

PROGRAM LEARNING OUTCOMES HANDBOOK¹

**American University of Beirut
Center for Teaching and Learning**

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¹ This handbook was developed by a task force composed of the following faculty members: Thurayya Arayssi, Souama BouJaoude, Amal BouZeineddine, Nesreen Ghaddar, Marjorie Henningsen, Murad Jurak, Fadl Moukalled, and Waddah Nasr.

About this Handbook

This handbook was prepared by faculty at AUB for faculty at AUB at the request of the Center for Teaching and Learning. The handbook draws on many available resources from within AUB and from other universities engaged in similar efforts to assess the quality of the programs they offer with an eye toward continual improvement. This handbook is intended as a resource to help groups of faculty through the process of developing and articulating program goals and learning outcomes that will feed into the development and implementation of comprehensive and ongoing program assessment plans. At its core, this effort is mainly about holding ourselves accountable for the quality of the programs we offer our students.

Terminology

As you go through your process of developing program goals and learning outcomes you may consult a variety of resources and you may encounter slightly different terminology used to describe similar ideas. Below is a description of some of the terminology we have adopted for the learning outcomes effort at AUB.

Educational Objectives. Educational objectives are expressed in broad statements that describe the academic and/or professional accomplishments that the course, the program, or the institution is preparing students to achieve.

Program Goals. Program goals help to define the program mission and its educational objectives more clearly. Program goal statements are usually at a general level and are used to conceptualize broad learning goals for students in the program (e.g., develop a reflective stance toward the discipline, develop lifelong problem-solving skills, etc.).

Learning Outcomes. Learning outcomes, in general, are expressed in statements that describe significant and essential learning that learners are expected to have achieved, and can demonstrate at the end of a course or program. In other words, learning outcomes identify what the learner will know and be able to do by the end of a course or program.²

Program Learning Outcomes. Program learning outcome statements articulate more specifically the knowledge, performance, values, and attitudes that you expect students to be able to demonstrate by the end of the program (e.g., articulate or summarize the most common positions in contemporary debates and controversies in the field; analyze real-world problem constraints, and develop and carry out solution plans in novel situations).

Educational objectives form a hierarchy. The educational objectives of a course, for example, should serve the objectives of the program(s) in which this course is included; similarly the educational objectives of a program should serve the institutional goals that in turn serve the mission of the institution. Learning outcomes are similarly related. The learning outcomes of a course support the learning outcomes of the program which includes this course. In the same manner the learning outcomes at any level should be aligned with the educational objectives of that level. Again, statements of goals and learning outcomes are

² Adapted from <http://dental.gbrown.ca/programs/InsAdult/currlo.htm>

useful tools for developing and implementing ongoing assessment and continual improvement.

Potential Benefits of Assessment at the Program Level

<i>Because self-assessment can shed light on the intended mission and goals of a program</i>	Groups of faculty can articulate a coherent set of program goals and design a plan for assessing their achievement with respect to those goals.
<i>Because assessment can reveal the expectations and needs of relevant constituents</i>	Groups of faculty can design programs and courses that are responsive to the short-term and long-term needs of students.
<i>Because assessment is multi-faceted</i>	Groups of faculty can make valid inferences with triangulated data incorporating multiple points of view.
<i>Because assessment can provide information about the knowledge and skills students have as they enter a program</i>	Groups of faculty can accurately make predictions about student learning trajectories and determine a priori the relative emphases of various course and program-level experiences needed for the majority of students to make progress toward achieving program goals.
<i>Because assessment can provide reliable data on student learning during a program</i>	Groups of faculty can make program level decisions and adjustments that are responsive to the practical needs of students and faculty and make valid inferences about the effectiveness of specific experiences on an ongoing basis.
<i>Because assessment can provide reliable data on student learning at the culmination of a program</i>	Groups of faculty can provide evidence of program effectiveness and use this evidence for a variety of purposes including accreditation requirements, marketing and recruiting, and program improvement.

Part 1: Getting Started with Program Learning Outcomes

The purpose of this chapter:

The purpose of this chapter is to help you and your colleagues assess where you are as a group in terms of preparing student learning outcomes for your program and to help you begin the process.

Student Learning Outcomes: What are they and why do we need them at the program level?

Student learning outcomes are expressed in statements which reflect what students are expected to learn. They ultimately serve as tools for: 1) articulating what we want students to know and be able to do as a result of their learning experiences in a program, and 2) designing assessment tools in order to know whether or not the outcomes have been realized. We need learning outcome statements at the program level because they

- help us develop a common language to use in discussing student learning and course goals with colleagues;
- make the program curriculum transparent for students, faculty, parents, administrators, future employers, and other stakeholders;
- define potential evidence bases for program design and revision;
- enhance our ability to do curriculum mapping at the program level in order to identify gaps and redundancies and address them appropriately;
- help with defining evidence that should be collected for accreditation and external program assessment; and
- promote effective teaching and learning and help focus planning and implementation of learning activities, whether at the course or program level.

Begin with group (department) reflection

Developing learning outcomes at the program level is an ongoing iterative process that begins with serious self-examination by the department as a collective. Before moving on we may need to reiterate the distinction between statements about program goals and program learning outcomes:

- Program goals help to define the program mission more clearly. Program-level goal statements are usually written at a general level and are used to conceptualize broad learning goals for students in the program (e.g., develop a reflective stance toward the discipline, develop lifelong problem-solving skills, etc.).
- Program learning outcomes articulate more specifically the knowledge, performance, values, and attitudes that you expect students to be able to demonstrate by the end of the program (e.g., articulate or summarize the most common positions in

contemporary debates and controversies in the field, analyze real-world problem constraints, and develop and carry out solution plans in novel situations).

Sometimes the lines between these two ideas can get blurry, but it is up to you and your colleagues to define them in ways that make sense for your program. As a group you may want to focus first on agreeing about overall program goals and then moving on to developing program-level learning outcomes.

The rubric below is designed to help you and your colleagues assess where you are as a group in terms of your own process of developing student learning outcomes for your program and to help you decide how to move forward from where you are.

	Beginning	Making Progress	Advanced
Articulating Goals and Outcomes	Our goals and outcomes are not well defined. We have not really articulated clear goals for the program, let alone learning outcomes. We cannot really agree on broad program goals.	We agree on broad program goals, but we are still working on further specifying them into learning outcomes that can be clearly assessed.	Our program goals and outcomes are well defined and articulated in writing.
Analysis and Assessment	We have not yet defined assessment tools related to the goals and outcomes we have defined. We are not systematically collecting data related to our goals and outcomes. We haven't agreed on a clear ongoing assessment plan.	We have begun to work on an assessment plan as a group, but we are still not ready to implement that plan; or we have lots of data, but we haven't done much with it yet in terms of organization or assessment.	We have a system in place for processing and analyzing the data we collect and we analyze it.
Reflection and Revision	We have not really undertaken a serious review of the program in the last four years. In our discussions evaluating the program we rarely refer to systematic evidence.	We have begun to collect data, but it could be more systematic; we have looked at the data, but we are still struggling with how to implement changes in the program; or we don't consistently monitor the program.	We are able to use results consistently from our self-study to monitor and revise the program on an ongoing basis.
Multiple Perspectives	We have thus far only relied on internal discussions and have not tried to obtain feedback from other stakeholders such as students, accrediting organizations, and potential employers of our students.	We have tried to collect data from multiple perspectives and stakeholders, but we don't do it systematically; or we do it systematically, but we don't really use it very effectively to help us make decisions about the program.	We collect data systematically from multiple perspectives and stakeholders and use it to help monitor and revise the program.

If you find that you and your colleagues are past the beginning point, having articulated program goals and learning outcomes and ready to go more in depth into developing a clear assessment plan, then you might want to skip to Chapter 4 of this handbook.

Beginning at the Beginning

If you feel you and your colleagues are still at the very beginning of your process, don't worry. It can take some time to get to the advanced stage, but you have to start somewhere. You can start small. You may want to follow these steps:³

- If you and your colleagues are not sure that you agree on the mission of the program, you should take time as a group to create a program mission and put it into writing. If you all come from diverse backgrounds or represent different or competing perspectives on the same field, this process could be more time-consuming, possibly even painful at times. But once you have come to some reasonable agreement (at least a working draft!) and established common ground and more mutual understanding, later steps in the process will go more smoothly. *If you and your colleagues have a difficult time engaging in productive discussions, then consider asking an impartial facilitator to help you with your process until you are able to find a productive common ground.*
- Once the mission is agreed upon, have a free and open discussion (or series of discussions) within the department in which you brainstorm about what ideal students at the end of the program should be like, be able to do, demonstrate what they know, etc. Think of ideal alumni. What would you want them to be able to accomplish five years out of your program? Use these "ideal alumni" characteristics to help define a relatively small set of overall program goals or goal areas. Another way to jump start the discussion is to have everyone complete a survey of what they think students should know and be able to do, and what attitudes they should have by the end of the program. Collect all this information centrally, aggregate it, and present it to the group for discussion.
- Once you have articulated goals or goal areas, for each goal area you can begin to articulate a small subset of learning outcomes by focusing on what you would take as evidence that a particular goal has been achieved. You may want to define outcomes that are cognitive in nature (know), affective (feel), or performance related (do). Some outcomes may be defined in terms of mastery of competencies, while others may be more developmental in nature. You could follow a similar process as the one above by asking everyone to write down potential learning outcome statements for each goal area (this could also be done in small groups according to areas of expertise), collect the ideas, and discuss them as a department.
- In addition to your group discussions you may want to engage in some self-study of current syllabi, reading materials, and assessment tools used in the program, i.e., get a good sense of what is currently happening in the department so that you can try to

³Many of the ideas herein are drawn from many sources including Kansas State University website, Ball State University website, and the U Mass Amherst OAPA Handbook for Program-based review.

build on what is good. Also look at existing brochures, evaluation reports, internal committee documents, etc.

- If you find you don't have much data from students, alumni, potential employers, or other similar programs to build on, collect some data.
- As soon as you can, start to write something down. Once you get started in earnest, it will begin to get easier. *Consult the next chapter for more help with this.* Your department may also want to arrange for a workshop if you feel that external guidance is needed. It is important that all members of the group are involved in the process of trying to articulate goals and outcomes in writing. If only one person does this then you run the risk of having no buy-in from other members of the department. It should be clear that everyone is responsible for the written products of this process.
- Once you start writing things down, compare what you have with similar programs you admire or want to emulate at other institutions. If you find that you have too much in the program, have a discussion about how to streamline.
- Think about what kinds of experiences students will need to have in order to achieve the learning outcomes you have articulated. Also think about what forms of evidence you will collect in order to know whether the outcomes have been met and how you will organize the data in order to analyze them. For each articulated outcome ask yourself, "What should I take as evidence that my course or our program is successful in terms of student learning of any particular outcome." Some outcomes may be assessed within a single course, while others need a longer term of course taking in order to be assessed in a convincing way.

Part 2: Guidelines for Writing Program Learning Outcomes

The purpose of this chapter:

The purpose of this chapter is to help you and your colleagues with the nuts and bolts of the process of writing program learning outcomes.

How do We Write Program Learning Outcomes?

In order to help us develop learning outcomes properly, it is a good idea to agree upon and articulate in writing a program mission statement if one does not already exist. From the mission statement, program goals or educational objectives can be developed followed by a set of learning outcomes that are closely aligned with the mission and goals of the program. In the following section we elaborate on each of these areas. If your department has already developed a mission statement for the program, you can skip ahead to the appropriate section below.

Stating the Program Mission

“The program mission is a broad statement of what the program is, what it does, and for whom it does it. It should provide a clear description of the purpose of the program and the learning environment. For a given program, the mission statement should, in specific terms, reflect how the program contributes to the education and careers of students graduating from the program. Mission statements for academic programs should reflect how the teaching and research efforts of the department are used to enhance student learning. The mission should be aligned with the Department, College, and University’s mission. In addition, the mission should be distinctive for your program.” (Selim and Pet-Armacost, 2004, p.17)

Tips for Writing a Mission Statement

- Briefly, state the purpose of the academic program.
- Indicate the primary functions or activities of the program.
- Indicate who the stakeholders are.
- Ensure that the mission statement clearly supports the institution’s mission.
- Write a distinctive mission statement.

Example: *The mission of the Department of _____ is to provide students with educational experiences and environment that promote the mastery of discipline-knowledge and methods, the ability to succeed in discipline-related graduate programs and careers, and the skills and dispositions needed for citizenship in our diverse culture and world. Taken from*

<http://www.academics.calpoly.edu/assessment/assessplanguide.htm#defining>

Examples of program mission statements

Poor: The mission of hypothetical engineering is to provide a broad engineering education.

The statement is very vague and does not distinguish this particular program from other engineering programs. It lacks information about the primary functions of the program

and does not identify the stakeholders. Additionally, there is no indication that the program's mission is aligned with [University of Central Florida] (UCF) mission.

Better: The mission of hypothetical engineering is to educate students coming from diverse backgrounds in the principles of hypothetical engineering that will prepare them for both current and future professional challenges in hypothetical engineering.

This statement is better because it identifies the stakeholders as well as a primary function of the program. However, it still is not a distinctive statement.

Best: The mission of the bachelor's degree program in Hypothetical Engineering is to educate (through courses and an internship) students coming from diverse backgrounds in the fundamental skills, knowledge, and practice of hypothetical engineering in order to (1) prepare them for hypothetical engineering positions in service and/or manufacturing industries and (2) prepare them for continuing for advanced degrees in hypothetical engineering or related disciplines. The program will promote a commitment to continued scholarship and service among its graduates and foster a spirit of innovation. It will also promote an environment that is inclusive and diverse.

This is a very effective mission statement. The mission of the program is very clearly defined. (Selim and Pet-Armacost, 2004, p.18.) Taken from

http://www2.oemas.ucf.edu/oemas2/pdf/acad_program_assessment_handbook_rev022704.pdf

Developing Program Goals

Program goals should focus on the general aims or purposes of the program and its curriculum as articulated in the program mission. Effective program goals are broadly stated, meaningful, achievable, and assessable. These broad statements clearly define the long-term direction of the program development and what the program aims at in terms of student outcomes and its impact over a given time (Selim and Pet-Armacost, 2004). As you and your colleagues go through this process together, keep in mind that the goals you articulate will be used to help you assess the quality of the program and to identify ways of continually improving. Goals should provide a framework for determining the more specific learning outcomes of a program, set the basis for assessment, and be consistent with the faculty and university mission.

Begin by trying to write three to five goals for the program. It may help to identify first broad areas of importance and then express those in terms of goal statements. If the department agrees on one, keep going, as it may become easier as you go along. The important thing is to write things down and then talk about them.

As a way of getting input from everyone, you may want to use a worksheet form like the one shown in **Appendix 2B**. Below are some examples of program goal statements.

Examples:

1. Students should develop a critical understanding of the historical and contemporary aims and methods of experimental psychology.
2. Students should develop an understanding of important concepts and methods in the

field of literary criticism.

3. The goal of medical education is to produce physicians who are prepared to serve the fundamental purpose of medicine
4. The goal of the program is to graduate students who understand the scientific basis of medicine and apply that to the practice of medicine.

Example: The Department of _____ will produce graduates who

1. Understand and can apply fundamental concepts of the discipline.
2. Communicate effectively, both orally and in writing.
3. Conduct sound research.
4. Address issues critically and reflectively.
5. Create solutions to problems.
6. Work well with others.
7. Respect persons from diverse cultures and backgrounds.
8. Are committed to open-minded inquiry and lifelong learning.

Taken from <http://www.academics.calpoly.edu/assessment/assessplanguide.htm#defining>

Writing Program Learning Outcomes

Once your department has agreed upon and articulated a set of goals for the program, you are ready to begin writing program learning outcomes. Program learning outcomes help to elaborate specific ways that students can demonstrate their learning with respect to the program goals set. As mentioned earlier, program learning outcome statements describe the knowledge, skills, abilities, competencies, and attitudes students are **expected** to learn as a result of being in the program; they should define or “flesh out” what you will take as evidence about whether program goals are being met. In other words, remember again that program learning outcomes are an important tool for assessing the program. In order to make learning outcomes clear, we need to express them clearly as outcomes that are measurable and feasible.

Like program goals, program learning outcomes should be developed jointly and agreed upon by members of the department. In your discussions keep in mind that there are at least three characteristics of well-developed learning outcomes:

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

Learning outcomes for a particular program may be of various types. One useful way of categorizing them for the purposes of writing learning outcomes might be to use Benjamin Bloom's taxonomy (Appendix 3A), which delineates types and levels of knowledge. In Bloom's taxonomy there are three types:

1. *Cognitive*: This type refers to classifying student cognitive behavior into six levels ranging from simple (knowledge) to more complex behaviors (evaluation).
2. *Affective*: This taxonomy refers to developing learning outcomes related to students' feelings, attitudes, values, and emotions. There are five levels in this type ranging from receiving to internalizing.
3. *Psychomotor*: Learning outcomes here relate to developing muscular skills and abilities and what students are expected to do. The taxonomy ranges from the simple act of perception to the highest level of behavior—organization.

(For a definition of each type and examples of action verbs for each level, refer to Appendix 2A)

Please note that Bloom's is not the only possible taxonomy you could use. There may be a more useful discipline-specific taxonomy in your field that could be used for this same purpose. We refer here to Bloom's taxonomy only because it is general enough to be used across a wide range of disciplines. What is important is that you approach this process with something systematic in mind so that you can consistently account for it as you develop your continual assessment and improvement plan.

In your discussions you may come across some goals that are difficult to state in observable or measurable terms. For example, professors often want students to develop an appreciation for the discipline or want them to be enthusiastic about the subject. It is not impossible to develop learning outcomes for such goals or ways of assessing them, but it may indeed be more difficult to state them in measurable or observable terms. Talk it through with your colleagues and don't give up. *However, keep in mind that if you cannot articulate a way for students to demonstrate this unobservable or immeasurable goal, then you cannot collect systematic evidence for assessing the intended goal, and thus you cannot really gain a sense of whether students have learned it or whether what you are doing is helping students to learn it.* Therefore as you write learning outcome statements you should always have in mind methods for assessing the outcomes.

Some possible strategies for beginning to articulate learning outcomes might be (for more suggestions go back to the *Getting Started* section):

- Imagine that you are revising the curriculum by throwing away 25 percent of the course material you have and then try to hone in on what is essential for students to learn from the program.
- Graphically display information you currently have for all courses with their learning goals and outcomes (for those that have them already). Then identify common themes across the courses and discuss with the faculty these common elements and if they are balanced. Determine whether you need to delete some and add others, and the extent to which the curriculum is coherent. As a group you can decide how these elements relate to the articulated program goals and refine or create new goals if necessary.

- Take the goals and divide them up among subgroups of faculty and ask subgroups to draft outcome statements. It is important that discussions focus on something concrete, so you have to get to the stage of writing things down in order to make the process productive.

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.*

Now to check whether these two learning outcomes are written well, ask the following questions:

1. Is the learner's action/ behavior observable?
2. Is the learner's action/ behavior measurable?
3. Is the learner's action/ behavior performed by the learner?

After considering these three characteristics, you might notice that the two examples above do not reflect clear learning outcomes. You may want to restate them as follows:

- ❖ *Participants will **list** nine reasons for conducting a needs assessment.*
- ❖ *Participants will **summarize** in writing their feelings about cultural diversity in the workplace.*

Examples of deriving program learning outcomes from program goals:

Goal: *Know how to apply fundamental concepts of the discipline.*

Learning Outcomes:

1. Demonstrate understanding of basic concepts in the following areas of the discipline: _____, _____, _____ and _____.
2. Identify the source(s) of major viewpoints in the discipline.
3. Apply concepts and/or viewpoints to a new question or issue.

Goal: *Respect persons from diverse cultures and backgrounds.*

Learning Outcomes:

1. Communicate positively with those from groups other than the student's own.
2. Entertain viewpoints from a variety of perspectives.
3. Demonstrate awareness of cultures and backgrounds other than the student's own. Taken from

<http://www.academics.calpoly.edu/assessment/assessplanguide.htm#defining>

After finalizing your program learning outcomes, the worksheets found in **Appendices 2C and 2D** may help you evaluate their quality before moving on with the process.

Aligning of Program Curriculum with Learning Outcomes

Once you have developed your program goals and learning outcomes, you can now begin the process of assessing course offerings in the program by mapping these goals and outcomes to the specific courses in the program. This step is essential because this is where the program curriculum, goals, and learning outcomes are aligned to avoid redundancies or gaps in the program. The program curriculum can be mapped out in a matrix which displays the program learning outcomes and the courses which satisfy these learning outcomes (*Remember, the learning outcomes are derived from the program goals*). The MATRIX is one tool commonly used to summarize the relationship between program components (curriculum, courses) and program goals and learning outcomes as shown below:

Course	Learning Outcome I	Learning Outcome II	Learning Outcome III	Learning Outcome IV	Learning Outcome V
125	I				
170		I			I
225	P				
231			P		P
331			P		P
335			P		P
400	R				R
435			R		R

I = Introduced, **P** = Practiced, **R** = Reinforced

Note that this program formally introduces, consistently practices, and reinforces just one objective, objective V. Objective II is introduced, but never practiced or reinforced. Objective III is never formally introduced. And objective IV is not included in the curriculum at all. Taken from <http://www.academicprograms.calpoly.edu/assessment/assessplanguide.htm>

Of course you can develop other schemes or language for categorizing the role of various courses offered in your program. An example of an alternative to the one used in the above matrix is categorizing courses as providing students with a *beginning* understanding (students are novices), or *developing* understanding (students are partially proficient), or *comprehensive* understanding (students are proficient or advanced). Your department should use language that makes sense to you.

APPENDIX 2B
Writing Program Goals
Exercise

Recommended Procedure

1. *Each faculty member completes this worksheet individually.*
2. *Chairperson arranges a meeting for faculty members to share and discuss responses.*
3. *The meeting should result in articulating three to five goals which the faculty members agree on.*

Faculty: _____ **Program:** _____

Academic Year: _____ **Date Prepared:** _____

1. **List all the department goals that you are aware of. You may want to refer to the catalogue descriptions, program review reports, mission statements, accreditation reports, minutes of meetings, etc.**

2. **Describe the ideal student in your program in terms of abilities (can do), knowledge (knows), attitudes (values).**

3. Think of program experiences which have contributed to developing this “ideal” student in your program. List them below.

4. Match program experiences as they have contributed to particular characteristics of the ideal students.

5. What should a graduate of your program know, do, and value?

6. List the desired and attainable achievements of your alumni.

APPENDIX 2C
Reviewing Program Goal Statements
Checklist

Faculty: _____ Program: _____

Academic Year: _____ Date Prepared: _____

This checklist is meant to help you verify whether you have developed proper **program goals**. Responses which fall under “Not Sure” need to be discussed with faculty members for modification and/or reconsideration.

	Yes	No	Not Sure
1. Are your goals consistent with your program mission?			
2. Are your goals consistent with your faculty mission?			
3. Are your goals consistent with your university mission?			
4. Are your goals broadly stated?			
5. Are your goals achievable?			
6. Are your goals assessable?			
7. Do your goals clearly define the long-term direction of the program development?			
8. Do your goals identify what the program aims at in terms of student outcomes?			
9. Do your goals identify what the program aims at in terms of program role over a given time?			
10. Do your goals provide a framework for determining the more specific learning outcomes of the program?			
11. Do your goals set the basis for assessment?			

APPENDIX 2D
Summary Guidelines for
Developing
Program Learning Outcomes

Faculty: _____ **Program:** _____

Academic Year: _____

When developing student learning outcomes for your program, remember to

1. Write down **intended learning outcomes** that are **specific** to your program;
2. Develop clear statements which focus on what you **expect** your graduates to learn as a result of their experience in your program in terms of abilities, knowledge, values and attitudes;
3. Write down learning outcomes which can be used to identify areas that may need **improvement** in your program;
4. Collect evidence on how your program has **contributed** to the students' experiences in terms of abilities, knowledge, values, and attitudes; and
5. Plan an **assessment strategy** which should verify/confirm that the students who graduate from your program have attained the set learning outcomes.

Part 3: OVERVIEW OF PROGRAM ASSESSMENT

Purpose of this chapter:

The purpose of the chapter is to overview the program assessment process, to define the concept of program assessment, and to describe broadly strategies for developing program assessment plans. More details of how to carry out the assessment plan will be the subject of a future handbook.

Introduction to Program Assessment

Assessment is basically *a process of gathering systematic evidence* that can be reviewed and analyzed, and possibly used to make evaluative judgments or for continual improvement efforts. As such, assessment at the University encompasses the following:

1. **Classroom assessment:** This is the assessment of individual student learning at the course level by the course instructor.
2. **Course assessment:** This is the assessment of a particular course using a variety of sources. Course instructors are in the best position to design a course assessment plan as they know what the course content should be, what students should learn, and how best to determine if they have learned. The information collected from analyzing the results offers valuable insight into how the course can be reinforced to enhance student learning.
3. **Program assessment:** This assessment entails assessing the quality and performance of the students and graduates; program educational goals; program educational outcomes, competency, sufficiency, and diversity of the faculty to cover all of the curricular areas of the program; facilities; and institutional support and financial resources (this is the focus of this chapter).
4. **Institutional assessment:** It involves assessment of campus-wide characteristics and issues.

Definition and Purposes of Program Assessment

Program assessment is defined as the systematic and ongoing method of gathering, analyzing, and using information from various sources about a program and measuring program outcomes in order to improve student learning. This is done through obtaining a good understanding of what the program's graduates know, what they can do with this knowledge, and what they value as a result of this knowledge. (Adapted from definitions by Huba and Freed, 2000; Hutchings and Marchese, 1990; and Palomba and Banta, 1999)

The drive behind program assessment is to assure excellence and to foster the systematic pursuit of improvement in the quality of education that satisfies the needs of

constituencies in a dynamic and competitive environment. The aims of program assessment are

1. **To improve** – the assessment process should provide feedback to determine how the program can be improved.
2. **To inform** – the assessment process should inform faculty and other decision-makers of the contributions and impact of the program.
3. **To prove** – the assessment process should encapsulate and demonstrate to students, faculty, staff, and outsiders what the program is accomplishing. (Adapted from *Outcomes Assessment Manual, 2000*; and *WEAVE: A Quality Enhancement Guide, 2000*)
4. **To support** – the assessment process should provide support for campus decision-making activities such as program review and strategic planning, as well as external accountability activities such as accreditation.

To the extent possible, assessment should be equitable (i.e., reflect high expectations for all students), should be aligned with curriculum and instructional methods, should lead to valid inferences about student learning, and should result in more effective learning and better learning opportunities for students.

The results of program assessment are not used to evaluate faculty performance; rather they are used to improve programs. It should always be kept in mind that assessment is a way to improve the quality of educational programs by improving student learning. As such, ongoing assessment is needed even if programs are working well. It is a continuous process that requires the involvement of all faculty members within a program. It is time-consuming, but not a waste of time as it enhances and improves the learning, knowledge, and growth of students. To be successful, it must be dynamic and continuous, i.e., it should be constantly reviewed and improved, similar to the program it is assessing. (Adapted from Hutchings and Marchese, 1990; Selim, Pet-Armacost, Albert, and Kirst, 2005.)

Characteristics of Effective Program Assessment

In general, effective assessment programs are part of a larger curriculum management process. The focus of assessment should be the continual improvement of student learning. Effective program assessment should help us answer these questions:

1. What are we trying to do?
2. How well are we doing it?
3. Using the answers to the first two questions, how can we improve what we are doing?
4. What and how does our program contribute to the development and growth of our students?
5. How can student learning be improved?

(Adapted from Hutchings and Marchese, 1990.)

Further, program assessment is effective when it

- is mission driven, i.e., begins by writing clear, specific, focused, agreed-upon, and measurable student learning outcomes/objectives that fulfill the intent of the program;
- is faculty owned: must belong to the faculty (i.e., it involves the participation and input of all faculty members) who control the requirements for and quality of degree programs);
- includes students
- addresses all key learning objectives;
- embraces multiple methods, including some direct measures (observations) of student learning;
- makes use of meaningful measures;
- is comprehensive, continuous, and systematic; i.e., procedures for collecting assessment information within the context of the study design have been carefully planned and monitored;
- has adequate support;
- it is viewed as a means for self-improvement;
- leads to reallocation of resources in response to the acquired assessment results; and
- leads to improved student learning.

When you and your colleagues are developing your program assessment plan, always keep in mind the four main purposes of assessment: improve, inform, prove, and support.

Nine Principles of Good Practice for Assessment

The following nine fundamental principles and tips of good practice for effective assessment were developed by a team from the American Association for Higher Education (Alexander W. Astin; Trudy W. Banta; K. Patricia Cross; Elaine El-Khawas; Peter T. Ewell; Pat Hutchings; Theodore J. Marchese, Kay M. McClenney; Marcia Mentkowski, Margaret A. Miller; E. Thomas Moran; and Barbara D. Wright):

1. The assessment of student learning begins with educational values.
2. Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.
3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.
4. Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.
5. Assessment works best when it is ongoing, not episodic.
6. Assessment fosters wider improvement when representatives from across the educational community are involved.
7. Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.

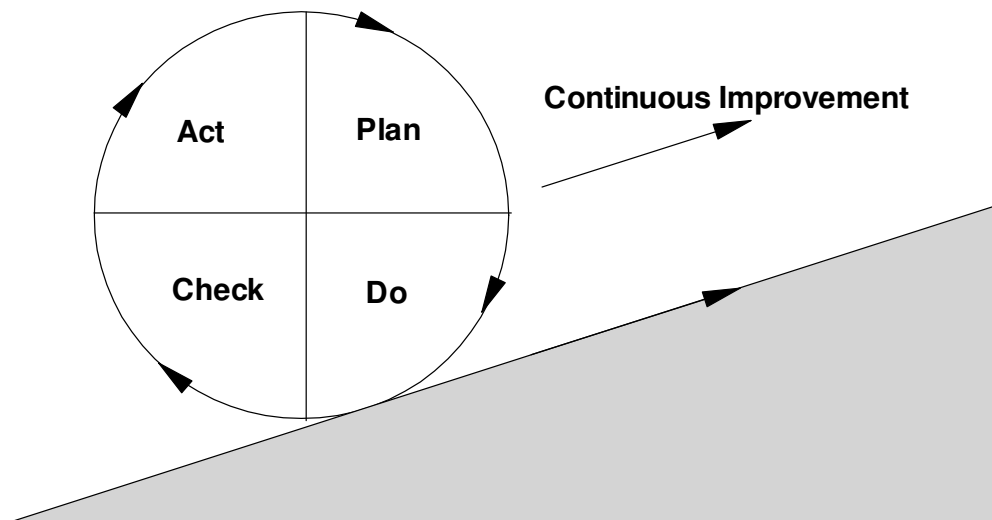
8. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.
9. Through assessment, educators meet responsibilities to students and to the public.

Developing a Program Assessment Plan

Program assessment should be performed according to a well-defined plan in line with the well-known Deming cycle developed by W. Edwards Deming in the 1950s, which consists of the following four separate but interlinked processes:

- **PLAN:** Design or revise process components to improve results.
- **DO:** Implement the plan and measure its performance.
- **CHECK:** Analyze data and report the results to decision makers.
- **ACT:** Implement changes to improve the process.

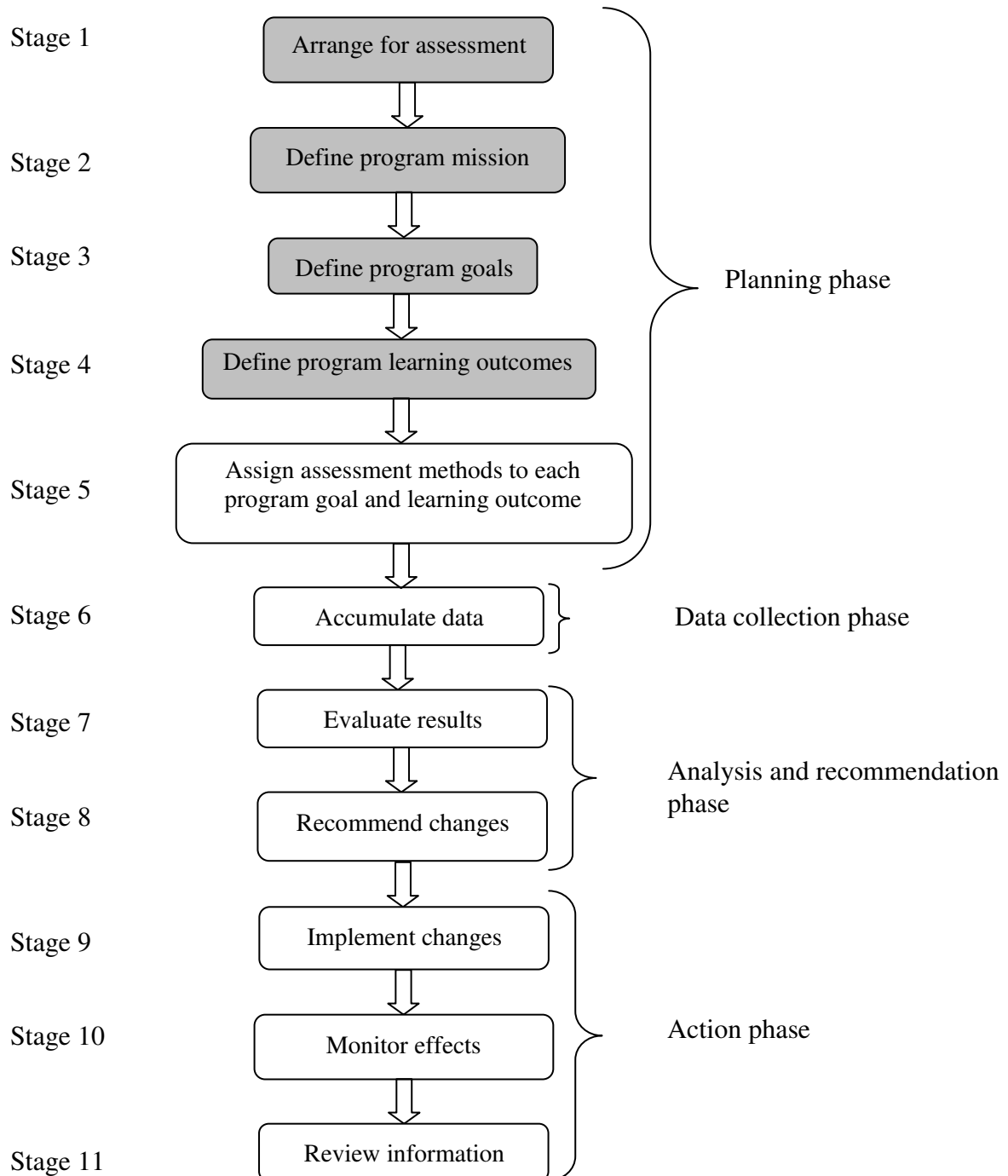
Deming's Plan-Do-Check-Act (PDCA) cycle can be illustrated as follows:



This cycle, initially intended for business processes, can also be used by academic institutions to improve the quality of education. The flowchart below provides an

illustration of how the four phases in the assessment process are embodied in program assessment. If you and your colleagues are at the stage of developing an assessment plan (the first five stages) then you are nearly finished with the planning phase as shown in the figure.

Flowchart describing program assessment process



Assessment Methods

An important element of the assessment process is designing or selecting data collection measures to assess whether or not the intended program objectives and learning outcomes have been achieved. As mentioned earlier, you should have these in mind as you develop and finalize your program goals and learning outcomes. Assessment methods generally include indirect and direct measures of learning.

Indirect Measures of Learning. Indirect measures of learning include self-report measures such as surveys distributed to learners—surveys which can be used both in courses and at the program and institutional levels. Other indirect measures used in program or institutional assessment include surveys of graduates or employers in which respondents give their perceptions about what graduates know or can do with their knowledge.

Direct Measures of Learning. Direct assessments take a variety of forms such as projects, products, essay/papers, exhibitions, case studies, clinical evaluations, interviews, oral exams, and any number of performance assessments that actively involve students in their learning.

As you and your colleagues go through the process of developing learning outcomes leading to an assessment plan, it is a good idea to keep in mind that there are many possible forms of assessment that could be used to gather evidence for assessing and evaluating the quality of your program. Although the nuts and bolts of implementing various assessment methods will be detailed in a future handbook, here we offer a list of potential methods that you and your colleagues may want to incorporate into your assessment plans (the list is meant to be comprehensive, but not exhaustive):

1. Written surveys and questionnaires: asking individuals to share their perceptions about the study target—e.g., their own or others' skills/attitudes/behavior, or program/course qualities and attributes.
2. Exit and other interviews: asking individuals to share their perceptions about the target of study—e.g., their own skills/attitudes, skills and attitudes of others, or program qualities in a face-to-face dialogue with an interviewer.
3. Commercial, norm-referenced, standardized examinations: commercially developed examinations, generally group administered; mostly multiple choice, "objective" tests, usually purchased from a private vendor.

4. Locally developed examinations: objective or subjective, designed by local staff/faculty).
5. Archival records: biographical, academic, or other file data available from college or other agencies and institutions.
6. Focus groups: guided discussion of a group of people who share certain characteristics related to the research or evaluation question, conducted by a trained moderator.
7. Portfolios: collections of work samples usually compiled over time and rated using rubrics.
8. Simulations: a *competency-based measure in which* a person's abilities are measured in a situation that approximates a "real world" setting. Simulation is primarily used when it is impractical to observe a person performing a task in a real world situation (e.g., on the job).
9. Performance appraisals: systematic measurement of overt demonstration of acquired skills, generally through direct observation in a "real world" situation—e.g., while student is working on internship or on project for client.
10. External examiner: using an expert in the field from outside your program—usually from a similar program at another institution—to conduct, evaluate, or supplement the assessment of your students.
11. Oral examinations: evaluation of student knowledge levels through a face-to-face dialogue between the student and the examiner—usually faculty.
12. Behavioral observations: measuring the frequency, duration and context of subject's actions, usually in a natural setting with non-interactive methods.

(Adapted from Prus and Johnson, 1994; 2nd ABET International Workshop for Continuous Program Improvement, 2003)

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