GUIDE FOR DEVELOPING AND IMPLEMENTING
A PROGRAM OUTCOMES ASSESSMENT PLAN

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PART 1. INTRODUCTION
CHAPTER 1. INTRODUCTION

The following excerpts are intended to provide a “big picture” introduction to the process of developing a program outcomes assessment plan, as well as to provide a general description of the major steps in that process.

A. What is assessment?

Assessment is an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education.

(From material distributed at a session entitled Doing Assessment as if Learning Matters Most, by Thomas A. Angelo, 2005 Assessment Institute in Indianapolis)

If we break this excerpt down, we get a fairly good picture of the steps involved in developing a program outcomes assessment plan. That is:

- The phrase, “…making our expectations explicit and public…” suggests the development of program objectives - what the faculty in a program expect to do or accomplish - and student learning outcomes – what the faculty expect students to learn - both of which are important first steps in the development of program outcomes assessment plans.

- “…setting … criteria and … standards…” suggests the development of appropriate tools and processes to interpret or evaluate assessment products. This step occurs after decisions are made concerning the methods of assessment that will be used, because these methods point to the types of products that will be examined.

- Next, the products are gathered, and then analyzed and evaluated using the appropriate tools and processes.

- Finally, this information is used to “…document, explain, and improve performance.” This improvement can take place via changes in pedagogy, materials used, curriculum, etc.

Assessment involves a consideration of both what and how students learn.
Assessment of student learning is the systematic gathering of information about student learning, using the time, resources, and expertise available, in order to improve the learning.

The Three Basic Steps of Assessment:

1. Articulate learning goals
   “When students complete this [course, major, gen-ed program] we want them to be able to ....”
2. Gather information about how well students are achieving the goals and why
3. Use the information for improvement

(From a handout by Barbara Walvoord, entitled Assessment Clear and Simple: Steps for Institutional Planners, distributed at the 2005 Assessment Institute in Indianapolis)

This excerpt is a much simpler statement than Excerpt 1. However, it covers the fundamental points such as the need to:

- articulate learning goals (outcomes),
- gather student work products and other types of assessments and analyze and evaluate them, and then
- use this information to improve student learning.

Assessment is the systematic collection and analysis of information to improve student learning.

(From Course-Based Review and Assessment: Methods for Understanding Student Learning, Office of Academic Planning and Assessment, University of Massachusetts – Amherst.)
B. What is outcomes assessment?

Outcomes assessment: A way of systematizing and formalizing, at the departmental/program level, what individual faculty members already do:

1. Review how well students are learning.
2. Reflect on whether they are satisfied with that level of achievement.
3. (Revise) – make changes to their pedagogy, courses, and curricula to improve student learning.

(From material presented by Brooklyn College representatives at the Atlantic Center for Learning Communities Conference in October, 2005)

How well students are learning cannot be considered without reference to:

- some clear articulation of what they are expected to learn, which is stated in program objectives and learning outcomes, as well as

- definitions with respect to what constitute satisfactory versus unsatisfactory performance, which is captured in such tools as scoring guides and rubrics as well as specified performance standards and criteria.

- “Reflect” involves the consideration of the information obtained through analysis and evaluation which may point to possible needs for improvement in the programs’ curriculum or in particular pedagogical approaches, and

- “Revise” refers to steps taken to improve the learning.

Thus this statement captures much of what was presented in the first two excerpts above.
C. **What is a program outcomes assessment plan?**

Barbara Walvoord lists the following general steps in the development and implementation of an assessment plan:

1. **Formulate Learning Goals for Each Distinct Course of Study**  
   (Major, Degree, Certificate, Track, or Program)  
   Format: When students leave our [major, degree program, track, etc.] we want them to be able to ________________________

2 a. **Check where the Goals are being Taught and Assessed**

2 b. **Determine How Well Students are Meeting the Goals**

3. **Use the Information for Improvement**

(From a handout entitled *Assessment Clear and Simple: Steps for Institutional Planners*, distributed at the 2005 Assessment Institute in Indianapolis)

Further, Walvoord presented the following outline for what she refers to as “**The Basic, No-Frills Departmental Assessment Plan**” (Note: Non-italicized words have been added to make this outline more applicable to NECC.)

1. **Learning goals (outcomes)**

2. **Two measures:**
   a. **One direct measure**
      i. Review of senior work by faculty teaching seniors  
         (course close to graduation, or course in which learning outcome is addressed)
      ii. If students take a licensure or certification exam, this will be added as a second direct measure

   b. **One indirect measure**
      i. My preference: senior student (graduating student) surveys and/or focus groups asking three questions:
         1. How well did you achieve each of the following departmental (program) learning goals (outcomes) [use scale such as “extremely well, very well, adequately well, not very well, not at all”]
         [List each department (program) goal (learning outcome), with scoring scale for each.]
         2. What aspects of your education in this department (program) helped you with your learning, and why were they helpful?
         3. What might the department (program) do differently that would help you learn more effectively, and why would these actions help?
      ii. Second choice: Alumni surveys
      iii. In some fields (programs), job placement rates (or transfer) will be important

3. **Annual meeting to discuss data and identify action items**
Although the format we follow at NECC may not match the “no-frills” plan described above, it is useful to consider how an expert in the assessment field conceives of the basics of an assessment plan.

D. **What is the purpose of an outcomes assessment plan?**

The development and implementation of a program outcomes assessment plan has several purposes:

- **To provide an opportunity for faculty, staff, and administrators to systematically review the curriculum** for a program to ensure that the curriculum as designed is coherent, fulfilling institutional and program objectives, associated with intended quality learning outcomes, and leading to successful job or transfer placements and experiences for students.

- **To insure that the program is responsive to the community** particularly with respect to both current and projected student needs and interests and labor market demands, and the requirements and expectations of post-community college higher education institutions.

- **To obtain information that will allow for a review of current teaching and assessment practices** along with their impact on the various student populations being served.

- **To have documentation to include in and/or to support program review and other self-study activities** (e.g. associated with program approval, certification, or accreditation work).

- **To provide a significant contribution to program review**, which is intended to “strengthen the academic programs offered at Northern Essex Community College” (from NECC’s Institutional Program Review Handbook), a goal also served by a well-developed and implemented program outcomes assessment plan.

- **To obtain information that could suggest and support program improvement activities and plans**, and in general guide efforts to maintain and/or enhance program quality and, as a result, student learning.

- **To provide a systematic means to measure program and thereby institutional effectiveness.**

- **To respond to the demands for accountability** by external legislative and accrediting bodies.

- **To obtain evidence to support requests for program resources.**
Because the development of a program outcomes assessment plan has utility apart from a program review, which is scheduled for a particular time and at particular intervals, this work should be seen as an ongoing activity for a program.
E. **What is the format for a program outcomes assessment plan?**

There are two main parts to a program outcomes assessment plan. The first is the **initial general plan**, developed as the first step in a program’s move towards outcomes assessment. The second is an **implementation plan**, developed each year with a focus on the specific outcomes to be assessed that year. Feedback to the general plan following each year’s cycle is expected, and may lead to a revised general plan.

**Following is a suggested format for the initial general program outcomes assessment plan:**

1. **Introduction**
   A. Formation of the outcomes assessment team
      i. Members
         a. Specific identity – relationship to program - constituencies represented
   B. General description of process followed
      i. Format(s) for discussion, contributions (e.g., meetings, assignments, etc.)

2. **Development of Program Mission Statement**
   A. Process followed
   B. Discuss how the program mission reflects or aligns with NECC’s mission, core values, strategic plan, etc.

3. **Development of Program Objectives**
   A. Process followed
   B. Discuss how the program’s objectives are consistent with the program’s mission as well as NECC’s mission and goals

4. **Development of Learning Outcomes**
   A. Process followed
   B. Discuss how the learning outcomes align with the objectives
   C. Discuss how the outcomes are accomplished through the program’s curriculum
   D. Display outcomes and curriculum map

5. **Report of Current Assessments**
   A. Describe assessments already in place
      i. What, where, concerning which outcomes?
   B. Display the outcomes and assessment map

6. **Outcomes Assessment Schedule and Strategy for Plan Implementation**
   A. Develop multiple year schedule for assessment of identified learning outcomes.
   B. Identify strategy for plan implementation
      i. Implementation team members
      ii. Plan implementation structure(s)
F. **Suggested format for program outcomes assessment implementation plan**

1. Identification or Development of Assessments *(How will the selected outcomes be assessed?)*
   - A. Determine appropriate measurement method(s)
     i. Already in place
     ii. To be developed
   - B. Decide when, where, and to whom assessment(s) will be administered

2. Development of Processes for Assessment Analysis and Evaluation or Interpretation *(How will you analyze and evaluate the data or information obtained from the assessments?)*
   - A. Describe analysis tools
     i. E.g. scoring keys, rubrics, qualitative analysis, etc.
   - B. Discuss how analysis results will be represented/presented
     i. E.g. calculation of average scores, frequency distributions, narrative descriptions, etc.
   - C. Discuss any evaluation or interpretation guides such as performance criteria or decision rules and standards

3. Collecting, Analyzing, and Interpreting Data *(Who will collect, analyze and interpret the data, and how will this proceed?)*
   - A. Identify persons responsible
   - B. Describe collection mechanisms
   - C. Conduct analysis
   - D. Interpret and Discuss

4. Development of Action Plan *(What will you do with the results of the analysis and evaluation?)*
   - A. Specification of schedules and mechanisms or contexts for sharing and making action decisions
   - B. Identification of individuals who will be involved in developing the action plan
   - C. Possible actions to be considered/taken
   - D. Development of specifications for implementation of action plan
G. Introduction: Summary

The preceding excerpts and the explication of the many purposes served by a program outcomes assessment plan were presented to help you develop a “big picture” perspective on the process of assessment, and to offer a general description of the specific steps that need to be followed to develop your program’s general and year-specific outcomes assessment plan. The suggested formats for a program outcomes assessment plan are intended to give you a context or framework within which to consider the more general information presented in the following sections. These sections provide more specific guidance as you move forward in this process.
PART 2. DEVELOPING A PROGRAM OUTCOMES ASSESSMENT PLAN
CHAPTER 2. RELEVANT CONTEXTS AND CONSTITUENCIES

The development of a program outcomes assessment plan should include the consideration of all relevant contexts and constituencies, including those associated with the community, institution, and program. You can view your curriculum as part of your program context, which is part of the larger context of NECC, which is part of an even larger external context. External contexts and constituencies include students and the secondary schools and communities which supply them as well as the business organizations and four-year colleges which employ or enroll them.

Although some of the information presented below is available in NECC publications, it may be helpful for you to have it all in one place, for reference as needed.

A. Community contexts

1. Employment sector

One important way in which NECC serves the Merrimack Valley community is through providing programs that prepare students for the various occupations represented in the broad local labor market. Career and occupational preparedness is an explicit part of many of NECC’s programs’ missions, and is one of the important ways in which NECC contributes to the area’s economic life. As an educational institution, however, NECC’s role includes not only training individuals to enter the current and projected work force, but also preparing them through the development of competencies to be innovators and as such to contribute to the development of their occupations and professions.

2. Enrolling students

NECC’s programs can be viewed as a bridge between secondary education or its equivalent, and employment or transfer to a four-year college. The needs and interests of students enrolling in NECC’s programs undoubtedly change over time, in response to a variety of factors, including economic patterns, demographic shifts, changes in labor market demands, degree of secondary education preparedness, and extent of aspirations for further education.

3. Post community college higher education institutions

Preparation for transfer to four-year educational institutions is an explicit aim of many of NECC’s programs. To accomplish this purpose and to ensure student success after transfer, courses, particularly in the area of general education, need to effectively map onto comparable courses at the receiving four-year institutions, in terms of both course content and grades.
B. Institutional context

1. NECC Mission Statement

The mission of Northern Essex Community College is to serve the people of the Greater Merrimack Valley as a caring and comprehensive center of educational excellence that offers high quality, affordable adult and postsecondary education through the Associate Degree level, as well as a broad range of occupational programs and community services which enhance the social, cultural, and economic life of the region.

2. NECC Core Values

**Student Engagement**
We are committed to fully engaging our students as active learners by providing a diverse range of educational experiences.

**Collaboration**
We are committed to developing productive, collaborative relationships within the college and among our various constituencies in the greater Merrimack Valley.

**Personal and Professional Growth**
We are committed to the personal and professional growth of faculty, staff, and students alike. We believe that lifelong learning is essential to the personal enrichment and professional growth of each individual.

**Respect**
We are committed to fostering mutual respect that enables faculty, staff, and students to grow and work together in a supportive environment of shared governance, open communication, and fairness.

**Diversity**
We are committed to creating an institutional climate that deepens our appreciation for diversity and for the unique attributes of each individual.

**Access and Opportunity**
We are committed to providing affordable access to educational opportunity.

**Excellence**
We are committed to a high standard of educational excellence in teaching, learning, and academic content.
3. NECC Strategic Plan: Fiscal Year 2008-2011

NECC’s Strategic Plan for FY 2008-2011 includes the Core Values listed above, as well as a Vision Statement and Five Strategic Directions which follow.

**Vision Statement**

It has been said that leadership means the ability to move people from where they are now to where they have never been before, but need to go – and to do so by evoking for them a shared vision for the future. The Northern Essex Community College Vision Statement reflects this:

To create a supportive learning environment that embraces diversity and inspires initiative and excellence.

**Strategic Directions**

Five Strategic Directions comprise the heart of the college’s Strategic Plan. They include the following:

**Engage Students as Active Learners**

The theme of student engagement urges us as a college to heighten our expectations for our students beyond academic survival toward a more holistic vision of how students learn and grow. Student engagement expands our construct of student success to emphasize self-discovery, collaboration, community connection, leadership, personal challenge, and contribution to the larger good. By promoting a deeper level of student engagement, we will help students to develop the academic, interpersonal, and collaborative skills essential for them to thrive in the 21st century global economy.

We will fully engage and challenge our students by providing purposeful educational experiences which are associated with deeper levels of engagement, learning, and personal development. Further, we will design and implement effective practices as a means to intentionally guide students toward active involvement in these activities.

Our commitment to further student engagement will require the strategic mobilization of existing resources from all areas of the college. It will also require creative initiation of new programs and active collaboration to implement those programs. Intrinsic in the theme of student engagement is a broader commitment that will more fully engage the college in meeting the emerging needs of the broader community.

**Be the First and Best Resource for the Community**

As a community college, being an active and contributing member of the community is central to our mission. This Strategic Direction asks each of us to recognize the importance of being active participants in our community and to take ownership for building pathways that connect us and create dialogue with diverse organizations in our community.
Central to this theme is recognizing the interdependence of the members of healthy communities. Shaping the future of the community requires a shared vision and an ongoing dialogue that is based on data-driven decisions and on cultivating mutual respect and openness.

We will strive to become the resource of choice for the community by strengthening our involvement in defining community priorities, providing access to our resources, linking agencies, businesses and organizations, and continually building upon and broadening our impact in the region. We will be both proactive and reactive in forging new alliances in the community. Our goal is to foster an ideal that locally-based entities and organizations will draw upon Northern Essex as their first and best resource in helping them to achieve their own goals and address their needs.

**Support Leadership at Every Level**

Being an effective leader means being a person of integrity and honesty, of determination and compassion. It means having clear objectives and knowing how to accomplish them. It means being an effective communicator and building a team of people that share a passion and commitment to working together.

We are all called upon to be leaders at different times. Whether it’s the professor in the classroom who inspires and unlocks the creativity of a student; or the administrative assistant who demonstrates specific knowledge, skills, and abilities in preparing a document; or the student helping a peer endeavor to do the right thing -- we are each challenged to lead.

As time moves forward, each of us will be called upon to provide leadership by applying our unique set of talents to a particular objective or challenge. In preparation for our roles in leadership and as a college community, we will need to think institutionally and strategically to anticipate change. We will welcome accountability and continue to develop strong and measurable outcomes and standards that are ambitious yet attainable. We will work smarter and carefully focus our resources. These actions will strengthen the capacity of the college in becoming a high performing college.

We will endeavor to support each other, motivate, and inspire each other. We will be respectful, work to resolve our differences in an appreciative manner, and bring out the best in each other. We will be innovative and participatory and willing to take risks. We will all be leaders.

**Embrace Diversity**

First and foremost, the theme of diversity promotes an inclusive environment in which all individuals are respected and valued, regardless of race, ethnicity, culture, sexual orientation, physical characteristic, disability, age, gender, religion, or socio/economic background.

This Strategic Direction challenges us to expand our ideas about diversity beyond multiculturalism to encompass the full spectrum of differences and similarities that comprise the cultural landscape of our college community. This ‘synergy of diversity’ is the dynamism
which provides the color and contrast, the richness and texture of our collective campus experiences.

We envision a community in which there is a pervasive climate of appreciation and respect for individual ideas, perspectives, beliefs, learning styles, values, cultures, personalities, talents, and histories. In this sense, diversity, in all of its dimensions, will be valued; and the quality of experience for all members of our community will be enhanced.

As a college community, we will work collaboratively to develop the systems, infrastructure, and practices to support the open expression of opinion and the vigorous exchange of ideas. We will recognize the diversity of our student body and set the same high learning goals for all. We will provide a curriculum that explores diverse perspectives and cultures and cultivates multicultural awareness in our students. We will ensure that our students are well prepared to work and thrive in the international community and global workforce of the 21st century. We will create an equitable, hospitable, safe, and inclusive campus environment for students, faculty, staff, and visitors. We will ensure that our community of staff and faculty reflect the diversity of the communities that we serve. We will be role models for our students through our acceptance and respect for others. We will provide every individual with equitable opportunity for personal and professional growth. We will appreciate the unique talents and strengths of each individual and encourage the participation and contribution of all.

Strive for Educational Excellence

We have known for a long time that good practice in undergraduate education relies on a few very important ingredients: recognizing diverse talents and ways of learning; encouraging student involvement in the learning process; conducting assessment and providing timely feedback; and, importantly, communicating high expectations. Expect more and get more. Believe that educational excellence is all around us -- expect it from our students, and from ourselves.

This Strategic Direction calls upon all of us to focus on helping our students develop their maximum potential as adult learners with unique strengths, capable of adapting, learning, and excelling. We will have high expectations for the work we do with our students and we will enthusiastically pursue innovative pathways that maximize opportunities and broaden access to knowledge. We will expect outstanding performance from our students both in- and out-of-the-classroom, and we will provide highly effective, pacesetting teaching and support services to help our students and the college achieve educational excellence.
CHAPTER 3. DEVELOPING A PROGRAM OUTCOMES ASSESSMENT PLAN: GENERAL GUIDELINES AND SUGGESTED PREPARATION

A. General guidelines

**Identify the individual who will be in charge of developing the plan.** The process through which this person is identified may vary from division to division.

**Assemble a team.** Include representatives from as many relevant contexts and constituencies as possible, making sure that your team includes individuals outside of NECC so as to insure that the needed external perspective is provided. Team members may include:

1. Full-time faculty, from within and without the program/department/division
2. Part-time faculty, from within and without the program/department/division
3. Administrators
4. Professional staff
5. Community professionals/employers
6. Program alumni
7. Representatives from area high schools
8. Representatives from area four-year colleges

The purpose of this inclusion is to help insure:

- the **quality** of the final product – that it is well-informed, because relevant information is sometimes dispersed across individuals from within and outside of the program, and
- **acceptance**, which is often directly related to the amount of influence people perceive they have over the process and product.

**Proceed slowly and systematically.** Each decision builds on the previous one. Therefore, a rushed step can lead to erroneous final conclusions.

**For every step, start BIG.** Brainstorm, meaning record all ideas expressed without judging or evaluating them. Then, with the group’s input and consideration, refine things until you have consensus. In this process, you may want to circulate drafts to non-committee members. For example, you may want to share ideas/drafts with people from other programs. Finally, develop your more succinct statements.
B. Suggested preparatory work

Always consider the relevant contexts and constituencies described in CHAPTER I.

- Review NECC’s Mission Statement, Core Values, and Strategic Plan Themes. Note those areas that need to be considered and reflected in the program’s mission statement, objectives and outcomes.

The issue here is alignment. How well do the program’s activities align with the institution’s goals and values? With the requirements and expectations of the community contexts?

Obtain and review available information about the labor market relevant to your program.

- What are the current and projected employment needs for which your program is preparation? What knowledge, skills, and abilities need to be developed to be successful in the associated occupation/career? Relevant information on this topic can be gleaned from surveys of potential or actual employers of program graduates, members of the program’s Advisory Committee who represent area businesses or industries, and from the employment postings of area employers. Individuals in NECC’s Career Planning Department may also have information that is pertinent in this regard, and have resources to assist in obtaining employment data.

Obtain and review information about the student population that is enrolling in your program.

- Is there a change in the demand for the program? If so, to what do you attribute this change? Have students’ needs or interests changed over time? For example, is occupational preparation more of a focus than transfer or vice versa? Is the occupation for which your program is preparation no longer viable, or has the occupation changed such that the training your program provides is outdated? How does their secondary school preparation fit the curricular demands of your program? Is curricular modification suggested? Information on this topic can be obtained from Institutional Research (data on student demand, characteristics of incoming students, etc.), area employers, student surveys, focus groups, etc.

Consider information available about institutions to which students from your program transfer as well as the success rate of transfer students from your program.

- Does the program’s curriculum adequately prepare students for success after transfer? How does the program’s curriculum align with the requirements and expectations of the receiving institution? Can the receiving four-year colleges be confident that the students transferring from NECC have the same level of preparedness as students who started their educations at the receiving institution? Information on this topic can be obtained from receiving institutions, students’ surveys, through an examination of current articulation agreements, Academic Advising, Institutional Research, etc.
Review available information about your program.

- This may include catalog information, descriptions in brochures, summaries in program approval or accreditation reports, etc. This type of background review can be helpful when you start to think about your program’s mission statement, objectives, and outcomes. On the other hand, you may conclude that they do not fully capture your program in its current form, and that some of the material may need revision.

List all of the courses included in your program, along with the course descriptions as presented in the Catalog.

- Designate those that are program specific versus those that are associated with other departments or programs.

- Electives should also be listed. In cases where there are choices, list all of them. For free electives, where students can choose from an unspecified variety of courses, simply list “Free Electives.”

Possibly detail course objectives and learning outcomes. What are the objectives for each course (including the electives)? What do you expect students to have learned in each course?

- This is one route or method to use in developing program objectives and learning outcomes. After individual course objectives and outcomes are identified, they can be integrated into a more general list of program objectives and outcomes.

This activity can also be useful for examining possible differences in perceptions among instructors teaching different sections of the same course. A form like the following can be used to record information about individual courses:
**Sample course recording form**

DATE: _______________________________

PROGRAM or DEPARTMENT (Specify which): __________________________________________________

COURSE NAME and NUMBER: __________________________________________________________

proficiency requirement(s): __________________________________________________________

PREREQUISITE(S): __________________________________________________________

COREQUISITE(S): __________________________________________________________

NUMBER OF CREDIT HOURS: ______________

**primary delivery mode for all course sections (check all that apply):**

___ lecture  
___ lab  
___ practicum  
___ on-line  
___ directed study  
___ other (specify)

COURSE OBJECTIVES AND LEARNING OUTCOMES (the number of objectives and the number of learning outcomes associated with each objective will vary by course):  

<table>
<thead>
<tr>
<th>course objectives: specification of what the course will cover/ focus on, and/ or what the students will be asked to do.</th>
<th>learning outcomes: at the completion of this course, students will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Consider how courses in the program curriculum are sequenced, as well as any proficiencies or prerequisites.

- **What is the logic to the sequencing plan?** You might conceptualize your plan as a ladder, with “lower level” courses introducing students to skills/knowledge/ways of thinking/attitudes that are later reinforced or emphasized in “higher level coursework.” Charting or thinking through this sequencing will help you later when you develop the program outcomes and curriculum map.

- **Do the current course proficiencies and prerequisites seem reasonable?**

**Develop an assessment inventory/conduct an assessment audit.**

- What assessment methods are being used in the courses that are part of the program?

- When are these assessments given?

- Are there any assessments currently being done at the program or even a higher level? (For example, there could be an assessment that crosses programs, such as a paralegal competency exam that may be used in both paralegal associate degree programs. Also, there may be licensing exams that are taken.)

The purpose of this is to find out what already exists to determine their adequacy vis-à-vis the learning outcome statements that will be developed.

A form like that presented in **CHAPTER 5** may be used to record information about existing program and course assessments.

**From existing assessments, what are we learning about what students are learning?**

- **What are they demonstrating?** E.g., on an objective test of factual information, students may be demonstrating what they know. From a performance, students are demonstrating what they can do. From an essay assignment, students may be demonstrating their ability to write as well as to locate, integrate and analyze information from a variety of sources. In some types of assignments, students may be demonstrating creativity.

**How are the assessments evaluated?**

- What is the process?

- What are the guides or standards and criteria applied? Who is involved?
Get information on how mission statements, educational objectives, and learning outcomes are defined and articulated in similar contexts.

- Examples of information sources are programs at other colleges, accreditation or licensing agencies, professional organizations, publications (including NECC publications), and Web searches.
CHAPTER 4. DEVELOP A MISSION STATEMENT, EDUCATIONAL OBJECTIVES, LEARNING OUTCOMES, AND AN OUTCOMES AND CURRICULUM MAP

A. Mission statement

Mission statements are basic to the further development of the outcomes assessment plan.

According to NEASC’s Standard One, effective January 2006:

“The institution’s mission gives direction to its activities and provides a basis for the assessment and enhancement of the institution’s effectiveness.”

For our purposes, we can substitute the word “program” for “institution.”

Mission statements answer questions such as what (is being done), for whom (the participants, stakeholders), how (the methods or services), and why (purpose).

Examples:

The Mission of the Biology B.S. degree program is to (1) prepare students for employment in various biology-related areas and (2) to prepare them in their pursuit of advanced degrees in biology or health-related professional schools by educating students in the fundamental concepts, knowledge, and laboratory/field techniques and skills of the life sciences.

(From a presentation by Armacost, Armacost, and Krist of the University of Central Florida, at a June 2006 workshop entitled, “Developing Program Assessment Plans.”)

The mission of the undergraduate degree program in Philosophy is to enable the students to understand the role and importance of philosophical inquiry, and to develop skills in its use. The program is designed to provide exposure to the philosophical perspectives of great thinkers, past and present, and to help students increase their abilities to think clearly, logically, and critically both about philosophical issues and about issues in other fields of learning. It will prepare students for careers in teaching, law, government service, business, medicine and cultural exchange.

(Department of Philosophy at the University of Hawai’i at Hilo Website: http://www.uhh.hawaii.edu/uhh/accreditation/DeptGoalsMission.php)
The Criminal Justice Program provides quality education for individuals interested in pursuing a career in the criminal justice field. The program provides an academic foundation for students continuing their education at a four-year institution of higher learning or beyond to further professional education. Students receive instruction in both practical and theory-based issues and concepts from faculty qualified by significant academic and practical experience from all facets of the criminal justice field. Professional opportunities for criminal justice students include civilian and sworn positions with law enforcement agencies, the court system, correctional services and law firms. Students in the NSCC criminal justice program will emerge with a foundation for the application of ethical principles in professional decision-making.

(From a North Shore Community College document entitled, “Department/Program Review Process”, August 31, 2005.)

The Polysomnography Certificate Program prepares students for careers in sleep medicine. Through a combination of coursework, laboratory exercises, and clinical experiences, students of the program develop the knowledge, skills, and abilities necessary to become competent Polysomnography Technologists in order to gain employment in area sleep labs and successfully pass the registered Polysomnography Technologists (RPSGT) examination.

(From the Program Review submitted in April 2006 by the Polysomnography Certificate Program at Northern Essex Community College.)

The Associate in Science Degree Program in Early Childhood Education is designed to prepare students, both pre-service and those already working in the field, for professional careers in early childhood education. The program also provides the foundation for further study at a four-year college. Knowledge concerning how children grow, develop, and learn is acquired through coursework and field experience, which emphasize the study of the young child as an individual, as part of a family system, and as a participant in group settings. An integral part of this program is practicum and field placements which allow the student to apply theory and skills, under guidance and supervision, in classrooms and educational programs reflecting the diversity of the local communities. At the completion of this program, students will be prepared to contribute to learning environments that foster challenging and comprehensive learning for all young children.

(From the Program Review submitted in May 2006 by the Early Childhood Education Program at Northern Essex Community College.)
It may be useful to work with the following checklist:

The purpose of this checklist is to help you determine if the mission statement is effective and clearly defines the mission of the department/program.

- Is your mission statement brief and memorable? □
- Is it distinctive? □
- Does it clearly state the purpose of the program? □
- Does it indicate the primary functions or activities of the program...? □
- Does it indicate who the stakeholders are? □
- Does it clearly support the department’s...and institution’s mission? □

(From a presentation by Armacost, Armacost, and Krist of the University of Central Florida, at a June 2006 workshop entitled, “Developing Program Assessment Plans.”)

In developing the program’s mission statement, it is important to consider all of the purposes served by the program. Along with goals associated with program completion – e.g. obtaining employment for which the degree or certificate awarded by the program is required – it may also be important to consider other purposes served by the program, such as providing career-related or personal development courses for students who do not intend to complete the program. Some programs may have a significant number of students enrolling for specific course-related rather than program-related purposes. This situation is probably more likely in community college settings than in four-year institutions.

...Nowhere is this duality more evident than in community colleges. Over the past decade, state governments have held community colleges more accountable for educational outcomes than any other higher educational sector, and some state governments have come up with specific ways that educational outcomes should be measured in community colleges (Outcalt & Rabin, 1998). Unfortunately, a problem arises when state governments attempt to assess community colleges using the same performance indicators as other institutions of higher education, as two-year colleges rarely share the same institutional missions. For example, graduation rate is a popular indicator that is used to assess both community colleges and universities. Although this indicator can be used correctly to measure the success of a university, it does not similarly reflect the value of a community college due to the many two-year college students who take classes for reasons other than simply to attain a degree. As Outcalt and Rabin (1998) note, "the indicators meaningful for two-year institutions may not be meaningful for four-year institutions" (p. 2).

(From “UCLA community college review: performance indicators and performance-based funding in community colleges” in Community College Review, Spring, 2004 by Maryam Zarkesh, Allison Marcela Beas.)
If these students are ignored in the program’s stated mission, then the program’s success in helping these students accomplish their goals will go unrecognized. Importantly, the students’ failure to complete the program, which was not their goal, can be mistakenly viewed as a program failure.

Review descriptions of your program that already exist, as these descriptions will at least provide good starting points for your team. Make sure the important questions (what, who, how, why) are being addressed, and that NECC’s mission is reflected.
B. Educational objectives

Program educational objectives are very general statements focused on what we expect or intend students to learn as a result of going through the program.

Another definition included in material distributed at the September 2004 ABET Regional Engineering Technology Faculty Workshop is:

Program educational objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.

Three areas or domains of learning often considered in the development of objectives are

- cognitive (what we expect them to know),
- psychomotor (what we expect them to be able to do), and
- affective (what attitudes or feelings we expect them to develop).

Program objectives should reflect the program’s mission, which in turn reflects the college’s mission, values and goals, and the program’s aims vis-à-vis the larger community. The number of objectives developed should not be more than about six to eight. (This is a suggestion for our first attempts at developing program outcome assessment plans.)

One way to approach this task is to review the list of courses and course descriptions developed as part of the preparatory work. See what high level objectives can be gleaned from an overview of the course objectives. This approach is going from the specific to the general. For example, some courses may share similar objectives, at least in part. This may work into a more general program objectives statement. This method reveals the underlying objectives/learning outcomes represented in your curriculum. You may have findings of interest, for example, courses that have objectives or learning outcomes that appear to be somewhat esoteric in terms of the other courses. You are looking for the coherence – the underlying themes.

Another approach is to go from the more general to the specific. For example, the assessment team may work from the program’s mission statement, other publicized material, information from professional organizations, etc. to develop a list of program objectives.

Another approach is to brainstorm with your team and your faculty their ideas about the program objectives. This information could be obtained before a meeting, with as many people surveyed as possible.

If you use both types of approaches (specific to general and general to specific), you may then be able to compare the resulting lists of objectives. From this activity, you should be able to derive certain overarching objectives.

Compare these objectives with the mission statement. (This is the ongoing feedback loop which is part of this process). Are your program objectives consistent with and reflective of your mission statement? Similarly, is your mission statement reflective of the program’s curriculum, as represented in your program objectives? Are your program objectives aligned with course objectives based on your analysis of the program curriculum, meaning course offerings and
objectives? Reconcile any differences so the final product is a mission statement aligned with program objectives, which in turn is aligned with course objectives based on an analysis of your curriculum.

Also make sure the institutional objectives and goals with respect to community contexts stay in as part of the mix.

Many examples of program objectives and learning outcomes are presented following the discussion of learning outcomes in the next section.
C. **Learning outcomes**

Learning outcome statements are more specific (or less abstract) than objectives statements. The emphasis in these outcome statements is on the learning. What do we expect students will learn as a result of going through the program?

Other definitions include:

> Program outcomes are narrower statements that describe what students are expected to know and able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program.

(From material distributed at the September 2004 ABET Regional Engineering Technology Faculty Workshop)

> “...outcomes are the knowledge and skills that students have in fact gained through their experiences in a course...”

(From material distributed at the Atlantic Center for Learning Communities October 2005 conference)

These outcome statements are the bridge between the program’s objectives and the assessments which are developed to evaluate the extent to which the objectives are realized. Because they are a bridge, learning outcome statements should be phrased in such a way that they clearly communicate what students should be able to demonstrate. **What skills, abilities, behaviors, and attitudes do we expect students to be able to demonstrate with respect to what they have learned?** In this sense, the learning outcome statements point to concrete end products. Try to phrase your statements in such a way that they **suggest the type of evidence that would indicate that the outcome has been achieved**. This in turn suggests methods of measurement that can be employed to obtain that evidence. **In other words, learning outcomes should be measurable, and will become the focus of your assessments.**

One approach to developing learning outcomes is to think in terms of the “ideal student: who has graduated from the program.” How would you describe this ideal student with respect to what they have learned (e.g., what do they know, what can they do with that knowledge, and what are their attitudes in general or specific contexts). Does this description fit the description of the “ideal student” as provided by relevant employers or four year institutions? What would be their definition of an “ideal graduate/new employee??”

Learning outcome statements are in contrast to other types of institutional/program outcomes such as graduation rates, number accepted at four year colleges, etc.

Learning outcome statements also contrast with instructional objectives. In the latter, the focus is on what will be taught or provided to students. Learning outcome statements focus on what the students will acquire as a result of the instruction.
The following excerpt provides additional information on learning outcomes.

**Writing Learning Outcomes**

**What are learning outcomes?**

Learning outcomes are statements that specify what learners will know or be able to do as a result of a learning activity. Outcomes are usually expressed as knowledge, skills, or attitudes.

- .....Learning outcomes are statements which described a desired condition – …
- Serve as guidelines for content, instruction, and evaluation
- Identify specifically what should be learned
- Convey to learners exactly what is to be accomplished

**What are some key questions that I should ask myself before writing learning outcomes?**

- What are the most essential things they need to know or be able to do?
- What specific skills or strategies do they need?

**What are the characteristics of good learning outcomes?**

Learning outcomes have three distinguishing characteristics.

1. The specified action by the learners must be observable.
2. The specified action by the learners must be measurable.
3. The specified action must be done by the learners.

The ultimate test when writing a learning outcome is whether or not the action taken by the participants can be assessed. If not, the outcome probably does not meet all three of the characteristics.

1. who is to perform;
2. what action they are to take;
3. some result that must come from their action.

**How do you fix an unclear outcome?**

Many program brochures include learning outcomes which are unclear or represent elements of curriculum rather than some action the participants will demonstrate. Note the following examples:

*Participants will understand the nine reasons for conducting a needs assessment.*

*Participants will develop an appreciation of cultural diversity in the workplace.*
If you ask a simple question ("Can it be measured?"), you see readily that these learning outcomes have shortcomings. They are not measurable. The same outcomes can be modified by changing the action verbs.

*Participants will list nine reasons for conducting a needs assessment.*

*Participants will summarize in writing their feelings about cultural diversity in the workplace.*

Learners now have a much better idea of what is expected of them.

**What is the importance of action verbs?**

Since the learner's performance should be observable and measurable, the verb chosen for each outcome statement should be an action verb which results in overt behavior that can be observed and measured.

Sample action verbs are:

- compile, create, plan, revise, analyze, design, select, utilize, apply, demonstrate, prepare, use, compute, discuss, explain, predict, assess, compare, rate, critique

Certain verbs are unclear and subject to different interpretations in terms of what action they are specifying. Such verbs call for covert behavior which cannot be observed or measured. These types of verbs should be avoided:

- know, become aware of, appreciate, learn, understand, become familiar with


Following is a list included in NEASC’s, *Developing an Initial Student Outcomes Assessment Plan:*

**Some Verbs Identifying Outcomes**

- Apply
- Create
- Design
- Analyze
- Translate
- Define
- Recognize
- Differentiate
- Evaluate
- Identify
- Construct
- Compare
It may be useful to work with the following checklist:

*Use the following checklist to ensure that your learning outcomes are adequately stated:*

Do/ Are the student learning outcome statements:

- □ Aligned to the mission (and [objective]) statements?
- □ Clearly describe and define the expected abilities, knowledge, values, and attitudes of the graduates of the program?
- □ Simply stated?
- □ Distinctive and specific to the program?
- □ Stated so that outcomes …[reflecting different skills, knowledge, or abilities; e.g. oral and written communication skills]… are not bundled into one statement?
- □ Stated so that more than one measurement method could be used?
- □ Focused on the learning results not the learning process?
- □ Measurable and there are available resources for measurement?
- □ Able to be used to identify areas to improve?

(Adapted from a presentation by Paula Krist entitled “S.O.S. Student Outcome Success” at the 2006 AIR Forum, Chicago.)

Regarding the use of “…more than one measurement method,” in a personal communication, Krist provided the following:

*For example, an outcome regarding written communication might be measured by (1) using a rubric to assess specific writing elements, and (2) by a test where specific elements of understanding writing techniques are measured.*
D. Examples of educational objectives and learning outcomes

Learning outcome statements should align with the educational objectives. That is, objectives are realized in learning outcomes. Think in terms of developing two or more learning outcomes for each of the program objectives.

Some examples of objectives and associated learning outcomes are presented in the following tables.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>To develop appreciation of cultural diversity</td>
<td>e.g. Identify cultural differences that affect personal communication and interaction</td>
</tr>
<tr>
<td>To introduce students to ethical theories</td>
<td>e.g. Distinguish between utilitarian and moral approaches to ethical issues and assess the strengths and weaknesses of each approach</td>
</tr>
</tbody>
</table>

From NEASC, *Developing an Initial Student Outcomes Assessment Plan*

<table>
<thead>
<tr>
<th>PROGRAM OBJECTIVES</th>
<th>ASSOCIATED LEARNING OUTCOMES</th>
<th>The graduating student will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students will develop the knowledge needed to become competent respiratory care practitioners as defined by accepted national standards.</td>
<td>1</td>
<td>Recognize and apply relevant principles of background science, math and physiology to respiratory care.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Discuss diseases typically encountered in the field of respiratory care with reference to etiology, process, assessment, and therapies.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Complete a relevant history of the patient’s respiratory disease.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Describe the indications, contraindications, and hazards for various respiratory care treatment modalities.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Identify and describe indications and action of important respiratory therapy drugs.</td>
</tr>
</tbody>
</table>

A program objective with associated learning outcomes developed by the program review team for NECC’s Respiratory Care associate degree program.
The Isenberg School undergraduate curriculum will strive to develop the following skills in our students:

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Outcomes include the ability to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative and critical thinking, analysis, reasoning, questioning and quantitative skills.</td>
<td>1. Identify problems and their causes, generate alternative solutions, and arrive at reasoned conclusions.</td>
</tr>
<tr>
<td></td>
<td>2. Evaluate information with respect to its accuracy, objectivity, currency, reliability, and relevance.</td>
</tr>
<tr>
<td></td>
<td>3. Use quantitative information to solve complex problems and support conclusions.</td>
</tr>
<tr>
<td>Information literacy through research skills and the use of technology.</td>
<td>1. Conduct research by collecting and evaluating information from online and library resources.</td>
</tr>
<tr>
<td></td>
<td>2. Integrate information from various sources to address complex and interrelated problems.</td>
</tr>
<tr>
<td></td>
<td>3. Use technology to analyze and present data to meet the specific objectives of the intended analysis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>ASSOCIATED LEARNING OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the Deaf Studies: Sign Language Interpreter Option Program include to assist students in the development of:</td>
<td>The graduating student will be able to:</td>
</tr>
<tr>
<td>Entry level Interpreting and transliterating skills.</td>
<td>1. Perform as an entry-level interpreter using the techniques of consecutive interpreting/transliterating expressively and receptively.</td>
</tr>
<tr>
<td></td>
<td>2. Perform as an entry-level interpreter using the techniques of simultaneous interpreting/transliterating expressively and receptively.</td>
</tr>
<tr>
<td></td>
<td>3. Explain the historical and contemporary models of interpreting.</td>
</tr>
<tr>
<td></td>
<td>4. Apply process techniques and strategies to interpreting assignments.</td>
</tr>
<tr>
<td></td>
<td>5. Demonstrate awareness of a wide range of settings, specialties, and diverse cultural perspectives that interpreters encounter.</td>
</tr>
<tr>
<td>Etc. (The program has additional objectives and associated learning outcomes. Only one objective is presented for purposes of illustration.)</td>
<td></td>
</tr>
</tbody>
</table>

(Developed for NECC’s Deaf Studies: Sign Language Interpreter Option Program)

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Associated Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the Accounting Program include to assist students in the development of:</td>
<td>The graduating student will be able to:</td>
</tr>
<tr>
<td>Basic accounting skills to insure that students have a solid foundation in accounting.</td>
<td>1. Analyze journal entries.</td>
</tr>
<tr>
<td></td>
<td>2. Record journal entries.</td>
</tr>
<tr>
<td></td>
<td>3. Present data in published formats, for example, income statement and balance sheets.</td>
</tr>
</tbody>
</table>

(Selected and adapted from the Outcomes and Curriculum Map developed by the NECC Accounting Program, Spring 2006.)
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Associated Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the Graphic Design Program include to assist students in</td>
<td>The graduating student will be able to:</td>
</tr>
<tr>
<td>the development of: Critical and creative solutions that reflect the</td>
<td>1. In response to an assignment, create products that communicate and reflect the principles of design.</td>
</tr>
<tr>
<td>principles of design.</td>
<td>2. Effectively participate orally in critical analysis of visual work.</td>
</tr>
<tr>
<td></td>
<td>3. In response to an assignment, create design products that effectively communicate.</td>
</tr>
</tbody>
</table>

(Selected and adapted from the Outcomes and Curriculum Map developed by the NECC Graphic Design Program, April 2006.)
E. Development of an outcomes and curriculum map

Once you have identified the relevant institutional parameters, and developed the program mission statement, learning objectives and outcomes statements, then these can be represented in a grid, much like the following:

Example of an outcomes and curriculum map

<table>
<thead>
<tr>
<th>PROGRAM MISSION STATEMENT:</th>
<th>ASSOCIATED LEARNING OUTCOMES</th>
<th>PROGRAM CURRICULUM: SPECIFIC COURSES AND RELATIONSHIP TO OUTCOME**</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the _____ Program include to assist students in the development of:</td>
<td>The graduating student will be able to:</td>
<td>Course Number</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
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<td>4</td>
<td></td>
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<td>2</td>
<td>1</td>
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<td>4</td>
<td></td>
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<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

KEY
I = Introduce; R = Reinforce;
E = Emphasize
X = Extent to which outcome is addressed is not specified
The first column is for program objectives and the next for learning outcome statements (more categories than the program objectives, e.g., one objective can be broken down into several outcome statements).

The following columns are for all courses that make up the program. Include electives, listing these separately.

Once you have the grid, check for each course which outcomes are being addressed. **Indicate whether the learning is introduced in the course (I), reinforced (R) or emphasized (E).** In other words, indicate for the relevant course(s) whether work on the knowledge, ability, or attitude is begun in the class, given support, or stressed. Through this exercise, you can check the appropriateness of the course sequencing in your program.

**As an example of a completed outcomes and curriculum map,** the first page of the map developed by the Early Childhood Education Program at NECC is provided next.
**PROGRAM MISSION STATEMENT:** The Associate in Science Degree Program in Early Childhood Education is designed to prepare students, both pre-service and those already working in the field, for professional careers in Early Childhood Education. The program also provides the foundation for further study at a four-year college. Knowledge concerning how children grow, develop, and learn is acquired through coursework and field experience, which emphasize the study of the young child as an individual, as part of a family system, and as a participant in group settings. An integral part of this program is practicum and field placements which allow the student to apply theory and skills, under guidance and supervision, in classrooms and educational programs reflecting the diversity of the local communities. At the completion of this program, students will be prepared to contribute to learning environments that foster challenging and comprehensive learning for all young children.

<table>
<thead>
<tr>
<th>OBJETIVES</th>
<th>ASSOCIATED LEARNING OUTCOMES</th>
<th>PROGRAM CURRICULUM: SPECIFIC COURSES AND RELATIONSHIP TO OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the ECE Program include assisting students in the development of:</td>
<td>BIO11</td>
<td>COM111</td>
</tr>
<tr>
<td>1 Critical Thinking Skills</td>
<td>The graduating student will be able to:</td>
<td>X</td>
</tr>
<tr>
<td>a</td>
<td>Research existing information and data regarding a topic of inquiry.</td>
<td>X</td>
</tr>
<tr>
<td>b</td>
<td>Evaluate the evidence and data relevant to a topic of inquiry.</td>
<td>X</td>
</tr>
<tr>
<td>c</td>
<td>Apply logical, scientific and/or quantitative reasoning to develop a thesis or hypothesis.</td>
<td>X</td>
</tr>
</tbody>
</table>

**KEY**
- I = Introduce; R = Reinforce; E = Emphasize
- X = Extent to which outcome is addressed is not specified
Once you have this outcomes and curriculum map, you can re-evaluate your outcome statements. That is, you may find that there are certain courses which don’t seem to fit any of your objectives or outcomes. Maybe you need to rethink these outcome statements as you may have overlooked an important component of your program. Or you may find that you have to ponder the course – why is it included?

For courses that are not program specific, that is, they are offered by another program or department, you should review the course descriptions provided in the college catalog to determine what is covered in those courses, and what you might expect in terms of learning outcomes. You may also wish to consult with the relevant department chair or program coordinator about what is covered in those courses. Make sure your conclusions about the expected learning outcomes for these courses fit the conclusions drawn by the originating departments. Other sources of information are the syllabi for these courses, where objectives or learning outcomes may be specified.

In cases where students can choose from a number of courses, for example when they may take “free electives” or when they may choose from a number of courses in specific subject areas, it may be useful to determine which courses are most frequently taken by students in your program. This information may allow you to more precisely target relationships to outcomes.

Once clear and measurable outcome statements have been developed and mapped, check to see whether you have a coherent curriculum in which program objectives are addressed and whether the curriculum aligns with the objectives and outcomes. If so, you are ready for the next step, which is the identification of appropriate assessment or measurement tools and procedures.
CHAPTER 5. REPORT OF CURRENT ASSESSMENTS

This section focuses on the identification of the assessments that are currently being used with respect to the identified learning outcomes. This information is captured in an outcomes and assessments map which provides information not only about measurement methods, but also about the “when” and “where” of assessment. General information about types of assessments is also presented in this section.

A. Assessment inventory

Assessment of learning outcomes involves examining and evaluating the evidence students provide with respect to the desired learning outcomes. The learning outcomes developed should point to or suggest methods of assessment.

- Earlier, it was suggested that preparation for developing the program’s outcomes assessment plan could include developing an assessment inventory/conducting an assessment audit. The purpose of this process is to determine what assessments are already in place in your program, and what outcomes these assessments might be addressing. From these assessments, what are we learning about what students are learning?

A form such as the following may be used to record information about current program or course-level assessments:
Sample program or course assessments recording form
************************************************************************

PROGRAM/ COURSE NAME: ____________________________________________________________

ASSESSMENT METHODS USED:

<table>
<thead>
<tr>
<th>METHOD USED*</th>
<th>WHAT IS BEING MEASURED**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*METHODS USED MAY INCLUDE:

Direct
- Essay examinations
- Commercially available standardized tests
- Licensure or certification examinations
- Simulations
- External evaluation, e.g. of internships, apprenticeships, job performance
- Behavioral observations
- Oral presentations/examinations
- Research papers
- Multiple choice tests
- Short answer examinations
- Portfolios
- Performances/Skills demonstrations
- Projects
- Journals
- Oral examinations
- Etc.

Indirect
- Focus groups
- Written surveys or questionnaires (e.g. graduating students, alumni, employer)
- Face-to-face interviews (e.g. graduating students, alumni, employers)
- Etc.

** WHAT IS BEING MEASURED MAY INCLUDE:

- Computer skills
- Understanding of concepts
- Knowledge of facts
- Writing ability/skills
- Ability to synthesize information
- Ability to apply concepts
- Knowledge of procedures/techniques in subject area
- Etc.

1 Note: Direct and indirect methods are defined in the following pages.
B. Development of an outcomes assessment map

Once information about current assessments is obtained, it could be represented in an outcomes and assessments map. For example, consider the outcomes identified in the example from the Deaf Studies: Sign Language Interpreter Option Program at NECC, presented earlier. In an interview with the Program Coordinator about the objectives and outcomes represented above, it was established that assessments were already in place for each of the articulated outcomes. This information is represented in the following outcomes and assessments map.
## OBJECTIVES

The objectives of the Deaf Studies Program: Sign Language Interpreter Option include to assist students in the development of:

The graduating student will be able to:

### Entry level Interpreting and transliterating skills.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Assessment method(s)</th>
<th>In place or to be developed</th>
<th>When and where assessed (or to be assessed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Perform as an entry-level interpreter using the techniques of consecutive interpreting/transliterating expressively and receptively.</td>
<td>Scored performance on a videotaped interactive consecutive interpreting exercise</td>
<td>In place</td>
<td>Periodically during the second year Consecutive Interpreting course</td>
</tr>
<tr>
<td></td>
<td>Evaluation of student’s consecutive interpreting ability by Practicum I supervisors</td>
<td>In place</td>
<td>At the end of the fall semester, second year</td>
</tr>
<tr>
<td></td>
<td>Scored performance on a videotaped interactive consecutive transliterating exercise</td>
<td>In place</td>
<td>Periodically during the second year Consecutive Interpreting course</td>
</tr>
<tr>
<td></td>
<td>Evaluation of student’s consecutive transliterating ability by Practicum I supervisors</td>
<td>In place</td>
<td>At the end of the fall semester, second year</td>
</tr>
<tr>
<td>2 Perform as an entry-level interpreter using the techniques of simultaneous interpreting/transliterating expressively and receptively.</td>
<td>Scored performance on a videotaped interactive simultaneous interpreting exercise</td>
<td>In place</td>
<td>Periodically during the second year Simultaneous Interpreting course</td>
</tr>
<tr>
<td></td>
<td>Evaluation of student’s simultaneous interpreting ability by Practicum II supervisors</td>
<td>In place</td>
<td>At the end of the spring semester, second year</td>
</tr>
<tr>
<td></td>
<td>Scored performance on a videotaped interactive simultaneous transliterating exercise</td>
<td>In place</td>
<td>Periodically during the second year Simultaneous Interpreting course</td>
</tr>
<tr>
<td></td>
<td>Evaluation of student’s simultaneous transliterating ability by Practicum II supervisors</td>
<td>In place</td>
<td>At the end of the spring semester, second year</td>
</tr>
<tr>
<td>3 Explain the historical and contemporary models of interpreting.</td>
<td>Written knowledge tests</td>
<td>In place</td>
<td>In second year, one at the end of the fall term and the other at the end of the spring term</td>
</tr>
<tr>
<td></td>
<td>Reaction papers (assigned readings, ask for reactions)</td>
<td>In place</td>
<td>In second year, one at the end of the fall term and the other at the end of the spring term</td>
</tr>
<tr>
<td>4 Apply process techniques and strategies to interpreting assignments.</td>
<td>Scoring their performance on a videotaped interactive interpreting exercise</td>
<td>In place</td>
<td>Periodically during the second year Simultaneous Interpreting course</td>
</tr>
<tr>
<td></td>
<td>Scoring of practicum journal, in which students record their observations of process techniques used by interpreters in the field</td>
<td>In place</td>
<td>During second year fall term Practicum I</td>
</tr>
<tr>
<td>5 Demonstrate awareness of a wide range of settings, specialties, and diverse cultural perspectives that interpreters encounter.</td>
<td>Written knowledge tests</td>
<td>In place</td>
<td>Spring semester of first year, during the Introduction to the Interpreting Field course</td>
</tr>
<tr>
<td></td>
<td>Research papers</td>
<td>In place</td>
<td>During the Consecutive Interpreting course, second year</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>During Interpreting Practicums I and II</td>
</tr>
</tbody>
</table>

**Sample outcomes and assessment map:** Provided January, 2006 by Dee Risley, Program Coordinator of the Deaf Studies: Sign Language Interpreter Option Program at NECC.
In the example above, it is clear that all learning outcomes associated with the first program objective are already being assessed. Also note that the same method can be used to assess more than one outcome. For example, the same videotaped interactive exercise is used to measure outcomes 2 and 4.

The following outcomes and assessments map template can be used to record information about assessments already in place in your program to measure students’ achievement of your program outcomes.
Outcomes and Assessments Map: (NAME OF PROGRAM)

PROGRAM MISSION STATEMENT:

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>ASSOCIATED LEARNING OUTCOMES</th>
<th>ASSESSMENT METHOD(S) ALREADY IN PLACE AND WHERE (E.g. in which courses or other curricular experiences such as practicums, internships, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives of the Program include to assist students in the development of:</td>
<td>The graduating student will be able to:</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td></td>
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<tr>
<td>6</td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Existing assessments, those already in use, determined through the assessment inventory, may quite adequately serve the purpose of assessing vis-à-vis the learning outcomes. Also, in some cases, current assessments can be used for assessment purposes other than the ones for which they are now being used. For example, perhaps a current method is being used to determine the extent of factual knowledge. For this purpose, only the accuracy of information presented is being examined. This assessment might now also be used to evaluate, for example, writing skills because the definition of what constitutes good writing transcends specific discipline contexts. If it is to be used in this way, students would have to be informed in advance that their writing skills will be assessed. Otherwise, they may not attend to their writing performance, and the evaluation of their writing abilities would as a consequence be inaccurate. New methods can also be developed, or other existing methods put to use.

One important aspect of assessment work is the use of a single student product to assess multiple program learning outcomes. For example, students’ research or other types of written reports can be used to evaluate program specific outcomes related to knowledge of subject, computer fluency outcomes if the assignment required word processing, writing skills, and critical thinking skills. Students’ oral presentations can be used similarly, with their production rated for appropriate content as well as communication skills. Rating products in this way, and sharing the rating criteria with students, not only results in an economical use of resources such as time, but also communicates to students the interrelationship of the knowledge and skills they are acquiring in college.

C. Course grades versus program assessments

It is very important to be clear about the difference between using assessment products for the purposes of assigning students course grades, and using assessment products to evaluate the achievement by students in the program of the program’s stated learning outcomes.

In the case of grades, the focus is on the individual student. Typically, specific rules for assigning grades are in place, but these rules may vary by instructor or even by section within the same course. Performance with respect to a particular program outcome may be only one component of a course grade, or may not even be reflected.

In program assessment, the focus is on the specific products submitted or obtained from the group of students in the program. These products are selected to evaluate outcomes because they directly measure those outcomes. How groups of students fare with respect to those outcomes should have no impact on any individual student’s grade – it is program information to be used for programmatic purposes such as curriculum revision, review of pedagogical methods, or resource requests.
CHAPTER 6. OUTCOMES ASSESSMENT SCHEDULE – STRATEGY FOR PLAN IMPLEMENTATION

A. Schedule

Assessing learning outcomes is an intensive process. The intensiveness of the process comes from the time and resources required for the identification and/or development of assessments as well as their administration, analysis, interpretation or evaluation. Subsequent actions also require deliberation and their own assessment as to effectiveness.

As was noted earlier in this report, assessing multiple outcomes with a single student product is recommended whenever possible. The number of outcomes that can be assessed in this way in any given academic year will vary by program, and will depend on the particular product being used. At NECC, it is recommended that programs assess all of their developed outcomes over an approximate three year period. To ensure that the process is systematic, an assessment schedule much like the following could be developed. In this example, the program developed ten learning outcomes (LO), and planned to assess them over a period of three academic years.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LO1</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO2</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO3</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO4</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>LO5</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LO6</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO7</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>LO9</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Note that the above schedule also calls for the re-assessment of each learning outcome during a second three year period. In other words, each outcome is assessed every three years, or on a three year cycle. Again, this underscores the continuous nature of the outcomes assessment process.
The above table also suggests a timeline for implementing the assessment process, namely, within the course of two or three semesters. For example, decisions about measurement methods as well as analysis and evaluation procedures to be used/developed could be made in the fall term, with data collection proceeding in the spring. Then analysis and evaluation of assessment results could be done through the next fall term. Actions to respond to these results, for example if changes in pedagogy are suggested, could follow. Evaluation of the effects of actions taken would occur in the next cycle when the outcome is again assessed.

**B. Strategy for plan implementation**

The final step in the development of an outcomes assessment plan is to specify, at least tentatively, the **individuals who will be involved in plan implementation** and the **means by which implementation will proceed**.

1. **Implementation team members.** Team members will be responsible for a variety of implementation activities including:
   - Identifying courses or other venues within which to assess identified learning outcomes
   - Identifying measurement methods and data collection processes
   - Developing analysis and interpretation tools and procedures
   - Collecting, analyzing, and interpreting data
   - Developing action plans in response to assessment findings
   - Implementing and evaluating the effects of recommended actions

These responsibilities are detailed more fully in the following sections.

Each of the above tasks can be seen as calling for different abilities, knowledge, and perhaps position in the college’s organizational structure. For example, individuals who are knowledgeable concerning the program’s curricular offerings may be in the best position to identify courses within which to assess particular outcomes. Identifying and developing appropriate measurement methods takes a different type of expertise, as does developing analysis and interpretation tools and procedures such as rubrics. Finally, carrying out action plans may be best accomplished with the assistance of individuals in the college organization with the appropriate position power.

Because of these realities, it may be advisable to have several teams for different stages of the implementation process.
2. **Plan implementation structure.** In addition to at least tentatively identifying the individuals who will be involved in plan implementation, a consideration of the structure(s) within which these individuals will work is also recommended. For example, a schedule of a series of initial meetings could be developed, with a plan to schedule additional meetings as the work becomes more defined. This helps insure that the time needed for implementation will be set aside, and that team members will begin to prepare.
PART 3. IMPLEMENTING A PROGRAM OUTCOMES ASSESSMENT PLAN
CHAPTER 7. IDENTIFICATION OR DEVELOPMENT OF MEASUREMENT METHODS

The fundamental question that drives outcomes assessment is, “Are the students learning what you expect/desire them to learn?” Your conclusions in this regard will flow from the assessments given. You do not want to conclude that the learning outcomes are not being achieved when in fact it is the assessment methods which are ineffective. With good choices of assessments, you can have more confidence in your conclusions.

A. Identification/Development of assessment methods

For each selected outcome to be assessed, you will need to make decisions concerning:

- “What” – What assessment or measurement method will you use;
- “When” – When is the optimal time for this assessment;
- “Where” – Where in your program should this particular outcome be assessed;
- “Who” – Who are the students who will complete the assessment; and
- “How” – How will the information or products obtained be analyzed and evaluated.

1. Types of assessments

The method of assessment that best addresses or captures students’ competency with respect to a specific identified learning outcome may already be in place in your program. However, if certain learning outcomes are not currently being assessed in your program, you may need to develop appropriate methods, or put an existing method to another use. The following sections provide more detailed information about assessment methods, and suggestions about their appropriateness vis-à-vis specific learning outcomes.

The type of assessment used depends on the question being asked and the focus of the learning outcome statement. For example:

- If a learning outcome includes the ability of students to compare and contrast various political theories, then the assessment might consist of an essay with that specific task.

- If the outcome relates to skills at using a particular software program, then the assessment might include an assignment requiring that the student design, for example, a spreadsheet or data file.

Armacost, Pet-Armacost, and Krist provided the following guidelines in their pre-conference workshop entitled Developing Program Assessment Plans, presented at the May 2006 AIR Annual Forum:
Selecting the “Best” Assessment Methods

- Relationship to assessment – provides you with the information you need
- Reliability – yields constant responses over time
- Validity – appropriate for what you want to measure
- Timeliness and cost – preparation, response, and analysis time; opportunity and tangible costs
- Motivation – provides value to student or customer, respondents are motivated to participate
- Other
  - Results easy to understand and interpret
  - Changes in results can be attributed to changes in the program

a. General categories of types of assessments

i. Direct versus indirect assessments.

To put it simply, direct methods focus on actual products, while indirect methods involve perceptions.

In Assessing for Learning (2004), Maki provides the following definitions:

Direct methods prompt students to represent or demonstrate their learning or produce work so that observers can assess how well students’ texts or responses fit institution- or program-level expectations. Performances, creations, results of research or exploration, interactions within group problem solving, or responses to questions or prompts represent examples of direct methods. Observers draw inferences based on what students produce, how they perform, or what they select in response to a universe of questions or stimuli designed to assess dimensions of their learning.

Indirect methods capture students’ perceptions of their learning and the educational environment that supports that learning, such as access to and the quality of services, programs, or educational offerings that support their learning. Student satisfaction, alumni, and employer surveys are examples of indirect methods that document perceptions, reactions, or responses.

Further:

Results of indirect methods may well complement the results of direct methods. A student satisfaction survey that reveals patterns of dissatisfaction with an academic support service, for example, may help to explain why certain cohorts of students are less able to achieve specific institution-level expectations. By themselves, results of indirect methods cannot substitute for the evidence of learning that direct methods provide. They can, however, contribute to interpreting the results of direct methods...
ii. Objectively and subjectively scored assessments.

**Objectively scored assessments** are so named because the characteristics of the response reside in the object. Evaluators can be expected to for the most part agree on the correctness or incorrectness of a response. For these types of assessments - for example a multiple choice test - a simple scoring key or guide is adequate to use as a basis to score a student’s product. Of course, there can be errors even with objective scoring due to vision problems, distractions, losing one’s place, machine failures, etc., as well as errors in the scoring key itself.

**Subjectively scored assessments** are so named because factors which reside in the assessor may affect judgments of a response. Evaluations of certain types of assessments, for example, behavioral observations or essay responses, are considered to be subjective, because independent observers may not readily agree on what is being represented in the student’s product due to perspectives, biases, etc. For this reason, it is important to train raters and to develop rubrics. More information about and examples of rubrics will be presented in **CHAPTER 8**.

iii. Qualitative versus quantitative assessment methods

*Definitions of Quantitative method on the Web:*

- Quantitative methods are research methods dealing with numbers and anything that is measurable. They are therefore to be distinguished from qualitative methods.
  

*Definitions of Qualitative methods on the Web:*

- Ways of collecting information on the knowledge, attitudes, beliefs, and behaviors of the target population. In general, information gathered using qualitative methods is not given a numerical value.
  

- rich descriptions of cultural situations obtained from interviewing, participant observation, and collection of oral and textual materials. Ethnographies are reports from qualitative research.
  
  [oregonstate.edu/instruct/anth370/gloss.html](oregonstate.edu/instruct/anth370/gloss.html)

- Difference between cases in kind, which is not numerically measurable, though being different can be counted.
  
  [www.uwic.ac.uk/shss/dom/newweb/General/Glossary.htm](www.uwic.ac.uk/shss/dom/newweb/General/Glossary.htm)

- methodology which tries to explain the phenomena to be studied without quantitative methods by using, for example, stories or citations from discussion
  
  [herkules.oulu.fi/isbn9514259378/html/q240.html](herkules.oulu.fi/isbn9514259378/html/q240.html)
Quantitative methods are used when a number can be assigned, for example, the number of right versus wrong responses, or the average ratings assigned when a numerical rating scale is used.

Qualitative methods usually call for the investigation of themes represented in open-ended interview responses, or in written material such as survey responses. For example:

- An open-ended question in a student satisfaction survey asks students to report on the most positive experiences they had at NECC. All unique experiences reported by the students would be listed, with counts to represent the frequency with which each is named. The result might be that certain experiences are mentioned by a large number of students, and others by only a few or perhaps just one.

Both types of approaches are useful. Often, qualitative information can be used to emphasize, exemplify, or describe quantitative data. For example, students may be asked to indicate, on a scale of 1 to 5, their satisfaction with the advising they received. Information they also provide in the form of a written response can then be used to inform the average rating obtained. A low average rating is not informative with respect to the source of dissatisfaction. But if many students comment, for example, that the hours that advising was offered were not convenient, then a plan to address the problem is suggested.

2. When to administer assessments

Some assessments might be appropriate to administer following a course, a course sequence, or perhaps the entire program. The question here is what is the learning outcome that is being addressed? Where in the curriculum is this learning taking place? When in the program would be the best time to evaluate student products with respect to a particular learning outcome?

For example, certain computer skills are taught in specific computer classes which may be taken by students at various points in their studies at NECC. If students’ work is being evaluated in those courses, and if the evaluations provide evidence of students’ achievements with respect to certain specified learning outcomes, then those assessments given during that course may be the appropriate products to examine.

You may also consider whether to conduct assessments on a “pre and post” schedule. This approach can yield information about “value-added”, or the gains in knowledge and skills realized by students going through the program. Though this information can be quite useful, assessing in this way requires careful planning as well as attention to possible problems which arise from the use of pre and post- measures.

For example, pre-measures can sensitize both students and instructors as to what areas will be assessed, causing more time and attention to be paid to those topics than is normally done. On the one hand, this can be seen as a positive effect. On the other hand, this focus may not be given or maintained when pre and post-measures are not given, for example, in course sections not being assessed, or in years when achievement vis-à-vis the particular outcome is not being measured. The data already obtained, then, would be misleading.
3. Where to administer assessments

Assessments may be given in individual courses, provided that all students going through the program take these courses. It is very important to also consider that not all programs are highly sequenced, with the result being that students enter courses with varying levels of academic experience and preparedness. This fact must be considered in deciding where to assess specific outcomes, and in articulating the level of achievement of the specific learning outcome to be expected from these students.

Assessments given in courses may be those already in place, or those developed or designed specifically to measure particular outcomes. In the latter case, these assessments would be embedded in the course, either as a stand-alone assessment or as a part of a larger assessment. In either case, it is advisable from a motivation standpoint that performance on this assessment be reflected in students’ course grades. However, once collected as part of program assessment, individual student or instructor names are no longer relevant.

Because electives are often part of a program, and because they serve important supportive elements in a program, it may make sense to administer at least some assessments outside of a regular course context. One such context is a capstone course. Another is assessment through the use of summary portfolios.

Or if electives serve the purpose of developing certain general abilities, then perhaps these could be assessed in the context of one of the core program discipline courses. For example, social science electives may include some instruction in research methods. Knowledge regarding these methods could be evaluated in the context of another assignment in a discipline-specific course.

4. Whom to assess

It is desirable to have all students in a program complete the target assessment. Because some scoring is time consuming and/or expensive, and because some programs may have large numbers of students, a random sample of students’ products may be selected for scoring and evaluation. For example, rating essay assignments is resource intensive. Therefore, selecting a sample of students’ work may be the most reasonable approach. The sample should be of sufficient size, however, so as to support confidence in conclusions reached. The main issue is whether the sample used can be considered representative of the entire group.

Other assessments, for example multiple choice tests, are easier to score, and in those cases, the entire student pool should be judged.

For certain types of assessments, such as surveys or focus groups, it may only be feasible due to resource constraints (time, money, etc.) to administer the assessment to a sample (e.g. of students, alumni, employers, etc.) In those cases, as above, try to have sufficient numbers of respondents so as to insure that the sample is representative, and that the conclusions drawn are valid.
CHAPTER 8. DEVELOPMENT OF PROCESSES FOR ASSESSMENT ANALYSIS AND EVALUATION OR INTERPRETATION

Assessment products can include multiple choice tests, essays, survey responses, ratings of students by practicum supervisors, students’ responses to short answer questions, etc. Whatever they are, they need to be analyzed and evaluated. The next step, then, is to plan the analysis and evaluation process.

The analysis of assessment products can include the use of various tools such as scoring guides or keys and rubrics. Several examples of rubrics are presented below. Once the assessment products have been analyzed, results can be presented or summarized in a number of ways, such as through the calculation of averages, tables, or narrative description. Analysis guides such as performance criteria or decision rules can also come into play.

These decisions concerning analysis and interpretation processes must be made before the data are gathered.

A. Analysis tools

Objectively scored tests often rely on keys for scoring. Assessments which are considered subjective, on the other hand, such as essay scoring, require a different type of scoring guide. This scoring guide could be a rubric, which consists of the identification of the criteria to be evaluated in the assignment, and a specification of the standards to be applied when evaluating students’ work with respect to each of the criteria. Developing these types of guides is useful for instructors because it ensures that all relevant criteria are identified and standards explicated. It is also useful for students because it gives them information concerning the instructor’s expectations and standards. These guides can be helpful in reducing subjectivity on the instructors’ part, and increasing acceptance of grades on the students’ part because with these guides, students can better understand the basis for their grades.

Although scoring guides such as rubrics can be used by just the classroom instructor to evaluate students’ work, they are also useful in situations where it is possible to have multiple raters. For example, it may be possible to have two instructors rate student essays, or judge oral performances. In these cases, it is advisable to train raters in the use of the guides, ensure that ratings are given independently, and to have mechanisms in place in case of disparate evaluations and to guard against rater drift. Having two raters providing reliable ratings is a check on the accuracy of the ratings being assigned.

Examples of rubrics are presented below:
# Example: Connect Group: Draft Writing Outcomes and Rubrics, September 27, 2004

<table>
<thead>
<tr>
<th><strong>Writing:</strong> Students will move through the processes of writing: inventing, composing, revising, and editing according to the conventions of Standard Written English.</th>
<th><strong>Critical reading:</strong> Students will critically read and respond to a variety of texts.</th>
<th><strong>Audience, purpose, voice:</strong> Students will compose in a voice appropriate to the audience and the purpose of the writing.</th>
<th><strong>Thesis:</strong> Students will formulate a thesis and support it with evidence.</th>
<th><strong>Organization:</strong> Students will compose coherent and cohesive essays and other texts.</th>
<th><strong>Research, documentation:</strong> Students will locate, evaluate, integrate, and document primary and/or secondary source materials to support a position.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Novice</strong> Writing shows little change from invention to final draft, despite consistent problems with content and/or Standard Written English. Writing demonstrates little comprehension of relevant texts, limited inferential skills, and a lack of awareness of authorial bias. Writing demonstrates lack of awareness of audience and does not fulfill writer’s purpose; voice is inauthentic and/or inappropriate as demonstrated by tone, diction, and vocabulary. Writing exhibits no central idea, or a disconnect between idea and supporting evidence, or insufficient supporting evidence. Introduction, body, and/or conclusion are unfocused or absent; ideas may be arranged illogically. Writing demonstrates inappropriate use or lack of sources, faulty integration of researched materials, and/or incorrect or absent documentation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Practitioner</strong> Though competent, writing could improve from better application of one or two steps of the writing process. Writing shows adequate comprehension and some inferential ability; writing shows an ability to engage with the text. Writing demonstrates a basic awareness of audience and generally fulfills writer’s purpose; tone, diction, and vocabulary are functional and appropriate. Thesis is clear and substantially supported by evidence in a straightforward though perhaps mechanical way. Writing shows a basic sense of beginning, middle, and end; a functional introduction, body, and conclusion; and, for the most part, focused and orderly paragraphs. Most sources are appropriate and correctly documented. Research is sufficient to the assignment and adequately integrated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expert</strong> Writing is polished and insightful, demonstrating a synthesis of the writing process. Writing engages fully with the text, demonstrating developed inferential and evaluative skills. Writing demonstrates a clear sense of audience and effectively fulfills the writer’s purpose. Voice is distinctive; vocabulary is aptly chosen, lively, and sophisticated. Thesis is clear, thought-provoking, and well focused, supported by vivid and concrete evidence. Writing demonstrates a logical and clear structure, incorporating graceful transitions and unified paragraphs. Primary and/or secondary sources are skillfully interwoven into the text to support the thesis. Research is thorough, and sources are correctly cited.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Top row lists learning outcomes. Bottom three rows list criteria.

Example: Rubric for Scientific Experiment in Biology Capstone Course  
by Virginia Johnson Anderson, Towson University, Towson, MD

Assignment: Semester-long assignment to design an original experiment, carry it out, and write it up in scientific report format. Students are to determine which of two brands of a commercial product (e.g. two brands of popcorn) are “best.” They must base their judgment on at least four experimental factors (e.g. “% of kernels popped” is an experimental factor. Price is not, because it is written on the package).

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Title</td>
<td>Is appropriate in tone and structure to science journal; contains necessary descriptors, brand names, and allows reader to anticipate design.</td>
</tr>
<tr>
<td>2. Introduction</td>
<td>Clearly identifies the purpose of the research; identifies interested audience(s); adopts an appropriate tone.</td>
</tr>
<tr>
<td>3. Scientific Format Demands</td>
<td>All material placed in the correct sections; organized logically within each section; runs parallel among different sections.</td>
</tr>
<tr>
<td>4. Materials and Methods Section</td>
<td>Contains effective, quantifiable, concisely-organized information that allows the experiment to be replicated; is written so that all information inherent to the document can be related back to this section; identifies sources of all data to be collected; identifies sequential information in an appropriate chronology; does not contain unnecessary, wordy descriptions of procedures.</td>
</tr>
</tbody>
</table>

ETC. SIX ADDITIONAL OBJECTIVES WERE IDENTIFIED. FOR THE PURPOSE OF PROVIDING AN EXAMPLE, ONLY THE ABOVE FOUR ARE PRESENTED IN THIS TABLE.

Adapted from material distributed during a session presented by Barbara E. Walvoord entitled Assessment Clear and Simple: Eight Principles for Action, NEASC 2005 Annual Meeting and Conference.
<table>
<thead>
<tr>
<th>1. Response to Assignment</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the writer addressed the topic effectively? Does the writer reveal the topic with purpose?</td>
<td>Addresses topic with energy and insight; reveals purpose and maintains focus; essay is exciting to read with a sense of the writer’s voice.</td>
<td>Addresses topic effectively with some insight. Purpose is clear; essay is interesting to read.</td>
<td>Addresses topic with predictable response. Purpose is unclear, appears to be simply fulfilling the assignment.</td>
<td>Shows serious problems with topic, purpose is difficult to comprehend or not appropriate to the assignment. More than one topic is evident.</td>
<td>Shows no sense of focus or understanding of the purpose of the assignment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Development</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the writer develop the topic to an acceptable length using significant and original details, anecdotes and/or examples?</td>
<td>Thoughtfully developed essay that explores the topic using rich and original details and support. Length: Object 1½-2pgs; Person 2-3pgs.</td>
<td>Well-developed essay that expands the topic with appropriate and interesting detail and support. Length: Object 1½-2pgs; Person 2-3pgs.</td>
<td>Adequately developed essay that reveals the topic with some good, but generally predictable detail and support. Length: Object 1½-2pgs; Person 2-3pgs.</td>
<td>Underdeveloped essay that shows the topic with vague detail and inadequate support. Length: under 1½ pgs for both essays.</td>
<td>Seriously underdeveloped essay that hints at a topic with limited detail and support. Length: under 1½ pgs for both essays.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Organization</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the essay well-organized with a strong sense of introduction, body and conclusion? Does the writer include body paragraphs with topic sentences?</td>
<td>Introduction is striking and imaginative, body is logically and thoughtfully organized with paragraphs that focus on one idea and begin with topic sentences that vary in style; conclusion is powerful and perceptive.</td>
<td>Introduction engages reader; body is logically organized with paragraphs that focus on one idea and begin with clear topic sentences; conclusion is reflective and insightful.</td>
<td>Introduction is adequate but lacks energy or originality; body is reasonably organized with paragraphs that generally focus on one idea and begin with functional topic sentences; conclusion shows some insight.</td>
<td>Introduction is skimpy; body is loosely organized with paragraphs that lack focus and may not begin with topic sentence; conclusion is one or two sentences.</td>
<td>Introduction is difficult to distinguish from body paragraphs; body is unfocused and rambling with no topic sentences; conclusion is difficult to distinguish from body.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Process &amp; Revision</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the writer show an understanding of the writing process?</td>
<td>Exceptional participation in all steps of process for graded paper; truly meaningful and substantive changes on Accepted essay.</td>
<td>Full participation in all steps of process for graded paper; meaningful and substantive changes on Accepted essay.</td>
<td>Reasonable participation in all steps of process for graded paper; reasonably meaningful and substantive changes on Accepted essay.</td>
<td>Limited participation in steps of process for graded paper; minimal changes on Accepted essay.</td>
<td>Little participation in steps of process for graded paper; no changes on Accepted essay.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Editing &amp; Proofreading</th>
<th>Excellent</th>
<th>Good</th>
<th>Average</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the essay properly formatted? Has the writer followed proper conventions for typing and capitalization? Has the writer shown evidence of using spell-check? Has the writer proofread for obvious errors and omissions?</td>
<td>Accurate formatting and proper use of conventions; evidence of spell-check use; evidence of careful reading after completion of revisions. Essay should read smoothly without distracting errors that interrupt meaning.</td>
<td>Accurate formatting and proper use of conventions; evidence of spell-check use; evidence of careful reading after completion of revisions. (May have some patterns of errors that will not be covered unless second graded essay.)</td>
<td>Reasonable formatting and use of conventions; evidence of spell-check use; evidence of proofreading after completion of revisions. (May have some patterns of errors that will not be covered until second graded essay.)</td>
<td>Improper formatting and use of conventions; questionable evidence of spell-check use; little evidence of reading and checking after completion of revisions. (May have some patterns of errors that will not be covered until second graded essay.)</td>
<td>Serious problems with formatting and use of conventions; no evidence of use of spell-check or proofreading after completion of revisions. (May have some patterns of errors that will not be covered until second graded essay.)</td>
</tr>
</tbody>
</table>

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BASIC WRITING WRT010: Criteria for Evaluating First Graded Essay: Provided by Joanna Fortna, Basic Writing Curriculum Coordinator, NECC, January 2006

1 Steps in writing process refer to assigned activities for prewriting, drafting, revising, doing peer response, editing and proofreading.
2 The phrase, “meaningful and substantive changes” refers to specific and planned revision strategies, not editing for surface errors.
Learning outcome: Students will demonstrate the ability to work effectively in teams.

<table>
<thead>
<tr>
<th>Work Effectively in Teams</th>
<th>Unsatisfactory 1</th>
<th>Developing 2</th>
<th>Satisfactory 3</th>
<th>Exemplary 4</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research and Gather Information</strong></td>
<td>Does not collect any information that relates to the topic</td>
<td>Collects very little information – some relates to the topic</td>
<td>Collects some basic information - most relates to the topic</td>
<td>Collects a great deal of information – all relates to the topic</td>
<td></td>
</tr>
<tr>
<td><strong>Contribute</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fulfill Team Role’s Duties</strong></td>
<td>Does not perform any duties of assigned team role</td>
<td>Performs very little duties</td>
<td>Performs nearly all duties</td>
<td>Performs all duties of assigned team roles</td>
<td></td>
</tr>
<tr>
<td><strong>Take Responsibility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Share Equally</strong></td>
<td>Always relies on others to do the work</td>
<td>Rarely does the assigned work – often needs reminding</td>
<td>Usually does the assigned work – rarely needs reminding</td>
<td>Always does the assigned work without having to be reminded</td>
<td></td>
</tr>
<tr>
<td><strong>Value Others’ Viewpoints</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Listen to other teammates</strong></td>
<td>Is always talking – never allows anyone else to speak</td>
<td>Usually does most of the talking – rarely allows others to speak</td>
<td>Listens, but sometimes talks too much</td>
<td>Listens and speaks a fair amount</td>
<td></td>
</tr>
</tbody>
</table>

Average

(From Program Assessment of Student Learning: Keep It Simple, distributed by G. Rogers, Ph.D., Associate Executive Director of Professional Services at ABET, Inc., at a June, 2006 assessment workshop.)
## SAMPLE RUBRIC

**Product being evaluated:** *Graphic Design Program Student Resume*

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>STANDARDS</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Organization/content reflects an understanding of workplace/industry standards for resumes</td>
<td>Needs improvement/ Poor: The information is not organized according to workplace industry standards. Includes few of the necessary elements of an effective resume.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meets expectations/ Satisfactory/ Average: The information is included but could be organized and presented in a better format. Most of the necessary elements - e.g. education, awards or recognitions, professional associations, participations in exhibits - are included but could be organized and presented in a more professional format.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exceeds expectations/ Excellent: The information is clearly organized in a professional manner. Includes most all of the necessary elements of an effective resume, e.g. education, awards or recognitions, professional associations, participations in exhibits, and clearly defined career goals and objectives.</td>
<td></td>
</tr>
<tr>
<td>2. Resume reflects appropriate print design skills such as layout, hierarchy and typesetting</td>
<td>Visual organization and/or layout need work. Hierarchy is confusing and needs a professional format. Print design skills are inadequately demonstrated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Print design skills are obvious to the reader and reflect industry standards. Visual organization and/or layout are adequate for the purpose.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Print design skills are impressive, obvious to the reader and reflect industry standards. Layout, hierarchy and typesetting are professionally incorporated in overall resume design.</td>
<td></td>
</tr>
<tr>
<td>3. The appearance of the resume reflects professionalism, and individualism</td>
<td>Writing is mostly unprofessional and contains many errors. Little individuality is expressed in the design. Overall, has an unprofessional appearance and tone.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Writing is adequate, with some work needed to be error free and to have a professional tone. Work appears professional, but lacks strong expression of individuality in the design.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resume is well-written, succinct, reflective of individuality in the design, and overall, has a highly professional tone and appearance.</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL SCORE**

Adapted from the draft of a rubric developed by NECC’s Graphic Design Program.
B. **Representation/presentation of analysis results**

With respect to the above rubric for the science experiment, once the student products were assigned a numeric score, average scores were calculated for each category. Data from two years was then presented in the following table, which exemplifies one method for presenting analysis results.

**Student Scores on Rubric for Science Reports**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>2.95</td>
<td>3.22</td>
</tr>
<tr>
<td>Introduction</td>
<td>3.18</td>
<td>3.64</td>
</tr>
<tr>
<td>Scientific Format</td>
<td>3.09</td>
<td>3.32</td>
</tr>
<tr>
<td>Methods and Materials</td>
<td>3.00</td>
<td>3.55</td>
</tr>
<tr>
<td>Non-Experimental Information</td>
<td>3.18</td>
<td>3.50</td>
</tr>
<tr>
<td>Designing the Experiment</td>
<td>2.68</td>
<td>3.32</td>
</tr>
<tr>
<td>Defining Operationally</td>
<td>2.68</td>
<td>3.50</td>
</tr>
<tr>
<td>Controlling Variables</td>
<td>2.73</td>
<td>3.18</td>
</tr>
<tr>
<td>Collecting Data</td>
<td>2.86</td>
<td>3.36</td>
</tr>
<tr>
<td>Interpreting Data</td>
<td>2.90</td>
<td>3.59</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>2.93</td>
<td>3.42</td>
</tr>
</tbody>
</table>


This information may lead to further investigation regarding student strengths and weaknesses in each area, as well as suggestions for possible approaches to address these. Differences among average scores across criteria can be examined as well as differences in criteria scores across years. This type of analysis lends itself to interpretations which in turn suggest various actions.

Another type of presentation which may result from such assessments as surveys is frequency distributions indicating numbers or percentages of respondents who select certain answers or who mention particular themes. Percentages of students who achieved a pre-determined performance criteria level (see Part C below) may also be represented in terms of percentages. As an example of this type approach, consider the following chart, developed using data gathered related to the team work rubric presented above:
Example of Results
%

of students who achieved the competency?

1. Research/gather information
2. Team roles
3. Share equally
4. Listens to teammates

(From Program Assessment of Student Learning: Keep It Simple, distributed by G. Rogers, Ph.D., Associate Executive Director of Professional Services at ABET, Inc., at a June, 2006 assessment workshop.)

C. Evaluation or interpretation guides: Performance criteria/Decision rules

The results obtained through an analysis of student products require interpretation and evaluation. This has to do with the meaning that will be given to the results. Evaluation has been defined as the:

Process of reviewing the results of data collection and analysis and making a determination of the value of findings and actions to be taken.

(From Program Assessment of Student Learning: Keep It Simple, distributed by G. Rogers, Ph.D., Associate Executive Director of Professional Services at ABET, Inc., at a June, 2006 assessment workshop.)
To assist with evaluation, performance criteria may be developed. Performance criteria, also known as standards or specifications, are:

specific, measurable statements identifying the performance required to meet the outcome; confirmable through evidence

(From Program Assessment of Student Learning: Keep It Simple, distributed by G. Rogers, Ph.D., Associate Executive Director of Professional Services at ABET, Inc., at a June, 2006 assessment workshop.)

For some assessments, it may be desirable to specify a certain outcome as representing “success.” For example, a program may conclude that success is represented when a certain percentage of graduates pass or obtain a certain score on a licensing or accreditation examination. In using a rubric with a 1 to 5 rating scale to score essays, it may be decided that an average score of 3 or higher represents successful outcome attainment.

If performance criteria or decision rules are to be used, they must be developed before the assessments are scored.

Following are several examples of learning outcomes presented with a description of the assessments that will be used and the performance criteria that will be applied to judge whether students in the program have successfully achieved the outcomes.

**Outcome: Aerospace engineering graduates will demonstrate the ability to use equipment to determine and control aircraft altitude.**

**Measure 1:** Students will earn a 90% or higher on the questions embedded in the final exam in AER3221 dealing with correct use of equipment related to altitude.

**Measure 2:** Junior level students using a flight simulator will be rated at least satisfactory by a flight faculty member on the test of equipment that controls altitude.

**Outcome: Graduates of the B.S. program in Business Administration will demonstrate proficiency in oral communication of the kind expected in professional paper presentations.**

**Measure 1:** In the Capstone Course BA4321, each student will earn at least 90% on the oral presentation section of their capstone project. A scoring rubric will be used to assess elements of communication proficiency for specific skills.

**Measure 2:** After viewing and analyzing videotapes of professional paper presentations, junior level BSBA students will achieve satisfactory or better on the presentation skills rubric assessing a 15 minute presentation in BS3333.
Outcome: Teacher candidates accurately assess and analyze student learning.

Measure 1: Participants in Internship II will earn a “good” or “superior” rating in the analysis of student learning strengths and weaknesses in small group classroom situations. A scoring rubric will be used for assessment by the teacher evaluator and the internship supervisor.

Measure 2: All students will demonstrate a 90% accuracy on the hypothetical classroom situation responses that require accurate assessment and analysis of grade appropriate student learning.

(From a presentation by Paula Krist entitled, S.O.S.: Student Outcomes Success for Program Assessment; AIR Forum, Chicago, May 2006).

D. Process review

Program may decide that, as opposed to absolute scores, it is more useful to look at patterns or trends. The table used to represent students’ average scores on the science project may be used in exactly that way. In that case, it is not the exact score obtained that is relevant, but rather relative score from criteria to criteria and from year to year.

Other types of assessments are useful for strictly informational purposes. Surveys and focus groups, for example, may provide information that will be useful for program improvement without specifying in advance how many respondents must name something in order for it to be acted upon.

E. General comment

It is important to note that there are some outcomes that may be required of every student, and that no student can be considered to have successfully completed the program without satisfactory demonstration of having accomplished that outcome.

Similarly there are some findings or results which may be obtained with only a few students, and yet, they are important enough that action must be taken.
The above diagram provides an overview of these last steps in the assessment process. The reflecting, decision-making, and planning made in the preceding phases culminate in the collection, analysis, and interpretation of data, followed by the development of action plans. This section focuses on the first three steps above.

A. **Data collection**

Data collection refers to the administration of a measurement method and the gathering of the products that will then be evaluated or interpreted. In some cases, this is a relatively straightforward process.

For example, if student essays produced in a certain course are to be analyzed, then a procedure for collecting these essays from the instructors needs to be put in place. The essays produced may be graded by the instructors for input to the students’ course grades. For program assessment purposes, copies of these essays would be obtained before the instructor has made any markings. Student names would then be expunged. If the number of these products would be too large for analysis given the available resources, then a sample could be selected for review.

Measurement tools newly developed may need to be embedded in a course. For example, a multiple choice test assessing specific knowledge may be developed with respect to a particular
Revised July 2009

learning outcome. Instructors are then asked to include this device as part of their regular classroom assessments. Copies of the student products would be gathered for use in the program assessment work, again before the classroom instructor has made any marks and with students’ names expunged.

For surveys, relevant concerns include to whom, when, and using which method. For example, should the surveys be mailed, conducted via the telephone, or should a web-based approach be used?

In program assessment, there is no interest in individual student performance. Therefore, student names must be removed from any products being analyzed so that the products are not personally identifiable. The interest is in work at the program level. This removal of student names protects each student’s privacy and eliminates the need to obtain informed consent either from the student or the parent if the student is under 18. The same procedure of removing student names must be followed for all products relating to individual students, for example, practicum supervisor evaluations or employer survey responses.

B. **Analysis and interpretation**

At this point, we enter again into a reflecting, decision-making, and planning mode, but now our focus is on the evidence and information we have gathered. Analysis proceeds according to the plan developed before any data were collected, which may include the use of scoring keys or rubrics, as detailed in the previous section. Plans concerning the representation and interpretation of information, for example, using performance criteria or standards, also discussed in the previous section, are similarly followed.
CHAPTER 10: DEVELOPMENT OF ACTION PLAN

PROCESS TO REPORT ASSESSMENT RESULTS

<table>
<thead>
<tr>
<th>Step 1: Collect the data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2: Analyze the data</td>
</tr>
<tr>
<td>Step 3: Review the results</td>
</tr>
<tr>
<td>Step 4: Determine what actions are needed</td>
</tr>
<tr>
<td>Step 5: Implement the actions</td>
</tr>
<tr>
<td>Step 6: Determine impact of actions (assess results)</td>
</tr>
</tbody>
</table>

(From a pre-conference workshop entitled Developing Program Assessment Plans presented by Armacost, Pet-Armacost, and Krist at the May 2006 AIR Annual Forum.)

Interpretations and evaluations lead to action plans which are plans for the future focused on improving student learning. In this step - step 4 in the above diagram - assessment results are shared and used in decision-making. It is probably desirable to “institutionalize” this step of the assessment process by having a specific time and place set aside each term or year to discuss assessment results. This type of arrangement makes assessment an ongoing part of the business of the program.

In addition to specifying a time and place, it is necessary to identify the group that will review and evaluate assessment results and develop an action plan, as well as the audiences with whom the results and recommendations will be shared. Program faculty, because of their familiarity with the program, are in the best position to identify curricular or pedagogical factors as well as student factors such as preparedness and motivation that may affect student learning. External perspectives may also be useful. To influence resource requests and to obtain support for program changes, communication with college administrators is essential.

Findings from analyzed and interpreted assessment results may not meet pre-set standards, or in other ways may suggest a need for changes to improve student learning outcomes. At this point, it will be necessary to discuss possible causes of the findings, and to pinpoint strategies or actions which would address these causes. These are important discussions because the identification of incorrect causes leads to the application of remedies which may be at best ineffective and may even have a negative impact.
Discussion of assessment results might point to problems in particular courses, in certain sections of courses, with course sequencing and/or with specific groups of students. Actions suggested by the assessment evidence may include changing the curriculum or pedagogical methods, requesting program resources, making sure instructors understand the course learning outcomes, revamping course syllabi, etc.).

It is also possible to conclude that the assessment used was inadequate for the purpose of determining whether the learning outcome was satisfactorily achieved. Action plans can include reference to plans regarding the development, administration, and analysis of other or additional assessment tools.

The assessment results might also support that the program in general is working well and is quite effective with respect to achieving the desired learning outcomes.

Conclusions possibly ensuing from the assessment data include the identification of needs such as for:

- faculty development, for example, to learn new or different instructional or technological methods;
- changes to curriculum, course content, or course sequencing;
- a handbook for part-time faculty to insure similarity of content covered and skill development emphasized across sections;
- collaboration of faculty across programs, divisions, or even institutions;
- increased consultation and out-reach with local employers;
- enhanced student support services, such as advising and counseling;
- further investigation of the culture and climate of the college – factors that can affect student and faculty motivation;
- methods to increase student effort and commitment to learning; and
- other or additional assessment tools.

Absent any application or use, assessment is a meaningless activity that will deservedly get little in the way of quality attention from faculty. On the other hand, assessment results can become the basis for the development of an action plan for the future with respect to the program’s functioning. The evidence provided through the assessments can support requests for resources, for example, in the form of materials for faculty or students or release time for faculty or administrators to gather and review critical information, learn new instructional techniques, and/or to collaborate with others.

**Action plans include specifics as to implementation**, such as who will be responsible, when, where, how, etc. Follow-up on the effectiveness of actions taken is also necessary, and methods to do so may be included in the plan. One such mechanism may be the assessment cycle itself, which calls for the assessment of this same outcome at some specified time in the future.
Once an action plan is developed and implemented, the cycle repeats. Mission statements, program objectives, program learning outcomes, course objectives and learning outcomes are reviewed and altered as needed, assessment plans are put in place, and assessment data is evaluated. What effect did the changes have on the program in terms of the curriculum and the achievement of the desired learning outcomes? What was the effect on student success, as measured by successful transfer or successful employment? This continuous cycling, with numerous feedback loops, is what makes assessment a “process.”

Assessment identification, development, administration, analysis, and evaluation require commitments of many resources, including time and people. Practically speaking, all of the work cannot be done at once. But assessment is a process that works best when it becomes a mindset that is built into the ongoing functioning and work of a program – when it becomes part of the program’s culture. This is the ultimate goal.