# DEVELOPMENT OF ASSESSMENT FRAMEWORK
# OF APPLIED LEARNING SUBJECTS IN HONG KONG

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## Abstract

Hong Kong is going to have the New Senior Secondary Education in place starting from September 2009 with the first cohort of students taking the school leaving public examination at 18+ years, the Hong Kong Diploma of Secondary Education Examination (HKDSE), in 2012. In principle, every student has to take four core subjects (Chinese Language, English Language, Mathematics and Liberal Studies) and two to three elective subjects. There are twenty elective subjects which are mainly academically-oriented. Apart from these, student may opt to take one to two Applied Learning (ApL) subjects. ApL is newly introduced in the academic structure in Hong Kong. It purports to diversify the learning opportunities available to students. It is intended that students of varying abilities, particularly those who will benefit from a strong practical orientation in their learning, should gain from the subjects to enrich their learning experiences. Since ApL subjects are also considered as elective subjects, they have to be made comparable with other academic subjects. This comes into an issue of recognition. It is then the HKEAA's role to monitor the assessment of the ApL subjects and to assure the achievement standards. Though the assessment results will ultimately be recorded in the Hong Kong Diploma of Secondary Education transcript, the reporting of ApL is slightly different from the academic subjects. ApL subjects will be reported in two levels: Attainment, and Attainment with Distinction. Students, who meet the requirements of the threshold criteria, will be awarded 'Attainment' level. To those who reach the excellent level of performance, 'Attainment with Distinction' will be awarded, which is deemed to be comparable to a particular level of other HKDSE subjects secured by using a statistical prediction analysis.

## Introduction

Hong Kong is now undergoing an educational reform switching from 3+2+2 years of secondary education to 3+3 years. Regarding the senior secondary education, a proposed three-year structure was recommended by the Education Commission (2000, p.99). Along with the change in structure, the Education Commission (2000, p.100) also suggested:

> *"Compared with basic education, senior secondary education should provide students with more work-related experiences, enhance their knowledge about the working life, help them develop a positive attitude towards work, and help them explore their own aptitudes and abilities to prepare them for future employment."*

When an action plan started to implement the new senior secondary education, the position of introducing ApL subjects was made clearer after conducting some pilot studies. ApL subjects are characterised by developing the potential and interests of those students who learn better through applying and doing in a practical way. It was recommended that these subjects be provided alongside other subjects offered by

schools (Education and Manpower Bureau, 2005, p.52). (A list of ApL subjects is enclosed in Annex 1.)

According to the experience gained in the pilot studies, ApL subjects are compartmentalised in six areas of studies. It is observed that post-secondary institutions have the expertise in developing diversified learning opportunities that are pertinent to the social and economic development of Hong Kong. These institutions are in a better position to offer these ApL subjects. In general, they have got a well-developed quality assurance mechanism and are able to embody all good assessment work during the course. In order to have a better alignment under the umbrella of Hong Kong Diploma of Secondary Education transcript, HKEAA is authorised to command the moderation of the assessments made by individual institutions and does a prudent course of action to compare and calibrate assessment results within individual subjects, and across different areas of studies. Hence, a common assessment framework for all ApL subjects has to be designed and followed closely. (Samples of Assessment Scheme and Assessment Task Information Sheet are enclosed in Annex 2 and Annex 3.)

**Assessment Framework and Accompanying Rubrics**

In order to achieve high reliability and validity in HKDSE, the HKEAA has developed for each ApL subject a common Assessment Framework and accompanying rubrics. With all assessment tasks clearly specified, a moderation mechanism is then established to standardise the assessment results. Assessment in Applied Learning is carried out through a systematic method to obtain evidence and make judgement on student performance. Drawing Inferences about student competence follows. With both the evidence of the processes and the products of student performance collected in the course, a 'four-region ($2\times2$) assessment grid' model consisting of two dimensions is employed. The horizontal dimension represents the mode of assessment: Continuous Assessment (CA) and End-of-subject Assessment (EA). The vertical dimension represents Direct Evidence Assessment (DEA) weighting and Indirect Evidence Assessment (IEA) weighting. Figure 1 illustrates the 'four-regions assessment grid" where the percentages shown in the regions are only a typical example of the allocated weightings. These allocated weightings can be changed depending on the nature of an ApL subject.

Figure 1
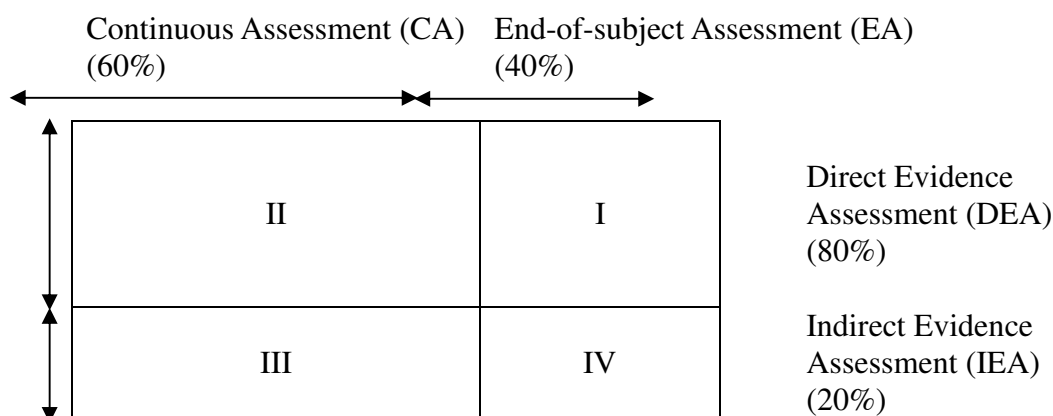
DEAs are those that can readily be traced back for review and thus need to be recorded and filed as hard copies or soft copies. They include, among others, paper-and-pen tests, projects, portfolios, and performances recorded in video clips. IEAs are those that cannot readily be traced back for scrutiny. They include observations, impression ratings, and subjective scores. On the other side, CA and EA can be either or both DEA and IEA. Their difference is a matter of when the assessment is conducted.

In the Assessment Framework of an ApL subject, a certain number of common assessment tasks (CATs) should be designed to facilitate the comparison of different classes conducted in an institution. All these CATs should fall into Regions I, II and IV (see Figure 1). The relative weightings of CATs in the total assessment results will be decided by the institutions after consulting with the HKEAA. Each individual subject can include its own CATs to meet the subject objectives and learning outcomes. The assessment results in Regions I, II and IV being grouped together are expected to contribute more than half of the total assessment score. The aggregated assessment results in these regions will then serve as the base for the internal standardisation of the assessment results in Region III, which will be discussed in the paragraphs followed.

**Rationale of Moderation**

For the provisions of quality assurance, a proper moderation system should be envisaged. Maintaining the credibility and integrity of ApL is the first and the utmost important issue in the development of the assessment framework of ApL. The diversity of ApL subjects leads to the question of their comparability both across different ApL subjects and with other academic subjects in HKDSE. Being a certification authority, HKEAA is committed to ensure that fair, consistent and reliable assessments are produced across different ApL subjects. Hence, a two-tier accountability-oriented moderation mechanism is established to assure the reliability and validity of the assessment results internally and to conform to the HKDSE requirements. Effective internal standardisation and systematic external moderation both help maintain consistent standards in different ApL subjects, and thereby public confidence can be commanded.

**Internal Standardisation Mechanism**

Moderation for accountability and moderation for improvement are interwoven. Internal standardisation aims at standardising assessment judgements, making them consistent and reliable within and across different groups of students in an institution. During the process, it provides an opportunity for a re-visit on assessment tasks, assessment practice, assessment decisions, and performance of assessors. This not only helps assure or improve the quality provisions of ApL subjects, but also gives positive impact on accountability-oriented moderation.

In practice, participating post-secondary institutions are required to maintain and operate an internal standardisation mechanism which complies with the assessment objectives of ApL. It includes any activities that can enhance consistency of assessment judgement. The institutions are advised to operate the mechanism in a four-step cycle: Plan, Implement, Review and Improve. Depending on institutional

factors, the internal standardisation mechanism can be a part of the quality assurance system monitored by a central unit of an institution. Since the post-secondary institutions are responsible for conducting assessments and assuring quality, they will be requested to implement the assessment frameworks that can facilitate the standardisation of procedures, documentation and support provided to assessors. They should then keep all the records of both continuous assessment and end-of-course assessment in relation to direct evidence (i.e. Regions I and II).

In addition, Standardization meetings of assessors should be conducted during the course to review the assessment products in Region II (CA-DEA).   The primary aim of these meetings is to foster a common understanding and interpretation of the assessment criteria and marking schemes, as well as to promote comparable assessments.   A similar standardization meeting should be held at the end of the course using the previously agreed standard as a reference.   Documentation of these meetings is required as part of the overall certification process.

**External Moderation Mechanism**

Notwithstanding the internal standardisation mechanism, discrepancies may also occur among different ApL subjects. Despite assessing students by using the same common assessment tasks and assessment criteria, some internal assessors may tend to be harsher or more lenient in their judgements than the others and some may tend to use a narrower or wider range of grades or marks. To address this issue, an external moderation mechanism is needed to ensure inter- and intra-assessor consistencies for all ApL subjects. The purpose of the external moderation mechanism is to ensure fairness and comparability of assessment results across different classes or groups, so that stakeholders can indubitably recognise students' performance in ApL.

In general, an external moderation mechanism involves the review of the assessment results and the adjustment, not the re-assessment, of grades or marks based on students' performance in an authentic context. In this process, assessment criteria and achievement standards will be deliberated. Sufficient representative samples of the common assessment tasks are identified and inspected against pre-determined attainment requirements.

To facilitate the process, a moderation panel will be formed to review the assessment results and to ensure consistency of standards. The moderation panel is made up of three parties, namely representatives from the HKEAA and the institution, and an external subject expert. Judges in the panel are responsible to scrutinize samples of evidence of student performance (in Regions I and II) against the pre-determined attainment criteria and determine whether they concur with the judgement of the original internal assessors. Eventually students' total scores will be adjusted to rectify the assessment standards among classes or groups, while preserving the rank ordering of students determined by individual internal assessors.

Upon completion of standardisation and moderation, results will be submitted by the moderation panel to the Public Examinations Board for approval. This arrangement is made in line with the practice for other HKDSE subjects.

**Attainment Criteria**

In 2012, standards-referenced reporting (SRR) is adopted for all HKDSE subjects. Candidates' levels of performance will be reported with reference to a set of standards as defined by cut scores on a scale for the subjects. Within the context of the HKDSE, there will be five cutting scores, which will be used to distinguish five levels of performance (1-5), with 5 being the highest. However, performance of students in ApL subjects will be reported differently.

As mentioned earlier, performance of students in ApL subjects is reported in two levels: Attainment, and Attainment with Distinction. In designing the assessment framework, while each ApL subject has got its own attainment criteria, all common assessment tasks should have its attainment requirements that are clearly stated in assessment task information sheets. The aggregate of all kinds of assessment conducted in the course will yield a final score for each student. This aggregated final score is then used to determine the attainment level of the student.

The attainment criteria for different ApL subjects will be different. In fact, they are all unique. It is because each ApL subject has its own emphasis and orientation. However, these criteria are stipulated in the assessment framework and need to be made known to all students. 'Attainment' in one ApL subject is hardly comparable to the 'Attainment' in another one in a strict manner. But, they reserve the same status with respect to students' generic skills and competence. A student with typical performance of 'attainment' should broadly-speaking meet the attainment criteria of all assessment tasks. Compensation of different performances in different tasks is allowed. A cut score with reference to the standard is determined by judges in the moderation panel based on the evidence of the assessment results collected.

Regarding the achievement of 'attainment with distinction', it was recommended that the award be comparable with other HKDSE academic subjects. In this sense, a rigorous comparability analysis should be embraced. Since all senior secondary school students have to take four core HKDSE subjects, their performance in these subjects forms a common vehicle for comparison. That is, the performance in the four core HKDSE subjects of students who study a particular ApL subject is analysed statistically. It is suggested that the number of students awarded 'attainment with distinction' in that particular ApL subject be determined by counting the number of those students with at least one or two Level 3 or above awards in the four core subjects. As a result, the achievement of 'attainment with distinction' can be deemed to be comparable to SRR Level 3 or above. This sets up a link between the two categories of subject. Eventually the results of 'attainment' and 'attainment with distinction' in ApL together with the results of other academic subjects can be considered for university admission.

**Future Development**

Applied Learning subjects as part of HKDSE are newly introduced in Hong Kong. Comparatively these subjects are a bit career-oriented or vocational-based. In traditional secondary school education, ApL subjects do not have much room to survive. One major reason is that the curriculum is rather too dynamic and it requires subject expertise which a traditional school may not have. With post-secondary institutions involved in the teaching and learning, our secondary school curriculum

can be diversified though a lot of administrative issues may arise. Gaining recognition of ApL from a certification authority also gives strength to their future development. Ultimately, the senior secondary school curriculum of Hong Kong will get a new outlook.

## References

Education and Manpower Bureau (2006). *Action for the Future --- Career-oriented Studies and the New Senior Secondary Academic Structure for Special schools,* HKSAR, PRC.

Education and Manpower Bureau (2005). *The New Academic Structure for Senior Secondary Education and Higher Education --- Action Plan for Investigating in the Future of Hong Kong,* HKSAR, PRC.

Curriculum Development Council (2001). *Learning to Learn - The Way Forward in Curriculum,* HKSAR, PRC.

Education Commission (2000). *Learning for Life Learning through Life --- Reform Proposals for the Education System in Hong Kong,* HKSAR, PRC.

# Applied Learning Subjects for 2007-09 Cohort

### Area 1: Applied Science
(1)    Foundation in Chinese Medicine
(2)    Health and Beauty Keeping in TCM
(3)    Health Care Practice
(4)    The Healthcare Profession
(5)    Exercise Science and Health Fitness
(6)    Sports Coaching and Management

### Area 2: Business, Management and Law
(7)    Practical Accounting for SMEs
(8)    Understanding Financial Services
(9)    Law Enforcement
(10)    Marketing in Global Trade

### Area 3: Creative Studies
(11)    Fashion Image and Hair Design
(12)    Innovative Product Design
(13)    Jewellery Arts and Design
(14)    Commercial Comic Art
(15)    Creative Digital Arts
(16)    Creative Multimedia Studies
(17)    Introduction to Theatre Arts
(18)    Taking a Chance on Dance

### Area 4: Engineering and Production
(19)    Aircraft Maintenance
(20)    Automotive Technology
(21)    InterNetworking in Business
(22)    Utility Profession and Applications

### Area 5: Media and Communication
(23)    Radio Host Presentation Skills
(24)    Film and Video Studies

### Area 6: Services
(25)    Child Development and Care
(26)    Working with Children
(27)    Western Cuisine
(28)    Events Planning and Operation
(29)    Hospitality Services in Practice
(30)    Hotel Operations
(31)    Fundamental Cosmetology

**Applied Learning – InterNetworking in Business (SAMPLE)**
**Assessment Scheme**

| | Task Name | Task Description | Assessment Method/Format | Type of Evidence | Learning Outcomes | Attainment Requirements | Assessment/Due Date | Weighting | CAT (Y/N) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Introduction to Internetworking in Business | Understand the basic characteristics of internetworking in Business. | Assignment | Region II | LO 1 | 20/40 marks | | 4% | Y |
| 2 | Understanding of Internetworking devices | Identify the functions of common internetworking devices and their differences. | Group project | Region II | LOs 1 & 2 | 50/100 marks | | 10% | Y |
| 3 | Network protocols | Identify the use of TCP/IP and the network setting involved. | Quiz | Region II | LO 3 | 20/40 marks | | 7% | N |
| 4 | Network setup | Connect and set up a computer network consisted of three computers, a router and a broadband modem. | Practical task | Region III | LOs 2, 3 & 4 | 30/50 marks | | 10% | Y |
| 5 | Advanced network setup | Connect two subnets for file sharing and network printing. | Practical task | Region III | LOs 2, 3 & 4 | 30/50 marks | | 10% | Y |
| 6 | Introduction to network Security | Identify the common security measures for internetworking in business. | In-class exercise | Region II | LOs 4 | 20/40 marks | | 4% | N |
| 7 | Case study | Solve a network problem and/or complete a change request on the network in an office. | Practical skills-based test | Region IV | LOs 1, 2, 3 & 4 | 50/100 marks | | 15% | Y |
| 8 | Final written assessment | Answer 30 multiple-choice questions and 2 case-study type questions. | Written test | Region I | LOs 1, 2, 3 & 4 | 40/100 marks | | 40% | Y |

**Applied Learning – InterNetworking in Business (SAMPLE)**
**Assessment Task Information Sheet**

Subject Title:   InterNetworking in Business

Task Name:   Understanding of Internetworking devices

Task Code:   INB–04

Task Description:
  Identify the functions of common internetworking devices and their
  differences.

Link to Course's Learning Outcome:
  LO 1: Understand the basic concepts of internetworking in business.
  LO 2: Identify and describe the functions of basic components involved in
  internetworking in business.

Assessment Objectives: Students should be able to
  1.  identify and describe the functions of various network devices in a simple
     computer network in an office;
  2.  demonstrate the ability to apply knowledge and understanding of network
     devices in different internetworking environment.

Nature of Assessment:   Region II

Assessment Method/Format:  Group project

Weighting:   10%

Assessment Criteria:
  1.  Objective & Analysis
  2.  Design
  3.  Implementation
  4.  Evaluation
  5.  Conclusion & Discussion
  6.  Documentation

Attainment Requirement:
  Unattained: 49 marks or below
  Attained:   Satisfactory   50–69 marks
            Good         70–85 marks
            Excellent     86–100 marks

Assessment/Due Date:   November 2007