4

This chapter maps the Association of College and Research Libraries' Information Competency Standards for Higher Education to the cognitive development levels developed by William G. Perry and Patricia King and Karen Kitchener to suggest which competencies are appropriate for which level of cognitive development.

Information Literacy and Its Relationship to Cognitive Development and Reflective Judgment

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"They'll do a database search and they will invariably choose the first five articles in the list," we often hear from teaching faculty and librarians alike. "Doesn't matter if they're good or bad, relevant or not."

"They use the Web for everything! They have no idea that there are better sources out there to use."

"They want to find that one article that's going to write their paper for them. They don't realize that they have to read and synthesize and then put their ideas together from several sources" (Jackson, 2007).

The statements comment on the supposed ability of college students to write the kinds of papers expected of them. It is true that students today have limited time, and their engagement in their learning is not as deep as teachers would prefer. But there may be other reasons for problems of this type, and the ages and stages of students may account for some of these difficulties. Elsewhere in this volume, Orme talks about cognitive development and information literacy based on the writings of William Perry, Benjamin Bloom, and Christine Bruce. In this article, the cognitive development "positions" or "stages" of William Perry and Patricia King and Karen Kitchener are more fully examined with respect to the information literacy (IL) competencies approved by the Association of College and Research Libraries in 2000 (ACRL, 2001).

NEW DIRECTIONS FOR TEACHING AND LEARNING, no. 114, Summer 2008
Published online in Wiley InterScience (www.interscience.wiley.com) • DOI: 10.1002/tl.316

William Perry's qualitative research in the 1960s involved a longitudinal study of Harvard underclassmen and some Radcliffe women over the course of their undergraduate careers. He and his colleagues at the Bureau of Study Counsel at Harvard asked the students open-ended questions to prompt them to reflect on the past year and changes they might have noticed in their attitudes and habits. From this research, Perry introduced nine "positions" of cognitive development; most of the students he interviewed ended their freshman year at position three, "multiplicity subordinate" (Perry, 1970, p. 89). Most of the college students he researched at the end of their education had attained at least position six, "commitment foreseen" (Perry, 1970, p. 134). These positions are described more in depth in the discussion of King and Kitchener's work. However, before continuing it is important to mention that because of the sample used in Perry's study—students at an elite university—speculation has it that the positions Perry found for his students may be higher than those at other colleges or universities.

Using the same type of qualitative research (interviewing students in a longitudinal study), King and Kitchener posited seven stages of reflective judgment, or the patterns college students used to answer ill-structured questions with no definitive answers. Instead of using open-ended questions, they queried students to respond to situations that are not easily solved, for example, global warming and homelessness (these are this author's examples). In their research, they found that most students perform throughout their college years in the third and fourth stages, with only some seniors beginning to understand the fifth stage (King and Kitchener, 1994).

Table 4.1 illustrates the positions and stages put forth by Perry and King and Kitchener and brief characteristics of those stages.

Only stages two through six are included here because those are the ones most often demonstrated by the students Perry and King and Kitchener studied. Even though the researchers' focuses were slightly different, they outline models that are remarkably similar, and their categorizations of students in the positions and stages are also similar. Other writers (Hofer and Pintrich, 1997; Evans, Forney, Guido-DiBrito, 1998) have simplified these models into three categories: dualism (positions or stages one and two), multiplicity (positions or stages three and four), and relativism (positions or stages five and six).

Considerations

Three important considerations must be kept in mind before beginning to understand the information literacy (IL) competencies in relation to these cognitive development models. The first is that not all freshmen, or all seniors, are going to fit into one neat position or stage. Students come from varying backgrounds and have differing levels of knowledge; all the things that make one student unlike another of the same age can affect at which stage or position each student functions.

Second, any one student can be at different stages in terms of subject areas. Again, their background knowledge contributes to this, as does the attribution of ambiguity conferred on the various subject areas. For instance, most students consider science and mathematics are fairly unambiguous, while the humanities are ambiguous. But if a student comes from a background in which politics is discussed in an open manner at the dinner table

Table 4.1. Comparison of Perry's (1970) and King and Kitchener's (1994) Models

Perry (1970)	*King and Kitchener (1994)*
Position 1: Basic Dualism Students believe in absolutes: right/wrong, good/bad Everything is known Authorities possess absolute truth The student's job is to listen to the authorities to receive the "right" answers	*Stage 1:* Students' thinking is naïve and egocentric They fail to differentiate categories They don't believe that two people can disagree about an issue Evidence is only what someone perceives
Position 2: Multiplicity Prelegitimate Students recognize diversity but stand in opposition to it They remain loyal to authority for the absolute truth They recognize there are some questions without answers but believe they will be answered eventually They believe that knowledge is simple They take a surface approach to learning The purpose of research is to reproduce an author's view	*Stage 2:* Knowledge is certain but some people do not have access to it When the truth is uncertain, accept the view of an authority Evidence is not a criterion for establishing truthfulness Students cannot relate concepts to each other Students may distort evidence to align with their beliefs Beliefs are justified by copying the view of an authority
Position 3: Multiplicity legitimate but subordinate Students accept that there is uncertainty, but believe this uncertainty is still temporary The limit of uncertainty has expanded If there is no right answer, then everyone has a right to an opinion that is just as good as anyone else's	*Stage 3* Knowledge is absolutely certain in some areas and temporarily uncertain in other areas Beliefs are justified according to the word of an authority in areas of certainty and according to what "feels right" in areas of uncertainty In areas in which answers do not exist, beliefs are defended as personal opinions because the links between evidence and beliefs are unclear Although they use evidence, they do not understand how evidence entails a conclusion

(continued)

Table 4.1. (continued)

Perry (1970)	*King and Kitchener (1994)*
Position 4: Late Multiplicity Students create the double dualism of a world in which authority's right/wrong world is one element and personalistic diversity is the other; both worlds are equal in legitimacy Ideas can be better or worse rather than right or wrong Students try to think independently and critically out of a desire to conform to the expectations of authorities Students seek to find the way their professors "want them to think"	*Stage 4:* Knowledge is uncertain because of the limitations of the knower Beliefs are justified by idiosyncratic uses of evidence and opinion Evidence is used in support of a point of view along with unsubstantiated opinion; students tend to choose evidence that supports their prior beliefs Students cannot perform the necessary mental operations to evaluate a theory on its own They cannot reject poorly developed arguments on the basis of evidence; rejection is often based on personal preference
Position 5: Relativism Students come to the radical perception that all knowledge and values are contextual and relativistic The notion of authority becomes authority Authority's assertions are open to analysis, evaluation, and the requirements of evidence Authorities are seen as groping in a relativistic world along with their students, though they may be more advanced in their experience and in their education They take a deep approach to learning Students are aware that they are active makers of meaning Students can transfer learning in one area to other areas	*Stage 5:* Interpretation is inherent in all understanding; therefore no knowledge is certain Evidence can be evaluated qualitatively; within a perspective, some evidence is stronger or more relevant than other evidence Students are still unable to compare and contrast evidence across contents The basis of knowledge shifts from idiosyncratic to discipline specific Beliefs are justifiable only within a given context because different contexts have differing rules of inquiry and different perspectives Reality can only be known through subjective interpretation of evidence
Position 6: Commitment Foreseen Students see that commitments will need to be made in order to establish their bearings in a relativistic world But students are unable to make decisions, establish commitments, or narrow their range of possibilities yet	*Stage 6:* Knowledge is uncertain and must be understood in relationship to context and evidence Some points of view may be tentatively better than others based on evidence Knowledge is constructive

each night, then the student probably does not feel uncomfortable with that subject as being too ambiguous.

Third, stress, anxiety, and confusion can cause students to regress to an earlier stage when confronted with a problem. Students who used their public or school libraries may have come to feel comfortable using the resources

available to them then. However, put them in a large academic library and they seem to forget everything they previously learned. The InfoTrac database they used in high school cannot possibly be the same InfoTrac available to them in their college library.

Information Literacy and the Models of Development

Mellon and Sass, in 1981—before the IL competencies were developed—cautioned that "many of the topics and concepts currently presented in undergraduate education can be understood much more readily by formal Relativistic reasoners" (p. 31), and most students never reach the relativistic stages in their college years. In another article, Mellon claims that freshman students, in most cases in dualistic stages, "have little patience with alternative search strategies, with wide varieties of reference materials all designed to answer the same type of question, and with the complexities of information retrieval" (1981, p. 80).

This essay is the first attempt by a librarian to try to map the IL competencies to the developmental stages for the use of classroom instructors. For the sake of simplicity, the terms *stages* and *positions* are used here interchangeably, and stages will be grouped into three major categories: dualistic, multiplistic, and relativistic.

Standard One. The information literate student determines the nature and extent of the information needed.

Performance Indicator One. The information literate student defines and articulates the need for information. Most students at whatever stage, if given a supportive classroom environment, have little hesitation to discuss subjects in class. There are several ways to spark discussions; they are discussed in the literature on teaching methods. However, most lower-level students will need help with identifying a suitable research topic on their own; assignments need to be clear, with details and deadlines. At the dualism level, to help student development, instructors could ask students to identify points of view on a topic and discuss those views. This type of exercise will spur growth as students recognize that authorities do indeed disagree.

Development of a thesis statement can be done by a dualist student but would require that the instructor help the student by asking her to identify questions she might have about that particular topic. Students should also use sources that many instructors consider taboo: the encyclopedia. Many college instructors warn their students against using encyclopedias for their research papers. What would be more helpful is to lead students to encyclopedias (including Wikipedia) to get a general view of what might be, to their students, an unfamiliar subject, or to get ideas for focusing on a topic. By using general sources, they can identify aspects of an area or questions about a topic and thus find a focus, a thesis, before they begin to search for the "real" information. Research by Carol Kuhlthau (1993) shows that students who develop a focus have a much better chance of producing successful

research products. However, many students rush the process, leaving out the stage of finding a focus, which Kuhlthau explains as a "result of the notion that the purpose of a search is to reproduce an author's view rather than to make sense with one's own frame of reference" (1993, p. 62). Because students use encyclopedias does not mean they should cite them or use them as their only sources.

Identifying key concepts and terms that describe the information need is another aspect of this performance indicator. This is a task that can be done only by someone at the multiplistic stages of development. Dualistic students can identify synonyms for particular words, and they may be able to identify the main subject of an article; but they have difficulty tying concepts together. Thus they can identify synonyms for a particular topic, but they may not be able to understand how differing concepts and thus synonyms should relate to each other in a search strategy.

The last outcome for this indicator stipulates that information literate students recognize that "existing information can be combined with original thought, experimentation, and/or analysis to produce new information" (ACRL, 2000). This is definitely a task for the relativist. Relativism is the stage at which students understand that knowledge comes not only from authorities but also from research and personal experience; it is the point at which they can analyze that information. Only upper-level courses should demand this type of analysis from their students. To challenge multiplistic learners to advance, assignments could ask them to compare and contrast arguments on a topic, and then to come to their own conclusions about which is the stronger, or better, argument.

Performance Indicator Two. The information literate student identifies a variety of types and formats of potential sources for information. Much of this can be taught to dualists. They can learn the differences among journals, popular magazines, newspapers, and general Websites. They can understand tables of contents and indexes and how they might be useful in selecting books that fit their topics. However, information is disseminated differently according to the discipline; only students at the relativistic stage are ready to understand this.

Additionally, dualists can certainly learn what each of the various formats is (multimedia, databases, Websites, datasets, audiovisual books) and what it may include. However, they have a difficult time trying to identify which types of sources are right for which topics. This is something that could be handled by a multiplist rather than a dualist. Multiplists might be intrigued by the notion that there are many resources in many formats that can be used for a research project. Both dualists and multiplists could be encouraged to find information on a particular topic from a popular magazine and a scholarly journal, or from a televised newscast and a newspaper article. They can be challenged to discuss or write about the differences between them, and class discussion could focus on possible audiences.

Just as there are numerous formats students must consider, they are often asked to use primary and secondary sources, recognizing how their use and importance vary with each discipline. This is difficult for dualists to understand, although multiplists may again be intrigued by the notion of the variety of resources. Because, however, primary and secondary sources are so tied to disciplines, this is one concept that relativists have the best chance of understanding.

Using raw data from various primary sources is also part of this indicator. Dualists can be taught to use data from a source such as *Statistical Abstracts,* but even relativists within certain disciplines will have trouble with some of the more complicated business data available. These source types can be taught even to dualists, however; again, such instruction is in keeping with their attitude that their job is to take in information from the authority, and with enough structured instruction they should be able to learn.

Performance Indicator Three. The information literate student considers the costs and benefits of acquiring the needed information.

In most cases, dualists can identify whether the information they are looking for is available at their local library (if the online catalog is carefully explained to them). However, because they have great difficulty planning ahead and comprehending how long their research might take, they are often left with only the resources that are available immediately.

Some dualists may be planners, and certainly multiplists can understand the need for planning. However, because the information they may need may not be available, they often underestimate the time they will need. There is a wonderful assignment calculator developed at the University of Minnesota Libraries (http://www.lib.umn.edu/help/calculator/) that can help beginning students. In addition, it can also be very helpful for the instructor to make a research paper into a research process by having due dates for a thesis statement, an annotated bibliography, a rough draft, and a final version. This process can also help avoid plagiarism.

Performance Indicator Four. The information literate student reevaluates the nature and extent of the information need.

A multiplist could perform this, with assistance. For a dualist, it would be important for the instructor to meet with the students to lead them through this type of process.

Asking a dualist to define the criteria used to make information decisions produces an easy answer. The authority is the instructor and therefore the information comes from him or her. Though a multiplist can do this, chances are that these students will focus only on information that fits in with their views. As to differing formats and why they would be useful for a particular purpose, a multiplist could begin to understand this. For a dualist it is probably best to give instructions as to which information formats should be used.

Standard Two. The information literate student accesses needed information effectively and efficiently.

Performance Indicator One. The information literate student selects the most appropriate investigative methods of information retrieval systems for accessing the needed information.

This indicator is not one that dualists can be expected to manage. They might be able to understand the scope, content, and organization of a particular information retrieval tool (for example, an index), but they still do not even understand the concept of evidence and so cannot evaluate, except at the most basic level, which retrieval tools would be appropriate. They also can understand that a newspaper index is not a magazine index and they will retrieve different materials from the two. But left on their own, they cannot identify the most appropriate method for finding their needed information; nor can they understand the benefits and applicability of the various investigative methods. A multiplist may get a certain amount of pleasure in exploring retrieval tools and playing at searching them in a number of ways. But when discipline-specific tools are needed, it is only the relativistic learner who can understand the meaning of working within different contexts.

Performance Indicator Two. The information literate student constructs and implements effectively designed search strategies.

A dualist can learn to type a keyword or a title (as long as it is the exact title) or an author (last name first) to get the needed information. Constructing an effective search strategy requires the ability to understand the context of the information need and to be able to relate the various concepts that may be involved in a complex subject. Therefore, relativists (and possibly multiplists, but not dualists) could be expected to perform this activity effectively.

Performance Indicator Three. The information literate student retrieves information online or in person using a variety of methods.

The dualistic learner, as Mellon indicates, "has little patience with alternative search strategies, with wide varieties of reference materials all designed to answer the same type of question, and with the complexities of information retrieval" (1981, p. 80). Of multiplists, Mellon says, "These students will be receptive to more complex problem-solving strategies and to the use of more advanced bibliographic tools. . . . They will probably be more curious about the difficulties or inconsistencies in library use and less satisfied with viewing it as a simple linear process. It is useful at this stage to mention that search strategy is a very individual thing and that the aim of [information literacy instruction] is to produce an independent library user who has developed a successful problem-solving strategy" (1981, p. 80).

Many of the outcomes for this indicator are concrete enough for dualists to appreciate, such as using search systems (including Google) and learning the Library of Congress classification scheme. But it is important not to load them down with too much information at this stage; frustration and accordingly lack of interest will be the end result.

Performance Indicator Four. The information literate student refines the search strategy if necessary.

This activity requires a certain amount of judgment of the evidence retrieved, which is not within a dualist's abilities. Multiplists are beginning to understand the nature of evidence, but they are still likely to look only for evidence that fits with their perspective on a subject. Most students, if they are unable to find the information they feel they need, will simply try and try again, often repeating the same strategy in the same resource. Dualists will need assistance from their instructor or a librarian. Multiplists must be encouraged to find differing viewpoints on their subject; according to their mind-set, one person's opinion is as good as another's, so why not find out what other viewpoints are out there?

Performance Indicator Five. The information literate student extracts, records, and manages the information and its sources.

This is one activity in which we all have difficulties, unless we are more organized than most. However, dualists are at a special disadvantage here. Their task, as they see it, is to repeat what the authorities say, and so they often do. If they have learned to cite, their whole paper may be filled with quotations; but in most cases they are unsure which are the author's words and which are their own. Also, because printing or photocopying whole articles is so easy and ubiquitous today, students rarely take notes and try to summarize. They do not understand the need to keep a complete citation for a given resource, until the night before the assignment is due, when they are creating their bibliography. Instructors should be clear as to how students should go about their information search. Keeping a journal of their research process, what sources they use, what keywords they use for each resource, and what sources they retrieve can be useful in this regard. They are not skilled enough to go back to a resource to try to uncover the full citation for a work they have used but forgotten to document fully.

Standard Three. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

Performance Indicator One. The information literate student summarizes the main ideas to be extracted from the information gathered.

Students have been doing this throughout their educational years. This is what reading comprehension tests and exercises are about. However, it is a skill that needs to be practiced often. As was mentioned earlier, students rarely have to take notes on or summarize readings; they can be photocopied or printed and a highlighter used indiscriminately. For dualists, such practice could include asking them to read two alternative views on the same subject and summarize the views. This is one way of introducing them to the idea that authorities do disagree on various issues.

Performance Indicator Two. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

This activity is at the core of what most instructors want their students to do. Relativists, however, are the only ones who understand evaluation of

evidence—why some arguments can be better than others. Instructors see this especially when their students use the Web for paper resources. Lorenzen studied the Web use of high school students and found that "dualistic students will use the Web to look for the one right answer to the question. . . . They will have difficulty in determining which Web sites have valid information and which ones do not" (2001, p. 155). Lorenzen and others have found it most distressing that many students use search engines to evaluate materials for them. Most search engines employ a system in which listings for Websites are sorted by which ones are most relevant. However, relevance can be based on a number of factors having nothing to do with legitimacy: metadata that comes with a resource, the number of times a keyword is used in the source, and how many other Websites link to a particular site, for example. At best students can be taught to look for a date on the site, or to try to find out who authors the page, or to look for domains such as .gov or .edu. Even that little bit of evaluation can be useful, though, and should definitely be explained to students as they carry out their research. Multiplists, on the other hand, think anyone's idea is just as good as anyone else's, so what is the need to evaluate? Therefore one strategy for them might be to compare and contrast Websites using specified criteria.

Performance Indicator Three. The information literate student synthesizes main ideas to construct new concepts.

The idea that they can construct new concepts on their own is unthinkable to dualists. Authorities have all the answers; the students have only to listen to the words of the authority, who knows everything that is right. Although multiplists are at the stage where they can begin to understand abstractions, they are not at the stage where they understand that they can be instrumental in knowledge construction. Only relativists understand how and why knowledge is constructive.

Performance Indicator Four. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

Dualists do not admit contradictions; authority is free from conflict. If there are disagreements among authorities, then one has to be right and the other wrong. Multiplists are beginning to recognize the need for evidence, but they still look for evidence that supports their opinions. As Burnham describes multiplistics: "[Students are] unable to separately encode the theory (or their belief about it) and the evidence for the theory; therefore they cannot perform the necessary mental operations to evaluate the theory on its merits" (1986, p. 153). Class discussions might be useful for pointing out to students how knowledge relates to their own experiences.

Performance Indicator Five. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

This takes place at every stage in the developmental process. Transitions from one position to another often take place because the knowledge a per-

son has does not account for differences encountered and because the problems caused by these differences cannot be solved by the prior strategies. Students often progress from position one to position two because of the diversity of cultures and beliefs new college students encounter among their peers in the residence halls and in their classes. Thus they are forced to admit that some people disagree or are different. During the multiplistic stages, students go from an understanding that some things are not certain but will be eventually to an understanding that most things are uncertain and the questions that have absolute answers are the exceptions, not the rules.

Performance Indicator Six. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and practitioners.

Again, this is an activity that is performed throughout a person's growth. Learners participate in classroom or electronic discussions and hear what others have to say about a subject. Dualists are constantly affirming themselves through their authorities. Multiplists may not validate their knowledge using authorities or peers, but they certainly are willing to discuss what they feel. Relativists affirm their knowledge or perceptions through the judgment of evidence.

Performance Indicator Seven. The information literate student determines whether the initial query should be revised.

Dualists can make this kind of determination only through discussion with authorities. Multiplists rarely consider changing their stance. Relativists constantly evaluate what they have found and whether it answers their needs.

Standard Four. The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Performance Indicator One. The information literate student applies new and prior information to planning and creating a particular product or performance.

For this activity, dualists need specific guidelines and often examples of the expected product. Multiplists can be very creative, but they may not be able to understand the value or limits of a product appropriate to their needs. Even relativists can find themselves stymied when confronted with a new type of product. Graduate students often ask to see previously done dissertations or theses as examples of exactly what is needed.

Performance Indicator Two. The information literate student revises the development process for the product or performance.

This requires reflection on the process and other similar processes. Dualists know if they have made an obvious error, as in misstating a fact, but may not be able to reflect on the total process itself. This is another reason a journal of the process can be helpful. Multiplists are always trying to find out "what the professor wants." If they get it wrong on one activity, they will work to tailor the next to what the professor wants. But this is not the type of reflection that leads to cognitive growth.

Performance Indicator Three. The information literate student communicates the product or performance effectively to others.

Most dualists will not understand that others cannot understand them or might disagree with them. They want to get the product right, but they are mainly speaking to their authority. At the other stages, much of this has to do with sensing who the audience is and creating a product that is pleasing. Many students today are being asked to create multimedia presentations using the latest technology. Although they have no trouble using the technology (in most cases), they do not understand why one medium might be better than another for their purposes.

Standard Five. The information literate student understands many of the economic, legal, and social issues surrounding use of information and accesses and uses information ethically and legally.

Performance Indicator One. The information literate student understands many of the ethical, legal, and socioeconomic issues surrounding information and information technology.

For dualists, this is probably too much information. Issues with downloading music have made many otherwise clueless students aware of things like copyright. Also for them, censorship and freedom of the press are nonarguables. They are either right or wrong, depending on the beliefs of authority. Multiplists, on the other hand, may have a laissez faire attitude to copyright; the Web is there for everyone to use, so why worry about using it without giving credit? All stages can be taught the rules and the laws because these are fairly concrete concepts. However, understanding them goes a little deeper and requires explanation for why these concepts are important.

Performance Indicator Two. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

The most important part of this indicator has to do with plagiarism. In the age of the Web, most students have difficulty understanding that the information and images they find on the Web are the works of someone else and should be documented just as anything in print should be. Because dualists believe their job is to copy what authorities say, they may not understand why they need to cite anyone. Because multiplists believe their opinions are as good as anyone else's, they too may not understand why they need to be careful using other people's creations. In fact, given the instances of plagiarism that are being uncovered every day in adult works, it seems all students at every level need lessons in the rules and etiquette of documenting other people's works when they use them.

It is important to address the rules of plagiarism carefully for dualists because of the ambiguities inherent in rules of intellectual property. They want to know facts; this author has actually had a student tell her that her high school teacher said that anything that is copied exactly and is of *more than five words* needs to be cited. They also need to understand methods of paraphrasing and that others' ideas are as subject to documentation as using

the exact words of another. Norgaard suggests emphasizing the positive aspects of documentation "as a productive means to frame questions, establish currency and credibility, advertise allegiances, and explore disagreements and open questions" (2004, p. 223).

Performance Indicator Three. The information literate student acknowledges the use of information sources in communicating the product or performance.

This indicator includes the type of documentation style students use. If an instructor wants students to use a particular type of documentation style, then he or she should spend time demonstrating that style and explaining how students can find examples for their papers. Dualists and multiplists will not understand the reason why one style is necessary as opposed to another, but multiplists might be interested in the fact that even documentation styles are varied and individual. Citing electronic sources is a complex issue for everyone. Does one need to cite the database used to find articles? How does one deal with pagination of Web reports? It is important for instructors or librarians to spend some time on this area because students will not understand the differences.

Other Issues to Consider

Perry was adamant that helping students move from one position to another required an understanding environment where frustration is acknowledged and where students are treated with respect. In Perry's view, it takes incredible courage for students to make the leap into another stage that may not feel very comfortable at first. In King and Kitchener's tables on promoting reflective thinking, every stage's list of developmental support suggestions includes one item dealing with "legitimizing" students' "feelings of anxiety," "students' struggle with feelings of being confused and overwhelmed," their "discomfort with evaluation," and their "struggle to adjudicate between competing interpretations and perspectives" (1994, pp. 250–253). Sometimes it is difficult to hear something that sounds utterly sophomoric coming out of the mouths of younger undergraduate students. Sometimes it is difficult to understand why every other word in a student's paper is a quotation. Instructors and librarians must count to ten and then try to understand why, from a developmental standpoint, students cannot understand what is expected from them: "How well students meet educators' expectations that they will analyze and criticize competing legitimate theoretical perspectives is influenced substantially by educators' support, encouragement, and acknowledgement of the associated difficulties" (Hill, 2004, p. 36).

In terms of general recommendations, Evans, Forney, and Guido-DiBrito recommend that "though all students can benefit from experiential learning, students in the early stages of cognitive development are more in need of this form of support" (1998, p. 138). They also encourage personalism, "which reflects the creation of a safe environment" (1998,

p. 138). Experiential learning is an important part of learning in the college years and can lead to growth in students. Barnett cautions that "since some students resist or are angered by activities that make them question their assumptions and previous understandings, telling them the purpose of such exercises is usually helpful" (2000, p. 3). She also recommends instructors discuss change as part of life, thus sympathizing with students' fears and conflicts. Multiplists, on the other hand, "often value experiential learning, but do not need as much instructor-guided structure in order to work with the concepts of the class" (Knefelkamp, 2003, p. 15). In terms of constructing an environment of diversity, Baxter Magolda suggests that "creating contexts in which learners experience the complexity of the world around them helps them encounter new assumptions" (2004, p. 41).

Finally, instructors need to keep in mind their power as authorities for most college students. When instructors tell students that they need to find a journal article in a journal like X (with a list of journals following), the students think such journals are the only ones they can use. If instructors say not to use the Web, students are afraid to use the many authoritative indexes and journals that libraries subscribe to only via the Web. So it is important for instructors to clearly delineate assignments, but it is also important to be careful in terms of being too prescriptive. It may also be helpful to invest that same type of authority upon librarians by discussing how helpful and useful librarians can be to their students in their research.

Conclusion

Information literacy is an ideal for which colleges and universities strive in an effort to meet the goals of graduating adults who are ready to be effective in their careers and in their lives—who are lifelong learners. Classroom instructors, as well as librarians, have a responsibility to see that this occurs. However, it is obvious from the preceding analysis that many of the goals of information literacy can be approached only by most graduating students. Knowing about learning styles and effective teaching styles is crucial, but equally important is understanding "how levels of cognitive development, or reflective judgment, can have an enormous impact on students' ability to learn the skills that fulfill the goals of information literacy" (Jackson, 2007, p. 32). The idea is to help students reach the next position; in this way, they will approach the type of critical thinking and information skills essential to them for success as professionals and citizens.

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