ala.org/ala/rusa/rusapubs/rusq/specialfeatures/rspawardwinning/19971/1997.htm.

Gibson believes that critical thinking skills are part of all of learning, but that skills must be linked to specific activities to be taught. Critical thinking involves evaluating arguments and sources as a whole, but it also involves learning to evaluate one's own thinking. Like many others, Gibson states that IL instruction, especially if it is to include critical thinking, needs more time in terms of the curriculum as a whole. At the same time, only general skills can be taught in IL sessions; "specific skills are best taught at the time and point of need," which is probably in the course of a reference interview. A librarian can demonstrate critical thinking to students in this type of setting, and within

the context of a particular question the student is actually interested in, in a more specific way than with class instruction on general topics. Gibson's proposals, though, seem to have had little effect during the past ten years.

Grafstein, A. (2002). A discipline-based approach to information literacy. *Journal of Academic Librarianship, 28*(4), 179-204. Retrieved July 5, 2005, from http://www.sciencedirect.com.

Grafstein makes the very important point that information literacy skills are generic skills which can, and must, be applied to every discipline. This being the case, she proposes that they be taught as a part of each discipline, as opposed to as a separate field of learning. This approach takes information literacy away from the library, it is true, but it offers a solution to the problems of superficiality that plague on-call library instruction. Given this approach, librarians would be able to teach what they are experts at (finding information) and leave the higher-order skills (like analyzing and evaluating arguments) to the disciplinary courses which have the content to support critical thinking instruction within the framework of the current active learning paradigm. These skills are nothing new, though the current focus on information literacy has brought them to the fore once again. Grafstein also makes the point that the impermanence of information may have been overstated. In fact, the core knowledge of each discipline, and how new knowledge is applied to the discipline, remains largely consistent. The most important factor is that information literacy has to be taught within the context of a discipline, rather than as a (falsely) separate discipline of its own.

Grimes, D.J. & Boening, C.H. (2001). Worries with the Web: A look at student use of Web resources. *College & Research Libraries, 62*(1), 11-23.

Grimes and Boening conclude that students do not do well in terms of critical thinking, especially in terms of judging web sites. Their study indicated that students regularly use web resources of poor quality without recognizing this, and that teachers who are unfamiliar with what the web has to offer may not realize that students need more direction. They suggest that teachers and librarians make critical thinking and evaluation a part of the regular teaching program. For Grimes and Boening, however,

critical thinking is linked only with evaluation of the validity of a source, rather than an in-depth analysis of the source itself. Basically, their main concerns center around students finding valid sources (search strategies), and ignore any deeper evaluations.

Intersegmental Committee of the Academic Senates (ICAS) (2002). *Academic literacy: A statement of competencies expected of students entering California's public colleges and universities.* Sacremento: ICAS. Retrieved July 15, 2005, from http://www.academicsenate.cc.ca.us/Publications/Papers/AcademicLiteracy/main.htm.

To quote from the executive summary, "this document reports what faculty from all three segments of California's system of higher education think about their students' ability to read, write, and think critically". This report, given the lack of a matching Canadian document, will provide some points of reference for the goals being set for students entering university. The first section of the report, and the one on which I will focus, deals with "academic literacy: reading, writing, and thinking critically," and how these skills can be fostered in an educational curriculum. Other sections of the document deal with competencies and teaching strategies, which will provide smaller points of interest. Key points include the idea that analytical thinking must be taught, and that analytical reading skills are one of the greatest determining factors in a student's success at the university level, as well as in general intellectual life. The importance of critical thinking, or academic literacy as it is called in this report, is clearly a point of emphasis for the entire document. Although this report does try to establish these abilities as a necessary prerequisite for university-level scholarship, the reality is that some proportion (arguably a large proportion) of present and incoming students will not possess these abilities. Given the all-inclusive nature of some definitions of IL, these problems may become problems that librarians, along with the rest of the faculty, are forced to deal with. The report also gives some anecdotal evidence about the abilities of incoming university students, which will be of use when discussing specifics of undergraduate research and IL training.

Isbell, D. & Kammerlocher, L. (1998). Implementing Kuhlthau: A new model for library and reference instruction. *Reference Services Review, 26*(3/4), 33-43. Retrieved July 31, 2005, from http://oberon.emeraldinsight.com/vl=11716214/cl=20/nw=1/rpsv/cgi-bin/emeraldft.

Isbell describes an IL program which focuses on the initial stages of research (developing a topic and exploring before focusing) as opposed to fixating on the information collection stage (which is described as the typical focus). In this way, librarians can be involved in helping students explore and find a topic of interest to themselves, rather than only becoming involved at the later stages. This may be problematic in some senses, as other authors have noted that librarians' methods of narrowing a topic are not necessarily compatible with exploring a topic in the way that a scholar would. If this model can be used, however, it would involve librarians in a more long-term way, rather than simply as a source for quick answers. There are certainly questions about this approach, both in terms of search methods as described above, but also in terms of expertise in a particular topic area. Students often go to their professors for help narrowing a topic, but they do not seem to approach librarians at the initial stages of the research process, and it is doubtful that they would do so on their own. This may, in some ways, be just one more case of librarians trying to widen their areas of involvement in an attempt to make up for influence lost to the internet.

Johnston, B. & Webber, S. (2003). Information literacy in higher education: a review and case study. *Studies in Higher Education, 28*(3), 335-352. Retrieved July 15, 2005, from http://www.educationarena.com/educationarena/sample/sample_pdfs8/cshe28_3.pdf.

This article, along with another by Webber and Johnston (in that order) provide a look at recent information literacy programs in the UK. This article has several important facets. First is the note that current definitions of information literacy go far beyond just finding information, and thus are far more ambitious than earlier BI programs, which dealt more with search techniques. Johnston also notes the possibility of problems with

the ACRL guidelines, and with attempting to teach information literacy as a separate subject, along the lines that other have mentioned. Johnston supports including information literacy as a part of the regular curriculum, though with a credit course dedicated to IL, as opposed to as a part of each department's classes as suggested by Grafstein. The course would teach independent skills of IL, which could then be used within discipline-specific courses. Johnston also notes that librarians need instruction on how to teach, if they are to be teaching credit courses like these. On this view, IL training is a real area of commonality between all disciplines, and is a necessary skill for all of them. All of this said, there is nothing terribly unique about this article, though it may be valuable to have the UK perspective as well as the US-biased perspective of much of the literature.

Julien, H. & Boon, S. (2002). From the front line: Information literacy instruction in Canadian academic libraries. *Reference Services Review, 30*(2), 143-149. Retrieved July 31, 2005, from http://oberon.emeraldinsight.com/vl=11716214/cl=20/nw=1/rpsv/cgi-bin/emeraldft.

Julien and Boon provide a look at IL instruction at three different schools across Canada. Each of these schools offered IL instruction to its students, mostly in independent (as opposed to integrated) sessions, which matches the trend across the country. None of the people surveyed were trying to apply ACRL standards, though they were aware of them. Also, many expressed doubts about the assessments of students and of IL instruction itself. Julien and Boon also note that in some programs, involvement with, and need for, textual material - and thus the library and librarians - may be minimal. They do not identify particular programs where this is the case, but it seems to me that computer science might be one example. Finally, they note that if librarians are to teach classes, it might be a good idea to include courses in pedagogy in the library degree programs, which was not typically the case when the authors did their study.

Kahane, H. & Cavender, N. (1998). *Logic and contemporary rhetoric - The use of reason in everyday life (Eighth Edition).* Belmont: Wadsworth Publishing Company.

Kahane and Cavender's book on logic and rhetoric is one good example of a textbook for critical thinking. Though this type of learning is best applied within a subject area, where interest is highest, some of the skills can be learned on their own. This book will mainly be used to provide examples of areas where the typical "critical source evaluation" model differs from critical thinking proper. Examinations of valid and invalid arguments, fallacies, and methods of evaluating extended arguments are some of the areas where the current IL model may fall short. This type of text tends to use current controversies, news items, and historical events as focuses for reasoning. This method is fine for learning the techniques, but practice is best applied within a discipline. This source may also tie in with Whitmire's work on epistemological development.

Leckie, G.L. (1996). Desperately seeking citations: Uncovering faculty assumptions about the undergraduate research process. *Journal of Academic Librarianship, 22*(3), 201-208.

Leckie's paper is cited frequently, and has become one of the genuinely seminal contributions to the field of information literacy in the last ten years. Her descriptions of expert and student research methods, and the problems caused by differences between these two models, are extremely useful. At the same time, this paper is nearly ten years old now, and many of Leckie's recommendations have already had a salutary effect on faculty information literacy instructions. Also, her advice to academic librarians has brought increased involvement and at least the opportunity for students to access information literacy resources either within classes or in separate tutorials. So, some of these aspects will be superseded by later studies, but Leckie's analysis of research models is still excellent, and will be of great use.

Manlove, C. (1989). *Critical Thinking: A Guide to Interpreting Literary Texts.* New York: St. Martin's Press.

This book gives a detailed look at the process of critical and creative thinking as it applies specifically to literature, along with some excellent examples. It will not be practical to use any of the examples in this paper, as they are quite long and involved, but this book should definitely be referred to by anyone who is interested in the internal processes of literary interpretation, or who does not understand the differences between this type of critical thinking and critical thinking in general. That said, some of the introductory matter will be very useful in describing the tasks of humanities scholars and students.

Mann, T. (2001). The importance of books, free access, and libraries as places - And the dangerous inadequacy of the information science paradigm . *The Journal of Academic Librarianship, 27*(4), 268-281. Retrieved July 10, 2005, from http://www.sciencedirect.com.

Mann's article is excellent. He defends the proposition that the main, and most important, function of libraries is to collect and allow access to books. He shows that the current movement toward electronic formats itself may be based on a mistake in critical thinking. Like Cain, he also defends the traditional format of the book as being more conducive to deep thinking. Since many studies show that people are highly concerned with ease of use, the difficulties involved in electronic formats may lead to their being of less use than is supposed. Given this, the push to digitize collections, at the expense of the print collection, may be a real disaster. Kids growing up with computers are more used to using them, but not used to using them to read long or detailed texts any more than anyone else is, and this is not likely to change until somebody develops an electronic display with the affordances of paper. Mann also discusses the idea that the culture is moving toward the image, and away from text. However much this may seem to be the case, Mann explains that there are many things - and the most important types of thing - that cannot be communicated via images or in a movie. Mann uses the example of a discussion of some of the foundations of modern culture, such as universal suffrage or parliamentary democracy, which cannot be

discussed intelligently in any other format than text. Literacy, in this sense, implies not only the ability to read, but also the ability to read a dense and lengthy text, and to think through the arguments involved in it. Mann also discusses copyright as a permanent arrangement, based on human nature, which will not disappear until human nature does. On this view, free access to all texts is impossible, giving another reason that libraries, offering exactly that access to copyrighted texts, are so important. Librarians need to base programs and instruction on the realities of information use, as opposed to fashionable trends in technology.

Marcum, J.W. (2002). Rethinking information literacy. *The Library Quarterly, 72*(1), 1-26. Retrieved July 5, 2005, from http://proquest.umi.com.

Marcum notes that the current information seeking paradigm may suffer from a confusion between information and knowledge, and a misunderstanding of the stages of progress between the two. The somewhat obvious idea that more information often leads to confusion, as opposed to more knowledge, leads to an overemphasis on information, and a lack of focus on knowledge which requires time and effort to produce. Marcum does attempt to support the shift of instructional focus from content to procedure, but it is obvious that successful learning requires content as well as method, if it is to produce knowledge. Along these lines, Marcum states several times that reading and writing are no longer sufficient, though they are still fundamental, and that web design and web navigation should also be recognized as skills required of a literate person. What many ignore is that so much of the web is text. This is obviously true when discussing academic sites, but is also true of all other forms of online communication (email being a great example). The ability to read and write coherently is not any less important today than it ever was, and may in fact be more important. Conversations that would once have been carried out verbally, over the phone, are now dealt with in writing, via email. If one is to produce web pages, especially for the purposes of academic work, one's ability to produce coherent prose is extremely important, especially as editors are often removed from the online publishing process. Marcum advocates visual literacy and the "required new competency" in more or less exactly the way that Mann condemns. Similarly, Marcum states that many of the IL

skills taught are short-lived, and may not be useful in the workplace. This is directly opposed to the standard view of the field, and is true only of the low-level skills, like specific database search functions. Higher-level skills, like critical thinking, should be useful across disciplines and in all areas of life. That is, arguably, the point in developing them in the first place.

OCLC (2002). *How academic librarians can influence students' Web-based information choices.* Retrieved February 13, 2005, from http://www5.oclc.org/downloads/community/informationhabits.pdf.

The OCLC study provided a large body of statistical information which has been used by several of the other sources for this paper. That being the case, the conclusions stated in this paper are not surprising. For example, the statement that a majority of students prefer to access the web from home is hardly surprising. As discussed elsewhere, most students do not prefer electronic copies of documents, and are aware of the shortcomings of some web information sources. Generally, this source is referenced in other sources, and will not need to be quoted directly.

Olson, J.A. (1998). How to encourage students in a library instruction session to use critical and creative-thinking skills: A pilot study. *Research Strategies, 16*(4), 309-314. Retrieved July 31, 2005, from http://www.sciencedirect.com.

Olson proposes a method to teach critical thinking to students during a one-shot IL session. Though he certainly knows one method of describing critical thinking, and no doubt mentions the stages involved in it during the class, but how these skills could possibly be assessed is hard to understand. For example, Olson mentions that a critical thinker is willing to change their views "if the need is warranted". This parallels the more advanced levels of Whitmire's epistemological development scheme, which is all well and good. However, mentioning this in a one-shot class is different from teaching a useful skill or outlook, especially given the difficulties in involving students in a class which does not address any immediate questions they may have. Generally, this article demonstrates the potential problems inherent in trying to cover too much ground, in too many areas, in too little time.

Orme, W.A. (2004). A study of the residual impact of the Texas Information Literacy Tutorial on the information-seeking ability of first year college students. *College & Reseach Libraries, 65*(3), 205-215.

Orme's research on a group of students found that IL instruction made a minimal difference in their ability to complete an objective assessment. There was a two point difference between those with no IL training at all, and those who had in-class training and access to an online tutorial. Orme makes the point that skills training is not useful unless these skills can be transferred to other situations, but the minimal impact of training in this case makes the idea of transferring skills less than impressive. Given the time it must have taken to develop this program, and the time of both instructors and students who were involved in teaching or learning IL, the costs of this program must have far outweighed the assessable benefits, which is somewhat troubling.

Owusu-Ansah, E. (2003). Information literacy and the academic library: a critical look at the concept and the controversies surrounding it. *Journal of Academic Librarianship, 29*(4), 219-230. Retrieved July 15, 2005, from http://www.sciencedirect.com.

Owusu-Ansah provides an excellent, and recent, overview of the concept of information literacy, and some of the problems inherent in the current definitions of it. He begins by discussing the all-inclusive nature of the term, and the problems this has with accountability, especially since IL is commonly described as being the responsibility of the university as a whole. Secondly, he details some of the problems defining information and literacy separately, which inevitably lead to problems defining the concept of the two joined together. This section, especially, will be helpful, as I will need to define the two terms for my own paper. Two notable problems discussed are the definitions of literacy in terms of fluency with a subject as opposed to a language as such, and the difference between information and knowledge. Owusu-Ansah also discusses the overwhelming list of outcomes in the ARCL guidelines, and different authors who have tried to define IL in terms of process as opposed to discreet skills or attributes. This article provides an excellent summary, and develops a working

definition of IL based on the many definitions which have been offered over the past ten or fifteen years.

Owusu-Ansah, E. (2004). Information literacy and higher education: Placing the academic library in the center of a comprehensive solution. *Journal of Academic Librarianship, 30*(1), 3-16. Retrieved July 15, 2005, from http://www.sciencedirect.com.

This second article builds on the first, suggesting that the library should indeed be the focus for IL instruction - thus taking responsibility for its success or failure. A credit-based IL course would be a requirement for graduation, and would seek to teach skills which are useful for all disciplines, as well as for life in the world outside of academe. This is not to say that discipline-specific courses would not give assignments which require IL skills, or that professors of those disciplines would not teach discipline-specific modes of discourse, but that the common foundational skills could be addressed in a separate course. Owusu-Ansah describes IL, in terms of these foundational skills, as finding information, as well as "social, economic, legal" and "other" concepts. Obviously, it is the "other" that would have to be carefully constrained if this type of course was to have any credibility. In terms of critical thinking, for instance, librarians who are quite comfortable with teaching BI and source evaluation might not be as confident with argument mapping and fallacies. The specifics would have to be worked out for each institution, obviously, but given the desire to make the library responsible (and thus accountable), it would be best if someone dealt with these higher-order skills as well as the lower-order ones. Owusu-Ansah also talks about teaching students how to structure a paper, which may be a case of that problematic all-inclusiveness often ascribed to the ACRL. Even in a credit course, there would have to be some limits to what could be addressed. A final interesting section, given that I have no experience with it, describes the conflicts between faculty and librarians, especially in terms of gaining approval for credit courses for librarians to teach. I don't think I will be addressing this at any length in my paper, but it certainly gives one pause.

Podgórecki, A. (1997). *Higher Faculties: A cross-national study of university culture.* Westport: Praeger.

This book, among other things, develops a typology of scholars. The theoretically ideal scholar is contrasted against several different types of actual scholars, and influences of society on these types of scholars are examined. The interesting element in terms of this paper is the description of the ideal scholar and of the independent western scholar. This will really only yield a few relevant quotes, but they will be helpful in terms of describing scholars in general.

Robinson, A.M. & Schlegel, K. (2004). Student bibliographies improve when professors provide enforceable guidelines for citations. *Libraries and the Academy, 4*(2), 275-290. Retrieved June 20, 2005, from http://muse.jhu.edu.

This article describes a study done at the University of Regina, following - and in some cases improving on - Davis's longer-term studies described above. This study used a control group, which got no instruction in IL, one group which got instruction and encouragement from the professor, and one group which got instruction and penalties for not using scholarly sources. Not surprisingly, the group with the penalties did the best in terms of finding and using scholarly sources. I have to note, however, that demanding a minimum number of scholarly sources is no guarantee of quality, and feeds into the superficial checklist-type IL that is seen as a real problem by so many. The addition of different categories of web sources was of interest, especially as this was for a political science course, and some government documents are only available online. This approach allowed for scholarly web sources, as opposed to having only books and journals as scholarly, which is a real improvement. This study shows that students are using the Internet to access a broad variety of sources, not all of which should be automatically assumed to be low-quality (not that this is a real surprise). Finally, the researchers observed a correlation between the total number of citations - of whatever quality - and the grade of the paper, which is somewhat disconcerting. It is difficult to know whether a long list of citations equates to careful reading of those same sources, or whether it is an element that students include because they know it is

expected. This lengthening of citation lists, tied in with the common observation that students are busier than ever, may raise some questions about the quality of research.

Rockman, I.F. (2004). The importance of information literacy. In *Integrating information literacy into the higher education curriculum - Practical models for transformation* (pp. 1-28). San Francisco: Jossey-Bass.

Rockman's introduction demonstrates quite clearly the conflict within the community of people who are demanding, promoting, and teaching information literacy. There are significant differences between her definitions of information literacy, and other definitions quoted in the chapter. In particular, the division between information literacy and critical thinking is, at best, unclear. This is problematic because any attempts to evaluate students' information literacy abilities, or the success of programs designed to impart them, is meaningless if the definition of information literacy itself is not reliable even within the discipline. Also, common between Rockman's introduction here and the ACRL standards she builds on, the steps included in an information literate research strategy include gathering, evaluating and synthesizing information, but never mention understanding it. The ACRL does mention "reads the text and extracts main ideas," but this is not nearly as explicit as instructions in other areas. I am sure that Rockman (and the ACRL) assume that this step is implied, but it seems like a dangerous assumption, especially given the problems arising from disaggregation. It may seem somewhat obvious to include reading the source carefully enough to understand it as a whole, but it is surely no more obvious than stating that you need to find sources, or cite them.

Roth, L. (1999). Educating the cut-and-paste generation. *Library Journal, 124*(18), 42-44. Retrieved July 10, 2005, from http://proquest.umi.com.

Roth's basic point is that increased access to resources does not mean that students will choose better sources, and may in fact mean exactly the opposite. This is due, in part, to the overwhelming numbers of sources available. Since no student can assess them all, it seems easier to just pick a few that look like they may be applicable. She also examines the information literacy programs at California State University,

which have been widely acclaimed as pioneers in several areas of campus-wide information literacy initiatives. In part, these programs have included a shift in focus from teaching content to teaching students how to learn (how to find their own content). She mentions critical thinking, but says nothing other than that it is a skill which should be fostered. As noted earlier, this may refer to simply evaluating sources, or a real critical reading of a text, but the meaning is unclear. Finally, Roth talks about creating information literacy tutorials which are visually interesting and entertaining - "compete with The Blair Witch Project" is the phrase she uses. This may or may not be a valid concern, but is certainly worth discussing in terms of the resources at the institutions being evaluated.

Rothenberg, D. (1998). How the Web destroys student research papers. *The Education Digest, 63*(6), 59-61. Retrieved February 13, 2005, from http://proquest.umi.com.

Rothenberg has noticed a decline in the quality of students' papers, especially in a lack of originality and in-depth thought. He blames this in part on the students themselves, for uncritically accepting information from the web as opposed to doing their own thinking, but notes that there are other factors as well. One is the increased availability of electronic as opposed to print sources in libraries, which are seen as centers for information retrieval rather than "repositories of words and ideas". Rothenberg does not, in the end, leave the blame with libraries and librarians. He concludes the article by stating that he, as a teacher, needs to teach his students how to read critically, how to think logically, and how to do research in his specific field. He is a philosophy professor, but this would apply to English as well. Rothenberg is cited frequently, but usually only in reference to the "internet destroys student papers" part of his essay. While certainly central, this is not the conclusion of his essay, and I will focus more on his actual conclusion.

Shapiro, J.J. & Hughes, S.K. (1996). Information literacy as a liberal art - enlightenment proposals for a new curriculum. *Educom Review, 31*(2), Retrieved July 10, 2005, from http://www.educause.edu/apps/er/review/reviewArticles/31231.html.

Shapiro and Hughes assert that information literacy is "part of what it means to be a free person in the present historical context", a skill that is "as essential to the mental framework of the educated information-age citizen as the trivium of basic liberal arts (grammar, logic and rhetoric) was to the educated person in medieval society". They discuss information literacy generally in terms of different kinds knowledge about information (context, tools, effects on society, etc.). This is information literacy seen through a different lens: more literacy about information than the traditional view. In terms of research for the present paper, the substitution of information literacy - of whatever sort - for the trivium is extremely problematic. To replace detailed formal textual analysis and understanding with "knowledge about information" certainly gives one reason that student papers based on this research premise are less original and more shallow.

Stone, S. (1982). Humanities scholars: information needs and uses. *Journal of documentation, 38,* 292-312.

Sue Stone's article is a classic, and although it was written 23 years ago, many of her conclusions are still valid. Though there have been other surveys between now and then, they tend mainly to update her observations, especially in terms of electronic resource use. Her basic conclusions, that humanities scholars tend to work alone, and that primary texts are still the most important resource, have not changed. What has evolved since then are the questions of digitizing documents and scholarly communication via email, which are discussed elsewhere. Stone's comparisons between the humanities and other fields still have value as well, showing that though some of the superficial aspects of scholarship have certainly evolved, many of the foundational aspects are still very similar. Finally, Stone's fears about the decline of the humanities have not come to fruition, at least in terms of enrollment, which is a relief.

Swanson, T.A. (2004). A radical step: Implementing a critical information literacy model. *Libraries and the Academy, 4*(2), 259-273. Retrieved July 4, 2005, from http://muse.jhu.edu.

Swanson, taking a stance directly against Marcum and Mann, supports taking "a radical step away from the print-based model" of information literacy. His proposal is that students need to learn about information as itself, via the critical IL model, before looking at specifics like searching and citation. He makes a delineation between expert searchers, who are able to bring their own knowledge to bear on searches and search results, and novice searchers, who have no such knowledge to aid them. This is especially important in the present day, when a search can result in hundreds of articles which need to be sifted in order to find sources which are not only scholarly, but also helpful in terms of the question at hand. This move from the print-based world, where information scarcity was the rule, to the present electronic world of over-abundance is very important in terms of teaching IL, especially when one is teaching novices in a field. It is interesting in all this that while Swanson states repeatedly that students should be able to find resources irrespective of format, he also observes and encourages the move from print to electronic works. For some reason, "regardless of format" always seems to mean that you don't need to use books or other print literature. As with many other authors, Swanson observes that reading and writing are no longer sufficient skills, and that critical literacy (being literate about information itself) can move students towards higher-order thinking, though this seems to be another case of confusion between thinking critically about sources - or information - and critical thinking. At the same time, the move away from reading as a mere functional skill does tend to distract from the fact that it is just that, and not just a way to get to introspection. The reading part, not to emphasize the obvious, still has to happen, and has to be accomplished with skill and attention before any other functions of knowledge and learning can occur. Teaching IL as a way to bridge "the gap between information and knowledge" assumes that this training will accomplish far more than the source evaluation and database instruction which many authors cite as being the present norm - especially in institutions where IL is taught as a one-class addition to a regular faculty' classes.

Thompson, C. (2003). Information illiterate or lazy: How college students use the web for research. *Libraries and the Academy, 3*(2), 259-268. Retrieved July 4, 2005, from http://muse.jhu.edu.

Thompson's study is one of those which uses the results from the OCLC survey, and interprets those results in order to answer questions about the importance of effort in the production of quality research. In this sense, no amount - or quality - of IL instruction is going to improve student results of the students themselves simply don't care, or are too lazy to do the extra work required by thinking as opposed to cutting and pasting. She also questions some of the OCLC results. For example, the OCLC survey reports that students prefer high-quality print resources to lower-quality electronic resources, but there are other surveys which say exactly the opposite. This problem with surveys of people's opinions, as opposed to what they actually produce, is a common one. The same OCLC survey said that students do not use essay-writing or synopsis sites, but the prevalence of these sites would indicate that they are finding clients somewhere. Thompson believes that librarians are uniquely qualified to teach IL, but also includes critical thinking within this framework. It is unclear, however, whether this is source evaluation or higher-order critical thinking. Finally, Thompson notes the importance of integrating information literacy resources within the university site as a whole and faculty sites in particular, as well as the library site. Thompson concludes that not enough information is available to make a determination between students being information illiterate or lazy, but keeping the question at the forefront makes course development in terms of getting the students to ask, and answer, questions in which they are actually interested.

Ward, D. (2001). The future of information literacy - Transforming the world. *College & Research Library News, 62*(9), 922-925.

Ward believes that the common isolated mode of information literacy instruction is ineffective, and that this method of instruction needs to be replaced by a more integrated system across the curriculum. He repeatedly makes the point that students learn better if they care about the material at hand, and indicates that is the responsibility of the instructor to find subjects in which the students will be interested,

topics that mean something to students. All of this is undertaken with the aim of involving students with problems of the real world, with giving them the skills needed to question the assumptions we all live by. This type of approach sounds good, but it may also be an example of trying to accomplish goals which are both too broad and too abstract to be meaningful. Also, the idea of catering to students' interests in order to attempt to cajole some interest from them removes all responsibility for said interest from the students themselves, which is certainly problematic. Unless we are content to teach critical thinking in terms of American Idol or something equally meaningless, we need to demand more of the students than just catering to their existing interests.

Watson-Boone, R. (1994). The information needs and habits of humanities scholars. *Research Quarterly, 34*(2), 203-216.

This article is a mid-point between Stone's and Ellis's articles on the same subject. Watson-Boone notes that along with the individualistic working style noted by Stone, that scholars tend to turn to colleagues before more library-based search techniques, and that regular reading of the scholarly literature is still more useful than searching as such. Most important, humanities scholars "seek to provide a new interpretation of a subject" more than building on previous studies as in other disciplines. This may mean that bibliographies will always be of less importance than primary materials. Humanities scholars, like anyone else, will not make use of resources that are not needed, so this difference, if true, will have an effect on electronic resource uses - and use - in the humanities today as well.

Webber, S. & Johnston, B. (2000). Conceptions of information literacy: New perspectives and implications. *Journal of Information Science, 26*(6), 381-397. Retrieved July 10, 2005, from http://ejournals.ebsco.com.

This article describes an IL program undertaken at a UK university. This study found that students accepted IL as a valid topic, and also that they found their IL skills helpful in their chosen disciplines. Their approach steered away from the ACRL checklist approach, noting that this type of outcome-based instruction could lead to charges of superficiality from other regular faculty professors. One of the main goals of

this course was to "use learning and teaching methods which encouraged reflection," a crucial element in avoiding the most obvious cause of the laziness that Thompson speculates about. At the same time, "writing appropriately and effectively" is listed as a student outcome, which is another one of those very inclusive statements. The class studied also marked a move from a skills-based form of instruction to one with a more theoretical grounding, which the students are reported to have found effective and helpful. As with other reports examining a full-term credit course approach, the exact content of this theoretical foundation is the biggest difference from the older BI approach, and the new concepts of information literacy.

Weiler, A. (2005). Information-seeking behavior in generation Y students: Motivation, critical thinking, and learning theory. *The Journal of Academic Librarianship, 31* (1), 46-53. Retrieved July 11, 2005, from http://www.sciencedirect.com.

Weiler begins by noting commentary that students are arriving at - and leaving - university without critical thinking skills because of the amount of time they spend passively watching TV rather than reading. She notes that critical thinking is a crucial part of the learning process, but that the fact that students rarely develop new and independent opinions indicates that they are not necessarily learning, or using, this skill. This outlook is supported by studies showing that students found disagreements, especially about their own knowledge or opinions, "was undesirable and created discomfort". With a view like that, it is difficult to see how a real critical discourse could ever happen. Weiler also cites studies paralleling Whitmire's examinations about student's epistemological development from dualistic certainty to relativism. Students who are still in a dualistic mode are less likely to be able to deal with conflicting information, and more likely to dismiss opinions which do not agree with their own. Weiler also notes, as Thompson did, that surveys based on having people express their opinions tend to lead to over-estimation of the subject's skills, as well as doubtful information about the use of resources that the subjects know to be undesirable (such as essay services). Weiler also notes that qualitative studies still tend to use non-random groups of students who are more or less homogeneous, and thus deliver results that are not generalizable to the population - student or otherwise - as a whole.

Students come to information seeking and research with a background of knowledge which affects their research success, just as their cognitive development affects their ability to deal with opposing opinions. This is the case for students arriving at university as well, in that some will arrive with more developed experience and skill sets than others. IL is not different from other instructional areas, in that there will always be some students who are in far greater need than others. Still, a well-designed course should be able to contribute to even an experienced researcher.

Whitmire, E. (2004). The relationship between undergraduates' epistemological beliefs, reflective judgements, and their information-seeking behavior. *Information Processing and Management, 40,* 97-111. Retrieved July 4, 2005, from http://www.elsevier.com/locate/infoproman.

Whitmire's study builds on an epistemological development outline by King and Kitchener, which I may need to cite independently. This outline traces cognitive development along two continua: knowledge (from absolute to transitional to contextual) and reflective judgment (from pre-reflective to quasi-reflective to reflective). Whitmire's survey shows that a student's cognitive development, according to this model, determines to a certain extent how the student will deal with information seeking, and with information itself. For example, absolute, pre-reflective thinkers do not deal well with conflicting information and tend to take the first results from a search (allowing the search engine to choose the best results for them). Given the push to allow students to direct their own learning and research, and given that many undergraduates can be categorized in the lower stages of cognitive development, the combination of these two factors is extremely problematic. IL attempts to teach students how to find more, and better-quality, resources. This instruction may be in vain if the students are not intellectually capable of dealing with the information they find. At the same time, instruction in some of the higher-order skills (like critical thinking) could help students to develop toward a more advanced epistemological level, which would then allow them to perform better at lower-order activities. Somewhat obviously, one needs to be able to think clearly in order to think clearly about a specific subject.

Wilder, S. (2005). Information literacy makes all the wrong assumptions. *The Chronicle of Higher Education, 51*(18), B13. Retrieved August 1, 2005, from http://proquest.umi.com.

Wilder's article is a recent version of Eadie's earlier article discussing some possible problems with the whole concept of IL. Eadie points out that students do not want to search, or even to improve their searching techniques, but rather to find information that is of interest to them. Searching as an activity is merely a means to an end, and librarians, in Wilder's view, would do better to spend their time improving search interfaces rather than teaching students how to navigate poorly designed - and constantly changing - database systems. For a student accustomed to Google's interface, and especially given the advent of Google Scholar, the labor necessary to get to the information in subscription databases via the library may be disproportionate to the perceived improvement in the quality of information found. Wilder advocates library interactions similar to those proposed by Isbell, which focus on the process of research and writing as a process as opposed to just and information-seeking task. The aim, then, is to help students become more like their professors, in terms of contribution to and understanding of a particular discipline, rather than like librarians.

Zabel, D. (2004). A reaction to "Information literacy and higher education". *The Journal of Academic Librarianship, 30*(1), 17-21. Retrieved July 11, 2005, from http://www.sciencedirect.com.

Zabel's response to Owusu-Ansah's 2004 article raises some interesting questions. First of all, Zabel argues that meaningful alliances can be developed between areas of the institution, and that there is no need to "lament about the lack of respect teaching faculty have for librarians". In addition, Zabel argues that mandated credit courses in IL will certainly add to the student workload, as well at to the already lamented cost - in time and money - of a university degree. She also details some of the difficulties in actually developing and getting approval for such a course. While students may appreciate IL instruction once they have it, they may not be so optimistic when forced to enroll in a full class. Zabel also questions the assumption that it is sufficient for librarians to learn teaching on the job, as regular faculty often - though not

always - get teaching experience as teaching assistants before getting classes of their own. Finally, Zabel points out that even in the case of a dedicated IL course, it is important to teach the specific critical thinking skills used in each discipline, as well as different source and searching priorities. This type of course can certainly do more to help students than a once-class tutorial can, but these concerns need to be addressed as well, before implementing the course is possible at any particular institution.