

# POD —IDEA Center

## Learning Notes

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### IDEA Learning Objective #9: “Learning how to find and use resources for answering questions or solving problems”

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#### Background

At institutions of higher education across the U.S., information literacy (IL) is being integrated into general education curricula as a specific learning objective. The Association of College and Research Libraries (ACRL) (1) defines information literate students as those who “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.” As the world moves toward a knowledge-based economy, information literacy becomes a crucial component of preparing students for the lifelong learning that current and future job markets demand.

IDEA Research Report #1 (2) states that, “...It is important to recognize that much of the subject matter content which students learn today will be outdated in 5-10 years after they graduate.” Thus, an emphasis on lifelong learning seems imperative. Canja (3), for example, suggests that “... Lifelong learning has become an economic necessity for national and global productivity. With the decline in birth rates in major developed countries, persons—still active, still healthy—must continue in the workforce, trained and retrained” (p. 27). Ironically, IDEA Research Report #1 also finds that the objectives identified as emphasizing lifelong learning (#9 Learning to find and use resources, and #12 Gave tests/projects that covered most important points) were identified as “Important” or “Essential” in only about 30% of the classes using IDEA. The ACRL (1) notes, “Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all

learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning.” However, information literacy does not concern itself only with technical resources. Successful students and workers must also be able to affiliate with others and to seek and find expertise among the human resources that are available (4).

Seeking out information resources and then using them to address a question or a problem are engaging activities, and there are several attached benefits. First is recognition of the value of the resources. Next is application of the new information and the construction of new knowledge. Intrinsic motivation results from the realization that learning is taking place and ultimately, these practical and motivational effects promote continued use of the resources, lifelong learning, and facilitates deep learning.

For example, here are key components that characterize a deep, rather than a surface approach to learning. Rhem (5) summarizes them as follows:

**Motivational context:** We learn best what we feel a need to know. Intrinsic motivation remains inextricably bound to some level of choice and control. Courses that remove these take away the sense of

ownership and kill one of the strongest elements in lasting learning.

**Learner activity:** Deep learning and “doing” travel together. Doing in itself isn’t enough. Faculty must connect activity to the abstract conceptions that make sense of it, but passive mental postures lead to superficial learning.

**Interaction with others:** As Noel Entwistle put it in a recent email message, “The teacher is not the only source of instruction or inspiration.”

**A well-structured knowledge base:** This does not just mean presenting new material in an organized way. It also means engaging and reshaping, when necessary, the concepts students bring with them. Deep approaches and learning for understanding are integrative processes. The more fully new concepts can be connected with students’ prior experience and existing knowledge, the more it is they will be impatient with inert facts and eager to achieve their own synthesis (p. 4).

If instructors are to motivate students to acquire the skills of information literacy that will help them to remain lifelong learners, then they need to design research projects and assignments that get students into the knowledge base and engage them in critical thinking activities through active learning and interaction with one another. Through such sequenced assignments, students can learn how to answer relevant questions and to solve challenging problems.

### Helpful Hints

The most relevant IDEA instructional method is #9 Encouraged students to use multiple resources to improve understanding (see POD-IDEA Note #9). This Learning Note complements Baron’s with some general guidelines that focus on developing good research projects or assignments to assist with “learning how to find and use resources for answering questions or solving problems” and attempts to help instructors provide students with affective and feasible assignments. With today’s information overload, students need guidance in locating and using appropriate resources for answering questions and solving problems. Students must hone these skills throughout their lives. Academic librarians can serve as an instructor’s best ally.

Other IDEA instructional methods that are important to Objective #9 include items #2 Finding ways to help students answer their own questions, #8 Stimulating intellectual effort, #15 Inspiring students to set and achieve goals, #18 Asking students to help each other understand ideas or concepts, and #19 Assigning work that requires original or creative thinking. These relationships are logical because the nature of investigative activity requires intellectual effort, focused exploration, and creativity, and the connections between problem solving and gathering information and evidence have been well-documented (6). These methods support many of the specific hints described below.

Motivation as a starting point. Locating information for its own sake provides practice, but it fails to engage motivated students in productive work linked to an understood outcome. Feldman suggests that student achievement remains strongly correlated to the perceived outcomes of instruction (7). The relevance of assigned work is also critical to student’s active engagement (8) and a major predictor of student ratings of their teachers (9). Thus, skill development becomes much more productive when there is a clearly understood link between the assigned work and specific learning goals or tangible products. The real-world analog is obvious: people do not search for information unless they have a reason to do so. Because in many teaching-learning situations, teachers expect students to explore issues and topics that may not intrinsically interest them, demonstrating relevance and utility become critical first steps in getting students engaged (See POD-IDEA Notes #8 and #13). Allowing students some choice of topic or project can motivate them to take a deeper approach to learning (10).

Sequence the research project or assignment. If instructors want students to learn to find and use resources to tackle stimulating questions and challenging problems through research, they need to design sequenced activities that motivate students and get them into the knowledge base. This can often be accomplished through the individual work that students do either as discrete homework assignments or as smaller parts of an extended research project. What becomes of these assignments or project components is critical for deep learning. Instructors should design in-class exercises where learners are actively engaged with the material they prepared individually and with each other (11).

## A. Planning

1. Assume your students have minimal knowledge of how to do research in a college library.
  - Arrange for library instruction. Even students who have achieved some level of proficiency with library research will benefit from the reinforcement and enhancement of their skills. Require attendance. Attend yourself, asking questions as a learner.
  - Bring the class to the library or ask a librarian to come to your classroom when they are ready to begin their project, not in advance. Students learn best when there is an immediate and applicable need.
2. Send a copy of the assignment to the instruction librarian at your campus. Ask for input before finalizing the assignment. Librarians, for example, are highly skeptical of the academic value of commonly assigned “Library Scavenger Hunts.”
3. Include homegrown resource guides, sometimes called “pathfinders,” in your initial quest for student library sources. Often campus instruction and reference librarians develop these guides for various fields or disciplines. If your field is not included, ask the library to develop a resource guide for your area. These subject guides provide students with suggestions for “where to start” their research. Included in the guides are both print and electronic sources such as subject encyclopedias; specialized periodical indexes such as *Applied Science and Technology Index*; *PsycINFO*; or *Sociological Abstracts*; also included are reference works or standards in the field such as *The Physician’s Desk Reference (PDR)*; *CRC Handbook of Chemistry and Physics*; or the *Statistical Abstract of the United States*.
4. Consider alternatives to the conventional research paper. Excellent assignment ideas reside on the Web, often at other campus library sites (12, 13, 14, 15, 16).

## B. Designing

1. Provide your expectations for the assignment in writing to your students. Let them know what the assignment involves and what you expect them to learn from the experience. “I don’t know what s/he wants”

is a student lament transcending the ages. Make their day; tell them. To help students fully understand these expectations in practice, consider providing strong and weak samples of typical segments of the project or assignment to discuss and critique in class.

2. Specify how the assignment fits with the goals or objectives of the course to show relevance. Be as explicit as possible. Share this information, also, with instruction librarians to help them determine appropriate sources.
3. Provide students with the grading criteria in writing for the project or assignment.
4. Offer a variety of flexible topics, encouraging students to choose ones that interest them.
5. Review the student-selected topics to see that they are appropriate and achievable. Avoid very current or local topics if students need scholarly sources as scholarly peer reviewed journals take time to reach publication.
6. Place materials on “Reserve,” if necessary, to avoid having 30 students compete for six books.
7. Discuss the role of attribution and documentation in a community of scholars. Include a policy on plagiarism in the syllabus. Emphasize the ethical use of information and of the avoidance of plagiarism. Aside from ethics, there are also copyright laws, both national and international, to consider. Specifically discuss appropriate and inappropriate use of online material, a gray area for many students.
8. Announce which style manual you expect students to use. Be very specific about documentation for online sources. Many style manuals are difficult to interpret.

### Provide opportunities to engage in deep learning.

As noted in the background section, the key components characterizing deep learning are motivation context, learner activity, interaction with others, and a well-structured knowledge base (5). As an example, faculty members can ask students, as part of a larger research project, to prepare paired annotations based on the double entry journal recommended by writing across the

curriculum and classroom assessment experts (17). The teacher or the students identify a pool of articles on the question or problem at hand. Each student, working individually out-of-class, prepares a reflective commentary on one of the articles or chapters. They do so using a double column format (a Microsoft Word table works beautifully) where they cite the key points of the research article on the left-hand side and reactions, questions, commentary, and connections with other readings on the right, aligning the key point with the reflective commentary. The entries in these columns will not be the same length. When students come to class, the teacher randomly pairs them with another student who has read and analyzed the same research article. The two partners now read one another's reflective commentaries, comparing both the key points they have identified and their specific responses to them. They discuss their reasons for the choices they made. Then working together, they prepare a composite annotation summarizing the article (See IDEA Paper No. 38).

This activity should be repeated several times during the semester, pairing different students. It enables students to reflect on their own thinking skills (metacognition) and to compare their thinking with those of other students. The more paired annotations they complete, the more skilled students become at identifying key points in an article and “using resources for answering questions or solving problems.” This structure thus enables teachers to sequence learning in meaningful ways. It builds critical thinking and writing skills by having students analyze and then compare their responses to the same piece of writing. It has the additional virtue of being relevant to virtually any discipline. Over the course of the semester, students build a repertoire of annotated research articles they can bring to bear on the given question or problem.

A note about technology. A thorough discussion of the ways in which new technologies can support and supplement students' efforts to find and use resources is beyond the scope of this Note. However, we should mention at minimum, that the bounty that awaits students who explore web-based resources comes with a price: the equally large amount of inaccurate, incomplete, and sometimes distorted information that can be found in any web search. The critical issue for teachers is to *construct assignments that require specific information known to exist and is accessible with*

*minimum interference from useless, irrelevant, or biased data.* Your resource librarian can be a tremendous asset in saving you hours of work (e.g., training students on effective and efficient search strategies and helping everyone to avoid wasting time and effort on valueless information). All disciplines and courses deal with electronic information and we cannot ignore its potential value. What is important to remember in constructing assignments is that the work must have a meaningful relationship to a clearly stated outcome. There has to be a tangible “payoff” in terms of students being able to connect the work to an understood and desired result.

### **Assessment Issues**

1. Develop a rubric (or a form) to assess the announced grading criteria. For example, assign a certain number of points for each component of a project or assignment (see 2 below). What percentage of the total will the final paper and bibliography be? Note what happens if any of the required items are a day late; two days late; etc. What percentage will mechanics—spelling, punctuation, grammar—contribute to the final grade?
2. Sequence parts of the project or assignment by establishing intermittent deadlines along the way. This practice not only helps prevent procrastination, but also helps to deter plagiarism. For example, have due dates for the overall topic and the thesis statement, due dates for a preliminary bibliography of “X” number of sources, an outline, a first draft, oral presentation, written or in-class peer reviews, etc.
3. Require critical thinking. If students are using Web sites, for example, ask for the background or credentials of the author; ask for the date of last revision if currency is important; ask if students found any bias on the site; and ask why they selected this site from among all the others.
4. Make use of peer reviewing throughout the research project or assignment to provide an additional source of feedback and add to the active learning and student interactions essential for deep learning. Have students exchange drafts and apply the rubric or checklist that will be used to assess the assignment. The opportunity for critical review of another draft and seeing comments from a

peer will help them more fully understand the expectations, leading to better final products.

5. Review respected resources such as the *Tutorial for Developing and Evaluating Library Assignments* at the University of Maryland University College, Adelphi, MD (18) and the *Scoring Criteria for Development/Resource-Based Learning Project* at Delta College, University Center, MI (19).

## References and Resources

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## Related POD-IDEA Center Notes

[IDEA Item #2](#) "Found ways to help students answer their own questions," Nancy McClure

[IDEA Item #8](#) "Stimulated students to intellectual effort beyond that required by most courses," Nancy McClure

[IDEA Item #9](#) "Encouraged students to use multiple resources (e.g. data banks, library holdings, outside experts) to improve understanding," Leora Baron

[IDEA Item #13](#) "Introduced stimulating ideas about the subject," Michael Theall

[IDEA Item #15](#) "Inspired students to set and achieve goals which really challenged them," Todd Zakrajsek

[IDEA Item #18](#) "Asked students to help each other understand ideas or concepts," Jeff King

[IDEA Item #19](#) "Gave projects, tests, or assignments that required original or creative thinking," Cynthia Desrochers

## Additional Resources

IDEA Paper No. 38: [Enhancing Learning - and More! - Through Cooperative Learning](#), Millis

IDEA Paper No. 41: [Student Goal Orientation, Motivation, and Learning](#), Svinicki