Defining Intended Learning Outcomes (ILOs)

An outcome-based curriculum design begins with defining the student learning outcomes for the programme and the component subjects. This section attempts to guide you to do that.

This section is organised as follows:
- "What are intended learning outcomes?" aims to help you understand the role of intended learning outcomes and the implications for various aspects of university education in general.
- "Our ultimate outcome: all-round development of students with professional competence" elaborates the significance of outcomes with respect to PolyU's mission.
- "Action verbs and levels of performance for outcome statements" discusses various levels of outcome statements and performance.
- "Programme outcomes and subject outcomes" distinguishes between programme outcomes and subject outcomes.
- "Examples of learning outcomes (for your discipline)" offers lists of exemplary outcomes by discipline.
- "Principles for effective outcome statements" deals with the principles and technicalities of writing intended learning outcomes.
- Last, there is a checklist that summarises the key points.

What are Intended Learning Outcomes?

Let us imagine this situation now: we sit down and start writing the outcome statements. What are we supposed to write? At the beginning of every semester teachers write up objectives and syllabus topics for their programmes and lessons. What have they written? Do they differ from intended learning outcomes?

To clear some confusion and answer these questions, let us distinguish some important differences between the outcome-based approach and some common 'traditional' approaches to curriculum planning.

■   The Distinction between Learning Outcomes and Syllabus/Content

In brief, intended learning outcomes represent achievement attained by students instead of topics to be covered, the latter being typically the purpose of a syllabus.

It is common that when teachers plan their curricula, they start by thinking about the relevant topics to teach – a task that we can call defining the syllabus, which is certainly one important curriculum planning task. Defining the syllabus is related to but NOT, by itself, specifying learning outcomes. Take a hypothetical swimming course as example: the syllabus of the course could be incorporated with contents such as 'safety guidelines', 'breathing techniques', 'body motions', and 'swimming styles', whilst the outcome of the course would be 'to swim in water effectively and safely'.

The distinction between outcomes and contents is important. The adoption of the outcome-based approach implies a change in perspective from 'content' to 'knowledge, abilities and attitudes achieved by students'.

In the outcome-based approach, the main concern is, of course, the outcomes. To elaborate, what are the desirable qualities of the graduates from your programme(s) and subject(s)? What knowledge and skills you want and expect your students to demonstrate? What level of performance should they demonstrate to be able to excel in their prospective role of entry-level professionals? For instance, for the same topic about a particular chemical product, a programme aimed at producing chemical engineers who develop the product differs from another aimed at producing marketing executives for the product. Though students essentially need to learn the same topic, they will focus on different perspectives and will use the knowledge in different ways and different contexts. This is why the outcomes and desirable qualities are so important and therefore must be stated explicitly. For this

purpose, let us look at the following two lists taken from the subject benchmark statements of Health Studies, according to the Quality Assurance Agency for Higher Education.

List A
1. the ability to ***make comparisons*** between a range of health contexts, such as individual and institutional and national and international contexts;
2. the ability to ***analyse*** health and health issues, and health information and data that may be drawn from a wide range of disciplines;
3. the ability to ***synthesise*** coherent arguments from a range of contesting theories relating to health and health issues;
4. the ability to ***draw upon*** the personal and lived experience of health and illness through the skill of reflection and to ***make links*** between individual experience of health and health issues and the wider structural elements relevant to health;
5. the ability to ***articulate*** central theoretical arguments within a variety of health studies contexts;
6. the ability to ***draw on*** research and research methodologies to ***locate, review and evaluate*** research findings relevant to health and health issues, across a range of disciplines.
(Source: Health Studies, QAA, 2004)

List B
The Health Studies graduates will demonstrate knowledge and understanding of:
1. health as a contested concept;
2. the multidisciplinary nature of health studies;
3. the central place of research activity in the development of the subject;
4. the diverse determinants of health;
5. the contemporary issues at the forefront of the subject;
6. the range of realist and constructionist theories of causality relating to health;
7. …
(Source: Health Studies, QAA, 2004)

List B is basically a content list. Please note that even with phases such as 'acquire knowledge and understanding' added to the statements, they are still not effective outcome statements. Verbs such as 'know' and 'understand' are too vague to be good verbs for outcome statements as they fail to indicate what the students are able to perform, academically or professionally, with that knowledge. This becomes very clear when these statements are compared with those in List A.

List A contains good examples of outcome statements at the programme level. These outcome statements clearly delineate the academic abilities and performance of the students as a result of academic learning. Please note that 'action verbs' in the outcome statements are highlighted. As illustrated, using action verbs gives outcome statements a much clearer articulation of academic performance than the words 'understanding' and 'knowledge'. To elaborate, these action verbs provide indications of the appropriate level of performance, beyond simply 'knowing'.

■　　　**Using Broad Outcome Statements to Capture the Desirable Qualities**

Outcomes refer to the desirable qualities of our graduates. They are not, however, a long and detailed list of topics that they know. Students do learn a lot of subjects and topics. In the meantime, the learning contributes to the development of some essential qualities, such as problem solving. Starting from individual contents and particular specifications, however, will easily lead students to not seeing the wood for the trees. Outcome-based approach requires the programme leader NOT to jump into the details immediately before forming a big picture of the education provided to students. While learning a particular topic, one cannot lose sight of developing the major abilities, using the specific learning as a vehicle.

Hence for an outcome-based approach it is important to get the key areas of learning and developmental outcomes right. And usually these outcomes are broad statements describing the final quality, like problem solving, effective communication, etc. For example, the learning about the various domains in an MBA programme is expected to lead to the development of the abilities to identify and diagnose problems:

"(Identify/Diagnose problems) Ability to identify and diagnose business problems accurately and

effectively across a wide range of business domains, including management practices, accounting and financial management, operations, marketing, and strategic management."

(Source: MBA Programme, St. Mary's College of California, 2004)

A teacher can usually identify such broad statements about what key intellectual abilities, knowledge, skills and attitudes are desirable in a discipline by referring to:
- overall mission of the institution
- expectations of the profession
- specific aims of your programme.

The overarching outcome for PolyU graduates is explicitly defined in our role statement as to produce all-round students with professional competence. Therefore, a good set of programme outcomes should take into account both professional outcomes of the discipline and outcomes of all-round development.

■   **Using Appropriate 'Action Verbs' in Your Outcome Statements**

Outcomes imply what the student should be able to know and do and therefore outcome statements should be about how such achievement can be demonstrated -- by action verbs. As for important generic abilities, we can see easily that students need to solve problems, work in teams, communicate effectively, etc.

When we come to specifying the basic knowledge to be acquired, it is very common that teachers set objectives for their teaching by stating 'understand so-and-so topic'. While 'understand' seems to fall into the action verb category, curriculum developers have long been aware that the word 'understand' is a very fussy and unhelpful verb. It is fussy because there is no explicit indication of what has to be demonstrated by students if they have indeed understood. It is unhelpful because the verb 'understand' does not articulate the level of attainment – is it being able to recap the key points or being able to apply the knowledge? Therefore, it is also important that the action verbs are at suitable levels. Here we shall explore the appropriate action verbs to indicate different levels of understanding.

Our Ultimate Outcome: All-round Development of Students with Professional Competence

It is the designated role of PolyU to develop all-round students with professional competence. Both all-roundedness and professional competence are important outcomes, and essentially both outcomes should be achieved upon our students' graduation.

We believe that attributes for all-roundedness (i.e., generic skills) and professional competencies outcomes are complementary. Both must be addressed and are not in conflict with each other. Many generic skills are important for professional development, e.g., critical and creative thinking, lifelong learning abilities, etc. Furthermore, there are few, if any, professions nowadays that do not require at least some generic skills from their recruits that would allow them to work flexibly and learn new skills effectively.

In the curriculum revision submission document, you are required to organise your outcome statements into two categories:
1. The development of all-round students.
2. The achievement of professional competence.

The purpose for this categorisation is to demonstrate that both aspects of our mission are being addressed adequately in your programme. You may find that some of your outcome statements actually integrate the all-round development aspect and the professional competence aspect, so you can choose to put them together with a note. Categorisation is not the main concern here; it is the inclusion of both aspects of development in the outcome statements that counts.

■   **Attributes for All-Roundedness as Learning Outcomes**

Attributes for all-roundedness are the more generic and transferable aspects of learning. The list of attributes for all-roundedness varies from place to place. For PolyU, we look for the following attributes in our graduates: (1) professional competencies in a chosen discipline, (2) creativity and innovation, (3) critical thinking and problem solving abilities, (4) language and communication skills, (5) capability for lifelong learning, (6) leadership, teamwork and interpersonal skills, (7) entrepreneurship, (8) global outlook, (9) cultural appreciation, and (10) social and national responsibility.

A general outcome definition for each graduate attribute is given in the table below:

Graduate attributes	Intended learning outcomes *PolyU graduates should be able to:*
1. Professional competencies in a chosen discipline	Demonstrate a mastery of the *fundamental* knowledge and skills required for functioning effectively as an *entry-level professional* in the field, and an ability to integrate and apply them effectively to practice in the workplace
2. Creativity and innovation	Experiment with new approaches, challenge existing knowledge boundaries and design novel solutions to problems
3. Critical thinking and problem solving abilities	Identify, define, and deal with problems pertinent to their future professional practice or daily life through logical, analytical and critical thinking
4. Language and communication skills (including biliteracy and trilingualism)	Communicate effectively (both orally and in writing) with a wide range of audiences, across a range of professional and personal contexts, in English and Chinese (including Putonghua)
5. Capability for lifelong learning	Identify own learning needs for professional or personal development; demonstrate an eagerness to take up opportunities for learning new things as well as the ability to learn effectively on their own
6. Leadership, teamwork and interpersonal skills	Function effectively both as a leader and as a member of a team; motivate and lead a team to work towards a goal; work collaboratively with other team members; as well as connect and interact effectively with other people
7. Entrepreneurship	Demonstrate interests and abilities in discovering and exploiting opportunities, taking prudent risks, and trying out novel ideas or methods
8. Global outlook	Demonstrate an awareness and understanding of global issues and happenings outside Hong Kong, a willingness to take part in international experiences, as well as an ability to work/interact effectively with people from different parts of the world
9. Cultural appreciation	Demonstrate interests, and participate in, cultural activities, and show a sensitivity to cultural diversity
10. Social and national responsibility	Demonstrate an awareness of their social and national responsibility; engage in activities that contribute to the betterment of the society; and behave ethically and responsibly in social, professional and work environments

These ten attributes do not exhaust the scope of all-round development. Nevertheless, they are comparable to similar lists upheld by other universities around the world and are representative of the local expectations of the attributes that a university graduate should posses.

■   **Professional Competences as Learning Outcomes**

PolyU programmes historically carry a strong professional emphasis and we have accumulated a lot of experiences in developing students as professionals. Nevertheless, it will be interesting and useful to explore in more depth what professional competence means and how it should be represented in outcome statements.

Take a minute to judge for yourself whether the following outcome statement is one for professional competence for practitioners in the field of environmental protection.

Learning Outcome: 'To know the laws relevant to environmental protection'

This is definitely knowledge required for the profession in environmental protection, so the answer is a resounding YES!

BUT… before jumping to a happy conclusion, think about it more critically:

Does it say how the practitioner actually uses that knowledge?
Does simply knowing and recalling the laws already enable the environmental protection agent to solve some problem that he/she may face in his/her job?

NOW consider this alternative:

'To critically evaluate the laws relevant to environmental protection and to apply them in urban planning policies'

Obviously, this one has specified the desirable qualities and what the environmental protection agent is expected to perform. So stating 'knowing' or 'understanding' in the outcome statement does not necessarily guarantee a performance. Therefore, it is important to state the desirable qualities explicitly, like the second outcome statement.

University Knowledge vs Professional Knowledge

The knowledge emphasised in university programme is usually academic in nature. However sophisticated, it may differ from the professional knowledge required and expected in the graduates' chosen professions. To put this in perspective, would-be professionals might have learned how to label a certain process; however, they may not be able to execute that process while in the field. As such, according to Leinhardt et al. (1995), there is a mismatch between university knowledge and professional knowledge.

The distinction between these two kinds of knowledge is illustrated in Table A below:

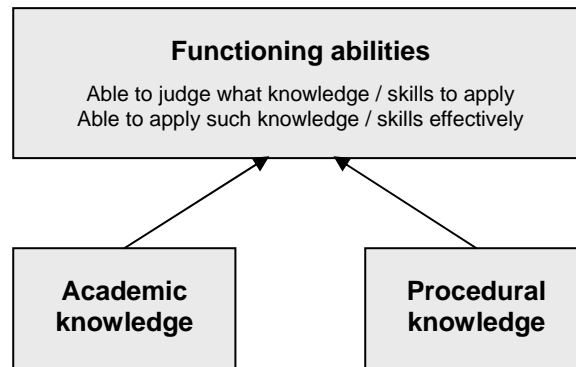| University Knowledge *Typical things that students are required to do at university*		Professional Knowledge *Typical things that professionals are required to do at work*	
Analyse	Identify	Appraise	Liaise
Apply	Integrate	Assess	Negotiate
Articulate	Interpret	Assist	Organise
Compare	Justify	Collaborate	Plan
Contrast	Label	Communicate	Predict
Criticise	List	Compile	Prepare
Describe	Match	Create	Present
Differentiate	Name	Decide	Prioritise
Discuss	Outline	Design	Produce
Distinguish	Recognise	Develop	Recommend
Elaborate	Summarise	Diagnose	Review
Evaluate	Synthesise	Execute	Select
Explain	Theorise	Extract	Solve
		Forecast	Supervise
		Formulate	Support
		Handle	Undertake
		Implement	Use
		Initiate	Write
		Investigate	Work

Table A: University Knowledge vs. Professional Knowledge

Typically such procedural knowledge is related to the professional context. However, it should be noted that although procedural knowledge and professional knowledge are sometimes synonymous,

this does no, by itself, represent the 'professional competence' we have aimed for.

Functioning Knowledge as Professional Competence

Biggs (2003) provided a framework of different kinds of knowledge which is also very useful in helping us understand what professional competence actually entails. Figure A is a simplified version adapted from Biggs' framework.

Figure A: Different Kinds of Knowledge and their Relationship (adapted from Biggs, 2003)

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┌─────────────────────────────────────────┐
│          Functioning abilities           │
│  Able to judge what knowledge / skills to apply │
│  Able to apply such knowledge / skills effectively │
└─────────────────────────────────────────┘
              ↑               ↑
    ┌──────────────┐    ┌──────────────┐
    │   Academic   │    │  Procedural  │
    │   knowledge  │    │   knowledge  │
    └──────────────┘    └──────────────┘
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As illustrated in the diagram, even the possession of both academic knowledge (theories, information, etc.) and procedural knowledge (procedures and skills) is still not adequate for our graduates to perform competently and effectively in their chosen professions. A professional, in order to perform effectively in real life situations, needs to know what knowledge to draw upon to make decision and to be able to apply the knowledge flexibly and appropriately in response to various tasks.

Put simply, academic knowledge and procedural knowledge are both necessary knowledge; yet neither is sufficient to ensure professional competence. As per the illustration, academic knowledge and procedural knowledge are the foundations. On top of this foundation, students need another kind of knowledge of when and how to use knowledge in real-life problems in their professions, which Biggs labelled functioning knowledge to highlight its importance in allowing the professionals to perform effectively.

Action Verbs and Levels of Performance for Outcome Statements

Good outcome statements focus on abilities and attributes that are valued by the discipline concerned and are written to reflect an appropriate level of sophistication. Generally speaking, university graduates are expected to be more sophisticated in their thinking abilities. And in this information explosion age, abilities to critically select and manage information and generate new ideas have become more important. Such qualities should be reflected in your outcome statements through the appropriate use of action verbs.

■   **Verbs and Abilities**

Since outcome statements usually depict what students can do after completing a programme, they almost invariably consist of one or more action verbs. These action verbs represent important learning goals for students as well as criteria for assessment.

Different action verbs tell you different things about a student's abilities. Some reflect the depth of understanding the student has attained through the learning process. For example, if a student can successfully design a product, he or she must have grasped the concepts and skills related to designing that product, thus he or she must be able to use the knowledge and skills appropriately in the creative process of design. The level of understanding of a student who can design is therefore qualitatively different from someone who has merely acquired the same concepts and skills.

In Table B below, you will find examples of demonstrable action verbs organised by the connotations commonly associated with them. The columns represent different levels of understanding and thinking involved in carrying out such actions. It should be noted that these categorisations are not absolute. It all depends on how you use the verb.
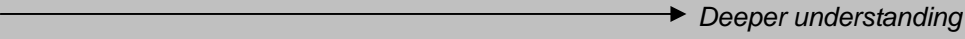
Factual Memory of facts	**Relational** Seeing relationships among ideas	**Extended Understanding** Creating and extending beyond what is taught
	———————————————————————▶	*Deeper understanding*
describe, match, outline, recall, enumerate, label, name	analyse, apply, compare, contrast, discuss, explain, interpret, relate	create, criticise, decide, design, formulate, generalise, generate, hypothesise, integrate, justify, reflect, synthesise, theorise

Table B: Different Verbs and their Corresponding Abilities

Let's take a closer look at the levels of understanding. They are derived from Biggs' SOLO taxonomy (1999).

Understanding at a **factual** level gives one the abilities to reproduce facts from memory. Students operating at this level see understanding as gaining knowledge. The focus of learning is therefore on getting more. The knowledge gained however is disconnected and disorganised. Now, what kind of outcome statements would lead to this kind of understanding? Consider the following example:

"Be able to identify the parts of a machine."

What does one need to do in order to achieve this goal? One just needs to memorise the features and perhaps names of the parts. The level of thinking and understanding involved is low.

The next level is called **relational** because at this level pieces of information are put together in such a way that the student sees the relationships among different information and ideas. This enables one to analyse and explain the operation of something and it is at this level that knowledge becomes functioning. Students operating at this level see the parts as relating to each other. Their focus of learning therefore does not stop at knowing about the parts but also goes on to find out the relationships between them. To engage students in such learning, you need outcome statements that require such processing of information. For example:

"Be able to analyse the structure of a machine and fix any faults as appropriate."

To achieve this outcome, students would need to put their knowledge of the parts of the machine together to form a coherent picture about the operation of the machine. They would also need to apply this understanding and relevant skills to repair the machine. Comparing this with the previous example, the quantity of factual knowledge about the machine is probably similar, but the level of understanding and coherent thinking required is somewhat higher. In other words, the two levels of understanding are qualitatively different.

Then we come to the final level, **extended understanding**. Understanding at this level is so thorough that there is no limit to the things one can potentially do with such understanding. Knowledge of the topic merges with the learner's personal web of knowledge and experience. The topical boundaries melt and the learner can generalise principles learnt in one situation to another appropriately to construct new knowledge and solve unforeseen problems. Students operating at this level view understanding as a generative and interpretive process. Their focus of learning is therefore to equip themselves with this capability. Outcome statements for this level of understanding and performance must offer the scope for demonstrating such potential.

"Be able to generate innovative designs for machines to fulfil new needs."

To achieve this outcome, students would need to integrate their knowledge in machinery structure and functioning, production skills and design principles and apply such understanding and relevant skills in the creative process of designing new machines with new needs in mind. Performance of this level

requires deep understanding and mature intellectual and practical abilities.

■ **More about Level of Performance/Understanding**

It is quite obvious that there cannot be a one-size-fits-all standard of performance for all discipline. For instance, both business students and mathematics students need to learn statistics, but obviously not to the same depth. It is this variation that gives us the range of different disciplines. The level of performance for each skill is therefore discipline-specific and as such should be considered with the nature of the discipline in mind.

Having said that, general expectations of what a university graduate is capable of doing do exist. For example, university graduates are expected to be very knowledgeable in their specialised fields of study (often with the assumption that they can use such knowledge to do something), to possess relevant skills and reasonably sophisticated thinking abilities, and to be independent and self-motivated learners etc. So, in writing outcome statements, we must be careful not to mislead students by giving them 'below average' targets.

It is argued that university education should at least aim at a relational level of understanding. This does not mean that learning facts are not important. It just means we probably should not stop at giving facts, but go beyond. After all, it is our mission to develop all-round students with professional competence, not bookworms.

■ **Other Attributes**

It must be acknowledged that there are attributes that cannot easily be classified into the levels mentioned earlier. They are often related to attitudes, professional ethics and other personal qualities. These attributes are important outcomes too, so some outcome statements must be written about them. In such cases, what verbs should be used?

Some of the verbs often used in such statements, displayed in Table C below, are arranged into two groups: knowledge and behaviour.

Results of attributes → ↓ Attributes	Knowledge / Awareness *Being aware of certain rules, codes of conduct, perspectives, diversity etc.*	Behaviour / Action *Act differently as a result of knowledge or awareness of certain rules, codes of conduct, perspectives, diversity etc.*
Attitudes, Qualities, Ethics	articulate, aware, have, recognise	act, behave, demonstrate, show, respect, adhere, comply, observe, react, reflect

Table C: Verbs and Other Attributes

This distinction is made because knowledge of something does not necessarily lead to its associated behaviour – knowing that one should not cross a road when the traffic light is red does not mean you would stick to that rule, for example. If your programme includes such elements, you might want to include outcome statements such as:

"Graduates from this programme will be aware of the code of conduct of the profession and have demonstrated that they are able to adhere to the aforementioned code in their practical work."

The lack of directly associated action verbs is also frequently encountered in writing outcome statements of a generic nature. In such cases, appropriate adverbs and adjectives may be employed.

For example:
"is sensitive to and can react appropriately to contextual and interpersonal factors in groups and teams."
(Example from Psychology, QAA, 2002)

■ **Verbs that Are Important but Do Not Tell You Much about Levels**

Generic Verbs	communicate, work, undertake, make, solve, learn

Some verbs are relatively less informative about the depth of understanding. For example, the level of understanding required in solving a problem can vary greatly as the nature of the problem changes (e.g., routine vs. ill-defined problems). Such verbs are often valuable from a professional perspective and are generic and transferable in nature. Statements using such verbs will be more helpful if further information is given.

Consider the following example:
(Adapted from Engineering benchmark, QAA, 2000)

Outcome 1
can solve routine problems as taught.

Outcome 2
can integrate knowledge of mathematics, science, information technology, design, business context and engineering practice, to solve problems, some of which are unfamiliar and require good understanding.

How do they differ in the level of understanding or performance required?

Ambiguous Verbs

Ambiguous Verbs	understand, know, appreciate, grasp

Some verbs are so general in their meanings that they can hardly serve the functions of a learning goal or as criteria for assessment. Understand is a typical example of this kind. We recommend against using such verbs and when they are used, elaborations should be given to the extent that the statement will retain its functions as a learning goal for students and as criteria for assessment.

Reminder:
The verbs mentioned in this section is not exhaustive and the division of levels and categories is not meant to be absolute and dictative. They are here to give you some basis for considering the issue of level of performance when you write your outcome statements. It is, however, always useful to consider what is involved to achieve your stated outcome from the students' point of view, and compare that with what you think is the appropriate level of performance.

Programme Outcomes and Subject Outcomes

Outcomes are the starting point for the programme as a whole and also for individual subjects. It is strongly advised that the programme teams work collaboratively, instead of the programme leader coming up with the set of programme outcomes and subject coordinators individually writing their own sets. A collaborative effort will ensure that the program outcomes and subject outcomes will be aligned.

■　　　**Distinguishing Between Programme Outcomes and Subject Outcomes**

Programme outcomes express the major performances in broad terms while the subject outcomes transform the broad goals to specific objectives. They should be aligned and when they are aligned, all outcomes are targeting the same goal.

Therefore, outcomes statements can be written at different levels. As has been mentioned previously, outcome statements should be broad statements, though it can be even broader at the discipline level. For instance, with some of the most general and broadest outcome statements prescribed for the discipline level, we can transform them to specific programme levels thereafter, and subsequently transform them to subject levels.

A quick glance at some general outcome statements at the discipline level, for the ABET Engineering Outcomes, are illustrated in List C that follows:

List C – Outcome Statements List: Discipline Level (Engineering)
1. to apply knowledge of mathematics, science, and engineering
2. to design & conduct experiments as well as analyze & interpret data
3. to design a system, component, or process to meet desired needs
4. to function in multi-disciplinary teams
5. to identify, and solve applied science problems
6. to have an understanding of professional and ethical responsibility
7. to communicate effectively
8. to have the broad education to understand the impact of scientific solutions in a global and societal context
9. to possess the ability to engage in life-long learning
10. to possess a knowledge of contemporary issues
11. to use the techniques, skills, and modern scientific and technical tools necessary for professional practice

(Source: Applied Science Accreditation Commission, ABET, Inc.)

As illustrated, at the programme level (in this case Engineering), it is not necessary to mention specific matters, but mainly to focus on the major abilities for the profession. For outcomes at such general level, generic and professional competences are the prime concerns. In this regard, they usually do not go into the articulation of the knowledge part – note that these statements only mention knowledge domains in extremely board terms of mathematics, science, and engineering.

This list encompasses outcomes concerning both professional competence and all-roundedness. For instance, outcomes 1, 2, 3, 5 & 11 represent professional competence, whilst outcomes 4, 7, 9 & 10 represent all-roundedness. It probably requires both professional competence and all-roundedness in order to have outcomes 6 & 8 demonstrated. Therefore, sometimes they are not explicitly separated. To reiterate in other words, all-roundedness and professional competence are indeed complementing each other.

List D – Outcome Statements List: Programme Level (Master of Business Administration)
1. **(Identify/Diagnose Problems)** Ability to identify and diagnose business problems accurately and effectively across a wide range of business domains, including management practices, accounting and financial management, operations, marketing, and strategic management.
2. **(Assess Performance)** Ability to assess accurately the performance of an organization across a wide range of performance criteria, including but not limited to financial, operational, ethical, and marketing effectiveness criteria.
3. **(Forecast)** Ability to utilize both quantitative and qualitative techniques and evaluations to forecast changes that will affect a business in the future.
4. **(Strategize)** Ability to identify, select, and justify strategies and courses of action at the functional, business, and corporate levels of analysis.
5. **(Plan)** Ability to develop effective plans for the implementation of selected strategies across a wide range of business domains and levels.
6. **(Communicate)** Ability to communicate effectively in a managerial role, including effective presentation of analysis, justification of recommended actions, and persuasive messages intended to affect the perceptions of others.
7. **(Negotiate/collaborate)** Ability to negotiate effectively, and to collaborate with others in situations characterized by differing interests and objectives.
8. **(Create Vision/Shared Values)** Ability to formulate strategies for creating workplace cultures characterized by a sense of mission, shared values, and high levels of commitment and motivation.
9. **(Evaluate Opportunities)** Ability to evaluate business opportunities.
10. **(Ethics)** Ability to assess and discuss the ethical and social implications of situations, actions, policies, and proposals.

(Source: MBA Programme. St Mary's College of California, 2004)

Does this list contain outcome statements at a programme level?

Certainly. At first glance, when compared with outcome statements at a discipline level (e.g., ABET), they contain, to a greater extent, indications of the areas of study (in broad, general terms) to be

included.

This is an exemplary and well-articulated list of outcome statements at a programme level. Why? We have discussed different outcome statements previously, at different levels and concerning different abilities, such as academic ones and generic ones. What kind of outcome has been illustrated in this list?

The action verbs are again highlighted and put into parentheses. The list is exemplary, articulates and focuses on the functioning abilities for the following reasons:
1. It represents professional competences with clear operational action verbs at the appropriate level of performance. In other words, the focus is functioning abilities, as opposed to academic abilities (please recall Figure 2-1 for their relationship)
2. It captures the key professional competences of managers
3. While the prime focus of this list is professional competences to be expected of graduates, instead of academic content, it links professional competences with the 'content' to be learned

■ **Developing Subject Outcomes from Programme Outcomes**

Table D below displays an example of an intended learning outcome for a programme offered by the School of Hotel and Tourism Management and two of its related outcomes at a subject level.

Programme level	Subject level
BA(Hons) in Hotel, Catering and Tourism Management Define and apply the manager's role in effectively organising, planning and controlling physical and financial resources, motivating human resources, and rendering customer-driven service quality delivery. (School of Hotel and Tourism Management, PolyU)	Front office and housekeeping management Describe the ways to motivate different levels of staff in the Housekeeping Department. Beverage operations and management in catering Identify the necessary procedures for effective beverage stock control, marketing and sales in restaurant, catering, and wine shop operations.

Table D: Exemplary Outcomes at Different Levels

In the example above, the intended outcomes at subject level relate to the programme outcome in the knowledge and skills (e.g. motivating staff, stock control etc) that they describe. The knowledge and skills described in the programme outcome are put in the context of respective subjects (housekeeping and catering).

You would notice that while the two subject outcomes above are related to the programme outcome on the left, they are hardly the entirety of it. That is because they are just examples, but not a complete list, of related subject outcomes. In reality, each programme outcome should find itself adequately represented at the subject level. When that happens, you can say (with a smile on your face) that there is an alignment between your programme and subject outcomes. Curriculum mapping is a useful tool to help you accomplish that.

Examples of Learning Outcomes (for Your Discipline)

Before engaging in writing outcome statements, it is advisable to get some ideas from here and there and think about what outcomes your programme is trying produce. The Quality Assurance Agency for Higher Education (QAA) in UK is particularly resourceful in this respect. Listed below are the web location of the QAA and relevant documents (from QAA unless otherwise stated) from which you can find examples of outcomes statements for your discipline:
QAA subject benchmarking index - http://www.qaa.ac.uk/crntwork/benchmark/index.htm

| Accounting | http://www.qaa.ac.uk/crntwork/benchmark/accounting.pdf
2003 Colloquium On Change In Accounting Education -
http://www.thecolloquium.com/Page1CoreModel.htm |
| Art & Design | http://www.qaa.ac.uk/crntwork/benchmark/phase2/artanddesign.pdf |

Biomedical Sciences	http://www.qaa.ac.uk/crntwork/benchmark/phase2/biomedsci.pdf
Building and Surveying	http://www.qaa.ac.uk/crntwork/benchmark/phase2/build_survey.pdf
Computing	http://www.qaa.ac.uk/crntwork/benchmark/computing.pdf
Economics	http://www.qaa.ac.uk/crntwork/benchmark/economics.pdf
Education Studies	http://www.qaa.ac.uk/crntwork/benchmark/education.pdf
Engineering	http://www.qaa.ac.uk/crntwork/benchmark/education.pdf North Carolina State University (with reference to ABET) - http://www.engr.ncsu.edu/abet/criterion-3/template-3.html#outcome-a
English	http://www.qaa.ac.uk/crntwork/benchmark/english.pdf
Geo-Informatics	Lethbridge Community College, Centre for Engineering Technologies - http://www.lethbridgecollege.ab.ca/dept/engtech/geomatics.html
General Business and Management	http://www.qaa.ac.uk/crntwork/benchmark/business.pdf
Hospitality, Leisure, Sport and Tourism	http://www.qaa.ac.uk/crntwork/benchmark/hospitality.pdf
Law	http://www.qaa.ac.uk/crntwork/benchmark/hospitality.pdf
Language and Related Studies	http://www.qaa.ac.uk/crntwork/benchmark/phase2/languages.pdf
Mathematics, Statistics and Operational Research	http://www.qaa.ac.uk/crntwork/benchmark/phase2/mathematics.pdf
Nursing	http://www.qaa.ac.uk/crntwork/benchmark/nhsbenchmark/nursing.pdf Indiana University Northwest - http://www.iun.edu/~nurse/undergraduate/asn/outcomes.shtml
Psychology	http://www.qaa.ac.uk/crntwork/benchmark/phase2/psychology.pdf American Psychological Association - http://www.apa.org/ed/pcue/taskforcereport2.pdf
Occupational Therapy	http://www.qaa.ac.uk/crntwork/benchmark/nhsbenchmark/ot.pdf Medical College of Georgia - http://www.mcg.edu/SAH/OT/Competencies.html University of Missouri-Columbia - http://www.umshp.org/ot/outcomes.htm
Optometry	http://www.qaa.ac.uk/crntwork/benchmark/phase2/optometry.pdf
Physics, Astronomy and Astrophysics	http://www.qaa.ac.uk/crntwork/benchmark/phase2/physics.pdf
Physiotherapy	http://www.qaa.ac.uk/crntwork/benchmark/nhsbenchmark/physio.pdf The Chartered Society of Physiotherapy - http://admin.csp.org.uk/admin2/uploads/38170217-f0a0a52cef--7e27/CFforQPP.pdf
Social Policy and Administration and Social Work	http://www.qaa.ac.uk/crntwork/benchmark/socialwork.pdf
Sociology	http://www.qaa.ac.uk/crntwork/benchmark/sociology.pdf
Town and Country Planning	http://www.qaa.ac.uk/crntwork/benchmark/phase2/tcp.pdf

Principles for Effective Outcomes Statements

Now, let us look at some technicalities of writing statements for intended learning outcomes. It is really quite simple.
Outcomes are about performance, and this implies a few things:
1.   There must be a performer – the student, not the teacher
2.   There must be something performable (thus demonstrable or assessable) to perform
3.   The focus is on the performance, not the activity or task to be performed

See the examples below:

Example 1
×   To enhance students' teamwork skills (teacher-focused)

✓ To be able to work effectively in a team (student-focused)

Example 2
× Understand the aetiology of common diseases (not very clear what the student needs to perform)
✓ Students will be able to draw upon their medical knowledge and experience to diagnose the condition of their patients (clear in terms of what the student needs to perform)

Example 3
× Students will take part in the organisation of a fashion show (activity-focused)
✓ Students will be able to organise a fashion show (performance-focused)

■ **Translating an Objective into an Outcome (Examples)**

Most programmes have their set of objectives. If that is the case for you, you do not need to start from scratch (but it is a good chance to review and revise those objectives). Table E offers some examples of how an objective may be translated into an outcome.

	Objective	Outcome
Programme level Example from ITC, PolyU	To stimulate the enquiring, analytical and creative ability of students, so that they can be sensitive to economic, technological, and political changes in the global environment, catch opportunities and develop the business.	Students will demonstrate sensitivity and an ability to analyse and enquire into the economic, technological, and political changes in the global environment to identify opportunities and creatively develop the business.
Subject level Example from CSE, PolyU	To establish an understanding of the fundamental principles of fluid mechanics and to introduce their applications in situations that are of concern and relevance to a practising civil engineer.	Students will be able to apply the fundamental principles of fluid mechanics to situations that are of concern and relevance to a practising civil engineer.

Table E: Objective vs. Outcome Translation

It may be useful to begin your outcome statement with this stem:
On successful completion of the programme, a student will have shown that he or she can…

■ **Compiling your Set of Outcome Statements**

In the previous sections, much has been said about how to write a good and effective outcome statement. This section looks at the complete set of outcomes as a whole.

- **Number of outcomes** Keep your outcome set to a manageable size. For a programme, 10-20 outcomes are probably the acceptable range. Remember that these are the ultimate outcomes of the programme. Intermediate outcomes should be addressed at a subject level.
- **Check for overlapping** Each outcome should be easily differentiable from each other. This is particularly important if you are going to map your curriculum.
- **Check for clarity** A good set of programme outcomes should communicate clearly to students about what they need to achieve in the programme (i.e. it would give them a clear direction for their study)
- **Check for representativeness** It should tell those who read it what attributes they would find in a graduate from the programme.
- **The issue of alignment** The rule of alignment is effective to the outcome set as well as to each intended learning outcomes. As a set of programme outcomes, it should be addressing the institution outcome adequate – in other words, will your programme (as depicted by your set of programme outcomes) produce all-round students with professional competence?

■ **Final Words**

Compiling the outcome set should be a collaborative effort of the programme team. A common understanding of what the programme is trying to achieve is important for the development of appropriate teaching and assessment strategies.

Checklist

Is your outcome statement a good one?

Does it relate / contribute to (i.e. align with) your programme outcomes? ☐

Is your outcome statement student-focused rather than teacher-focused? ☐

Is your outcome statement focusing on the learning rather than the learning activity? ☐

Is your outcome statement using verbs that are performable? ☐

Does your statement give sufficient details for subject teachers to work on their teaching and assessment design? ☐

Is your set of programme outcomes a good one?

Is it representative of a programme that develops all-round students with professional competence (i.e. is it in alignment with the University's objectives)? ☐

Does it meet the requirements of relevant professional bodies as an accredited training programme to that profession? ☐

Is it of a manageable size and there is no unnecessary overlapping among outcomes? ☐

Can the list of outcomes be easily understood by those who may read it (teachers, students, employers, administrators etc)? ☐