Intended and attained secondary school statistics syllabus and assessment objectives: Case study of a developing country

Indira Chacko
AFRICA UNIVERSITY, Mutare, Zimbabwe

1. Introduction

This paper scrutinises the objectives emphasized by the syllabus and assessment on one hand and compares these to the objectives tested in the public examination conducted at the end of four year secondary education. As certification is decided by the performance in the public examination, it is assumed that the objectives tested in the examination match the objectives of the syllabus and assessment.

Formal education in this country follows a 7 year primary, 4 year secondary and 2 year higher secondary eduaction and this paper focuses on the secondary level. Statistics is one out of 11 topics in the mathematics syllabus and often taught by mathematics teachers.

2. Methodology

Non calculator version of the current mathematics syllabus and final examination question papers for 1997 to 2001 in mathematics for secondary school level are the instruments used. Syllabus and assessment objectives as well as suggested methods of teaching are scrutinized and compared to the objectives tested by the examination questions.

There are 10 each of syllabus and assessment objectives and these go in hierarchy from understand to interpret and communicate in the case of syllabus and from recall to apply and interpret in the case of assessment.Suggested methodology among others include identification and solution of problems in the environment , transfer of knowledge and critique of work done by self and others. It is apparent that the syllabus, the assessment and the methods emphasize application of knowledge in other subjects and in real -world situation.

Do the examination questions emphasize the same?

Mathemaatics at the secondary school level is examined using papers 1 and 2, one short answer and the other essay type. Paper 2 where essay questions are used has two sections, A and B. section A is compulsory while section B gives choices. Statistics questions always appear in section B, thereby making it not all that necessary to learn to get a good pass in the examination. Focus of this paper is section B of Paper 2.

Analysis of questions for the period 1997 to 2001 is in the table below:

Table

Analysis of the questions for 1997 top 2001

Year	% Mark	Nature of the item	Content Tested	Task
2001	4	Routine	Probability	Reading data and reading between data
2000	12	Routine	Frequecy-Grouped & C.F	Reading data and reading between data Complete table, draw c.f curve, read data & read between data
1999	12	Routine	Gruped frequency table	Construct histogram, compute the mean
1998	12	Routine	Gropued frequency table	Draw freq. polygion,,compute the mean, read data& bewteen data
1997	14	Routine	Probability	Read data& bewteen data

Analysis of statistics questions in terms of the content and tasks tested shows that questions are routine in nature and often repetitive. Marks range between 4 and 14% where 12 % is the mode.

Although the syllabus and assessment objectives emphasize application, examination questions are not testing these. Suggestions by Curcio(1987) about asking questions beyond data, Gal and Garfiled(1997) idea about the inability of short answer items to adequately assess learning outcomes and Flewelling and Higginson(2001)idea of using rich tasks need to be considered seriously and incorporated tinto classroom assessment which should form part of the final grade for certification.

One shot examination for certification need to be changed by including continuous assessment as part of certification. This will give teachers the chance to give rich taks like project work to students. There is also need to ask questions in statistics in the compulsory part of the paper or make all questions compulsory.

REFERENCES

Curio, F.R. (1987) Comprehension of mathematical relationships expressed in graphs, *Journal for Research in Mathematics Education*, 18, 382-393.

Flewelling, G.& Higginson, W. (2001 ed) *A Handbook on Rich Tasks*, Ontario, Queen's University

Gal, I. & Garfield, J.B ed (1997) *The Assessment Challenge in Statistics Education*, IOS Press

RÉSUMÉ

Ce papier examine les objectifs e'tablis par le programme, l'e'valuation et les approches pe'dagogiques propose'es et compare le tout avec les objectifs de l'examen externe. Le programme et les objectifs d'evaluation mettent l'accent sur la mise en oeuvre mais les sujets de l'examen testent le rappel