OPEN-BOOK TESTS IN A UNIVERSITY COURSE

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ABSTRACT

In the few available studies on the use of books in examinations, open-book tests have been found to reduce pre-test memorization and anxiety during examinations without affecting academic performance. However, these studies were made with students in non-book systems, whereas systems which allowed books in all exams might be thought likely to create a non-fact-learning attitude in students. The present study was undertaken in a book-allowing system with 120 students during a regular course in physiology at a medical school. Each group sat two parallel 60-item multiple choice tests and used books in one test but not in the other. The tests took place about four weeks prior to the final examination, which is of the same type as the experimental tests. Recall items could yield less than 15% of maximum points, so that interpretation and problem-solving items predominated. Total test points with and without books did not differ significantly. An analysis of variance showed that the effect of books on recall items was only slight and that the two tests varied in difficulty, in spite of efforts to secure equality.

Introduction

In spite of almost universal agreement among medical teachers that the current emphasis on rote learning should diminish in favour of a problem-solving approach, many schools have not yet taken the first practical step toward this approach by allowing students to take books to all tests and exams.

This may be due to pedagogical or practical reasons. Firstly, some are afraid that students will not learn facts if books are allowed at exams. Secondly, if books are allowed, tests based primarily on recall items will become meaningless. Teachers thus face a new burden in having to formulate questions which require more than the mere reproduction of facts; but if they look for support in textbooks on evaluation, they may not even find the concept “open-book examination” indexed. This holds
true even with the latest editions (Bloom, et al., 1971; Thorndike, 1971).

Surveying the literature from 1958 to the present one finds that experimental evidence indicates:

1) Allowing books or notes at exams does not improve performance irrespective of the format of the test examined: Multiple choice (MC), short, or narration essay (Kalish, 1958; Jehu, et al., 1970).

2) Students find that open-book tests cause less stress, and have a greater learning effect (Jehu, et al., 1970; Feldhusen, 1961).

3) The feelings of students regarding help given by books are not reflected in achievement changes (Kalish, 1958).

These conclusions were all obtained with students in systems where the official exams are of the closed-book type. However, the fear that open-book exams may reduce the students’ learning of facts (Kalish, 1958) cannot be investigated in closed-book systems, where bad learning habits have not had time to develop.

This was the main reason why we decided to undertake this investigation, for we have operated an open-book system since the introduction of a new curriculum in 1969. Our hypothesis was that if students were tested shortly before the official exams, performance on low taxonomy questions (Bloom, 1956; Olsen, 1973) would benefit from the access to books, while problem-solving or other items on the higher end of the taxonomy scale would not benefit from it.

Material and Methods

A group of about 120 medical students in their sixth term, i.e. the final term of the regular two-term course in physiology for medical students at Aarhus University, volunteered in the experiment. This course has been described elsewhere (Olsen, 1973). The official exam consists of one four-hour MC-test plus one three-hour, short-answer essay test three days later.

In the years prior to the physiology course the students had been exposed to open-book exams in all disciplines except anatomy. Earlier during the physiology course they had been offered four non-obligatory MC open-book tests similar to the tests used in the experiment plus one essay test.

EXPERIMENTAL LAY-OUT

Two parallel tests (6th and 7th diagnostic test respectively) were