The R Score:
a Survey of Its Purpose and Use

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INTRODUCTION

This document is intended as a general overview of the purpose and use of the R score in the university admissions process. A more detailed look at this student classification method is found in another document by the Bureau de coopération interuniversitaire (BCI) entitled *The R Score: What It Is and What It Does*, where a hypothetical case is used to illustrate how the R score is calculated and how it affects students' classification. Some complementary information on the R score can be found in *Questions and Answers about the College R Score*. These two information documents, as well as the present document, are available on the Bureau de coopération interuniversitaire (BCI) Web site at the following address: http://www.bci-qc.ca/en/students/r-score/.

1. THE R SCORE: A CLASSIFICATION METHOD FOR THE SELECTION PROCESS

In the context of the admissions process, the general policy of universities is to accept all applicants to a program who meet its general and specific admission requirements. However, when a selection must be made from among those who qualify, most often because of program enrollment limits, each university must decide if and to what extent a student's academic record should be used in the selection process. For example, in some programs, admission could be based solely on college grades whereas, in others, college grades are merely one of a number of criteria in the selection process. In all cases, universities are well aware that the methods used in comparing and classifying candidates must be as objective and fair as possible.

The use of academic records for classification and selection purposes assumes that there is a common basis for evaluation, or, alternatively, that the groups of students, their learning experiences, and the grading methods are inherently the same. The college education regulations are clear on the autonomy enjoyed by each institution in the evaluation of learning. Consequently, the universities devised a way of classifying students for selection purposes by utilizing statistical methods to correct for observed differences in the grading systems used by the colleges and to adjust the resulting values so as to take into account the relative strength and dispersion of each group of students. This method, called the college R score[1], was adopted by Québec universities in 1995.

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[1]   When adopted in 1995, the adjustment only involved the relative strength of the group.

2. THE THREE MAIN COMPONENTS OF THE R SCORE

The R score contains three types of information for each course taken by a student: an indicator of the student's rank in the group based on that individual's grade (the college Z score), an indicator of the relative strength of that group (ISGZ) and an indicator of the dispersion of the group (IDGZ). This information is incorporated into the R score formula as follows:

R score = ((Zcol x IDGZ) + ISGZ + 5) x 5

where

Zcol = college Z score

IDGZ = indicator of the dispersion of the group based on the standard deviation of the secondary school Z scores of the students in the college group

ISGZ = indicator of the strength of the group based on the average secondary Z scores of the students in the college group

The number 5 is the value of constants that ensure that the R score is a positive number between 0 and 50. The average R score for a complete college academic record is about 25.

Here is a closer look at the three main components of the R score formula: the college Z score, the group strength indicator and the group dispersion indicator.

2.1 THE COLLEGE Z SCORE

The Z score is a statistical unit of measure which expresses a student's position within a distribution of grades in terms of two fundamental elements of this distribution: the average grade and the standard deviation, or grade spread.

By taking into account the average of the grades and their degree of spread for a class of students, the Z score normalizes the grades of different classes or groups to a common scale, allowing comparisons to be made between them. With this concept, students can then be ranked according to academic achievement.

There are two fundamental advantages to the Z score: first, it maintains the student ranking obtained in compliance with the grading guidelines prescribed by each college and, second, it allows for direct comparison of grades between student groups that are both different yet equivalent.

While using the Z score presents certain advantages in the classification and selection processes, it does not resolve all of the difficulties encountered in evaluating students for admission to university. Indeed, when student groups present different characteristics, the comparisons made using the Z score become less valid and less

equal. The selection process used by the colleges in admitting students to their different programs; the various ways of organizing students into groups (homogeneous and heterogeneous); the types of programs offered, e.g., Diploma of Collegial Studies (DCS) in the Sciences and in Arts and Letters, Enriched DCS, International Baccalaureate, etc., are just some of the factors that can influence the classification of students from different colleges and may affect the chances for university admission for some of them.

2.2 THE INDICATOR OF THE STRENGTH OF THE GROUP AND THE INDICATOR OF THE DISPERSION OF THE GROUP

Because the college Z score cannot take into account the specific characteristics of groups of students and ensure that they are treated fairly, it is necessary to consider two other statistics common to all students: the group strength and the relative dispersion of the group of students in a given course. To determine the group's strength and dispersion, the MEES uniform examination subjects in the Secondary 4 and 5 Youth sector, taken by all students that belong to a given college group, are used[2]. Studies have shown that grades obtained at the end of secondary school are very good performance indicators for later college performance.

On the other hand, it should be kept in mind that the ranking a student achieves in a CEGEP course depends entirely on the grade obtained for that course and not on the secondary school results. The student's secondary school grades, as for all the other students in the same class, will only be used to calculate the indicator of the strength of the group (ISGZ) and the indicator of the dispersion of the group (IDGZ). The direct impact of a student's secondary school average on his or her college ranking will be very limited because, for example, if there are 35 students in the group, it will count for no more than 3% of the ISGZ. Students therefore need not fear being hobbled by secondary school grades when entering university

Since the R score takes into account group strength and dispersion, all students start off with the same opportunity in all colleges. Consequently, a student does not necessarily have to register in a college reputed to be strong academically in order to get a good R score. In fact, it is pointless to choose a college in the belief that this will facilitate admission to university. This may have been true in the past with the use of the college Z score, but it is no longer the case. Other factors should be considered when selecting a CEGEP, such as the type and diversity of the courses, programs, and activities, how well one is received, the quality of instruction and of the student services, the proximity of the college, etc.

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[2] For university admissions prior to the Fall 2009 semester, all final grades obtained in Secondary 4 and 5 were used to calculate the group strength. From Fall 2009 to Summer 2016, the Secondary 4 and 5 ministerial examination subjects were used for this purpose.

Along the same lines, since the R score takes into account the relative strength and dispersion of each group of students, there are no advantages or disadvantages to being part of one of group rather than another. Studies of CEGEP students show that the combined effects of the three R score components (Zcol, ISGZ and IDGZ) compensate for any differences. If the student is in a strong group, he will have a lower college Z score than if he was in a weaker group, but this will be offset by higher ISGZ and IDGZ indicators. Inversely, if the student is placed in a weaker group, his college Z score will be higher than if he was in a strong group, but it will be offset by lower ISGZ and IDGZ indicators.

It is important to note that the correction made to the college Z score depends on the group to which the student belongs at the time of the evaluation. In fact, this group need not be limited to a single class, but could include students from the same college who took the same course in the same year and in the same semester, and who were evaluated in the same way. This would constitute the "group at evaluation." For example, if during the Winter semester a professor teaches the same course to three groups of 40 students each, and if the method of grading is the same for all three groups, there is effectively only one group of 120 students to be evaluated and the college Z score and two correction factors (ISGZ and IDGZ) will be calculated for this group.

To recapitulate, the R score adds two adjustments to the advantages of the Z score that consider the initial differences between groups. Because this method can be applied to all college courses, it provides an appropriate adjustment to each student's record. Thus, should a student transfer to another college, another program, or another group, the college Z score for each course will be adjusted by the two indicators for the group in which the student is evaluated. This generally applicable corrective measure ensures that the academic record of a college graduate applying for admission to university will be given eminently fair consideration, regardless of the college attended.

3. THE R SCORE AND THE ADMISSIONS PROCESS

3.1 IMPORTANCE OF THE R SCORE IN THE ADMISSIONS PROCESS

Even though the R score is the instrument of choice when evaluating an application for admission to a university program, in the final analysis it is used mainly in the selection process for admission to programs with limited enrollment. A student planning to apply for admission to such a program should be aware of the important role that grades play in the selection process.

It should be pointed out that in some limited enrollment programs, other criteria may replace or supplement the R score in the selection of candidates. This could mean sitting for a particular exam, taking an entrance test, being interviewed, submitting a portfolio, etc. This kind of information is compiled by the BCI and is available in the "Tableau comparatif des critères de sélection des candidatures évaluées sur la base du DEC aux programmes contingentés de baccalauréat". The R score may well be a criterion in the selection process, but is not necessarily the only one, for college students who hope to go into fields where admission to the study program is highly competitive.

3.2 OVERALL AVERAGE R SCORE

The overall average R score encompasses all the courses a student has taken. It is the weighted average of that student's valid R scores: only Physical Education taken before Fall 2007 and remedial courses are excluded. The weighting is a function of the number of credits attributed to each course. Thus, the R score obtained in a 2.66-credit course is multiplied by this number (2.66), while the R score in a 2-credit course is multiplied by 2.

For admissions to semesters prior to Fall 2009, an academic record was evaluated, compared, and classified in terms of its overall weighted average R score.

3.3 WEIGHT OF FAILURES IN THE CALCULATION OF THE AVERAGE R SCORE

The Comité de liaison de l'Enseignement supérieur (CLES) approved the recommendation of the Comité de gestion des bulletins d'études collégiales (CGBEC) to give less importance to failed courses when calculating the average R score. Consequently, beginning with admissions for Winter 2005, the weight of failures in the calculation of the R score changed: for the first term of CEGEP registration, failed courses only count for one quarter of the credits allocated to the course, giving them a

weighting of 0.25; for subsequent terms, the weighting is 0.50. This calculation method applies to all records in the MEES system (the "système de gestion des données d'élèves au collégial" called Socrate), regardless of the date of first registration at CEGEP.

3.4 PROGRAM AVERAGE R SCORE[3]

The CLES approved the CGBEC recommendation that, as of admissions in Fall 2009, the MEES would include in its system (Socrate) a mechanism whereby each course would be linked to the study program to which it belonged, thus making it possible to calculate an average R score for each DCS program in which a student registered.

For the purpose of selecting candidates, universities use the average R score for the last DCS program in which a candidate was registered, on the condition that at least 16 courses contribute to the calculation. The R scores of courses that are considered to be relevant prerequisites for admission to certain university programs are incorporated into the average R score calculation, when necessary. If the average R score calculation for the last registered program is not based on at least 16 courses, then the overall average R score, the one that takes into account all of a student's CEGEP grades, is used to evaluate the student's record.

Furthermore, when the student's record includes a completed DCS, the university uses the higher of the average R score for that DCS program and the average R score for the last registered program (still with the condition that at least 16 courses contributed to its calculation). If a student's record shows MEES certification for several DCS programs, then the university will use the highest average R score of the completed DCS programs and the last registered program (again if the 16-course condition is satisfied). Relevant prerequisites are added, when necessary, to the average R score used for admissions purposes[4].

The 16 courses criterion ensures that, in the great majority of cases, the last registered program is the one which will lead to *obtaining* the DCS. That R score is thus not influenced positively or negatively by the candidate's previous academic activities that are unrelated to the DCS program. It is important to emphasize here that all general education courses always contribute to every average R score in a student's record.

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[3] To manage most admissions to their study programs, McGill University does not use the program R score but rather the overall R score, which includes all of the college-level grades obtained by a candidate. If the candidate is enrolled in more than one college program and would like to know which R score will be used for evaluation of his file, he must contact the Admissions Office at McGill University.

[4] To facilitate understanding of these rules, some fictitious examples of potential cases are described in Appendix B of the document entitled *R Score: What It Is and What It Does*. Note that if the MEES certification of college studies was issued prior to Fall 1999, then no program average R score can be calculated in the MEES system. The courses concerned will only contribute to the calculation of the overall average R score.

Since university programs do not all require the same prerequisite courses, the value of the average R score used for analysis of a candidate's record may vary depending on the intended university program. However, in most cases, the prerequisites are already included in the student's CEGEP program. The prerequisites then do not need to be added to the calculation of the R score. Such is the case, for example, for a CEGEP graduate with a DCS in Science who wishes to be admitted into a university Health Sciences program.

3.5   ADJUSTMENTS FOR CERTAIN CANDIDATES

For admissions to the Fall 2009 and subsequent terms, the academic affairs vice rectors of Québec universities agreed to increase the average Z score for each student graduating from an International Baccalaureate program or a Diploma of College Studies (DCS) program in Science, Letters and Arts (SLA) by 0.5 point. However, the introduction of the modified Z score no longer justifies such an increase. As mentioned in section 3.6 below, the modified formula is being used colleges as of the Fall 2017 term and applied retroactively to all courses taken from the Fall 2014 to Summer 2017 semesters (nine semesters). Consequently, students who registered at college after the Fall 2014 term in the IB or DCS (SLA) programs will no longer have the 0.5 point added to their average R score.

Furthermore, in order to facilitate access to doctor of medicine programs for candidates in remote regions, universities increase these candidates' average R score when their record is analysed. Since the Fall 2003 semester, universities have added 0.5 to the average R score of any doctor of medicine program candidate who completed their Secondary 5 education in one of the remote regions designated by the Ministère de la Santé et des Services sociaux. The list of these regions is available at www.msss.gouv.qc.ca.

3.6   PROCEDURE FOR INTRODUCING THE MODIFIED R SCORE

Initially, the R score calculation was based on a college Z score corrected by only one indicator, the ISG[5]. This calculation was in effect until the end of the Summer 2017 semester. Beginning in Fall 2017, the R score will be calculated with the college Z score corrected by the two indicators described in section 2.2 of this document, the ISGZ and the IDGZ. To smooth the transition between the two calculation methods, the following procedure has been agreed upon:

- The modified R score will be used in colleges as of the Fall 2017 term (benchmarks to be calculated in January 2018) and will be applied retroactively to all courses taken between the Fall 2014 and the Summer 2017 terms (nine semesters).

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[5]   For more information about this topic, see: *The R Score: What It Is and What It Does*, CREPUQ, March 4, 2013.

- Retroactive use of the calculation will not reduce any course R score already obtained before the modified R score was introduced.

To illustrate this procedure, here is an example for a student who started college in Fall 2016. For both the Fall 2016 and the Summer 2017 semesters, the revised formula will be applied retroactively. However, the student's course R scores, based on the initial calculation, will not change if they are higher than the scores obtained with the modified formula. As of the Fall 2017 term, and for all subsequent semesters, the student's course R scores will be calculated exclusively with the revised formula.

With this method, the first students whose R scores are calculated with the modified formula will enter university in Fall 2018. Also, with the revised formula, it is possible that some R score thresholds, i.e., the last candidate admitted to a given university program, may rise.

4. ACCESS TO INFORMATION ABOUT THE R SCORE

According to the Access to Information Policy adopted by the *Comité de gestion des bulletins d'études collégiales* (CGBEC), composed of representatives of the colleges, universities, and the MEES, a student who wants to know his or her R score must contact the college attended or the university to which an official application for admission was submitted. In addition, for any general information about the use of the R score in the admissions process, the student should contact the university to which an application for admission was either made or will be made.