

*EDUCATIONAL ASSESSMENT: SEARCHING FOR THE RIGHT
BALANCE BETWEEN MULTIPLE-CHOICE TESTING AND
SUBJECTIVE TESTING*



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1. Letter of Report Submission

Date : 30 June 2014

DANA Project No : 600-RMU/SSP/DANA 5/2 (13/2010)

Assistant Vice Chancellor
Research Management Institute (RMI)
Universiti Teknologi MARA
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Dear YBhg Professor.

***FINAL RESEARCH REPORT ON “EDUCATIONAL ASSESSMENT:
SEARCHING FOR THE RIGHT BALANCE BETWEEN MULTIPLE-
CHOICE TESTING AND SUBJECTIVE TESTING”***

With reference to the above, ~~enclosed are three copies~~ of the Final Research Report entitled ***“EDUCATIONAL ASSESSMENT: SEARCHING FOR THE RIGHT BALANCE BETWEEN MULTIPLE-CHOICE TESTING AND SUBJECTIVE TESTING”*** by a group of researchers in Universiti Teknologi MARA Sarawak, Kota Samarahan Campus. This is a Dana Kecemerlangan Project.

Thank you

Yours sincerely,

Dr. Lau Sie Hoe

Project Leader

5. Report

5.1 Proposed Executive Summary

(Original proposal – 300 words)

Multiple-choice formatted tests, though the most widely used, are also the most criticized. Both multiple-choice test and subjective tests are used in assessment and the final score for grading is calculated based on a predetermined ratio between multiple-choice test score to subjective test score (MC:SC). The final score and the ranking of the student depends on the MC:SC ratio used. Unfortunately, there is no consensus on MC:SC ratio that will give the best measure of student knowledge. The inconsistency in the ratio used across different subject by the Education Ministry is worrying and should be resolved before the public loses confidence in our education system. This study will assess the validity of multiple-choice formatted tests for assessing mathematics and determines the appropriate MC:SC ratio that gives valid score, yet not biased to any gender and ability group. The sample will be 1,200 Form Four students in 40 secondary schools in Sarawak. The instrument consisted of four sets of standardized test to be conducted simultaneously in 40 participating schools. Mean absolute difference (MAD), standard deviations (SD) and Pearson correlations will be used to determine whether multiple-choice scores are inflated. Reliability analyses, standard error of measurement (SEM) and the h statistics will be used to gauge the efficiency of each assessment format. Graphs of how MAD and the ranking of students vary with the MC:SC ratio will be used to determine the effect of varying the MC:SC ratio on the final score. The graphs will also be used in determining the appropriate MC:SC ratio. Hence, the main outcome of this study will be to recommend an appropriate MC:SC ratio to educational experts and policy makers.

5.3 Introduction

Multiple-choice formatted tests, though the most widely used, are also the most criticized. Currently, student knowledge at primary and secondary school levels in Malaysia are assessed using both Multiple-Choice formatted test and Subjective formatted test. These two tests are administered and scored separately. The final score for grading student knowledge is the combination of these two scores. However, the Multiple-Choice test score: Subjective test score (MC:SC) ratio used to calculate the final score differ according to subject and level of education. In the case of Mathematics, the subjective test was introduced for the first time at Penilaian Menengah Rendah (PMR) in 1995 after the weakness of the multiple-choice formatted test was realized. The MC:SC ratio was fixed at 60:40. In 2003, the Education Ministry took a reverse decision by introducing multiple-choice test for the first time to assess mathematics at Sijil Pelajaran Malaysia (SPM) level with the MC:SC ratio of 40:100. This move seems to endorse the use of multiple-choice in Mathematics assessment. However, in 2005, the Education Ministry took yet another drastic step by reversing the MC:SC ratio for PMR Mathematics from 60:40 to 40:60, giving more emphasis to subjective tests. Beside these flip-flop decisions by the Ministry of Education, the ratios used are also different for different subjects. For instance, at PMR level, the MC:SC ratio for English language is 40:50 but 40:100 in the case of Malay language. It seems that there has been no consensus as to which test format is best and the optimum MC:SC ratio for assessing students' knowledge. This issue should be addressed urgently before the public lost confidence in the reliability and the validity of public examination results.