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EVALUATION OF STUDENT RESPONSE TO A LIBRARY
INSTRUCTION TRIALS PROGRAMME USING AUDIO -
VISUAL AIDS

by

H. A. CHESSHYRE and P. J. HILLS

The University of Surrey began courses of instruction in the use of libraries nearly three years ago when Library Committee consent to a pilot scheme involved undergraduates in three departments. Resulting from a generally favourable response, progression throughout the University has been rapid.

Currently, nearly all undergraduate students receive instruction, after the initial Fresher Week introduction. The majority of the postgraduate students attend short series of seminars and the research students are grouped on a faculty basis for their library instruction seminars. In addition, tutorials are being arranged on an experimental basis with a final year undergraduate course on search procedures for project subjects.

The arrangement of undergraduate library instruction courses covers three of the four years of their syllabus. The first year, apart from the fresher week introduction, consists of two periods on the mechanics of library use; in the second year, an introduction to subject bibliography, periodical literature, and abstract publications covering the students' subject areas is combined with practical work set by departmental lecturers and assessed for bibliographical content by the library. This occupies four to five lecture periods.

After the return from the students' industrial year the final part of the library involvement deals with the use of patents, report literature, standards and specifications (where appropriate), translation activity, theses, unpublished and limited circulation material, research activity, the work of learned societies and institutions, the mechanics of literature searching and report writing. Cooperation with the course lecturers enables notification of project titles and subjects before the commencement of the final series of seminars. This part of the course occupies six to eight lecture periods.

A later development with the undergraduates, at the request of Senate, has been the 'crash' course of library instruction - continuous instruction of varying periods of from a day and a half to a course of one week's duration. The end product of this type of exercise is the production of a critical bibliography in connection with a student's current studies.

The underlying principle of the library courses is not to produce surrogate librarians, still less to teach subject bibliography as an academic discipline. It is:

1. to destroy the sense of novelty in using literature sources as a means of solving information problems by:
2. exposing the student to the literature of his subject and inducing a sense of familiarity in handling printed material by appreciating the problems involved in locating relevant information and:
3. to locate, accumulate and select information appropriate to his current problem; and finally to present a written statement of problem and solution as effectively as possible.

The foregoing statement of the scale of activity of library instruction illustrates both the shortage of time allocated and the range of content of material dealt with. Difficulty in assessing written work submitted by students before passing on to the individual course lecturers for timely reinforcement is another problem.

The present arrangement of the courses provides insufficient opportunity either for discussion, or work with students whether individually or in small groups. Equally obviously amelioration of the problems would not be brought about by any single factor. Automated instruction in library use offered a partial solution particularly as reinforcement. The panoply of audio-visual aids currently available was therefore examined.

Video tapes, on the grounds of cost of production, high obsolescence factor and, quite frankly, a subjective assessment of those produced elsewhere were discounted.

Ciné films have been produced mainly in North America and the information regarding their subjects as well as examination of the scripts available rendered them an unlikely proposition.

Some experience in the production of audio-tapes had already been obtained, information on student reaction was lacking and methods of obtaining this are mentioned later.

The tape/slide presentation promised flexibility and easily maintained relevance both to changes in the library arrangement inevitable during a programme of building, and also to low cost alteration and updating of instruction programmes.

Induction Loops are effective in some circumstances, e.g. stationary instruction in catalogue use but of limited value for guidance of a peripatetic nature, e.g. involving abstracts and periodicals, etc.

Library instruction would ideally be given by one lecturer to one student. Unfortunately in terms of the large numbers of students requiring instruction this is out of all proportion to the time available to lecturers and library staff. Therefore one must consider alternative solutions.

Methods by which the student may be instructed, fall broadly into the following classes:

1. large group instruction
2. small group instruction
3. self-teaching situations

In the first two of these methods there is little or no feedback from student to lecturer and any misconceptions which may arise in the course of the instruction do not have a good chance of being rectified.

The self-teaching situation not only has the advantages of a one lecturer/one student relationship, but it also enables the student to learn library skills on the spot with the equivalent of an individual tutor.

A self-teaching situation can be defined as any situation in which the student learns by himself. Reading a book can be a self-teaching situation, watching a film can also be a self-teaching situation.

We must therefore look briefly at the methods and aids available. Reference has already been made in this paper to the use of video recordings and these can generally be thought of as media which are particularly suited to imparting instruction to a large and passive audience. Since there is virtually no feedback in a large group situation, little of the quality of instruction need be lost by the use of television in this way. Similarly ciné film is generally thought of in the same way. Both of these can be used for self-teaching situations, but various factors, chief among these being cost, generally preclude this.

What then are the alternatives available for use in a self-teaching situation? There are three main ones.

1. Printed material
2. Presentations of slides with or without an associated tape recording.
3. Tape recordings on their own or with associated printed material.

For the purposes of individual instruction, a printed programmed learning format has many advantages over the conventional book format. Using principles which involve breaking the material down into steps, and constant reinforcement by presentation of the right answer after the student has attempted a problem, this format can build complex sequences of instruction and present them to the student. Feedback from the student's answers is built into the programme and thus revision of the programme to increase its efficiency is a major factor in this form of learning.

The printed word is not the most suitable form for self-teaching situations on library instruction as we shall see when we consider the use of tape recording. However, there is one form of presenting the printed work which has not yet been applied to library instruction to any great extent, and that is the form of the algorithm. An algorithm can be defined as a precise set of instructions given in step form for solving a well-defined problem.

This seems to offer an efficient means of imparting information via the printed word and we hope that an investigation of the use of algorithms will form part of our work in library instruction at the University of Surrey.

The use of a slide presentation alone seems little better than presenting the learner with the pages of a book, one at a time, but allied to a tape recording we have a means of instruction which engages both the visual and aural senses. A tape/slide presentation would seem an ideal medium in which to present instruction in general use of the library. It is ideally suited to telling a student about library situations before 'turning the student loose' in the actual situation. For this reason the University of Surrey Library is adopting a tape/slide presentation on the use of the library. This also has the advantage of being a relatively flexible and low cost system when compared with either ciné film or video recording.

The final method mentioned for self-teaching situations, and the one that we are trying at the moment is the use of a portable cassette tape player and earphones used in the appropriate library situation, e.g. the tape on 'The Use of the Catalogue' is intended to be played while the student uses the catalogue in accordance with the verbal instruction.

We believe that this method is the nearest approach to the personal instruction of the lecturer/student situation that would be regarded as the ideal situation. Although a tape recording cannot solve student problems which arise during the playing of the recording, we hope that by using feedback from our investigations, we can revise the tapes to remove any inconsistencies. Eventually we hope to foresee most of the student problems which will arise and cater for these on the recording.

In the experiments that we are conducting into the use of these tape recordings we have devised tests of preknowledge, and tests of knowledge after the instruction has been given. To do this it is necessary to consider the instruction in terms of its teaching objectives.

In many subjects it is often a difficult and lengthy process to formulate the objectives of instruction, but in library instruction the objectives are more immediately apparent.

If we consider for example a unit of instruction on the use of the catalogue, then the overall objective is that a student should be able to locate books by using the catalogue. This can be broken down into more specific objectives e.g. the student should be able to:

- (a) trace the general classification of a book using the subject index;
- (b) locate cards relevant to that classification in the index;
- (c) extract information from a card to enable him to locate a book on the shelves etc.

Our work to date has been to design pre- and post-tests on these lines; the pre-tests to find out what a student knows before a unit of instruction and the post-test to see how far the student's knowledge at the end measures up to the objectives set. A preliminary experiment on this will have been conducted by the end of the Spring Term. We are also following this up with an attitude

questionnaire and by individual interview. We hope that the results from this preliminary experiment will enable us to revise both the tapes and the tests and as a result will increase the efficiency of this means of instruction.

The two appendices contain examples of two of the library undergraduate courses and in one instance a general exercise given at the end of Stage I of the Hotel and Catering Management Course.

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APPENDIX 1

COURSE OUTLINE

CHEMISTRY - UNDERGRADUATE STUDENTS

TECHNICAL LITERATURE AND INFORMATION COURSE

PART I 1st Year Guide lines to Library use.

Objective - To enable the student to locate material and pursue simple subject searches.

1. Introduction. Library regulations and terminology.
2. Library orientation. Record, arrangement and display of library stock. Catalogues. Loans, internal, and from other libraries.

2 hours.

PART II 2nd Year Pre-industrial training.

Objective - To identify and locate textbooks, reference books, periodicals, abstract publications, chemical data. Use of microforms and photocopying.

Chemical Literature

1. Selected major bibliographical works.
Guides to the literature - what exists and what is in the library.
2. Chemical Periodicals - commercial, institutional learned societies. Trade publications. Periodicals as sources of information. Practical work.
3. Abstracts in field of Chemistry - brief instruction in use and limitations. Practical work.

4 hours.

PART III Final Year

Objective - To enable the chemist to solve such problems in his work as are capable of solution from the informed use of library and information services.

1. Bibliographical aids to Chemical Literature.
Current awareness services.
Information services in the field of Chemistry.
Practical work.

2. Indexes. Periodicals location guides, BUCOP, World List, etc. Reviews of Progress.
3. Research. National pattern, Government, University, Industrial, Institutional, Private. The printed record of results - report literature, theses. Availability - security national/industrial.
4. Patent literature - access. Standards. Specifications.
5. Literature searches. Definition of the subject - limitations. Search programme techniques. Preparation of results.

6/8 hours.

LIBRARY ORIENTATION COURSE

HOTEL AND CATERING MANAGEMENT DEPARTMENT

UNDERGRADUATE STUDENTS

OBJECTIVES:

To provide requisite knowledge of library and information services to students as users of information.

To introduce the varied forms in which documentary information is conveyed and enable the student to acquit himself knowledgeably and efficiently in his use of library materials.

INTRODUCTION

1. Library terminology. Library services, internal and external. Alphabetisation and the use of library catalogues.
2. Communications, Telex, etc. Quick Reference aids, Timetables, Directories - Trade, Telephone, Town, Professions, etc. Photocopying services. Library 'hardware' - microforms, audio-visual aids. Practical work - exercise on reference sources.

USE AND EVALUATION OF LITERATURE

3. Guides to source material - Abstracts, definition, types. Abstracts covering Management, Economics, Commerce, Food Science, Building, etc.
4. Serial Publication. Periodicals - commercial, trade. Annuals. Year Books, Commercial Handbooks, statistical publications, Government reports. Professional organisations.
5. Literature Searches. Programme of the search - search techniques. Practical.

PRESENTATION OF RESULTS

6. Selection and evaluation of material. Report writing - use of references, etc.

The timing of the above topics phased in conjunction with the course supervisors. It is suggested that items 1 and 2 should form phase 1, the remainder the final part of the course.

LIBRARY AND INFORMATION COURSE - HCM*

EXERCISE 1A - GENERAL REFERENCE SOURCES

Who discovered the cure for scurvy?

What is the botanical name for the tea plant?
To what species does it belong?

What office does R.N. hold in Messrs. Foster Clark Ltd?
What is the firm's authorised capital?

What was the quantity and value of imports of Pilchards by the United Kingdom in 1960 and from whom were they exported?

How many convention centres and convention hotels are there in Interlaken?

What is lyophilisation?

How long does it take to travel by train from London to Inverness via Edinburgh during weekdays?

Which chemical preservatives may be used in food?

How much should a reasonable night out cost (in local currency) at a night club in Athens?

EXERCISE 1B - GENERAL REFERENCE SOURCES

What is chlorophyll?

What is the correct name and address of a firm of drysalers in London with a name like Hissop?

Give three sources of reference for Zabaglione, Bouillabaisse, Bombay Duck!

Give the names and addresses of three suppliers of Wensleydale cheese (not in Yorkshire)

Establish the relationship between Beluga, Sevruga, Waxdick, Blinis?

How much does it cost to send a five ounce letter to the German Federal Republic?

* Students are instructed to specify the source of their information - Ed.

What is the aphid Phylloxera vastatrix? When did its activities first become of commercial interest?

What is the water and vitamin content of Endive?

Find a chemical method of distinguishing between margarine and butter.

EXERCISE 1C - GENERAL REFERENCE SOURCES

Where can you find recipes for sources for fondue bourguignonne?

What are the specifications for Olive Oil B.P.?

What does it cost to post letters (internally) in the German Federal Republic?

Give the approximate figures for cattle in the United Kingdom and the Commonwealth countries for 1961?

What is Bleeding Bread? How does it occur?

Give three sources of reference on cyclamates?

What is the telegraphic address of Highland Distilleries Co., Glasgow?

At what period in history was agriculture discovered?

In which British Universities is research into the microbiology of food being undertaken?

EXERCISE 1D - GENERAL REFERENCE SOURCES

What is the connection between nitrogen trichloride and canine hysteria?

Where can you find information on weekly provincial wholesale market prices?

Outline the characteristics of 1. Palincorus vulgaris; 2. Cistacus flaviatilis
3. Nephrops Norvegicus?

Give the titles of two periodicals dealing with the Tourist industry in Great Britain? For how long has the library had them in stock?

What was the result of the analysis of barley found in King Tuthankamen's tomb?

Find the sources of reference on the chemistry of tea manufacture?

Find the total number of young people entering the hotel and catering industry in Great Britain in 1960, 1961, 1962.

What do the following abbreviations mean? Where are they found?
bdi lake Lm nhc S%

Find concise information dealing with profit and loss, liabilities and assets of the Compagnie Generale des Produits Dubonnet Cinzano Byrrh during the last five years!

APPENDIX 2

UNIVERSITY OF SURREY

Institute for Educational Technology

Leverhulme Research Project

An Investigation into the use of Self

Teaching Situations in University Science Courses.

by

P. J. HILLS

This project began in April 1969 and has so far been concerned in investigating the use of self teaching situations in the first year undergraduate course which is taken by students from the departments of Physics, Electronic and Electrical Engineering, Metallurgy and Chemical Physics, in the University of Surrey.

The work has taken the form of experiments in both the theory lectures and practical classes using a variety of audio-visual aids in conjunction with programmed learning techniques.

One such experiment was concerned with an investigation into different ways of presenting a self teaching physics practical experiment.

Four methods of presentation were used:

1. A normal conventional practical script used in conjunction with the bench apparatus.
2. A programmed form of the practical script used in conjunction with the bench apparatus.
3. An audio programme consisting of a taped programme with duplicated support material used in conjunction with the bench apparatus.
4. A complete simulation of the experiment using a combination of 8mm sound film and a tape/slide presentation.

The investigation of these four modes of presentation included tests before and after the student had performed the experiment. These tests were designed:

1. to establish the student's state of knowledge of the photoelectric effect before taking the experiment.
2. to test the student's retention of material included in the experiment immediately after the experiment.
3. to assess the student's attitude to the various modes of presentation.

Work with the theory lectures in the course is involving the investigation of alternative forms of presentation for mass lectures. As a result of part of this work a taped lecture service has been set up in the University library where a

student is able to borrow a portable tape recorder and tape recordings of certain of the lecture courses.

Both the tape lectures and tape/slide presentations of material use the cassette tape system which is both convenient and easy to use. The tape/slide presentations are in the form of background information to the course which synchronises a tape recording with slide material. To do this a tape/slide unit has been developed by the project which enables the student to sit comfortably at a table with the visual material presented to him on a rear projection screen and the tape recording played to him on earphones. This latter is important as these tape/slide units are being used in the University library.

DISCUSSION

D.J. HILLMAN: Would one of the speakers tell us what feedback they have had from students on the tape/slide facility? It would also be useful to know what hardware and software are used for programmed learning.

P.J. HILLS: We have had very varied responses from the students, and a study in depth on this point is to be made in due course. Any suitable hardware can be used and software is designed along the lines laid down by Skinner.

R. A. WALL: Can Mr. Hills give us any costings on the production of a tape/slide presentation and also on the booth itself?

P.J. HILLS: The booth costs about £100 per position and this includes the cassette, tape recorder, slide projector, screen and headphones. Slides cost about one shilling each. Since the technique involves re-photographing the slides in different multiple image situations, quite a large number may be required. About 230 were used in the demonstration given. At the University of Surrey students can borrow tapes of lectures, together with supporting material which is helpful for clarification, or if a lecture has been missed. The library has 6 tape recorders for day loans and 2 for three hour loans.

M. LECES: Can you tell us how you organise student instruction and whether there are any local audio-visual aids in different sections of the library.

H.A. CHESSHYRE: Lectures on the use of the library are given to groups of 30-40 students at a time. We also have 3 tapes with titles such as 'How to use the catalogue' which students can borrow to re-inforce the lectures. One of our main difficulties is the lack of premises for giving instruction.

(The booth developed by Mr. Chesshyre and Mr. Hills was demonstrated at an evening meeting together with a selection of audio-visual library instruction materials. - Ed.).