Developing a Programme

Learning Outcomes Assessment Plan

A Simple & Practical Guide for PolyU Staff

THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Contents

▶ Purpose and Scope of This Guide

This Guide has been written for programme leaders and other staff members who are likely to have key involvement in developing a programme learning outcomes assessment plan (programme LOAP) at PolyU. It offers a simple explanation of and practical tips on what you can do to develop your programme LOAP. It is intended to be a guideline, with some suitable examples, rather than to be prescriptive.

▶ What Is a Programme Learning Outcomes Assessment Plan (LOAP)?

Put simply, a programme LOAP is a blueprint for finding answers to the following questions:

- What do we expect graduates from our programmes at PolyU to be able to do (i.e., the programmes' intended learning outcomes)?
- How will we know if they can actually do it?
- What changes will need to be made to the programme to enhance our effectiveness in helping our students to achieve the intended learning outcomes?

A successful implementation of an effective programme LOAP should be able to provide us with **credible evidence** to tell:

- What proportion of our graduates is able to achieve the **professional and generic competencies** at a standard appropriate for an entry-level professional in their chosen field?
- Which of the learning outcomes of our programme have been **achieved satisfactorily** and which outcomes **need improving**?
- What **improvement actions** should we take to enhance programme effectiveness? What data can we use to inform the decision, and how?

In a programme LOAP our focus is on evaluating the **overall effectiveness of the programme**, rather than assessing the performance of individual students.

▶ Why Do We Need a Programme LOAP?

The following extract from an email circulated to PolyU staff by the Vice President (Academic Development) and Chairman of LTC in May 2008 tells us why it is important for the University to develop a LOAP.

> The LOAP is important in that it ensures the systematic collection of assessment data for improving the effectiveness of our programmes, and demonstrates to our stakeholders, including employers and UGC, how well our students are performing with regard to the learning outcomes.

Outcomes assessment is an integral part of an outcomes-based approach to teaching, learning and assessment, and is a useful vehicle for continuously improving our programmes. The relationship between outcomes assessment and outcomes-based approach to teaching and learning is shown diagrammatically in Appendix 1.

Why Is It Necessary to Develop LOAPs at Programme Level?

Ultimately our goal is to use the LOAP to improve student learning. We can do this most effectively at **programme level** because this is where we can make the best use of the data gathered to make any necessary improvements to curricula, teaching and learning that are identified. Below is a list of the ways in which a LOAP can bring benefits to your programme:

- It enables you to review and improve the effectiveness of your programme, based on evidence of learning outcomes actually attained by the students.
- It gives you documented evidence of your students' learning and achievement, based on the actual outcomes they have achieved, for accreditation or accountability purposes.
- It showcases the quality of your programme and your graduates to appeal to prospective employers, students, collaborators and donors.
- It contributes to the University's overall LOAP.

Differences between Subject Grading and Programme Learning Outcomes Assessment

As teachers we regularly assess students' performance in individual subjects and assign grades. However, subject grades alone often cannot help to assess whether the programme as a whole is effective in achieving its stated learning outcomes. This is because:
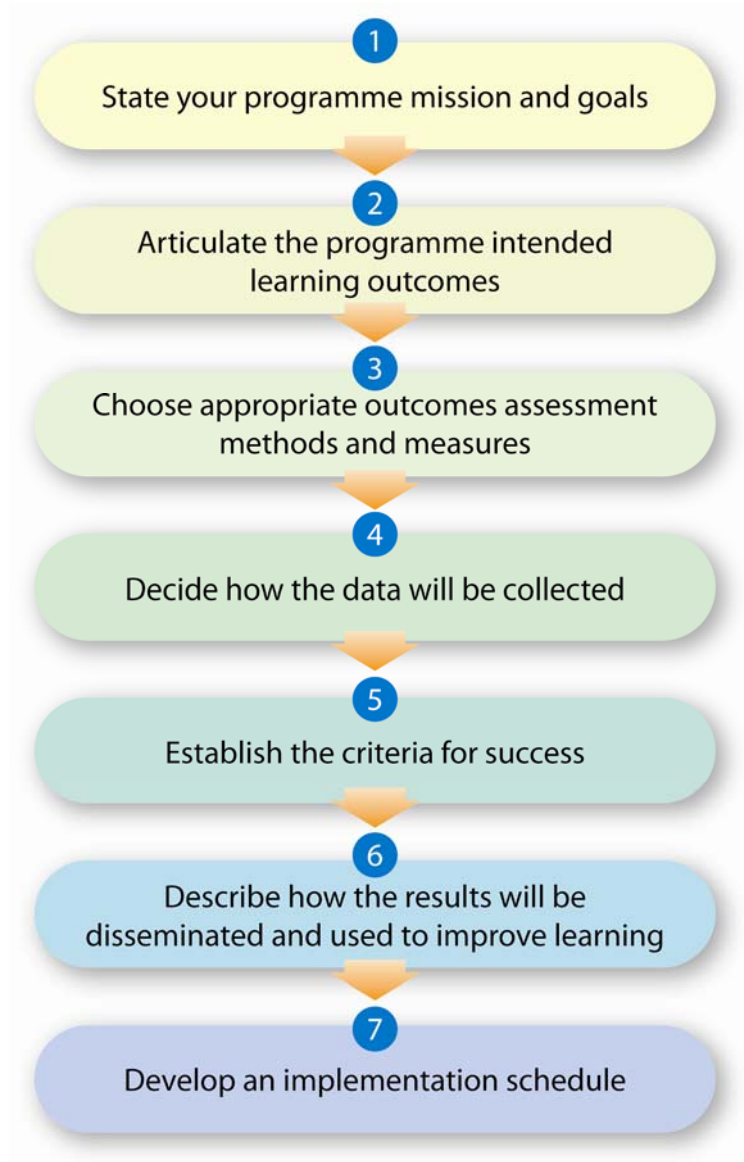
- Subject assessments focus on measuring the performance of individual students, not the overall effectiveness of the programme.
- In subject assessment, we measure how well students are doing in a particular subject, focusing on the subject knowledge and skills rather than on the broader programme objectives, which often require students to integrate and apply learning from multiple subjects within the programme.
- The one single grade which we normally assign to students in subject assessment often does not indicate separately how well students have attained the different generic graduate outcomes such as critical thinking, creative problem solving or teamwork skills, even if such skills are assessed.

Given the differences in purpose and focus, it is necessary to use different processes to collect different types of data for assessing programme learning outcomes, rather than relying on the routine subject assessments and grades alone. The different types of data to be collected and the processes to be used are explained in the sections below.

▶ The 7-Step Approach to Developing a Programme LOAP

Having, we hope, convinced you that a programme LOAP is an important tool for you to assess and improve the effectiveness of your programme, we will now take a look at some suggestions for developing your own programme LOAP. Based on the experiences of others who have gone through this exercise, we have prepared some guidelines that you might find useful to guide your planning. Immediately below is a brief overview of the steps that others have found useful to follow.

The 7-step approach to developing a programme LOAP

1. State your programme mission and goals

2. Articulate the programme intended learning outcomes

3. Choose appropriate outcomes assessment methods and measures

4. Decide how the data will be collected

5. Establish the criteria for success

6. Describe how the results will be disseminated and used to improve learning

7. Develop an implementation schedule

▶ A Step-by-Step Guide to Developing Your Programme LOAP

In this section we will take you through each of the above steps in more detail. Below is a snapshot of a suggested template, which is shown in full in Appendix 2. The superscript numbers adjacent to some of the entries in the template correspond to the steps outlined in the previous section. You might find this template serves a useful starting point for the development of your programme LOAP, since it includes the essential components that are commonly included in LOAPs. However, you might wish to adapt or modify it as appropriate to suit the contexts and needs of your particular department or programme.

A suggested template for a programme LOAP

Department/School/Faculty:

Name of Programme:

Programme Mission/Goals [1]:

Part I: Programme learning outcomes assessment methods and procedures

Programme Intended Learning Outcomes [2]	LOA methods and measures [3]	How the data will be collected [4]	Criteria for success [5]	How the data will be disseminated and used for improvement [6]
1				
2				
3				
4				

Part II: Implementation schedule and responsibility

LOA methods or activities	Implementation schedule [7]			Person(s) responsible
	2009-10	2010-11	2011-12	
1				
2				
3				
4				

In the sub-sections that follow, we will take you through each of the essential components of a programme LOAP and elaborate on what is expected or required and why, and provide you with some useful tips to make your task smoother. In some places we have also included some references and links that might be useful if you would like to go into more detail. The specific examples of a hypothetical programme LOAP shown in Appendix 3 might be useful to clarify your understanding further.

1 Programme Mission and Goals

What is expected or required?

- Include a brief statement of the overarching mission and goals of your programme, and ensure that they are aligned with PolyU's mission and goals.
- If you would like to see an example of this, please refer to Note 1 in Appendix 3.

Why?

- Successful programme outcomes assessment begins with clarifying what the programme aims to accomplish or deliver.

How?

Tips

- All undergraduate programmes have already done this in the 2005 Curriculum Revision Exercise, so it can be as simple as copying directly from your existing programme document.
- On the other hand, it may also be useful to use this opportunity to review and further refine your programme goals.
  - □ Look at whether you have actually covered all the important goals as expected by the key stakeholders.
  - □ Check whether the goals are broad enough for a holistic university education in addition to professional training.
  - □ Examine the extent to which they embed PolyU goals (because programmes are expected to do this).

Useful references

PolyU 2005 Curriculum Revision Handbook. Available at: https://www2.polyu.edu.hk/cr/ Appendix 3 Note 1

University of Central Florida (2005), Chapter 3
http://oeas.ucf.edu/doc/acad_assess_handbook.pdf
p.18: Examples of poor and good mission statements
p.21: The 'ideal student' approach
p.24: Four questions for reviewing your program goals
University of Massachusetts Amherst, (2001), Chapter 2: Examples of where to start with program goals and objectives
http://www.umass.edu/oapa/oapa/publications/online_handbooks/program_based.pdf

2 Programme Intended Learning Outcomes

What is expected or required?

- Articulate clearly the major intended learning outcomes (ILOs) of your programme in terms of the desirable qualities of graduates that you aspire to produce. This means what your graduates are expected to be able to do or demonstrate on completing the programme.
- If you would like to see an example of this, please refer to Note 2 in Appendix 3.

Why?

- Doing this ensures that the goals you value for your programme are addressed adequately, and guarantees that the important knowledge, skills and attitudes are appropriately introduced, reinforced, and assessed through the curricular and co-curricular activities of your programme.

- A clear description of what your students should be able to do or demonstrate on exit will also enable you to select appropriate measures and methods to assess the extent to which your students have achieved each of the outcomes, and to evaluate the effectiveness of your programme in achieving its stated outcomes.

How?

Tips

- In the 2005 Curriculum Revision Exercise all programmes have articulated ILOs, so it can be as simple as copying directly. However, to ensure that the outcomes assessment exercise will not create excessive workload on staff, you may wish to **concentrate on a smaller number of key programme outcomes** that are of greatest interest/concern to the programme team or other stakeholders, or those that are more likely to sustain under the new 4-year undergraduate degree structure.

- Again, it may be useful to use this opportunity to review and further refine these. In this case, the following three points might be useful for you to consider:
  - ☐ Check whether the stated ILOs cover both profession-specific and generic outcomes.
  - ☐ Don't try to include too many programme learning outcomes. About 12 is a good number to give you a comprehensive overview of your programme without making the exercise unwieldy.
  - ☐ Keep them realistic: if you are too ambitious in setting learning outcomes that might be difficult for undergraduate students to attain, you will then be accountable and need to explain why they might not have been achieved. On the other hand, if you set outcomes that are too easily attainable you will not be offering your students the opportunity to extend themselves

- Note that, although you are <u>not</u> required to do so in this LOAP exercise, for the purpose of accreditation or accountability audit, your programme might be expected to demonstrate:
  - ☐ How these ILOs actually align with your programme missions and goals, and
  - ☐ How these ILOs will be realized through your curricular and co-curricular activities.

  Curriculum maps that show the relationship between programme goals and programme ILOs, and between programme ILOs and where in the programme each ILO is to be introduced, reinforced and assessed is a useful tool to accomplish this.

Useful references

PolyU 2005 Curriculum Revision Handbook. Available at: https://www2.polyu.edu.hk/cr/

Appendix 3 Note 2

Examples of intended programme learning outcomes:
http://uat.okstate.edu/assessment/assessment_plans/outcome_statements.html
University of Central Florida (2005) Chapter 4
http://oeas.ucf.edu/doc/acad_assess_handbook.pdf
p.40: Examples of good and poor outcome statements
Appendix 4A: A useful checklist of points to be kept in mind when developing student learning outcomes for your programme
Nichols & Nichols (2000), pp.21-23: How high should intended educational (student) outcomes be set? (See Appendix 4)

Examples of mapping of ILOs with programme mission and goals:
California Polytechnic State University: Examples of goal and mission statements; learning objectives; and a matrix to summarise the relationship between these:
http://www.academicprograms.calpoly.edu/assessment/assessplanguide.htm
The example from California State University, Fresco on curriculum mapping may be useful in deciding where in the programme each objective is to be met
http://www.csufresno.edu/irap/assessment/assessment_guide/programmatic_purposes.shtml
http://www.csufresno.edu/irap/documents/augmented_curriculum_map_32006f.pdf

3 Learning Outcomes Assessment Methods and Measures

What is expected or required?

- For <u>each</u> of the intended learning outcomes of your programme listed in your LOAP, describe specific method(s) and measure(s) you will use to assess the overall programme effectiveness with respect to that particular outcome.
- If you would like to see an example of this, please refer to Note 3 in Appendix 3.

Why?

- Appropriate methods and measures are needed to ensure that the data collected are credible and trustworthy, and useful for identifying the strengths as well as areas in your programme that need improvement.

How?

Tips

Useful references

- You may need to include both **direct** and **indirect** measures in your programme LOAP.
- **Direct measures** are based on direct assessment of students' work, performance or behaviours. The list below describes some common examples of direct measures. If you wish to find out more about any of these methods, more detailed descriptions and references for further reading can be found in Appendix 5.

  ☐ *Course-embedded assessment*: This uses assessment tasks that are used in existing subjects. As well as assessing the task for the purpose of giving student grades, the same task is used to assess what percentage of the students have achieved the programme learning outcome in question. For example, to assess written communication skills a research report that the students are required to produce for, say, a disciplinary subject can be evaluated using an assessment rubric for the purpose of programme outcomes assessment.

  ☐ *Capstone experience or project*: This kind of experience draws on all of the knowledge, concepts and skills covered in the whole programme – the students are required to combine various aspects of their experiences throughout the programme. If the outcome of interest is, for example, critical thinking, suitable rubrics can be developed to evaluate how well the students have achieved and demonstrated critical thinking in their capstone experience paper or project report.

- *Portfolio assessment*: A portfolio is usually a collection of selected student work that demonstrates the student's progress and achievement in certain areas.

Appendix 3 Note 3

Appendix 5
Examples at
http://uat.okstate.edu/assessment/assessment_plans/index.html

8 steps for creating and designing course-embedded assessment
http://hudson2.skidmore.edu/administration/assessment/H_embedded_assessment.htm

Capstone course/embedded assessment:
http://www.skidmore.edu/administration/assessment/hbmethods.htm#capcourses

Portfolio assessment
http://www.skidmore.edu/administration/assessment/hbmethods.htm

- *Performance assessment in WIE or placements*: This can be an effective way to assess students' practical knowledge, skills and attitudes in a workplace context. Clinical or workplace supervisors can use specially-designed assessment forms and rubrics to assess outcomes such as interpersonal, communication, critical thinking and/or problem-solving skills.

- *Tests and examinations*: These can be either tests that you have developed to measure your students' knowledge and skills, or commercially produced ones (e.g., the California Critical Thinking Test, the Collegiate Learning Assessment, the Major Field Test in specific discipline). They are usually used to measure process and content-related knowledge. One way in which tests can be used to measure how well your students have learned something you have taught is to use a pre-test/post-test model.

Indirect measures normally involve stakeholders' perceptions of how well the students have attained the learning outcomes and thus, are relatively more subjective in nature. Below are some examples of indirect measures that are used often. Again, you can find some more detailed information about these in Appendix 5 if you would like to read more.

- *Alumni surveys or interviews*: These are a good way to collect information about graduates' views of their preparation for professional work, satisfaction with the programme or the relevance of the curriculum.

- *Employer surveys or interviews*: Asking employers about their levels of satisfaction with recent graduates is a good way to get another view of your students' attainments.

- *Student surveys or interviews*: One of the best sources of data is the students themselves. They can give us perceptive insights about their attainment of outcomes. These can either be conducted to collect formative information during the students' course, or as an exit survey to collect their reflections.

- *External reviews*: Peer review of academic programmes or students' work is a widely accepted and useful way to benchmark the quality of the programme and graduates against external standards.

Performance assessment:

http://www.skidmore.edu/administration/assessment/hbmethods.htm#student

Use of standardised test, and value-added assessment

http://www.skidmore.edu/administration/assessment/hbmethods.htm#standard

http://www.skidmore.edu/administration/assessment/hbmethods.htm#pre

Major field tests:

http://www.ets.org/portal/site/ets/menuitem.1488512ecfd5b8849a77b13bc3921509/?vgnextoid=f119af5e44df4010VgnVCM10000022f95190RCRD&vgnextchannel=86f346f1674f4010VgnVCM10000022f95190RCRD

Indirect outcomes assessment methods:

http://www.skidmore.edu/administration/assessment/hbmethods.htm#indirect

- Direct measures are more costly to collect. However, they are more authentic and credible, and therefore are needed for the more important/prioritized/most essential outcomes, particularly for accreditation and accountability purposes. Indirect measures, on the other hand, are easier to collect, but are less objective and credible as evidence of actual learning outcomes achieved by students.

- Try as much as possible to make use of course-embedded assessments (see description in Appendix 5) to collect direct evidence of student learning outcomes from existing assessment tasks that are being used to grade students. Since students are simply fulfilling normal course requirements, it does not become an add-on task; there are no issues of motivating students to do the task/s and the results can provide useful additional information for the subject teachers.

- **Focus on the most important outcomes**: Most programmes have many learning outcomes, but there is no need to consider all of them in this exercise unless you are specifically required to do so for professional accreditation. You may focus, instead, on the most important outcomes that are of the greatest interest/concern to the programme team or other stakeholders, particularly those that are more likely to sustain under the new 4-year undergraduate degree structure. One possibility is to develop a multi-year rotation plan so that you will address different outcomes each year and thus cover all of them over a few years.

- The best starting point is to find out what you already have in place rather than re-inventing a completely new set of assessment activities or tools (e.g. you may already have appropriate course assignments or exam components that you can use to assess certain programme outcomes, or feedback/surveys on students' learning process or outcomes).

- It is useful to check out and include existing surveys conducted by SAO and EDC that can provide useful (indirect) data for assessing your programme outcomes (e.g. SAARD [Self Assessment of All Round Development] questionnaire, graduate employment survey, alumni survey).

Pros and cons of different types of outcomes measures:

http://assessment.uconn.edu/docs/Pros_and_Cons_of_Assessment_Tools.pdf

4 How the Data Will be Collected

What is expected or required?

- For <u>each</u> ILO included in your LOAP, explain how the outcomes data or evidence will be collected (i.e., how, when and by whom).

- If you would like to see an example of this, please refer to Note 4 in Appendix 3.

Why?

- It is important to communicate clearly to all those involved what their respective responsibilities are, and the specific instrument, protocol and timeframe for conducting the outcomes assessment activities, to ensure that the activities will be carried out as planned.

How?

Tips

- For each assessment activity, describe:
  - ☐ Who will be responsible for collecting the data.
  - ☐ How the data will be collected.
  - ☐ When and how often.
  - ☐ The instrument/method to be used.

Useful references

Appendix 3 Note 4

5 Criteria for Success

What is expected or required?

- State how the data collected will be interpreted, including the criteria to be used for judging your programme's effectiveness in achieving each of the intended learning outcomes.
- If you would like to see an example of this, please refer to Note 5 in Appendix 3.

Why?

- It is necessary to state clearly the criteria and standard to be used for judging the extent to which the programme has succeeded in achieving its intended outcomes. Without specific criteria for success, this can become a meaningless data collection exercise.

How?

Tips

- For programme learning outcomes assessment purposes it is sufficient to have broad categories of measurement rather than very precise measurement of the performance of each individual student, for example:
  - ☐ Student's performance far exceeded the required/ expected standard.
  - ☐ Student's performance basically met the required/ expected standard.
  - ☐ Student's performance was at a level below the required/expected standard.
- The criteria should be determined and agreed upon by the programme team, taking into consideration the views of the external stakeholders.
- Think of ways to benchmark the outcomes assessment results with appropriate internal/external standard.

Useful references

Appendix 3 Note 5

- It is important to recognize that you do not necessarily need to expect 100% of your students to be able to achieve the intended learning outcomes – there is always going to be some variations in the quality of student intake, graduates' aspirations and measurement errors.

6 How the Data Will Be Disseminated and Used for Improvement

What is expected or required?
- Explain how the outcomes assessment processes and results will be incorporated into your Department's generic Quality Assurance processes, and how it will be used for systematic programme review and improvement purposes.
- If you would like to see an example of this, please refer to Note 6 in Appendix 3.

Why?
- The ultimate goal of learning outcomes assessment is to improve student learning through evidence-based programme review —failing this, assessment becomes another meaningless bureaucratic chore.
- You can use your outcomes assessment results/report for multiple purposes, such as for accreditation, as well as curriculum review and improvement.
- Secondary uses of the results may include recruitment, alumni newsletter, publications and sharing with other universities, career services and securing grants.

How?

Tips

- Assessment information is of little value unless it is shared with appropriate audiences and used in meaningful ways. The best use of learning outcomes assessment results is to share them with your colleagues and use the assessment data to aid **evidence-based decisions or improvements** at the programme and departmental level.
- One way to achieve this is to incorporate programme outcomes assessment into the regular programme review process, and report the outcomes assessment data and improvement actions resulting from it in the Department's Business Plan and QA Report.
- Describe clearly who will receive the outcomes assessment results by when and for what purpose, and how the results will be acted on to improve students' learning.

Useful references

Appendix 3 Note 6
See other examples at
http://uat.okstate.edu/assessment/assessment_plans/index.html

7 Develop an Implementation Schedule

What is expected or required?

- List the programme outcomes assessment methods or activities proposed in Part I of your programme LOAP, and indicate for <u>each</u>: the academic year(s) during which it will be conducted, and the name of the person(s) who will take primary responsibility for implementing the assessment activity.

Why?

- Assessment takes up valuable staff time and effort; we need to ensure that the assessment plan is feasible and affordable with given resources, and will not create excessive workload on staff.

How?

Tips

- It is more meaningful to conduct systematic assessment on the key learning outcomes in rotation than trying to cover all of them every year in a superficial manner.
- Schedule your outcomes assessment activities to align with internal QA (e.g., triennial business planning, Departmental Assessment, etc.) and/or external accountability processes (e.g., professional accreditation or other external reviews) to minimize duplication of effort.

Useful references

Appendix 3 Note 7

Checklist

The list below helps you to check that the most salient features of a programme LOAP have been covered. It is also useful in giving Faculty/School Boards a framework on which to base their endorsement of the Departmental/programme LOAP.

Programme Mission and Goals

1. Are the programme mission and goals clearly stated? ☐

2. Are the mission and goals appropriate and worthwhile, and include all the important goals as expected by the key stakeholders? ☐

Programme Intended Learning Outcomes

3. Are the intended programme learning outcomes clearly articulated? ☐

4. Are they aligned with the stated mission and goals of the programme? ☐

5. Is the number of intended programme outcomes about right (not too many or too few)? ☐

6. Are the intended programme outcomes realistic? ☐

LOA Methods and Measures

7. Are the assessment methods adequate and appropriate for measuring the specific student learning outcomes? ☐

8. Are multiple (direct and indirect) measures used? Is there over-reliance on a particular type of measure? ☐

9. Does the plan make good use of existing subject assessments? ☐

10. Is it clear what will be done to collect the data, when, how and by whom? ☐

Criteria for Success

11. Have the criteria to be used and expected levels of achievement been identified? ☐

12. Are the results benchmarked against appropriate internal/external standards? ☐

Dissemination and Use of the Data for Improvement

13. Is the programme learning outcomes assessment appropriately integrated with the Department's generic quality assurance and programme review processes? ☐

14. Is it clear how the data will be used to inform the Department and programme for possible improvement? ☐

Other Issues to be Addressed

15. Does the plan appear to be feasible, practicable and affordable, given the resources available? ☐

16. Is staff time/workload appropriately addressed? ☐

► Support and Help from EDC

EDC can offer the following advice and support to departments/programme teams in the development of their programme LOAPs and other outcomes assessment activities:

- Provision or organization of department-/programme-based workshops/seminars/ discussion sessions
- Review of current programme LOAP activities and plans
- Exploration of LOA methods and measures
- Experimentation with LOA activities
- Provision of feedback on draft programme LOAPs

Contact

❖ **K P Kwan**   etkpkwan@inet.polyu.edu.hk

               X6320   TU 612

❖ **Jianrong Sun**   etjrsun@inet.polyu.edu.hk

               X4414   TU 611

❖ **Patrick Lai**   etktlai@inet.polyu.edu.hk

               X6294   TU 607

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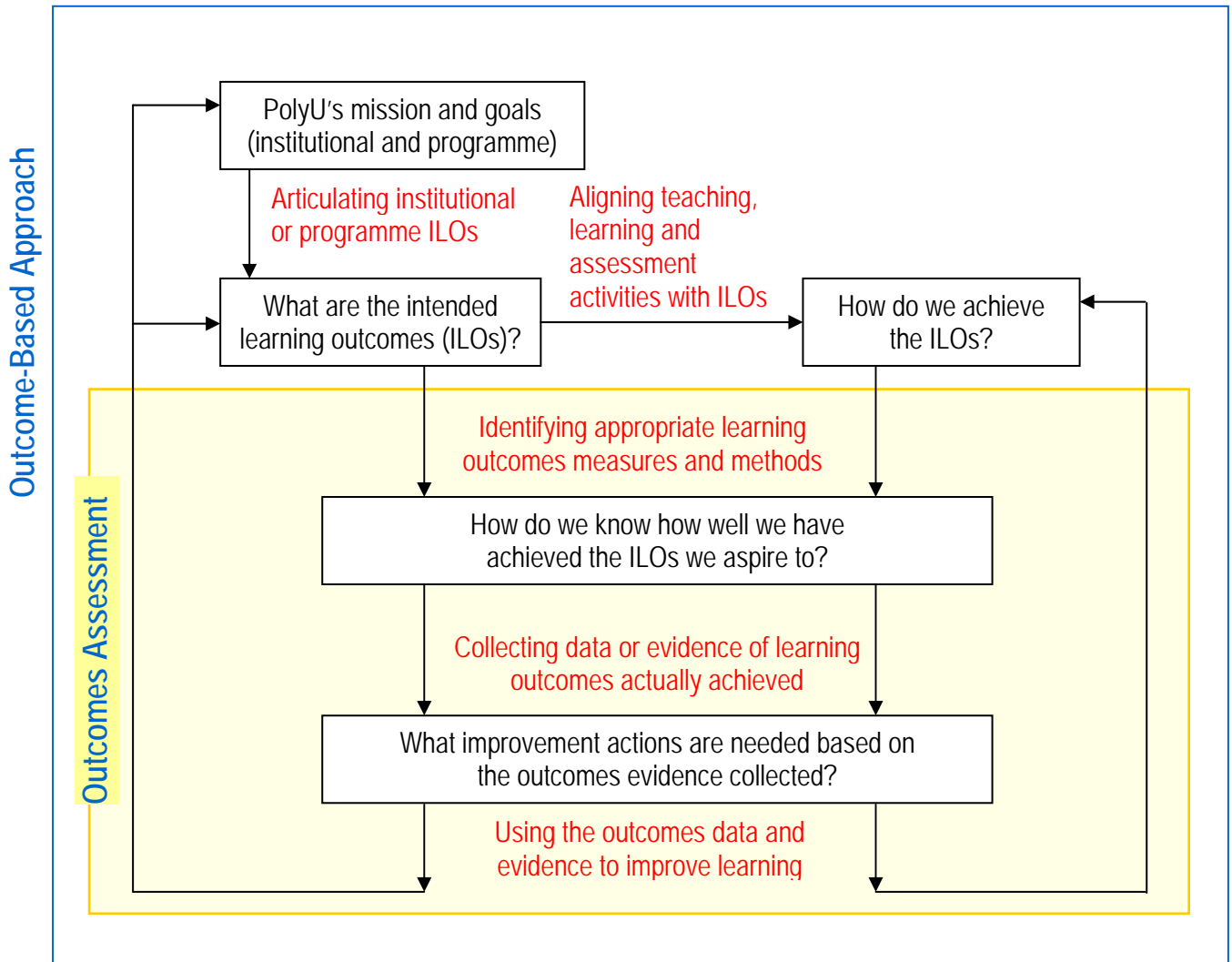
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Appendices to

Developing a Programme Leaning Outcomes Assessment Plan

Appendix 1: Relationship between outcomes-assessment and outcomes-based approach to teaching, learning and assessment

Outcome-Based Approach

Outcomes Assessment

PolyU's mission and goals (institutional and programme)

Articulating institutional or programme ILOs

Aligning teaching, learning and assessment activities with ILOs

What are the intended learning outcomes (ILOs)?

How do we achieve the ILOs?

Identifying appropriate learning outcomes measures and methods

How do we know how well we have achieved the ILOs we aspire to?

Collecting data or evidence of learning outcomes actually achieved

What improvement actions are needed based on the outcomes evidence collected?

Using the outcomes data and evidence to improve learning

Appendix 2: A proposed LOAP template

Department/Faculty:
Name of Programme:
Programme Mission/Goals:

Part I: Programme learning outcomes assessment methods and procedures

Programme intended learning outcomes	LOA methods and measures	How the data will be collected	Criteria for success	How the data will be disseminated and used for improvement
1.				
2.				
3.				

Part II: Implementation schedule and responsibility

LOA methods or activities	Implementation schedule [Please ✔ the academic year(s) during which the LOA activity will be conducted]			Person(s) responsible [Name(s) of person(s) with primary responsibility for implementing the activity]
	2009-10	2010-11	2011-12	
1.				
2.				
3.				

Submitted by: _____   (Name)   Date _____

                   _____   (Post)

Appendix 3: A hypothetical example of a Programme LOAP

Please note that this is a hypothetical example that has been prepared to help you understand more about what are expected for a Programme LOAP. To keep it as simple as possible, we have only shown some illustrations of a mission/goals statement rather than the whole thing, and have focused on only three intended learning outcomes. We have drawn from various sources to compile this example, so it is not meant to represent any specific programme in PolyU or in any other institution.

Department/Faculty: Health Sciences
Name of Programme: Radiation Therapy
Programme Mission/Goals[1]:

Our mission is to prepare graduates for professional careers in radiation therapy… This programme aims to produce competent radiation therapists with solid knowledge and skills about radiation therapy and therapeutic radiation treatments, who **are able to apply this knowledge to practice**, and have the competency to deliver quality care…

Students should be able to master the skills of clinical reasoning, **communication and interpersonal skills**, **problem solving** and the use of information technology… They also develop attitudes of professional ethics, lifelong learning, and the ability to work as a member of an inter-professional team with other health care professionals…

Part I: Programme learning outcomes assessment methods and procedures

Programme intended learning outcomes[2]	LOA methods and measures[3]	How the data will be collected[4]	Criteria for success [5]	How the data will be disseminated and used for improvement[6]
Ability to apply a suitable problem-solving heuristic to deal with unfamiliar problems	1. Problem-based learning task in R302 (Final year, Semester 1) 2. Problem question in final exam of R303 (Final year, Semester 2) 3. Alumni survey 12 months after graduation asks if the programme: Item 1: Helped graduates develop problem-solving skills Item 10: Prepared graduates to deal appropriately with most situations that arise	1&2: Assessment to be done by subject teachers using an agreed rubric for assessing problem solving skills 3&4: Administration and analysis to be coordinated by programme leader. All items will be rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree).	1&2: 90% of students being rated "satisfactory" or above on all criteria 3&4: 75% or more of the respondents giving ratings of 4 or above on the 5-point scale	• Results to be summarized in the annual programme outcomes assessment report, which will be sent to the HoD and programme team • Results to be reviewed and discussed in the programme committee meeting in June each year to identify weaknesses and plan programme improvement • Outcomes assessment results and improvement plan to be

	4. Employer survey 6 months after graduation asks for assessment of our graduates on: Item 1: Problem-solving skills			reported in the annual Departmental QA Report for Dean's and PolyU QAC(AD)'s endorsement and scrutiny
Ability to communicate effectively with clients and other professionals, both orally and in writing	1. Oral presentation of Final Year Project (R307) 2. Assessment in Clinical Practice (R305) of ability to communicate with patients and other professionals 3. Alumni survey 12 months after graduation asks if the programme: Item 2: Helped graduates develop my abilities to communicate effectively with patients, patients' families, other staff members and others Item 3: Helped graduates to collaborate with members of the health care team 4. Employer survey 6 months after graduation asks for assessment of our graduates on: Item 13: Ability to work as part of a team Item 14: Ability to establish rapport with patients	1: Assessment to be done by FYP supervisors based on a rubric for assessing oral presentation skills. 2: Assessment to be done by clinical supervisors based on a rubric for assessing interpersonal skills 3&4: Administration and analysis to be coordinated by programme leader. All items will be rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree)	1&2: Over 95% of students being rated "satisfactory" or above on all of the rubric criteria by the FYP or clinical supervisors 3&4: 75% or more of the respondents giving ratings of 4 or above on the 5-point scale	

| Ability to apply knowledge and skills gained from the programme to professional practice in the workplace. | 1. Assessment of students' professional competence by clinical supervisors in the last Clinical Practice (R305) before graduation

2. Alumni survey 12 months after graduation asks if the programme:
Item 6: Prepared graduates to deliver therapeutic radiation treatments
Item 7: Prepared graduates to base my practice on a system perspective and other theories/models
Item 9: Prepared graduates to provide radiation therapy care to patients

3. Employer survey 6 months after graduation asks for assessment of our graduates on:
Item 6: Treatment delivery performance
Item 7: Overall knowledge of radiation therapy
Item 10: Ability to work on treatments/ simulation equipment
Item 12: Level of patient care provided | 1: Assessment to be done by clinical supervisors based on a rubric for assessing professional competence in the workplace

2&3: Administration and analysis to be coordinated by programme leader. All items will be rated on a 5-point Likert scale (1=strongly disagree, 5=strongly agree) | 1: Over 95% of students being rated "satisfactory" or above by the clinical supervisors

2&3: 75% or more of the respondents giving ratings of 4 or above on the 5-point scale | |

Part II: Implementation schedule and responsibility

LOA methods or activities	Implementation schedule[7] [Please ✓ the academic year(s) during which the LOA activity will be conducted]			Person(s) responsible [Name(s) of person(s) with primary responsibility for implementing the activity]
	2009-10	2010-11	2011-12	
1. Course-embedded assessments				
(a) R302 Problem-based learning task	✓		✓	Subject teacher of R302 (Sabrina)
(b) R303 Problem question	✓		✓	Subject teacher of R303 (Thomas)
(c) R305 Assessment of students' ability to communicate with clients and professional competence by clinical supervisors	✓	✓	✓	Coordinator of R305 Clinical Practice (Louisa)
(d) R307 Assessment of students' oral presentation skills		✓		Coordinator of R307 Final Year Project (Raymond)
2. Alumni survey	✓		✓	Programme leader (Carol) with support of departmental Executive Officer (Jennifer) and Educational Development Unit
3. Employer survey		✓		Programme leader (Carol) with support of departmental Executive Officer (Jennifer) and Student Affairs Unit
4.				

Source: Nichols and Nichols (2000: 21-23)

How High Should Intended Educational (Student) Outcomes Be Set?

One of the practical questions departmental administrators will face is posed above. The relatively straightforward answer is to be realistic considering the academic abilities of the students as they enter the program, the level of rigor expected in the classes, and the resources available to support the instructional process.

There is nothing to be gained by setting criteria for intended outcomes (average scores, percentile ranks, etc.) unreasonably high. If an institution operates a virtually open door admissions program, with the result that entering students have diagnostic test scores averaging in the 20-30 percentile range (compared with the national population), there is little chance that its graduates will average in the 80-90 percentile range on most standardized cognitive examinations. What purpose has been served by setting intended outcomes at that level? The department has looked foolish, the students have been driven beyond reason to attain an unrealistic expectation, and all concerned record a frustrating experience from what may have been a considerable accomplishment (graduation of students who clearly meet or exceed professional standards).

On the other hand, there is also little to be gained from setting intended educational outcomes at such a modest level that any "warm, breathing body" even indirectly exposed to the instructional program can meet them. The educational program at any institution should represent a reasonable challenge for both students and faculty.

It has been the authors' experience that most institutions at which "warm breathing body" statements of intended educational (student) outcomes were encountered have been institutions that failed to distinguish these assessment activities from the procedures that exist on all our campuses for evaluation of individual faculty and other employees. It is absolutely imperative that in word, as well as deed, the assessment processes initiated on the campus be held separate from necessary evaluative procedures concerning individuals. Unless this takes place, faculty, being human beings, will insure that they "look good" regarding intended educational outcomes in order to merit increases in rank, salary, or possibly tenure.

In setting criteria for intended educational outcomes, faculty are answering the "ought" question regarding their programming. Having answered the question "What should students be able to think, know, or do?", the "ought" question focuses upon how well should they be able to perform the intended educational or student outcomes identified. The institutions profiled in *Assessment Case Studies* reported almost uniformly that the tendency for the faculty to use assessment results to improve programming was directly linked to the extent to which they identified the criteria for program success (answering the "ought" question) before the actual assessment process took place. When reviewing actual assessment results, if a discrepancy exists between what faculty had previously stated students ought to be able to do (the ideal state) and the actual results reflecting what they can do, faculty will in most cases take the necessary corrective action. However, without such a criterion against which to reflect actual student performance, the tendency to use

the data to improve the program is substantially diminished.

At what point in the process should the department establish these criteria for program success, as part of the intended educational (student) outcome or as part of the means of assessment? If in these early stages of identification of the statements of intended educational outcomes faculty become too involved in identification of the answer to the "ought" question and the specific means of assessment to be utilized for measurement, then the focus of the process shifts naturally from student expectations to measurement or assessment. While expression of criteria for program success is certainly possible in the statement of intended educational or student outcomes, "the majority of graduates will be employed upon graduation," in most cases, the identification of this criteria for program success is best selected in conjunction with identification in the means of assessment to be discussed in the next chapter, "50% or more of the students completing the Graduating Student Questionnaire will indicate that they are currently employed or have accepted a job offer at the close of their program."

Criteria for success are often set at both the *primary* (overall) and *secondary* (detailed) levels as reference points or benchmarks for program performance. *Primary* criteria for success establish overall targets for program performance such as "the average score of graduates on the ETS Major Field Test in Literature will be at or near the 50th percentile." The potential use of results for program improvement can be greatly enhanced by also setting more detailed criteria for success which require *secondary* analysis such as "and no subscale score will be below the 30th percentile." While overall program performance may meet or exceed primary criteria for success, faculty are informed through consideration of this secondary analysis of those more specific areas, scales, or individual items falling short of their expectations. Whenever feasible, faculty should set not only primary, but secondary criteria for success and conduct detailed analysis of assessment information to the level necessary for it to be of use.

Appendix 5: Overview of outcomes assessment strategies or methods

Source: http://www.provost.wisc.edu/assessment/manual/manual2.html

Outcomes Assessment
Office of the Provost

VI. ASSESSMENT INSTRUMENTS AND METHODS AVAILABLE TO ASSESS STUDENT LEARNING IN THE MAJOR

Assessment of student learning can be conducted using a variety of available instruments and methods. Many experts believe that a combination of assessment approaches can be the most effective way to measure student learning. Fortunately for assessment planners, many departments on campus and at other institutions have acquired some experience with many of the more commonly used instruments. Faculty in a variety of academic programs at large and small research universities have tested and used a wide range of assessment methods to determine whether students were attaining prescribed educational goals. In this section, many of these assessment approaches will be presented providing handbook users with information that can simplify the development of assessment strategies.

A. Direct Indicators of Learning
   1. Capstone Course Evaluation
   2. Course-Embedded Assessment
   3. Tests and Examinations (Locally/Faculty Designed & Commercially Produced Standardized Tests)
   4. Portfolio Evaluation
   5. Pre-test/Post-test Evaluation
   6. Thesis Evaluation
   7. Videotape and Audiotape Evaluation of Performance

B. Indirect Indicators of Learning
   1. External Reviewers
   2. Student Surveying and Exit Interviewing
   3. Alumni Surveying
   4. Employer Surveying
   5. Curriculum and Syllabus Analysis

A. Direct Indicators of Learning

1. Capstone Course Evaluation

Capstone courses integrate knowledge, concepts, and skills associated with an entire sequence of study in a program. This method of assessment is unique because the courses themselves become the instruments for assessing student teaching and learning. Evaluation of students' work in these courses is used as a means of assessing student outcomes. For academic units where a single capstone course is not feasible or desirable, a department may designate a small group of courses where competencies of completing majors will be measured.

Capstone courses provide students with a forum to combine various aspects of their programmatic experiences. For departments and faculty, the courses provide a forum to assess student achievement in a variety of knowledge and skills-based areas by integrating their educational experiences. Also, these courses can provide a final common experience for student in the discipline.

Many research universities are currently using capstone courses in a variety of academic disciplines including general education programs and other academic units in the Arts and Sciences. Departments at other research institutions using this instrument to gather information about student learning in the major include many general education programs, chemistry, political science, physics, music, religious studies, theatre, history, and foreign languages.

Relevant Publications

Upcraft, M. L. Gardner, J. N. & Associates. *The freshman year experience: Helping students survive and succeed in college*. San Francisco: Jossey-Bass Publishers, 1989.

Julian, Faye D. "The Capstone Course as an Outcomes Tests for Majors." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W., (Eds). San Francisco: Jossey-Bass Publishers, 1996. pp. 79-81.

2. Course-Embedded Assessment

Assessment practices embedded in academic courses generate information about what and how students are learning within the program and classroom environment. Course-embedded assessment takes advantage of already existing curricular offerings by using standardized data instructors already collect or by introducing new assessment measures into courses. The embedded methods most commonly used involve the development and gathering of student data based on questions placed in course assignments. These questions, intended to assess student outcomes, are incorporated or embedded into final exams, research reports, and term papers in senior-level courses. The student responses are then evaluated by two or more faculty to determine whether or not the students are achieving the prescribed educational goals and objectives of the department. This assessment is a separate process from that used by the course instructor to grade the exam, report, or term paper.

There are a number of advantages to using course-embedded assessment. First, student information gathered from embedded assessment draw on accumulated educational experiences and familiarity with specific areas or disciplines. Second, embedded assessment often does not require additional time for data collection, since instruments used to produce student learning information can be derived from course assignments already planned as part of the requirements. Third, the presentation of feedback to faculty and students can occur very quickly creating a conducive environment for ongoing programmatic improvement. Finally, course-embedded assessment is part of the curricular structure and students have a tendency to respond seriously to this method. Departments at other research institutions using embedded assessment include general education programs, classics, economics, English, film studies, geography, fine arts, history, kinesiology, philosophy, political science, physics, and religious studies.

3. Tests and Examinations

In most cases, a test will be one part of a fully developed assessment plan. Tests are commonly used in association with cognitive goals in order to review student achievement with respect to a common body of knowledge associated with a discipline or program. Departments have traditionally used tests in assessment programming to measure whether students have acquired a certain process- and content-related knowledge.

Using this approach, there are two primary testing alternatives; first, locally developed/ faculty generated tests and examinations, and (2) commercially produced standardized tests and examinations. Locally developed testing and examinations are probably the most widely used method for evaluating student progress. For assessing the validity of an academic program, examinations designed by the instructors who set the

educational goals and teach the courses is often the best approach. Cost benefits, interpretation advantages, and quick turnaround time all make using locally designed tests an attractive method for assessing student learning.

Tests designed for a specific curriculum can often prove more valuable when assessing student achievement than commercial instruments. These tests focus on the missions, goals, and objectives of the departments and permit useful projections of student behavior and learning. A well-constructed and carefully administered test that is graded by two or more judges for the specific purpose of determining program strengths and weaknesses remains one of the most popular instruments for assessing most majors. Departments at other research institutions using locally designed tests and examinations include mathematics, physical education, psychology, and English.

Commercially generated tests and examinations are used to measure student competencies under controlled conditions. Tests are developed and measured nationally to determine the level of learning that students have acquired in specific fields of study. For example, nationally standardized multiple-choice tests are widely used and assist departments in determining programmatic strengths and weaknesses when compared to other programs and national data. Compilations of data on the performance of students who voluntarily take national examinations such as GRE and MCAT enable faculty to discover useful data that often leads to programmatic improvements.

When using commercially generated tests, national standards are used as comparative tools in areas such as rates of acceptance into graduate or professional school, rates of job placement, and overall achievement of students when compared to other institutions. In most cases, standardized testing is useful in demonstrating external validity.

There are a number of advantages for using commercial/standardized tests and examinations to measure student achievement; first, institutional comparisons of student learning are possible. Second, very little professional time is needed beyond faculty efforts to analyze examinations results and develop appropriate curricular changes that address the findings. Third, in most cases, nationally developed tests are devised by experts in the discipline. Fourth, tests are traditionally given to students in large numbers and do not require faculty involvement when exams are taken by students.

As part of their assessment efforts, many institutions and programs already use a multitude of commercially generated examination and tests. Some of the more commonly used national tests include:

ACT - COMP (College Outcome Measures Program): This is an assessment instrument that measures knowledge and skills acquired by students in general education courses. Administered by ACT, Iowa City, IA.

GRE (Graduate Record Examinations): The GRE is widely used by colleges, universities, departments, and graduate schools to assess verbal and quantitative student achievement. Also, many discipline-specific examinations are offered to undergraduate students in areas such as Biology, Chemistry, Education, Geology, History, Literature, Political Science, Psychology, and Sociology. The GRE is published and administered by Educational Testing Services, Princeton, New Jersey.

Major Field Achievements Tests: Major field examinations are administered in a variety of disciplines. They often are given to student upon or near completion of their major field of study. These tests assess the ability of students to analyze and solve problems, understand relationships, and interpret material. Major field exams are published by Educational Testing Services, Princeton, New Jersey.

Departments with a successful history in using commercial tests and examinations include many general education programs, mathematics, chemistry, biology, computer science, geology, physics, psychology, sociology, education, engineering, foreign languages, music, exercise science, and literature.

Relevant Publications

Anthony, Booker T. "Assessing Writing through Common Examinations and Student Portfolios." *Assessment in Practice*. In Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. (Eds.) San Francisco: Jossey-Bass Publishers, 1996. pp. 213-215.

Kubiszyn, Tom and Borich, G. *Educational Testing and Measurement: A Guide for Writing and Evaluating Test Items*. Minneapolis, MN. Burgess Publishing Co., 1984.

Popham, W. J. "Selecting Objectives and Generating Test Items for Objectives-based Tests." In Harris, C., Alkins, M., & Popham, W. J. (Eds.) *Problems in Criterion-Referenced Measurement*. University of California, Los Angeles: Center for the Study of Evaluation, 1974.

Priestley, Michael. *Performance Assessment in Education and Training: Alternative Techniques*. Englewood Cliffs, NJ: Educational Technology Publishers, 1992.

Osterlind, Steven. *Constructing Test Items*. Boston: Kluwer Academic Press, 1989.

4. Portfolio Evaluation

Portfolios used for assessment purposes are most commonly characterized by collections of student work that exhibit to the faculty and the student the student's progress and achievement in given areas. Included in the portfolio may be research papers and other process reports, multiple choice or essay examinations, self-evaluations, personal essays, journals, computational exercises and problems, case studies, audiotapes, videotapes, and short-answer quizzes. This information may be gathered from in-class or as out-of-class assignments.

Information about the students' skills, knowledge, development, quality of writing, and critical thinking can be acquired through a comprehensive collection of work samples. A student portfolio can be assembled within a course or in a sequence of courses in the major. The faculty determine what information or students' products should be collected and how these products will be used to evaluate or assess student learning. These decisions are based on the academic unit's educational goals and objectives.

Portfolio evaluation is a useful assessment tool because it allows faculty to analyze an entire scope of student work in a timely fashion. Collecting student work over time gives departments a unique opportunity to assess a students' progression in acquiring a variety of learning objectives. Using student portfolios also gives faculty the ability to determine the content and control the quality of the assessed materials.

Portfolios at other research institutions are widely used and have been a part of student outcomes assessment for a long time. Departments using portfolio evaluations include English, history, foreign languages, fine arts, theatre, dance, chemistry, communications, music, and general education programs.

Relevant Publications

Aubrey Forrest. *Time Will Tell: Portfolio-Assisted Assessment of General Education*. Washington, DC: AAHE Assessment Forum, 1990.

Belanoff, Pat & Dickson, Marcia. *Portfolios: Process and Product*. Portsmouth, NH:

Boynton/Cook Publishers, 1991.

Black, Lendley C. "Portfolio Assessment." In Banta, Trudy & Associates (Eds.) *Making a Difference: Outcomes of a Decade of Assessment in Higher Education*. San Francisco: Jossey-Bass Publishers, 1993. pp. 139-150.

Jones, Carolee G. "The Portfolio as a Course Assessment Tool." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. San Francisco: Jossey-Bass Publishers, 1996. pp. 285-287.

Portfolio News. Portfolio Assessment Clearing House, Encinitas, CA.

5. Pre-test/Post-test Evaluation

Pre-test/post test assessment is a method used by academic units where locally developed tests and examinations are administered at the beginning and at the end of courses or academic programs. These test results enable faculty to monitor student progression and learning throughout prescribed periods of time. The results are often useful for determining where skills and knowledge deficiencies exist and most frequently develop. Academic departments at other research institutions currently using this form of assessment to measure student learning include communications, economics, geography, linguistics, theatre, and dance.

6. Thesis Evaluation

A senior or graduate student thesis, research project, or performance paper that is structured by the department to give students an opportunity to demonstrate a mastery of an array of skills and knowledge appropriate to the major can be a useful assessme instrument. Thesis evaluation has been used effectively for program improvement in such disciplines as foreign languages, literature, and the sciences.

7. Videotape and Audiotape Evaluation

Videotapes and audiotapes have been used by faculty as a kind of pre-test/post-test assessment of student skills and knowledge. Disciplines, such as theatre, music, art, communication, and student teaching, that have experienced difficulty in using some of the other assessment methods have had significant success in utilizing videotapes and audiotapes as assessment tools.

B. Indirect Indicators of Learning

1. External Reviewers

Peer review of academic programs is a widely accepted method for assessing curricular sequences, course development and delivery, and the effectiveness of faculty. Using external reviewers is a useful way of analyzing whether student achievement correlates appropriately with departmental goals and objectives. In numerous instances, recommendations initiated by skilled external reviewers have been instrumental in identifying program strengths and weaknesses leading to substantial curricular and structural changes and improvements.

Relevant Publications

Fong, B. *The External Examiners Approach to Assessment*. Washington, DC: Association of American Colleges. 1987.

2. Student Surveying and Exit Interviewing

Student surveying and exit interviews have become increasingly important tools for

understanding the educational needs of students. When combined with other assessment instruments, many departments have successfully used surveys to produce important curricular and co-curricular information about student learning and educational experiences. During this process, students are asked to reflect on what they have learned as majors in order to generate information for program improvement. Through using this method, universities have reported gaining insight into how students experience courses, what they like and do not like about various instructional approaches, what is important about the classroom environment that facilitates or hinders learning, and the nature of assignments that foster student learning.

In most cases, student surveys and exit interviews are conducted in tandem with a number of other assessment tools. In many universities where surveys have been adopted as a method of program assessment, findings have results in academic and service program enhancement throughout campus. Among the departments currently using these methods are general education programs, mathematics, philosophy, social work, speech and hearing science, chemistry, biology, fine arts, geology, kinesiology, and engineering.

Relevant Publications

Lenning, O. Use of Cognitive Measures in Assessment. In Banta, T. W. (Ed.) *Implementing Outcomes Assessment: Promise and Perils*. New Directions for Institutional Research, no. 59. San Francisco: Jossey-Bass, p. 41-52.

Muffo, John A., & Bunda, Mary Anne. "Attitude and Opinion Data." In Banta, Trudy & Associates (Eds.) *Making a Difference: Outcomes of a Decade of Assessment in Higher Education*. San Francisco: Jossey-Bass Publishers, 1993. pp. 139-150.

Riess, R. Dean, & Muffo, John A. "Exit Interviews in Mathematics." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. San Francisco: Jossey-Bass Publishers, 1996. pp. 129-131.

Staik, Irene M., & Rogers, Julia S. "Listening to Your Students." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. San Francisco: Jossey-Bass Publishers, 1996. pp. 132-134.

3. Alumni Surveying

Surveying of alumni is a useful assessment tool for generating data about student preparation for professional work , program satisfaction, and curriculum relevancy. As an assessment supplement, alumni surveying provides departments with a variety of information that can highlight program areas that need to be expanded or enhanced. In most cases, alumni surveying is an inexpensive way to gather data and for reestablishing relationships with individuals that want to help the program continually improve.

Relevant Publications

Converse, Jean M. & Pressler, Stanley. Survey Questions: *Handcrafting the Standardized Questionnaire*. Newbury Park. SAGE Publications. 1986.

Dyke, Janice Van, & Williams, George W. "Involving Graduates and Employers in Assessment of a Technology Program." In Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. (Eds.) *Assessment in Practice*. San Francisco: Jossey-Bass Publishers, 1996. pp. 99-101.

Ewell, Peter. *Student Outcomes Questionnaires*: An Implementation Handbook. New York, NY: National Center for Higher Education Management Systems and the College Board. 1983.

McKenna, B. *Surveying Your Alumni: Guideline and 22 sample questionnaires.* Washington, DC: Council for Advancement and Support of Education. Contains 22 documented examples of alumni surveys successfully employed at private colleges.

4. Employer Surveying

Employer surveys can provide information about the curriculum, programs, and students that other forms of assessment cannot produce. Through surveys, departments traditionally seek employer satisfaction levels with the abilities and skills of recent graduates. Employers also assess programmatic characteristics by addressing the success of students in a continuously evolving job market. The advantages in using employer surveys include the ability to obtain external data that cannot be produced on campus, and the responses are often useful to help students discern the relevance of educational experiences and programs.

Relevant Publications

Converse, Jean M. & Pressler, Stanley. Survey Questions: *Handcrafting the Standardized Questionnaire.* Newbury Park. SAGE Publications. 1986.

Dyke, Janice Van, & Williams, George W. Involving Graduates and Employers in Assessment of a Technology Program.@ In Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. (Eds.) *Assessment in Practice* San Francisco: Jossey-Bass Publishers, 1996. pp. 99-101.

5. Curriculum and Syllabus Analysis

In a perfect planning/implementation cycle, once a department has defined its objectives, all phases of the curriculum and each individual course would almost automatically cover all the bases needed to provide each student the opportunity to learn the essential components of those objectives. It doesn't happen that way, however, because departmental personnel change over the years and the higher education tradition of freedom within the classroom often leaves course content almost totally to individual instructors.

In any case, not every course needs to attempt to cover all the objectives for the major. As one technique to keep a focus on the agreed-upon objectives, curriculum analysis provides a means to chart just which courses will cover which objectives. The chart then provides assurance to the department that, assuming certain sequences are taken by the student candidates for that major, they will in fact have the opportunity to learn those objectives.

Syllabus analysis is an especially useful technique when multiple sections of a department course are offered by a variety of instructors. It provides assurance that each section will cover essential points without prescribing the specific teaching methods to be used in helping the students learn those objectives.