

香港中學文憑考試

Hong Kong Diploma of Secondary Education Examination

Moderation of School-based Assessment Scores in the HKDSE

香港中學文憑

校本評核分數調整機制

Table of Contents

目錄

1	Introduction 簡介	2
2	The need for moderation 分數調整的需要	3
3	The basic concept 基本概念	4
4	Statistical moderation 統計調整	7
5	Expert judgment moderation 專家判斷調整	14
6	Feedback to schools 給學校的回饋	17
7	Frequently-asked questions 常見問題	18
	Appendices: The moderation formulas 附錄：調整公式	24

1 Introduction

簡介

School-based Assessment (SBA) is a salient feature of the Hong Kong Diploma of Secondary Education (HKDSE) Examination. SBA refers to assessments administered in schools and marked by the students' own teachers. SBA scores awarded will count towards students' public assessment results.

SBA has been adopted in Hong Kong Certificate of Education Examination (HKCEE) and Hong Kong Advanced Level Examination (HKALE) for many years and moderation of SBA scores is not a new practice in public examinations. Like other examination authorities, the Hong Kong Examinations and Assessment Authority (HKEAA) makes use of well-established methods to moderate SBA marks submitted by schools. For example, statistical moderation methods have been adopted in a number of HKCEE and HKALE subjects, including the HKCEE Chinese Language and English Language since 2007.

The purpose of this booklet is to explain the rationale and key features of moderation methods in the HKDSE Examination, to describe the feedback to be provided to schools, and to give answers to some frequently-asked questions about the SBA moderation mechanism.

The moderation mechanism for subsequent HKDSE examinations will be subject to review in the light of experience from the 2012 examination. Schools will be informed of any changes with an adequate period of notice.

校本評核是香港中學文憑考試的主要特色。校本評核是指在日常學與教過程中，由學校任課教師來評核學生的表現。評核的分數將計入學生的香港中學文憑考試成績。

校本評核已在香港中學會考(會考)和香港高級程度會考(高考)實施多年，而校本評核分數調整也並非新措施。香港考試及評核局(考評局)跟大部分國家和地區的考試機構一樣，會以不同方法調整學校呈交的分數。其中，不少會考和高考的科目，包括自2007年開始的會考中國語文科和英國語文科，都有運用統計方法調整校本評核分數。

本小冊子介紹香港中學文憑考試校本評核分數調整方法的原理、主要特點、給學校的回饋，並解答一些有關分數調整的常見問題。

考評局將在2012年首屆香港中學文憑考試完成後，就所得的經驗檢討校本評核分數調整機制。如需作出改動，將會於適當時候通知學校。

2 The need for moderation

分數調整的需要

The main reason for carrying out moderation is to ensure the consistency of assessment standards across schools. Teachers know their students well and thus are best placed to judge their relative performance. In consultation with their colleagues, they can reliably judge the relative performance of all students within the school in a given subject. However, they are not necessarily aware of the standards of performance across all schools. Despite the fact that all teachers are trained in the implementation of SBA and will assess students using the same assessment criteria, teachers in some schools may be harsher or more lenient in their judgments than teachers in other schools. They may also vary in the range of scores that they award.

To address these potential problems, the HKEAA employs appropriate methods for 'moderating' the raw SBA scores submitted by different schools, with the following aims:

- to maintain comparability of SBA results across schools, and thus ensure fairness for individual students and schools;
- to maintain the quality, reliability, and validity of SBA from year to year; and
- to gather information that may be useful for making recommendations for improved practice (feedback to schools).

分數調整的主要目的，是確保學校之間評分一致。由於任課教師清楚了解其學生的能力，所以由他們進行校本評核是最適當的。透過教師之間的互相討論，他們能對校內就讀同一科目的所有學生作出可靠的評核。可是在評核學生的過程中，教師未必了解其他學校學生的表現水平。儘管考評局已為教師提供有關校本評核的培訓課程，而教師亦採用相同準則評核其所教的學生，但部分學校教師的評核過於寬鬆或過於嚴格仍難以避免。此外，不同學校教師所給的分數範圍也可能相差很大。

為處理這些潛在問題，考評局會以適當方法調整由不同學校呈交的校本評核原始分數，達致下列目的：

- 維持校本評核成績在學校之間的可比性，以確保校本評核的公平；
- 維持校本評核成績在年與年之間的素質、信度及效度；以及
- 蒐集數據回饋學校，以進一步優化校本評核的施行。

The basic concept

基本概念

The moderation process deals with the scores awarded by teachers and takes place after the assessment has been completed and scores submitted to the HKEAA.

There are essentially two ways in which differences in marking standards may affect raw SBA scores. Firstly, teachers in a given school may be either harsher or more lenient than teachers in another school when awarding scores (variations in average scores). Secondly, they may tend to either overly bunch students' scores together or spread them apart (variations in the spread of scores).

Moderation can be interpreted as a means of adjusting the average and the spread of raw SBA scores of students in a given group (usually a particular school) with an aim to maintain the comparability across groups. To compare performances of different groups, a moderating variable (for example, public examination scores or results obtained after reviewing samples of SBA work) can be used as a reference.

For HKDSE, a moderation group is defined as a school, unless specified in some special cases (for example, a group of students from different schools who are taught and assessed by the same teacher(s) using the same assessment standards will be considered as a single moderation group). The SBA moderation process for each subject will include two basic components. They are:

1. the determination of group performance level of individual moderation groups based on the moderating variable, that is, how the average performance of students in each group compares with that of all other groups;
2. the determination of individual students' moderated SBA scores, taking into consideration how a student in a moderation group performs in comparison to all other students in the same group.

校本評核分數調整在學校完成校本評核，並向考評局呈交分數後進行。

評分水平的差異對校本評核分數的影響主要有兩方面。首先，某一學校的教師在評分時可能比其他學校寬鬆或嚴格（平均分數的差異）；其次，他們也可能把分數過於集中在一個狹窄的範圍或過於分散在一個寬闊的範圍（分數分布的差異）。

分數調整是指對調整組別（通常指一所學校）內學生校本評核原始成績的平均分和分數分布作出調整的機制，目的是確保不同學校成績的可比性。為比較不同學校的成績，調整時一般會以一個調整變數（例如公開考試成績或檢視學生校本評核作業樣本的結果）作為參照。

在香港中學文憑考試，除個別特殊情況外（例如多所學校合作開設的科目，由相同教師負責教授並按相同的評核水平評分，將合併為同一個調整組別），一個調整組別通常是指一所學校。校本評核分數調整包括兩個基本要素：

1. 參照調整變數，並通過比較個別調整組別內所有學生的平均表現是否高或低於其他組別，從而得出每個調整組別的組別表現水平；
2. 通過比較每個學生與調整組別內所有學生的平均表現，從而得到該學生的調整分數。

In mathematical terms, the moderated SBA score of a student can be expressed as follows:

$$\begin{array}{r} \text{Group performance level} \\ + \\ \text{Difference within group} \\ \hline = \\ \text{Moderated SBA Score} \end{array}$$

Different approaches can be used to determine the group performance level and the difference within group - for example, a statistical approach, an expert judgment approach or a consensus approach. Each approach has its benefits and limitations. To accommodate the different characteristics of SBA components across all subjects, and to produce reliable moderation results, the HKEAA has adopted two moderation methods, the statistical approach and expert judgment approach.

總的來說，學生的校本評核調整分數可歸結如下：

$$\begin{array}{r} \text{組別表現水平} \\ + \\ \text{學生的組內差} \\ \hline = \\ \text{校本評核調整分數} \end{array}$$

決定學生所屬組別的組別表現水平和每名學生的組內差的方法有很多，包括統計方法、專家判斷方法及共識方法等。每一種方法都有其優點及限制。為配合不同科目校本評核的特性 and 得到可靠的分數調整結果，考評局採用了兩種調整方法，分別是統計調整和專家判斷調整。

Table 1 SBA Moderation methods for HKDSE Category A subjects
 表一 香港中學文憑考試甲類科目的校本評核分數調整方法

	Statistical Moderation 統計調整	Expert Judgment Moderation 專家判斷調整
Approach 方式	Statistical moderation supplemented with sample review of students' work 統計調整，並輔以學生作業樣本檢視	Expert judgment moderation supplemented with statistical techniques 專家判斷調整，並輔以統計技術應用
Characteristics of SBA component 校本評核的特點	This method is adopted for subjects in which the SBA and the public examination share a substantial portion of common assessment objectives 用於校本評核與公開考試有相近評核目標的科目	This method is adopted for subjects with a small candidature or which involve outcomes that are very different from those assessed through the public examination 用於考生人數較少或校本評核內容與公開考試表現極不相近的科目
Key features 主要特色	Determination of group performance level with reference to the performance of the group in public examinations (statistical method), supplemented with review of samples of students' work 根據調整組別內學生在公開考試的表現，利用統計方法決定組別表現水平，並輔以學生作業樣本檢視	Determination of group performance level with reference to review of samples of students' work (expert judgment), assisted with statistical techniques 由學科專家檢視學生作業樣本，以決定組別表現水平，並輔以統計技術的應用

4 Statistical moderation

統計調整

Statistical moderation is particularly appropriate in situations where there is another measure available that can be used to 'moderate' schools' raw SBA scores. Typically this other measure will be students' performance in the public examination in that subject. An advantage of the method is that it can be carried out easily, impartially and without a large commitment of time and resources, though it cannot be carried out until the marking of public examination scripts has been completed, a significant delaying factor. This method is reliant on the assumption that the measure used to moderate the raw SBA scores is a valid measure of the overall level of performance of students in a moderation group. Generally speaking, this is a valid assumption in the context of many academic subjects in public examinations.

The moderation model adopted for HKDSE will be closely based on the one used for the HKCE Chinese Language and English Language Examinations since 2007. Using this method, the moderation involves adjusting the average and the spread of raw SBA scores of students in a given school with reference to the public examination scores of the same group of students. During the moderation process, students' raw SBA scores may be adjusted, but the rank order determined by the school will remain unchanged. Generally speaking, the results obtained will become the final SBA scores of individual students in that school.

However, as some of the objectives assessed in the SBA are not identical to those covered in the public examination, if only schools' public examination scores are used to adjust students' raw SBA scores, the result may not fully reflect the students' actual performance in the SBA. For example, there may be some outlier schools whose statistically moderated scores differ greatly from the level of performance demonstrated by students' SBA work.

當 有其他量度學業表現的考試或測驗成績可作參照時，以統計方法調整學校呈交的校本評核原始分數最為合適。最常用的參照為同一科目的公開考試成績。雖然統計調整需待公開考試閱卷完成後方可進行，但其好處是容易實施、公平、節省時間及資源。這個方法需要依據一個假設：該考試或測驗能有效地量度一個調整組別內學生的整體表現。一般而言，大多數公開考試科目都能滿足上述條件。

香港中學文憑考試的統計調整機制建基於自2007年開始用於會考中國語文科和英國語文科的調整方法。統計調整方法參照每所學校的學生在公開考試的分數來調整他們校本評核原始分數的平均值和分布。雖然每個學生的分數可能被調整，但其在組別中的次第維持不變。一般來說，統計調整所得的結果將會是學生的最終校本評核分數。

然而，由於校本評核往往涉及一些公開考試未能涵蓋的能力，若純以公開考試成績來調整學生的校本評核分數，對某些學校而言，未必能完全反映學生在校本評核的真實表現；而在調整過程中，這些學校可能出現以統計方法所得的調整幅度和作業展示的學生實際表現水平有較大差異。

Through reviewing samples of students' work, these outlier schools can be identified in the moderation process. In handling these outlier schools, the findings from the sample review will be compared with results obtained from the statistical method. Where appropriate, adjustments will be made to the statistically moderated scores of these outlier schools so that the final moderated scores can better reflect the actual performance of their students in the SBA. This process further improves the validity of the SBA results.

The details of the statistical method are as follows:

A. Statistical moderation with reference to public examination scores

Raw SBA scores are moderated with reference to the moderating variable (i.e. the public examination scores), taking into consideration the correlations between the raw SBA scores and the scores for each examination paper within each moderation group as well as across moderation groups. The detailed procedures are outlined in Figure 1 and the formula is given in Appendix A.

考評局會透過檢視學生作業樣本，辨別這類情況特殊的學校 (outlier schools)。在處理這些個案時，我們會比較分析統計調分和作業樣本展示的實際表現等數據，必要時會調節這些學校統計調分的結果，以決定最能代表學生表現的調整幅度，進一步提升校本評核分數的效度。

統計調整方法的詳情如下：

甲. 依據公開考試分數作統計調整

各個調整組別的校本評核原始分數參照調整變數 (即公開考試分數) 進行調整，過程中會考慮各組別的原始分數與公開考試分數，以及跨組別之間分數的相互關係。詳細的程序在圖一顯示，而其中的公式列於附錄A。

Raw group SBA scores and examination scores are converted to a common scale of 1 to 100 points, for the purpose of calculation and comparison.

為方便計算和比較，先把組別的校本評核原始分數和公開考試分數轉化為100分制。

The weighted combination of examination scores in a given subject that best predicts SBA scores is calculated. The resulting score is used as the moderating variable in the moderating process.

用公開考試各卷分數計算最能反映校本評核分數的合成分數作為校本評核分數調整的參照，這個合成分數用作調整過程的調整變數。

A moderation formula is derived by statistical methods. To avoid distortion of moderation results, some extreme cases are temporarily excluded from the calculation.

用統計方法推算出一個調整公式，用於計算校本評核調整分數。在這步驟中，一些極端的個案將被暫時排除在外，以免這些個案影響調整結果。

The moderation formula is applied to each school to calculate the moderated SBA score for each student.

根據上一步驟推算的公式，計算每個學生的校本評核調整分數。

Figure 1 Procedures of statistical moderation with reference to public examination scores

圖一 依據公開考試分數作統計調整的程序

B. Review of samples of students' work

After submission of SBA scores in S6, all schools will submit samples of students' work for review by SBA district coordinators (DCs) or assessors appointed by the HKEAA. The sampling method and the reviewing procedures are as follows:

Sampling method:

Each school submits a prescribed number of samples of students' work. Unless otherwise specified, the samples will be chosen by the HKEAA using a stratified random sampling technique. Students in each school are divided into a number of strata based on their raw SBA scores. In each stratum, the level of performance of students is similar to each other. A number of students are then randomly chosen from each stratum. This sampling method can ensure that a fairly small sample of students' work can adequately represent the full range of SBA performance standards for each school. For schools where only a few students are studying a particular subject, the work from all students has to be submitted.

Review:

DCs/assessors review the samples of student work collected, either by commenting on teachers' assessment standards or by remarking students' work with reference to the stipulated assessment criteria.

C. Outliers detection and follow-up actions

The statistical moderation results will be compared to the results from the sample review. If the two are broadly comparable with each other, the statistical moderation results will be adopted. If the difference between the two is significant, SBA supervisors and HKEAA subject managers will follow up on these outlier cases and will modify the adjustment recommended by the statistical method, if necessary, so that the moderated results will better reflect students' SBA performance. Additional samples will be solicited from particular schools if necessary.

乙. 檢視學生作業樣本

所有學校須於提交中六學年校本評核分數後，呈交學生作業樣本供考評局委任的校本評核分區統籌員或評核員檢視。抽樣方法與檢視程序如下：

抽樣方法

每所學校須呈交指定數目的學生作業樣本。除特別指明外，樣本是考評局以分層隨機抽樣方法選定的。基本上，每所學校的學生會按其校本評核原始分數分為若干層次，每一層次內的學生表現相若。接著在每層隨機抽選若干名學生提交作業。這種抽樣方法可確保少數的樣本也足以全面反映學校中不同能力學生的表現。如果某些學校修讀個別科目的學生人數太少，學校須呈交所有修讀該科目學生的作業。

檢視程序

分區統籌員/評核員檢視學生作業樣本的方法有兩種：其一是審視學校教師評核學生作業的標準及尺度；另一方法是重新評閱作業。兩者皆按已訂明的評核準則進行。

丙. 分辨與跟進處理情況特殊的個案

統計調整的結果將與樣本檢視的結果互相比較。如兩者大致相符，則統計調整結果會成為最終的調整分數；如兩者差異顯著，則校本評核監督和考評局的科目經理將跟進這些情況特殊的個案。如有需要，會修正統計調整所建議的結果，以決定更能代表學生表現的調整幅度。在需要時，會要求學校呈交更多樣本以供參考。

Impact of statistical moderation

The impact of moderation on the SBA scores of the moderation groups and individual students is illustrated below with some hypothetical data.

Impact on moderation groups

In this example, there are just two schools, School A and School B. Each school is a moderation group. The overall performance of the students from both schools in the public examination and in the SBA is illustrated in Figure 2.

Figure 2(a) shows that, overall, the students from School B performed better in the public examination than the students in School A.

Figure 2(b) shows that the raw SBA scores of the students from both schools follow a similar distribution.

Figure 2(c) shows the impact of the statistical moderation process. The mean of the SBA scores of School B has increased after moderation while the mean of SBA scores of School A has decreased after moderation to reflect the performance of their students in the public examinations. In addition, the scores for both schools become more widely spread, reflecting the greater spread of the same students in the examination.

統計調整的影響

以下用一些例子(包含模擬的數據),說明統計調整對調整組別及個別學生校本評核分數的影響。

對調整組別的影響

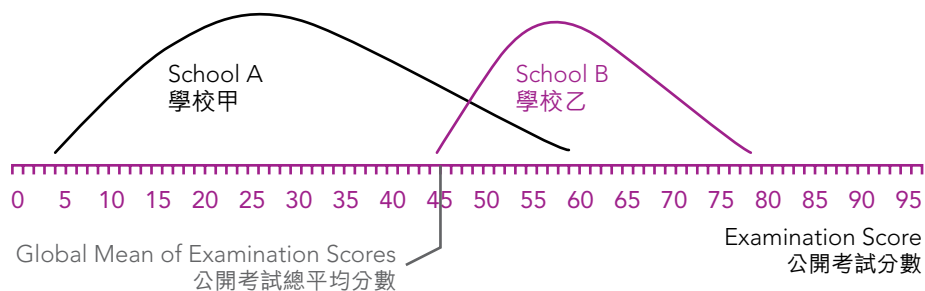
在這個例子中,假設只有學校甲和學校乙兩所學校。每所學校就是一個調整組別。圖二展示兩所學校的學生分別在公開考試及校本評核中的整體表現。

圖二(甲)顯示學校乙在公開考試的整體表現比學校甲優勝。

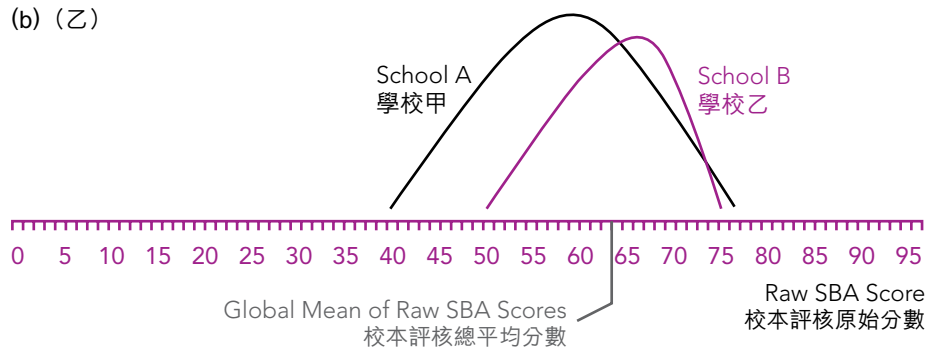
圖二(乙)顯示學校甲及學校乙在校本評核的原始分數分布差異不大。

圖二(丙)顯示統計調整對學校校本評核成績的影響。調整參照學校在該科公開考試的整體表現,經調整後,學校乙的校本評核平均分數有所增加,而學校甲的平均分數則有所減少。至於分數的分布,兩所學校的成績分布均被拉闊,以反映其在公開考試較寬的成績分布。

(a) (甲)



(b) (乙)



(c) (丙)

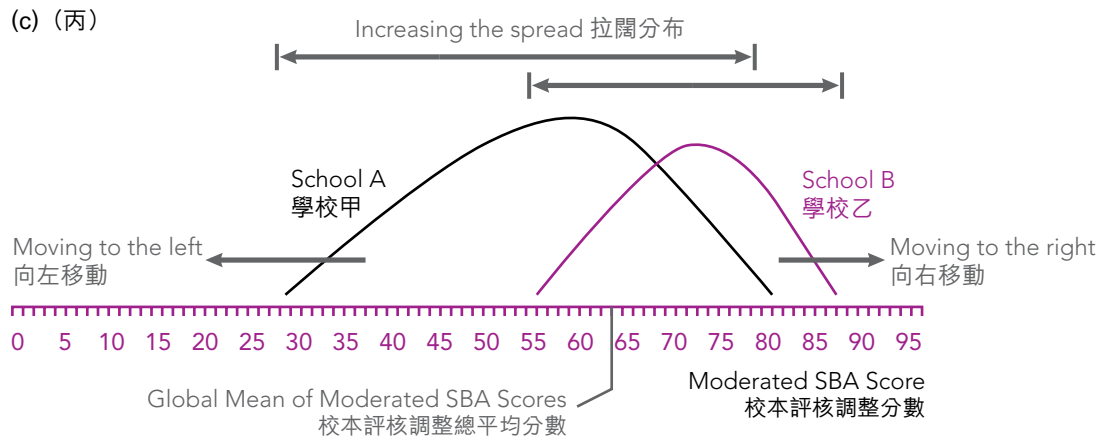


Figure 2 Impact of statistical moderation on moderation groups
圖二 統計調整對調整組別的影響

Impact on individual students

In this example, there are 26 students (A to Z) in a moderation group and their performance is as shown in Figure 3. The relationship between the public examination scores and the raw SBA scores (Figures 3a and 3b) shows that there is a significant difference between the two sets of scores for this group. Supposing that the group mean of the raw SBA scores is much higher than that expected for groups with a similar performance in the public examination, the raw SBA scores of the group need to be adjusted downwards. After statistical moderation, the results would be similar to those shown in Figure 3c.

Figure 3a and Figure 3b also show that Student B got the top score in his group in the public examination, and Student H got the lowest score. However, in the SBA, Student B was not the highest-scoring student and Student H not the lowest-scoring student. In comparison, Student B did less well in the SBA than in the public examination while Student H did much better in the SBA than in the public examination.

After moderation, although the raw SBA scores have been adjusted, the rank order of the students remains the same. Figure 3c shows that the rank order of Students B and H has not been affected at all. In other words, individual students' moderated SBA scores are not directly affected by how well they performed as individuals in the public examination. For example, Students D, C and B have the same raw SBA scores before moderation, despite their differences in examination performance. After moderation, they will have the same moderated SBA scores.

Figure 3d shows the total subject score for each student after the moderated SBA score is added to the examination score. Students with high raw SBA scores benefit even after moderation.

對個別學生的影響

在這個例子中，假設一個調整組別共有26名學生（A至Z）。圖三顯示他們在公開考試及校本評核的表現。通過檢視公開考試成績與校本評核原始分數的關係後【圖三（甲）及三（乙）】，發現這組別的兩組成績有很大差別。假設已知這組別的校本評核平均分數明顯高於公開考試成績相若的其他組別，因此需要調低該組別的校本評核分數。【圖三（丙）】展示調整後的校本評核分數。

現在觀察一下該組別其中兩名學生在調整後的校本評核分數。圖三（甲）及三（乙）顯示學生B在公開考試中獲得最高分數，而學生H則分數最低。但這並不代表在校本評核中，學生B同樣可獲得最高分數或學生H的分數會最低。相比之下，學生B在校本評核的表現不及他在公開考試的表現，而學生H則在校本評核中取得比公開考試較佳的成績。

經統計調整後，雖然校本評核分數有所改變，但是學生的次第仍然保持不變。從圖三（丙）中可以看到，學生B及學生H的校本評核分數次第並沒有因調整而改變。換言之，學生的校本評核調整分數不會直接受其本人在公開考試的表現所影響。例如，學生D、C及B有不同的公開考試成績，但其校本評核的原始分數卻是一樣的；經調整後，他們的校本評核分數仍然相同。

圖三（丁）表示調整後的校本評核分數與公開考試分數相加後的科目總分數。學生如果在校本評核表現良好，即使經過調整，仍然有所得益。

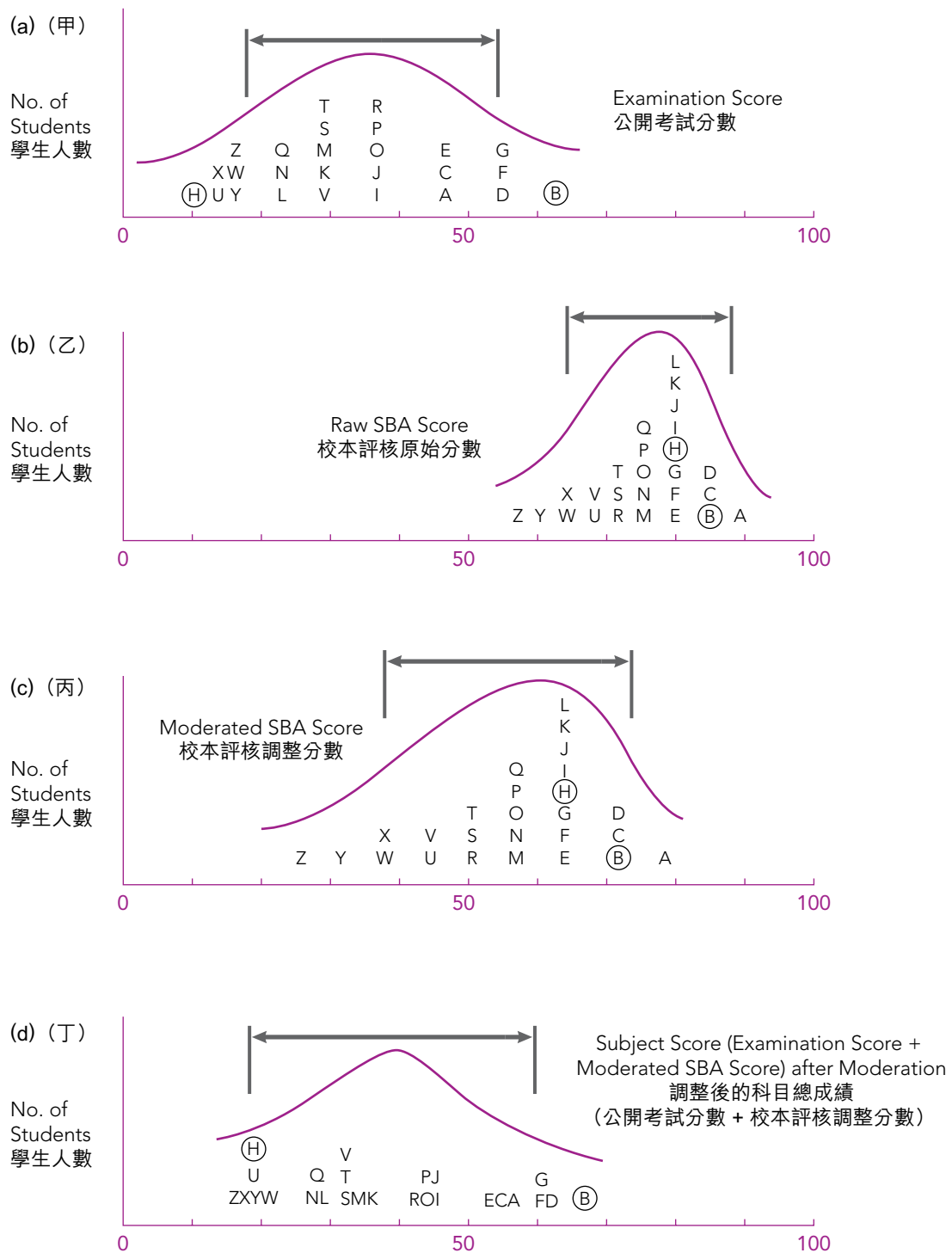


Figure 3 Impact of statistical moderation on individual students
圖三 統計調整對個別學生的影響

Expert judgment moderation

專家判斷調整

Expert judgment based on review of students' work by DCs/assessors is another approach for adjusting the raw SBA scores across different schools. This moderation method will involve selection of samples of student work covering the full range of attainment. The scores obtained from the sample review will be used to determine the group performance level. Within a group, individual students' raw SBA scores may be adjusted, but the rank order within a moderation group will remain unchanged. The details of this moderation method are as follows

A. Review of samples of students' work

After submission of SBA scores in S6, all schools will submit samples of students' work for review by DCs/assessors appointed by the HKEAA. The sampling method and the reviewing procedures are as follows:

Sampling method:

The sampling method is identical to that for the statistical moderation method.

Review:

DCs/assessors remark the samples of student work collected with reference to the stipulated assessment criteria.

B. Determination of group performance level and individual students' moderated scores

The scores obtained in the sample review exercise will be used to determine the group performance level of individual moderation groups. In this process, appropriate statistical techniques will be employed to improve the reliability of the results, including adjustments to the sample statistics with reference to the raw SBA scores of individual schools as well as the overall SBA performance of all schools (if deemed necessary). Within each group, students' moderated scores are derived in accordance with the group performance level and their relative performance within the group. Details are provided in Figure 4 and the formula is given in Appendix B.

專家判斷調整是另一種調整方法，由分區統籌員/評核員通過檢視學生作業而建議調整不同學校校本評核原始分數的幅度。這種方法涉及抽取調整組別內不同能力學生的作業樣本作檢視，結果用來決定組別表現水平。在同一組別中，學生的校本評核分數可能被調整，但在組別內的次第不會改變。以下是這種分數調整方法的詳情：

甲. 檢視學生作業樣本

所有學校須於提交中六學年校本評核分數後，呈交學生作業的樣本供考評局委任的分區統籌員/評核員檢視。抽樣方法與檢視程序如下：

抽樣方法

抽樣方法與統計調整中所描述的方法相同。

檢視程序

分區統籌員/評核員按已訂明的評核準則重新評閱學生作業樣本。

乙. 決定組別表現水平和個別學生的調整分數

檢視樣本的結果會用來決定每個調整組別的組別表現水平。過程中會應用適當的統計技術以進一步提高調整的成效，包括參照個別學校校本評核的原始分數及所有學校的校本評核整體表現調節樣本的統計量（如有需要）。在同一組別中，每個學生的調整分數取決於所在組別表現水平和該學生在組別中的相對表現。圖四顯示當中詳情，而附錄B列出有關的公式。

Determination of group performance level 決定組別表現水平

Average scores obtained in the sample review exercise are used to determine the group performance level. Statistical techniques will be employed to improve the reliability of the results obtained from the sampling and reviewing process, including adjustments to the sample statistics with reference to individual schools' raw SBA scores as well as the overall SBA performance of all schools (if deemed necessary).

檢視學生作業樣本所得的平均分會用來決定組別表現水平，過程中會參考相關的數據，包括個別學校校本評核的原始分數和所有學校的校本評核整體表現，及應用適當統計技術調節樣本統計量（如有需要），以提高抽取及檢視作業樣本的成效。



Determination of individual students' moderated score 決定個別學生調整分數

Moderated score of each student is calculated in accordance with the group performance level and the student's relative performance within the group.

每個學生的調整分數取決於所在組別表現水平和該學生在組別中的相對表現。

Figure 4 Procedures to determine the moderated score for an individual student using expert judgment moderation
圖四 以專家判斷調整決定個別學生調整分數的程序

C. Detection of cases with extreme adjustments and follow-up actions

For each moderation group, the moderated scores will be compared to the school's raw SBA scores. If the difference between the two is significant, SBA supervisors and HKEAA subject managers will follow up on these extreme cases and may modify the adjustments recommended by the expert judgment method to ensure that the moderated scores properly reflect students' performance. Additional samples will be solicited from particular schools if necessary.

Impact of expert judgment moderation

As with statistical moderation, this method also aims at moderating SBA scores by adjusting the mean and spread of the scores of each moderation group. The difference is that instead of using public examination scores as in the statistical moderation method, this method achieves this by expert judgment. Hence, with the same underlying principle, the impact of this method will be the same as that of statistical moderation: the mean and spread of the moderated SBA scores of each group may increase or decrease but the rank order of the students within the group remains unchanged.

丙. 分辨與跟進處理情況特殊的個案

每一調整組別的調整結果將與校本評核原始分數作一比較，如兩者差異顯著，校本評核監督和考評局的科目經理將跟進這些情況特殊的個案。如有需要，他們會修正專家判斷所建議的調整結果，以決定最能代表學生表現的調整幅度。在需要時，會要求學校呈交更多樣本以供參考。

專家判斷調整的影響

專家判斷調整方法的目標同樣是調整校本評核的平均分和分數分布，這方法與利用公開考試分數作為參照的統計調整方法的主要分別，是參照學科專家的專業判斷作為調整的主要依據。整體而言，兩種方法的基本原理相同，影響也近似。即使個別調整組別的平均分可能會增加或減少，分數分布也可能會拉闊或收窄，但組別中每個學生的次第維持不變。

Feedback to schools

給學校的回饋

After the examination each year, SBA moderation reports will be sent to schools for their reference. The report will specify the extent of the adjustment made to the scores submitted by schools. A draft version of the SBA moderation report for the subject of English Language is shown in Figure 5.

考評局在每年考試結束後，都會把校本評核分數調整報告送給學校。報告列出分數調整的幅度以供學校參考。圖五所示為英國語文科的分數調整報告的暫定稿。

2012年香港中學文憑考試 2012 HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION 校本評核分數調整報告 SBA MODERATION REPORT	
學校名稱： School Name:	甲乙丙學校 ABC School
科目： Subject:	英國語文 English Language
調整組別： Moderation Group:	學校 School
調整組別代號： Moderation Group ID:	1234 5678
調整組別的統計數據 Statistics of the moderation group:	
校本評核原始分數的平均分 Mean of Raw SBA Scores:	65.94
校本評核原始分數的標準差 Standard Deviation of Raw SBA Scores:	12.97
調整後校本評核的平均分 Mean of Moderated SBA Scores:	69.12
調整後校本評核分數的標準差 Standard Deviation of Moderated SBA Scores:	11.58
調整組別的人數 Number of Students in the Moderation Group:	200
評語 Comments:	
校本評核原始分數的平均分 合乎預期範圍 (其他評語：校本評核的平均分明顯高於 / 高於 / 略高於 / 略低於 / 低於 / 明顯低於) The mean of raw SBA scores is within the expected range . (much higher / higher / slightly higher / slightly lower / lower / much lower than expected)	
校本評核原始分數的分布 合乎預期範圍 (其他評語：校本評核分數的分布比預期闊 / 稍闊 / 稍窄 / 窄) The spread of raw SBA scores is within the expected range . (wider / slightly wider / slightly narrower / narrower than expected)	

Figure 5 A draft sample of an SBA report for the subject of English Language

圖五 英國語文科校本評核分數調整學校報告(暫定稿)

Frequently-asked questions

常見問題

General questions

1. Why is it necessary to use different methods to moderate SBA scores?

The design of SBA components may be different across subjects. Statistical moderation based on the use of public examination scores as a moderating variable is applicable to subjects in which public examination performance is a valid measure of the overall level of performance of students in the moderation group. On the other hand, the SBA of Design and Applied Technology, for example, focuses on assessing students' skills in deriving practical solutions to a real world design problem which is a dimension different from the requirement of the public examination. Hence, it is not appropriate to use examination results to moderate SBA scores (statistical moderation) in Design and Applied Technology. Expert judgment moderation is therefore adopted by certain subjects.

2. Will the raw scores of all the students participating in SBA be moderated?

Yes. All students participating in SBA will have their raw SBA scores moderated. Those who are excluded from the moderation group, for example the extreme cases, will still have their raw SBA scores moderated based on the information from the rest of the group.

3. Will the rank order of a student's SBA score change after moderation?

No. Within each moderation group, the rank order of a student's SBA score remains unchanged after moderation.

4. Why is standardisation among teachers within a school necessary if the HKEAA is going to moderate the raw SBA scores anyway?

Moderation by the HKEAA is conducted on a school basis, i.e. taking each individual school as a moderation group. Hence it is necessary to standardise the marking among teachers within the school so as to produce a fair overall rank order of students for the school as a whole.

一般問題

1. 為什麼需要採用不同的方法來調整校本評核分數？

這是由於不同科目校本評核的設計及重點各有不同。根據公開考試成績作為調整變數的統計調整方法，適用於一些公開考試成績能反映調整組別的學生整體表現的科目。然而，以設計與應用科技科為例，其校本評核強調學生解決現實世界中的設計難題之能力，這與公開考試的評核要求不同，所以統計調整不適合用於設計與應用科技科。因此，部分科目將採用專家判斷調整方法。

2. 是否每一個參加校本評核的學生的校本評核原始分數都會被調整？

是。所有參加校本評核的學生的原始分數都會被調整。對於在調整過程中被排除在外的學生（例如得分異常高/低的學生），其校本評核的原始分數會根據所屬組別的其他同學的數據作出調整。

3. 分數調整後，考生的分數次第會不會改變？

不會。在分數調整後，考生在調整組別內的分數次第維持不變。

4. 既然考評局會進行分數調整，為何校內教師的評分標準仍需要一致呢？

分數調整是以學校為本位，即以同一所學校的學生作為一個調整組別，因此，校內教師的評分標準必須一致，才能公平地評定學生在校內的次第。

5. Why is moderation conducted on a school basis but not on a teacher basis?

Students following the same curriculum in a school should be judged against the same standards in the assessment process, irrespective of which class they are attending or which teachers are teaching them. This internal comparability is vital to the learning and teaching process and can be achieved through professional collaboration and sharing among teachers within a school. In addition, treating schools as a single group can increase the size of the moderation group, which enhances the reliability of the results of the moderation.

6. Is it possible to ensure that the samples selected represent the full spectrum of students' performance in a moderation group?

Yes. Each moderation group will be stratified into a number of strata, within which students' raw scores are similar. From each stratum, student work will be sampled. This sampling method can ensure that a fairly small sample of students' work can adequately represent the full range of performance in a school.

7. How can the parity of sample review be ensured?

The DCs/assessors are all experienced subject teachers/experts. In reviewing students' work, they use the same set of assessment criteria that school teachers use in assessing their students. Moreover, training sessions will be conducted to standardise their assessment standards using annotated samples of students' work. Double-marking will be conducted if necessary to further enhance the effectiveness of the review.

5. 為什麼分數調整以學校為本位而不是以教師為本位？

學生在同一所學校學習相同的課程，縱使他們入讀不同班別，由不同教師任教，均應以相同的標準接受評核。校內的一致性對學與教十分重要，這可透過教師之間的專業交流和分享去達致共識。此外，以學校為調整單位，可增加每個組別的人數，有助提升調整結果的信度。

6. 是否能夠保證選取的樣本能反映同一組別中不同能力學生的表現？

是。每一調整組別會被分為多個層次，而每層的校本評核原始分數相近。於每層抽樣選取學生作業作為樣本，這種方式能保證少數的作業樣本也足以全面反映同一組別中不同能力學生的表現。

7. 如何保證樣本檢視的公平？

負責檢視樣本的分區統籌員/評核員都是有關科目的經驗教師或學科專家。他們檢視樣本所按照的評核準則與學校教師評核學生時採用的完全相同。此外，他們在檢視樣本前已接受有關培訓，包括評閱及討論一些標準的作業樣本，以達致檢視尺度的一致性。如有需要，樣本檢視可採用雙評制，以進一步提高檢視的成效。

Questions about statistical moderation

8. Will it be advantageous/ disadvantageous to students if teachers' judgment are more lenient or harsher than those in other schools?

No. All students assessed by different teachers will receive comparable scores after statistical moderation. The raw SBA scores are moderated against the public examination scores. Groups with lower raw SBA scores than other groups with similar public examination results will have their raw scores adjusted upwards whereas groups with higher raw SBA scores than other groups with similar examination results will have their raw scores adjusted downwards.

9. Will a student get the highest/lowest moderated SBA score after statistical moderation if he/she gets the highest/lowest examination score?

A student with the highest/lowest examination score will not necessarily get the highest/lowest moderated SBA score. Individual examination scores will have little direct effect on individual moderated SBA scores. Moderation makes adjustments to student performance as a group rather than adjustments to the performance of individual students.

10. Will a student get the highest/lowest moderated SBA score after statistical moderation if he/she gets the highest/lowest raw SBA score?

Yes. A student with the highest/lowest raw SBA score will receive the highest/lowest moderated SBA score within the same moderation group, irrespective of his/her examination score.

有關統計調整的問題

8. 如果教師的評分比其他學校的教師過於寬鬆/嚴格，會不會對其學生有利/不利？

不會。校本評核分數參照公開考試的成績而調整。調整後，即使學生的校本評核表現是由不同老師所評核，他們的分數是可比的。一個組別的校本評核原始分數，如果低於其他公開考試成績相若的組別，該組別的分數會被調高；相反，如果高於其他公開考試成績相若的組別，該組別的分數則會被調低。

9. 如學生取得最高/最低的公開考試分數，是否代表該學生一定取得最高/最低的校本評核調整分數？

學生取得最高/最低的公開考試分數，並不表示該學生能同樣取得最高/最低的校本評核調整分數。學生的公開考試分數對其個人的校本評核調整分數沒有直接影響。分數調整只會受組別的整体公開考試表現影響，而非學生個人於公開考試的表現。

10. 如學生取得最高/最低的校本評核原始分數，是否代表該學生一定取得最高/最低的校本評核調整分數？

是。在同一個調整組別內，學生如在校本評核取得最高/最低的原始分數，即使其公開考試分數不是最高/最低，調整後的校本評核分數在其所屬組別內亦一定是最高/最低的。

11. If raw SBA scores are moderated using public examination scores, does it mean that raw SBA scores are less reliable than examination scores?

Teachers within a given school are known to be reliable in assessing their own students. However, they are less familiar with the standards set across different schools. Statistical moderation adjusts for any such difference in standard to ensure comparability of SBA scores across schools.

12. If a high-performing student studied in a low-banding school and his/her classmates did very poorly in the public examination, would his/her moderated SBA scores be adversely affected?

In this scenario, the score of the high-performing student in the public examination is expected to be much higher than those of his/her classmates. This will lead to a greater spread in the public examination scores of the group. In addition, the high-performing student is also likely to have a higher raw SBA score than his/her classmates. There will thus be a gap between this student and his/her classmates that will remain after statistical moderation. The individual moderated SBA score of the student will not necessarily be adversely affected, even though the moderated mean SBA score of the group may be lower than the raw mean SBA score of the group.

13. If a student did badly in the public examination, would his/her raw SBA score be reduced after statistical moderation?

An individual's examination score will not directly affect that individual's moderated SBA score. Whether a student will have his/her raw SBA score reduced or not depends on the individual's raw SBA score as well as the group's performance in the public examination. If the group mean of the raw SBA scores is high but the performance of that group in the public examination is poor, all students in that group will be likely to have their raw SBA scores reduced after statistical moderation.

11. 如果校本評核的原始分數是參照公開考試的成績而調整，這是否表示公開考試的分數比教師的評分更可靠？

不是。教師對他們校內學生的評核是非常可靠的。可是，他們往往未能知悉其他學校的水平及評分尺度。統計調整能調節這些評分水平的差別，使不同學校的校本評核分數具可比性。

12. 如果一名優秀的學生就讀於一所組別較低的學校，而其他同學在公開考試的表現又欠佳，會不會對該學生的校本評核調整分數構成不良影響？

就這例子而言，該學生在公開考試的分數預計會比同組別其他的同學高，這會拉闊其所屬調整組別的公開考試分數的分布。此外，該學生亦會比其他同學取得較高的校本評核原始分數。此調整前的分數差距，在調整後仍會維持。這說明，即使調整後的校本評核組別平均分數低於原來的校本評核組別平均分數，該學生的調整分數不一定會受到不良的影響。

13. 如果某一學生在公開考試中表現欠佳，其校本評核分數會不會因此而被調低？

不會。學生的公開考試成績不會直接影響其本人的校本評核調整分數。學生的校本評核原始分數被調低與否，取決於所在組別的校本評核原始分數及其在公開考試的整體表現。倘若組別的平均校本評核原始分數偏高，但在公開考試的整體成績欠佳，該組別內學生的校本評核原始分數便可能被調低。

14. What are outlier schools in the moderation process? How will these schools be identified and handled?

Outliers are those schools identified for further follow-up actions after the statistical moderation process has been applied. These actions are intended to ascertain whether the moderation results fairly reflect their student's performance in the SBA. One type of outlier schools is those where a great discrepancy is found between the statistically moderated scores and the level of performance as demonstrated in their students' SBA work. These schools will be identified through analysis of the statistically moderated scores as well as review of samples of students' SBA work. In handling these outlier schools, the findings from the sample review will be compared with scores obtained from the statistical method. If necessary, adjustments will be made to the scores obtained after statistical moderation so that the final moderated scores of these schools can better reflect the performance of their students in the SBA.

15. What is the purpose of reviewing samples of students' work in the moderation process?

Reviewing samples of students' work allows identification of outlier schools in the moderation process and helps to establish the need to take appropriate follow-up actions with an aim to further improving the validity of the moderated SBA results. Through reviewing the samples, feedback to schools, both on students' performance as well as teachers' assessment standards, can be provided.

14. 在分數調整的過程中，什麼是情況特殊的學校 (outlier schools)？怎樣辨別和處理這些學校？

這是指在統計調整過程中，為確保結果能真正反映學生的表現而需要進一步跟進的學校。其中一種情況特殊的個案是統計調整所得的結果與樣本展示的學生實際表現有很大差異的學校。這些個案可以通過比較統計調整結果與樣本檢視結果分辨出來。處理這些個案時，我們會詳細分析包括統計調分和樣本展示的實際表現等數據，必要時會修正這些學校統計調分的結果，以決定更能代表學生表現的調整幅度。

15. 在分數調整的過程中抽樣檢視學生作業有什麼目的？

檢視學生作業樣本，有助分辨情況特殊的學校，以便跟進處理，這步驟可進一步提升調整分數的效度。此外，通過檢視學生作業樣本，我們可就學生表現、教師評核尺度等給予學校回饋。

Questions about expert judgment moderation

16. Will it be advantageous/disadvantageous to students if teachers' judgment are more lenient or harsher than those in other schools?

No. The raw SBA scores are moderated by expert judgment which is based on the same assessment criteria. This ensures that all students assessed by different teachers will receive comparable scores after moderation.

17. If raw SBA scores are moderated using expert judgment, does it mean that raw SBA scores are less reliable than those awarded by the experts?

Teachers within a given school are known to be reliable in assessing their students. However, they are less familiar with the standards set across different schools. Expert judgment moderation adjusts for any such difference in standards to ensure comparability of SBA scores across schools.

18. Will students whose works are selected for review receive moderated scores that are exactly the same as the ones awarded by the experts?

Not necessarily. The scores awarded to the samples in the review exercise will only be used to determine the degree of adjustment to be made to the mean and spread of the raw SBA scores of a moderation group. All students in the group, whether they are sampled or not, will be subject to moderation.

有關專家判斷調整的問題

16. 如果教師的評分比其他學校的教師過於寬鬆/嚴格，會不會對其學生有利/不利？

不會。校本評核分數會參考專家判斷而調整。過程中，學科專家按相同的評核準則進行檢視。因此，即使學生的校本評核是由不同老師所評核，他們經調整後的校本評核分數是可比的。

17. 如果校本評核的分數是參考專家判斷而調整，這是否表示專家在樣本檢視的分數比教師的評分更可靠？

不是。教師對他們校內學生的評核非常可靠；但是，他們往往未能知悉其他學校的水平及評分尺度。專家判斷調整能調節這些學校之間評分水平的差別，使不同學校的校本評核分數具可比性。

18. 被抽樣選取作業的學生經調整後的分數，是否就等於學科專家對其作業的評分？

不一定。檢視樣本的評分主要是用來調整組別的平均分和分布的。無論是否被抽樣選取作業，組別中所有學生的分數都會被調整。

Appendices: Moderation formulas

附錄：分數調整公式

Appendix A Formula for statistical moderation

The formula used to statistically moderate SBA scores* in statistical moderation may be expressed in words as follows:

Moderated SBA score of a student = moderated group mean of SBA scores + difference within group

Moderated group mean of SBA scores = global mean of raw SBA scores + difference between groups

Difference between groups = (group mean of public examination scores – global mean of public examination scores) × inter-group change rate

Difference within group = (raw SBA score of a student – group mean of raw SBA scores) × intra-group change rate

where:

The inter-group change rate is the pooled within-group slope calculated from regressing raw SBA scores on the moderating variable (public examination scores), which ranges from 0 to 1. Once determined, the rate will be applied to all groups.

附錄A 統計調整公式

按統計調整計算校本評核調整分數*方法描述如下：

學生的校本評核調整分數 = 學生所屬組別調整後的校本評核平均分數 + 學生的組內差

學生所屬組別調整後的校本評核平均分數 = 該科所有學生校本評核原始分數的總平均 + 學生所屬組別的組間差

學生所屬組別的組間差 = (學生所屬組別的公開考試平均分數 – 該科所有學生的公開考試總平均分數) × 組間變化率

學生的組內差 = (學生的校本評核原始分數 – 學生所屬組別校本評核原始分數的平均) × 組內變化率

其中：

組間變化率是從多層次分析(學生是第一層，組別是第二層)計算得到的斜率，是一個介乎0和1之間的數，不隨組別變化。

* In Liberal Studies, the 'Process' mark, which includes students' effort in the Independent Enquiry Study, will not be subject to moderation, as students' performance in this part may not be closely associated with the examination results. Schools are expected to award the 'Process' marks in accordance with the stipulated criteria. HKEAA will have quality control mechanism in place to ensure the fairness and reliability of the process assessment, including monitoring by DCs, providing feedback to schools and follow-up of any irregularities cases identified. This arrangement will be carefully analysed and reviewed after the 2012 examination.

* 對於通識教育科，由於針對學生在獨立專題探究的學習過程表現所給予的「過程」分數包含努力等評核項目，並與學生在公開考試的表現相關不大，因此分數調整不適用於該部分。學校須按照有關的評核準則評定「過程」部分的得分。考評局亦會採取適當質素保證措施，確保評核「過程」部分的公平及一致性，有關措施包括通過分區統籌員檢視學校施行評核的情況，向學校提供回饋及跟進處理異常個案。此安排將於2012年考試完成後作深入的分析和檢討。

The intra-group change rate is for adjusting the spread of the raw SBA scores of a group with reference to the group standard deviation of the public examination scores and the group standard deviation of the raw SBA scores. As a result, the group standard deviation of the moderated SBA scores is equal to the pooled standard deviation of the public examination scores and the standard deviation of the raw SBA scores of the group. If the group standard deviation of the public examination scores is equal to (smaller/larger than) the group standard deviation of the raw SBA scores, the intra-group change rate will then be equal to (smaller/larger than) 1.

More precisely, the formula used to moderate students' SBA scores in statistical moderation is as follows:

Moderated SBA score of a student

$$= x_{mean} + \beta (\bar{z} - z_{mean}) + (x - \bar{x}) \frac{s_p}{s_x}$$

where:

- x is the raw SBA score of a student,
- x_{mean} is the global mean of the raw SBA scores,
- z_{mean} is the global mean of the public examination scores,
- \bar{x} is the group mean of the raw SBA scores,
- \bar{z} is the group mean of the public examination scores,
- s_x is the group standard deviation of the raw SBA scores,
- s_z is the group standard deviation of the public examination scores,
- s_p is the group standard deviation of the moderated SBA scores which is defined as $\sqrt{w_x s_x^2 + w_z s_z^2}$, where w_x and w_z are the weightings such that $w_x + w_z = 1$.
- β is the inter-group change rate, i.e. the slope calculated from regressing raw SBA scores on public examination scores, taking into account the nesting of students within groups.

組內變化率的作用是調整組別中校本評核原始分數的分布。組內變化率通過比較學生所屬組別的公開考試分數的標準差與校本評核原始分數的標準差計算而得，令調整後的組別校本評核分數的標準差等於公開考試分數標準差與校本評核原始分數的混合標準差。如果學生所屬組別的公開考試分數的標準差等於（小於/大於）校本評核原始分數的標準差，則組內變化率等於（小於/大於）1。

計算校本評核調整分數的公式如下：

學生的校本評核調整分數

$$= x_{mean} + \beta (\bar{z} - z_{mean}) + (x - \bar{x}) \frac{s_p}{s_x}$$

其中：

- x 為該學生的校本評核原始分數
- x_{mean} 為該科所有學生校本評核原始分數的總平均
- z_{mean} 為該科所有學生的公開考試總平均分數
- \bar{x} 為有關組別校本評核原始分數的平均
- \bar{z} 為有關組別公開考試的平均分
- s_x 為有關組別校本評核原始分數的標準差
- s_z 為有關組別的公開考試分數的標準差
- s_p 為有關組別校本評核調整分數的標準差： $\sqrt{w_x s_x^2 + w_z s_z^2}$ 其中 w_x 和 w_z 為權重，而 $w_x + w_z = 1$
- β 從多層次分析計算得到的斜率（第一層次是考生，第二層次是組別），不隨組別變化

Appendix B Formula for expert judgment moderation

The formula used to moderate SBA scores using expert judgment moderation is as follows:

Moderated SBA score of a student = group performance level on SBA[#] + difference within group

Difference within group = (raw SBA score of a student – group mean of raw SBA scores) x intra-group change rate

where

The intra-group change rate is for adjusting the spread of the raw SBA scores of a group with reference to

- i. the group standard deviation of the raw SBA scores,
- ii. the group standard deviation of the scores obtained in the sample review exercise; and
- iii. the group standard deviation of the public examination scores.

As a result, the group standard deviation of the moderated SBA scores is a pooled average of the above three quantities.

附錄B 專家判斷調整公式

按專家判斷調整方法計算校本評核調整分數方法描述如下：

學生的校本評核調整分數 = 學生所屬組別調整後的組別表現水平[#] + 學生的組內差

學生的組內差 = (學生的校本評核原始分數 – 學生所屬組別校本評核原始分數的平均) × 組內變化率

其中

組內變化率的作用是調整組別中校本評核原始分數的分布。組內變化率的數值是參考以下三項數據而計算的：

- i. 組別校本評核原始分數的標準差
- ii. 組別樣本檢視結果所得分數的標準差
- iii. 組別公開考試分數的標準差

因此，組別調整校本評核分數的標準差是以上三種標準差的混合標準差。

[#] Due to possible variations incurred in the sampling and remarking processes, an appropriate tolerance limit will be set in determining the group performance level. If the difference between the raw school mean and the result obtained in the sample review of a certain moderation group is within the tolerance limit, the raw school mean will be adopted as the group performance level. If the difference exceeds the tolerance limit, appropriate adjustments will be made to the raw school mean with reference to the sample review result to determine the group performance level.

[#] 由於在抽取樣本作檢視過程中涉及統計測量和重新評閱學生作業，所以在決定組別表現水平時會設有一寬限度。如個別調整組別的校本評核原始平均分數與檢視樣本結果的差異介乎寬限度以內，校本評核原始分數的平均分將作為組別的表演水平；如差異超出寬限度範圍，則需參照檢視樣本結果調整校本評核原始分數的平均分，以得出組別的表演水平。

Therefore, the formula to calculate individual students' moderated scores is as follows:

Moderated SBA score of a student

$$= \theta + (x - \bar{x}) \frac{s_p}{s_x}$$

where

θ is the group SBA performance level based on the sample review exercise,

x is the raw SBA score of a student,

\bar{x} is the group mean of raw SBA scores,

s_x is the group standard deviation of raw SBA scores,

s_z is the group standard deviation of public examination scores, which has been converted to the same scale as the SBA scores,

s_a is the group standard deviation based on scores obtained in the sample review exercise,

s_p is the group standard deviation of the moderated SBA scores which is defined as:

$$\sqrt{w_x s_x^2 + w_z s_z^2 + w_a s_a^2}, \text{ where } w_x, w_z \text{ and } w_a \text{ are the weightings such that } w_x + w_z + w_a = 1.$$

因此，計算個別學生調整分數的公式如下：

學生的校本評核調整分數

$$= \theta + (x - \bar{x}) \frac{s_p}{s_x}$$

其中

θ 為根據檢視樣本結果釐定的校本評核組別表現水平

x 為該學生的校本評核原始分數

\bar{x} 為有關組別校本評核原始分數的平均

s_x 為有關組別校本評核原始分數的標準差

s_z 為有關組別公開考試分數（已轉化為與校本評核分數相同的分度）的標準差

s_a 為有關組別樣本檢視所得分數的標準差

s_p 為有關組別校本評核調整分數的標準差： $\sqrt{w_x s_x^2 + w_z s_z^2 + w_a s_a^2}$ 其中 w_x 、 w_z 及 w_a 為權重，而 $w_x + w_z + w_a = 1$

Further information about SBA can be obtained from the HKEAA website at

如想進一步了解校本評核的內容，可瀏覽本局網頁：

www.hkeaa.edu.hk

Enquiries can be directed to:

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