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### WORKSHEETS, GUIDES, AND EXERCISES

1. *From Outcome Statements to Methods of Assessment in Courses or Educational Experiences.*  
Developing an inventory of course-based or experience-based assessment practices (such as in service learning programs) results in a rich pool of practices upon which to build institution- and program-level assessment methods. In the process of selecting or designing formative and summative assessment methods, core working groups can develop this inventory by asking individuals to submit responses to the following worksheet. This worksheet becomes a way to determine how well proposed program or institution levels of assessment align with how and what students learn and how they represent their learning. Or, from this worksheet, members of a core working group may be able to design formative and summative methods of assessment that align with students' learning histories.

#### Assessment Methods in Individual Courses or Educational Experiences

Individual submitting worksheet: \_\_\_\_\_

Course or educational experience: \_\_\_\_\_

1. List agreed-upon outcome statement or statements your course or educational experience addresses:
  - 1.
  - 2.
  - 3.
  - 4.
2. What methods of teaching and learning contribute to or foster the learning described in this outcome statement or these outcome statements?
  - 1.
  - 2.
  - 3.
  - 4.
3. What assumptions about teaching and learning underlie these methods?
  - 1.
  - 2.
  - 3.
  - 4.
4. What assessment methods do you use to assess the learning described in the outcome statements listed under Number 1?
5. What assumptions underlie your methods?
6. What inferences can you draw from what students represent or demonstrate or produce?

2. *Designing or Selecting Direct and Indirect Methods.* Based on results of the inventory in Exercise 1, core working groups at the institution- and program-levels may decide to derive or design direct and indirect methods. They may also decide to use standardized instruments. Having members of a core working group, in consultation with colleagues, analyze the considerations that play a key role in the design or selection of direct and indirect methods helps narrow down the pool of options. The following worksheet helps members of a core working group to analyze and then agree upon methods that align with what and how students learn and represent their learning. It also asks members of a core working group to consider the validity and reliability of each proposed method.

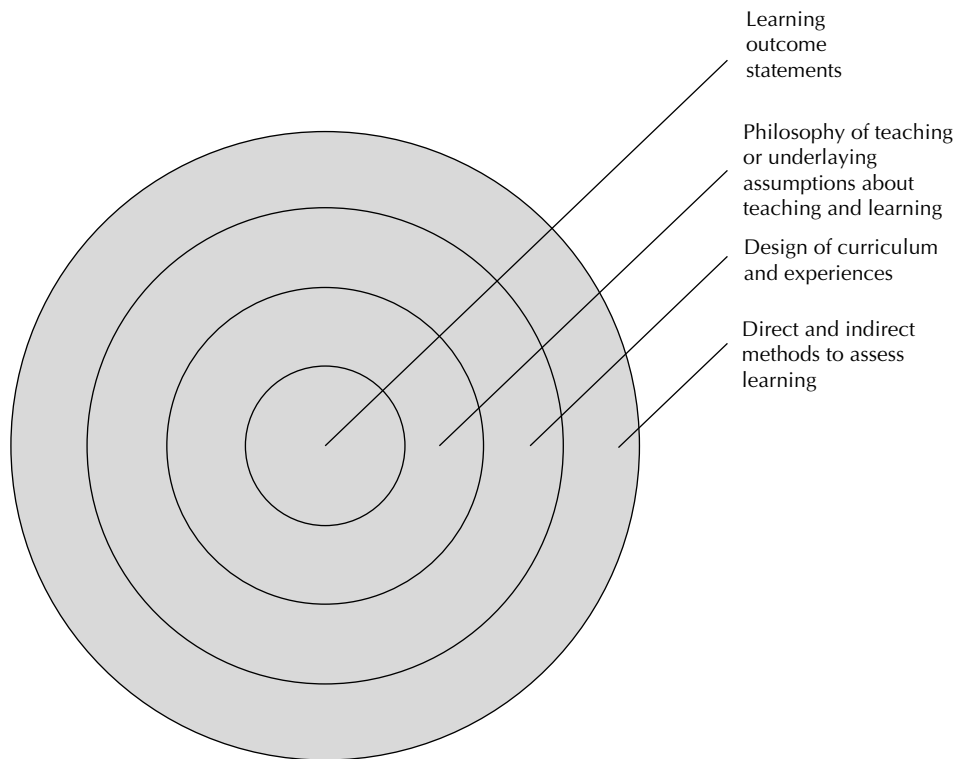
**Analysis of Direct and Indirect Assessment Methods under Consideration**

	<b>Method</b>	<b>Method</b>	<b>Method</b>	<b>Method</b>
Learning outcome(s)				
Alignment with curriculum and educational experiences, including assessment practices	_____	_____	_____	_____
Inferences that can be drawn about student learning	_____	_____	_____	_____
Inferences that cannot be drawn about student learning	_____	_____	_____	_____
Can be used for formative assessment	_____	_____	_____	_____
Can be used for summative assessment	_____	_____	_____	_____
Validity of the method	_____	_____	_____	_____
Reliability of the method	_____	_____	_____	_____

3. *A Schedule for Formative and Summative Assessment.* In collaboration with an office of institutional research and planning, core working groups that identify and select methods of assessment for institution-level outcomes also develop a timetable to assess students along the continuum of their learning. Use the following worksheet to develop a timetable to assess students' learning along the continuum of their studies. Using this chart, core working groups in program-level assessment committees can also establish a program-level assessment chronology. This timetable provides an overall chronology of assessment efforts at either the institution or program level. Cycles of inquiry into how well students make progress toward and eventually achieve institution- and program-level outcomes occur over time. Each year or every couple of years the institution and its individual programs focus on assessing one or two outcomes at a time to maintain a focus of inquiry.

<b>List Each Agreed-upon Institution- or Program-level Outcome.</b>	<b>Formative Assessment Schedule (For Example, After Each Course; After Certain Number of Credits or Sequences of Courses or Educational Experiences?)</b>	<b>Summative Assessment Schedule</b>
1.		
2.		
3.		
4.		

4. *Assessment within the Design of Curricula and Educational Experiences.* Re-conceptualizing or creating a new program is an opportunity to develop an organic relationship among educational philosophy, learning outcomes, curricular and co-curricular design, sequence of educational experiences, and methods of assessment. The following visual represents a way to think about this interrelationship. If your institution is in the early stages of designing a new program or a new core curriculum, consider how you might use this visual as a way to guide your design. That is, begin by (1) stating learning outcome statements for the proposed program; (2) discuss the philosophy of teaching, assumptions underlying teaching and learning, or models of teaching and learning that will promote desired learning and translate those discussions into curricular and co-curricular design or sets of educational experiences; (3) develop or select direct and indirect assessment methods that capture learning along the progression of students' studies to ascertain how well students transfer and build upon knowledge, understanding, behaviors, habits of mind, ways of knowing, dispositions.



5. *Developing Assessment Methods.* The institutional examples in Box 4.8 and Box 4.9 represent ways in which different constituencies of an institution have worked together to develop assessment methods that provide evidence of student learning from multiple lenses. These two examples also illustrate the importance of institutional context in the collective identification of questions of curiosity that members of an educational community wish to pursue. In the design of assessment methods, consider how cross-disciplinary members of core working groups or other established groups might work together to develop complementary methods of assessment that explore students' knowledge, understanding, habits of mind, ways of knowing, attitudes, and values.

#### **BOX 4.8 INSTITUTIONAL EXAMPLE: *Academic Librarians and Faculty: Information Literacy***

Academic libraries, like the institutions of which they are a part, are exploring the type of contribution that they can make to outcomes assessment. The broad area of library evaluation and assessment has historically focused on the "user in the life of the library" (i.e., input, output, and performance measures); but, more recently, attention has centered on the "library in the life of the user" (e.g., customer satisfaction). Now, there is even a different perspective: the "user and library in the life of the institution"—the accomplishment of the institutional mission (i.e., outcomes assessment). Each of the three perspectives has value and, to date, researchers have not sufficiently explored interconnections.

As shown in *An Action Plan for Outcomes Assessment in Your Library*,<sup>1</sup> professional associations (Association of College & Research Libraries, ACRL; and the Wisconsin Association of Academic Librarians), the Florida State Library (with its outcomes workbook), The Citadel (Daniel Library), and the California State Library system have viewed information literacy as the link between outcomes assessment and libraries. Outcomes focus on the ways in which library users change (know, think, and are able to do) as a result of their contact with the library's resources and programs. This is not to say that librarians cannot work with others in other areas of outcomes assessment.

The ACRL has developed Information Literacy Competency Standards for Higher Education (reprinted as Appendix H in *An Action Plan for Outcomes Assessment in Your Library*). In Chapter 6 of *An Action Plan for Outcomes Assessment in Your Library* we take the information literacy competency standards and performance indicators and convert them into measurable student learning outcomes.

The Mildred F. Sawyer Library, Suffolk University (Boston), has taken that framework and included student learning outcomes as part of an assessment plan, part of which relates to student ability to retrieve, evaluate, and use electronic information. The learning outcomes that were sought have a lifelong effect on students and, although that effect would be difficult to measure, there should be an effort to do so. While faculty involvement was essential, the staff wanted to identify and design learning modules that were in concert with carefully chosen learning objectives, known library strengths, and within the limits of available resources.

This report describes two methods of assessment related to achievement of the assessment plan. The first relies on the type of data that libraries can gather from electronic databases supplied by commercial vendors, and the second involves cooperation with teaching faculty.

#### **Use of Boolean Search Operators**

Librarians advocate the teaching of information search skills. Along with other searching skills, Boolean operators (use of AND, OR, and NOT) are used to reduce, or refine, the number of "hits" (retrievals) per search of almost every electronic database. This skill, once learned and applied, will

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<sup>1</sup>Peter Hernon and Robert E. Dugan, *An Action Plan for Outcomes Assessment in Your Library* (Chicago: American Library Association, 2002). For other examples of the use of outcomes assessment in academic libraries, see the articles in volume 28 (2002) of *The Journal of Academic Librarianship* (January/March and November).

**BOX 4.8** (Continued)

save students time by increasing the effectiveness of the search process; their retrievals will be “more on target,” resulting in less information overload and less time reading through abstracts of articles or sources that do not meet their needs. Librarians at Sawyer Library gather data about the knowledge and application of Boolean searching by conducting a pretest and posttest of students receiving formal searching instruction and by retrieving the statistics from vendors supplying the databases to track the number of retrievals per search for each month of the academic term.

They retrieve the monthly statistics for “number of searches” and “number of hits” and then calculate the number of hits per search. The Boolean operator “AND” is emphasized during the instructional sessions because it is used to combine two or more keywords, thereby reducing the number of results. If the number has dropped, the library might claim that its efforts in instructing students on this specific Boolean operator have reduced the number of retrievals per search. Adding to the validity of the claim is that the library received such statistics prior to implementation of the instruction program, and there was no observable/measurable change during the school term.

The library staff compiles and reviews the pretest and posttest from the instruction sessions and the monthly vendor statistics. Analysis of the test scores is used to improve the content and methods employed during the instruction sessions; analysis of the vendor statistics verifies whether or not the instructional sessions changed student searching processes to include Boolean operators.

**Technology Skills**

The Accounting Department at Suffolk University recognized the importance of technology-related competencies to accountants—if they are to access and assimilate electronic information—and to solve unstructured problems found in different consulting and strategic decision-making situations. Using pretests and posttests, student ability to incorporate traditional and nontraditional sources of information into company-analysis projects was measured. There was even a multiple-choice Internet quiz.

While developing skills provides students with the competencies to access technology, improving their perceived abilities is vital to ensure the successful utilization of computers in the workplace. Combining strong skills and highly perceived abilities should allow students to access, synthesize, and analyze timely information from various information sources when working on an appropriate independent assignment, the very competencies that accounting recruiters expect.

The development of effective pedagogical tools must recognize that the benefits of technology may depend on the learning situation and the psychological and other characteristics of the students. Librarians can partner with classroom faculty to meet the learning objectives for the course, especially those related to the use of technology to navigate the Internet and to retrieve, download, and evaluate information for the completion of classroom assignments. In doing so, libraries ensure that their outcomes are ones key to the instructional programs of the college or university.

**Conclusion**

The same toolkit of methods that teaching faculty use to assess outcomes applies to libraries and their measurement of student learning. Both faculty and librarians can gather direct and indirect evidence of the changes that occur in student learning during a course or program of study. What are librarians trying to do in their instructional programs? Why are they doing it the way they are? How well do those approaches work—that is, accomplish the assessment plan? The assessment plan, a planning document, guides whatever course of action the library takes (see [www.suffolk.edu/sawlib/plandocs/current\\_student\\_assessment\\_plan.htm](http://www.suffolk.edu/sawlib/plandocs/current_student_assessment_plan.htm) for a sample plan). At the same time, it is critical that information literacy be related to the broader concept of critical thinking and competencies such as “formulate and state a research question, problem, or issue . . . ;” “organize information in a manner that permits analysis, evaluation, synthesis, and

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**BOX 4.8** (Continued)

understanding”; “create and communicate information effectively using various media”; and “understand the ethical, legal, and socio-political issues surrounding information.”<sup>2</sup>

<sup>2</sup>Dunn, K. (2002, January/March). Assessing information literacy skills in the California State University: A progress report. *The Journal of Academic Librarianship*, 28.

Sources: Contributed by Peter Hernon, Professor, Simmons College, Graduate School of Library and Information Science, 300 The Fenway, Boston, Massachusetts 02115-5898: peter.hernon@simmons.edu; Robert E. Dugan, Director, Mildred F. Sawyer Library, Suffolk University, 8 Ashburton Place, Boston, Massachusetts 02108: rdugan@suffolk.edu.

**BOX 4.9 INSTITUTIONAL EXAMPLE: *Student Affairs and Academic Affairs: Academic Integrity, Student Learning, and Campus Culture***

Reports of the growing numbers of cases involving academic dishonesty across the nation have stirred the faculty, student body, and administration on numerous college campuses. In 2000, members of the NC State University community began to study its Honor Code, records of infractions, and student behaviors and impressions regarding academic integrity in an attempt to understand the behaviors and drivers of those behaviors on our own campus. A committee of administrators from Academic Affairs and Student Affairs, technology staff, faculty, and students initially met to focus on whether technology makes cheating easier for students; and while that focus was retained throughout their work, it became obvious that something bigger was happening. In order to understand the larger picture, a more thorough assessment regarding attitudes toward cheating, how many people were participating in cheating behaviors, and why they were behaving in that manner was required. In short, we began to understand that we had to consider what students know about academic integrity and cheating, how they learned it, and what they might need to “re-learn” in light of inaccurate information, unfortunate perceptions (and realities), and misguided responsibility for their own behavior.

In response to national literature on cheating behaviors and their pervasiveness, we wanted to learn the specifics of our own population’s behaviors and attitudes. Borrowing heavily from Rutgers’ professor Donald McCabe’s work on academic integrity, staff from Undergraduate Affairs and Student Affairs worked together to modify his survey to accommodate NC State’s cultural and practical realities [see the survey at [www.ncsu.edu/undergrad\\_affairs/assessment/files/projects/acadint/acad\\_integrity.pdf](http://www.ncsu.edu/undergrad_affairs/assessment/files/projects/acadint/acad_integrity.pdf)]. With the survey online, we contacted 3,000 randomly selected undergraduate students and attained a 30% response rate, which is fairly typical for this kind of survey topic. Our findings were the basis for multiple, campus-wide presentations, posted at: [www.ncsu.edu/undergrad\\_affairs/assessment/files/projects/acadint/academic\\_integrity\\_at\\_ncstate.pdf](http://www.ncsu.edu/undergrad_affairs/assessment/files/projects/acadint/academic_integrity_at_ncstate.pdf).

While our findings are not atypical of such surveys, they were especially illuminating in three primary respects: (1) they demonstrated a “disconnect” between what students claim to value (integrity) and how they behave; (2) students want the definition and consequences of cheating to be clear; and (3) students want extenuating circumstances to be considered in decisions about sanctions. Most important in moving toward an institutional “remedy” is the consistent evidence that students value and need guidance from their professors regarding the complexities of cheating.

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**BOX 4.9** (Continued)

The survey's findings established the basis for the work we needed to do and, thus, are indicative of how we used the results. First, we realized the need for widespread campus conversations about academic integrity, rather than promoting the ongoing assumption that the Office of Student Conduct is solely responsible for institutional integrity. As a result, we made presentations to several groups, articulating the findings of the survey to the Provost's Staff, the Chancellor's Staff, the Faculty Senate, Staff Senate, Student Judicial Board, Deans' Steering Committee, Deans' Council, and Associate Deans. These conversations provided fuel for disseminating the results, as well as identifying some possible sources of remedy. Most significant is that every single group offered valuable recommendations for taking the discussion to larger groups and for identifying more strategies for further education of the community.

**Decisions**

Key to our effort of assessing academic integrity is the hope that we can reinforce the institutional culture of NC State University as one of honor, integrity, and individual choice. A number of educational initiatives were already in place when this assessment was conducted. Based on the results of the survey, some initiatives remained the same, some were altered, and others were created. Most strategies involved further partnering between Undergraduate Affairs and Student Affairs.

**Decisions Implemented as a Result of the Assessment of Academic Integrity**

- Prior to the implementation of the survey, students who violated the academic integrity policies were often assigned an eight-hour CD-ROM exercise that focused on academic integrity issues. This sanction was not altered as a result of the assessment. It provides students with the philosophical importance of academic integrity and ways to maintain integrity when faced with common, yet difficult, situations.
- During the development of the survey, members of a student senate committee wrote an honor statement to reflect their views on the importance of academic integrity. It was on the ballot for the spring 2001 student body elections. It passed and is currently located in the student senate constitution.
- New faculty orientation packets were created for the August orientation program. The packet included a cover letter and a number of documents with procedures for pursuing academic integrity violations and resources for helping students avoid violations. It was given to each member in hardcopy form, but it can be located on the Office of Student Conduct's Web site: [www.ncsu.edu/student\\_conduct](http://www.ncsu.edu/student_conduct).
- An article titled "Academic Integrity at NC State University: Creating a Culture of Honor" was published in *Emphasis: Teaching and Learning*, the NC State Faculty Center for Teaching and Faculty Learning's newsletter. The article highlighted the survey methods, findings, and the resulting strategies and was distributed to every faculty member on campus.
- The Office of Student Conduct Web site was expanded to include more information about academic integrity. The site was expanded to include judicial statistics, academic integrity case studies to help faculty handle cases of academic dishonesty, and presentations on academic integrity. The existing information was reorganized to better assist faculty, and a quiz on academic integrity with the correct answers and explanations is in the process of being developed for students.

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**BOX 4.9** (Continued)

- Based on an informal conversation between faculty and Student Affairs staff regarding academic integrity issues, Dr. Steve Wiley, Paul Cousins, and Dr. Carrie Zelna implemented a semester-long intervention in Communications 257 in the fall 2002 semester. Academic integrity issues were infused into the course through a variety of activities and lectures. Sections of the original survey were administered, and other assessment methods were implemented to determine if the activities and lectures were effective. This assessment is still in progress.
- The Office of Student Conduct has always presented educational programs to students and faculty on the issue of academic integrity. Due to the findings of this assessment, changes to the presentations were made to include statistics when appropriate, and case studies were altered to include those that involved the violations that students incorrectly identified as “not cheating.” In some situations the entire program was altered to include more philosophical information to help students better understand academic integrity as it relates to the philosophy of education.
- After presenting the survey data to the student judicial board, the members began implementing their own educational interventions. One such intervention was the creation of banners placed in various locations on campus during exam week to remind students of the importance of integrity in their academic work.

**Decisions Made as a Result but Still in the Planning Phases of Implementation**

- The College of Design is in the process of developing posters to reemphasize academic integrity policies in the classroom. The survey showed that 10% of the students learned the policies from posters that were last posted over five years ago. Based on this, we believe posters to be an important and effective way to disseminate information to students.
- The chancellor will send each incoming student a letter emphasizing the importance of integrity in all aspects of the university’s culture.
- The Office of Student Conduct, Undergraduate Affairs, and the Student Judicial Branch of Student Government plan to partner to implement an Honor and Integrity week. Due to budget constraints, this project was put on hold until spring 2003 or fall 2003.

**The Assessment Cycle**

We will re-administer the survey with revisions in spring 2005 to see if any of the interventions have made a positive impact on students’ behaviors, knowledge, and attitudes. In the interim, specific programs are administering portions of the survey and other assessment methods after particular interventions have been implemented.

Allen, J., & Zelna, C. L. (2002, February). Academic integrity at NC State University: Creating a culture of honor. *Emphasis: Teaching and Learning*, 11, 3.

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