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ABSTRACT

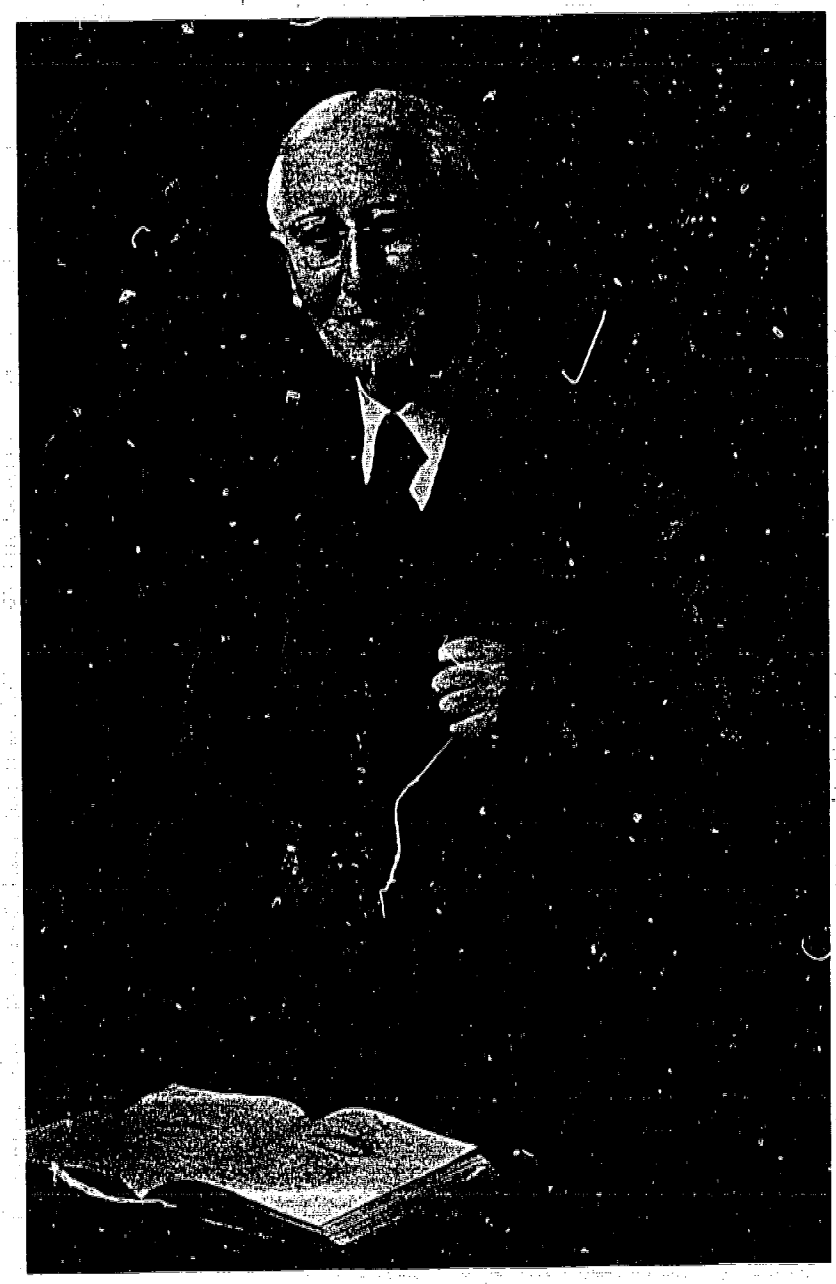
This booklet contains the annual report for 1971-72 of the Scottish Council for Research in Education. The first section lists the officers, members, principle officials, and staff responsible for special projects. The second section presents reports from the various committees of the council, stressing the reconstruction of the council's membership. In discussing special projects of the council, the focus is on sponsored and grant-aided research. The report includes budgetary considerations in the grants and a financial account of the council. The final section of the report presents reprints of journal articles written by a council member or related to a council project. The report also offers a list of research in education and educational psychology and the publications of the Scottish Council for Research in Education from 1930 to 1972. (BRB)

# THE SCOTTISH COUNCIL FOR RESEARCH IN EDUCATION

## FORTY-FOURTH ANNUAL REPORT

## 1971-72

Dr Robert R Rusk
Director of the Council. 1928-1958
Died 25th May 1972



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# INTRODUCTION

Those familiar with the annual reports issued by the Council hitherto will notice changes in both the format and the size of this report for 1971-72. It is perhaps appropriate that there should be some such change at this particular time, since 1972 has marked the biggest reconstruction of the membership of the Council since its institution in 1928. The nature of these changes is described in the body of the report.

The change in the report that has contributed principally to its increase in size is the inclusion in it for the first time of reprints of a number of articles that have appeared in journals during the past year: all of them are either written by a member of the Council's staff or related to a project conducted or supported by the Council. The Council gratefully acknowledges permission from the Editors of the journals concerned to reprint the articles. It is hoped that these reprints will serve to bring the articles to the notice of a wider public.

Mr Robert B Forbes,
Chairman of the Council

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**(until 29th June 1972)**

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*Member until October 1971
†Member from October 1971

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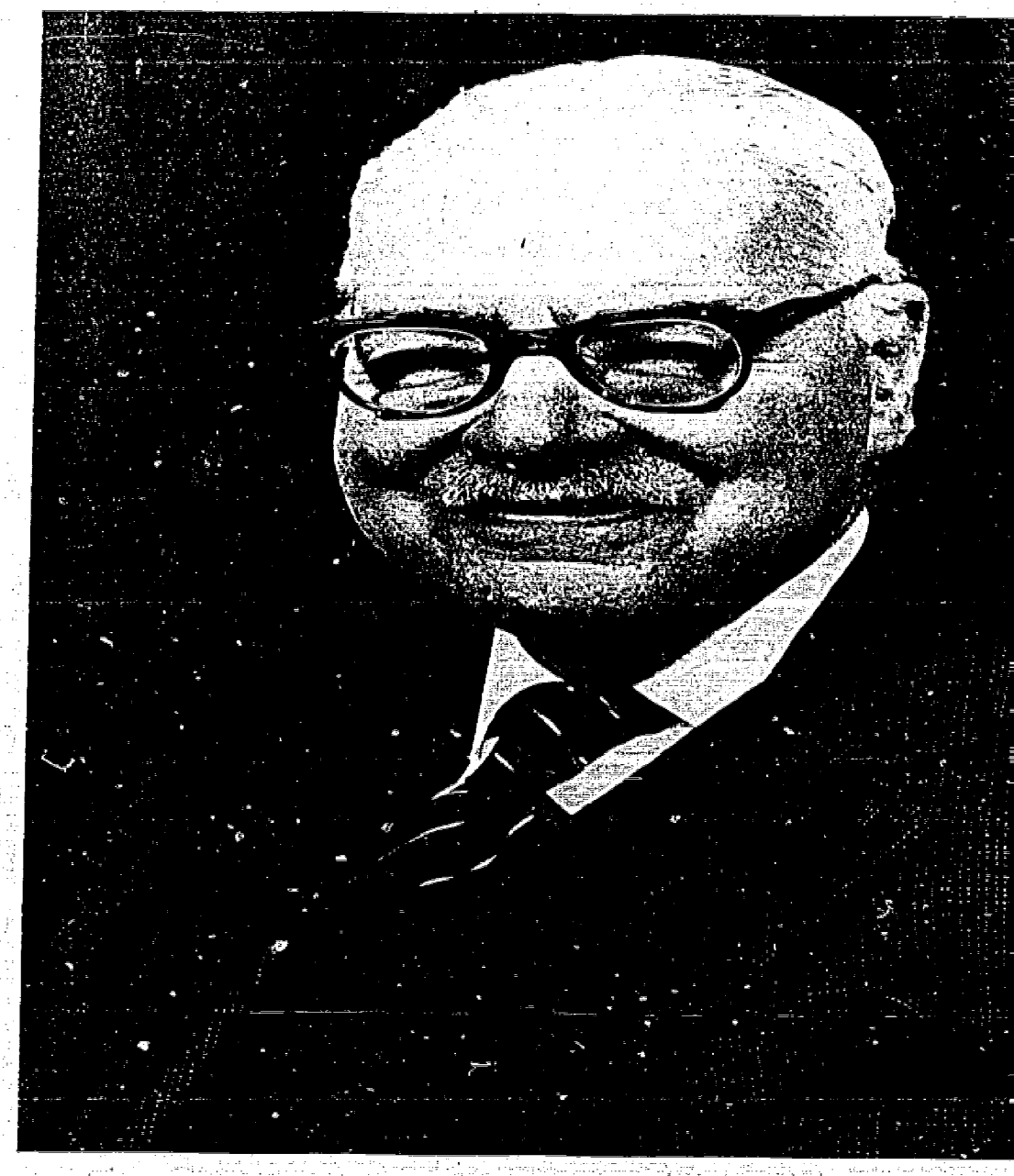
Dr Jame
Member of the Council
Chairman of the Finance Committee
Vice-Chairman of the Council



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John J Farrell, 8 George Street, Edinburgh
John G Morris, MA, MEd, HMI, 6/7 Coates Place, Edinburgh

**(from 29th June 1972)**

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Robert B Forbes, MA, MEd

**CHAIRMAN OF FINANCE COMMITTEE**
William S Charles, CA

**CHAIRMAN OF COMMUNICATIONS COMMITTEE**
Joseph Dunning, BSc, MEd, AIM, AMCT

**MEMBERS OF COUNCIL**
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**ASSISTANT DIRECTOR**
JOHN L POWELL, MA, MEd

**ADMINISTRATIVE OFFICER**
*WILLIAM HOGG

*From 18th May 1972

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**Projects Conducted by Council Staff**
*Assessment for Higher Education*—JOHN L POWELL, MA, MEd
*Courses for Craftsmen and Technicians*—A DOUGLAS WEIR, MA, MEd
*International Project for the Evaluation of Educational Achievement*—GERARD J POLLOCK, MA, MEd, MInstP
*National Certificate Courses*—GERARD J POLLOCK, MA, MEd, MInstP
*Organisation of Secondary Courses*—MALCOLM CORRIE, BA, MA

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*Finance and Administration*—WILLIAM HOGG
*Research Services*—GERARD J POLLOCK, MA, MEd, MInstP
*Technical Services*—SUSAN FRESHWATER, MA

# THE SCOTTISH COUNCIL FOR RESEARCH IN EDUCATION

## Forty-fourth Annual Report 1971-72

### COUNCIL

Dr Robert R Rusk, Director of The Scottish Council for Research in Education from 1928-58, died on 25th May 1972. Dr Rusk played a major role in the establishment of the Council and as its first Director deserves much of the credit for its achievements. Dr Rusk's appointment was honorary and part-time, but during the period of his Directorship forty or so publications came from the Council. These were, many of them, publications of world-wide importance on account of their subject matter, the technical competence of the research procedures involved and the clarity of the presentation. All this was achieved on a budget which for many years averaged no more than £1500. The Scottish Council owes a debt to many pioneers, but none so great as that owed to Dr Rusk, who shaped its beginnings and nurtured its growth.

It is with regret that we also record the deaths of Bailie Cowling, Mr Davidson and Dr Meiklejohn, who were members of the Council.

The Council adopted in June 1972 revised Articles of Association and amendments to the Memorandum of Association which resulted

in a major change in its size. The membership of the Council was reduced to twenty-one. Five members are now appointed by the Secretary of State for Scotland, and other bodies represented on the Council appoint approximately one-third of the number of members that they did formerly. The new representation is as follows:

| | |
|---|---|
| Local Authorities | 2 |
| Educational Institute of Scotland | 3 |
| Directors of Education | 2 |
| Colleges of Education | 3 |
| Scottish Universities | 3 |
| Scottish Certificate of Education Examination Board | 1 |
| Other Teacher Organisations | 2 |

This reconstruction of the Council is a culmination of efforts over the last two years.

The Council's seventh and eighth Newsletters were published in November 1971 and May 1972. Demand for the Newsletter has again increased and the circulation is now 63,000.

A conference on educational research was held at Falkirk Technical College on 4th September 1971. This conference was for further education teachers. Papers were read by the Depute Director, Mr G J Pollock, by a Research Officer, Mr A D Weir, by Mr D Dick, Principal of Stevenson College, and by Mr J Closs of the Applied Psychology Unit, University of Edinburgh. The papers provoked a lively response from the audience.

Members of staff have continued to serve on various committees outwith the Council. There is an increasing demand on the time and skill of the staff of the Council in research design, particularly in the formative and summative evaluation of curriculum development projects.

Visitors to the Council's office have included L J Ingham, New Zealand; N J Mentz, South Africa; D Spearritt, Australia; Ian Westbury, USA; K L Jenning, Australia; A Leon, France; Brian McFarlane, Australia; B Richter, Australia; John Regan, California; John Reeves, Australia; E F Sheffield, Canada; Tadashi Hidano, Tokyo; A J M Wilkinson, South Africa; D Vermaak, South Africa; J K Craig, South Africa; R A Banibensu, Ghana.

## REPORT OF COMMITTEES

**Executive** (Dr D M McIntosh, Chairman)

It is with sincere regret that the Executive noted the death of Dr J Meiklejohn, who had served on the Executive since 1955. He was also Convener of the Scholastic Survey and the Liaison Committees of the Council. He had made a great and lasting contribution to the work of the Council and has been greatly missed.

The Executive pursued the preparation of amendments to the Memoranda and revised Articles of Association. Several drafts were considered and negotiations entered into with the Scottish

Education Department and the Department of Trade and Industry. A final version of the amendments and revisions was approved at the meeting on 20th May for submission to the Council.

Mr W Hogg has been appointed to the newly created post of Administrative Officer. He took up his duties on May 1972 on transfer from the service of Edinburgh Corporation. Mr A Ryrie has been appointed as Research Assistant on a new project, Case Studies in Education and Training. He gave up an appointment as industrial chaplain to join the staff of the Council.

To enable the proposed expansion of the Council's activities to take place, new accommodation for the offices of the Council was sought and the offices of the Council are now at 16 Moray Place. Increased grant to cover the capital costs and the cost of moving has been made by the Scottish Education Department. The new premises are spacious and attractive, and provide good facilities for the work of the Council in a most pleasant setting.

A request from Professor Carter for extension of grant for the project "From School to Work" was approved and application for grant from Dr Howe of the Department of Machine Intelligence and Perception, Edinburgh, for a project entitled "Computerised Methods for Teaching Arithmetic and Elementary Mathematics to Primary School Children" was approved. Extension of grant to Mr L Meiver and Mr T W Fyfe for "Non-Intellectual Factors in Secondary School Success" was approved.

A joint meeting of the Executive with representatives of Psychology Departments of the Universities and Colleges of Education was held in November 1971. Much of the discussion at the meeting was about the impact of the reorganisation of the Council on research to be conducted by the Universities and Colleges. Both groups indicated the desire to work with the Council, but they did, however, foresee different contributions to the educational research programme.

Permission was granted to Kent Education Committee to incorporate part of the Burt (Rearranged) Word Reading Test in their revised form for the ascertainment of handicapped pupils.

**Finance** (Dr J Craigie, Chairman)

The Council is greatly indebted to the Scottish Education Department for the considerable increase in its grant (which brings the total for the year 1971-72 to £40,000), and for an additional grant of 75% of the approved costs of moving to the new premises.

The Council is also indebted to the County Councils and Counties of Cities for the increase in rate of grant from 2d to 1·5p per pupil. The Council appreciates too the increase in rate of grant from 2d to 2p by most of the Grant-Aided Schools The continued support of the Educational Institute of Scotland and Local and District Associations of the Institute is gratefully acknowledged.

The Abstracts of Accounts and lists of grants are shown on pages 32 to 37.

**Publications** (Dr J Craigie, Convener)

*The School Board of Glasgow, 1873-1919* by J M Roxburgh was, in October 1971, published for the Council by the University of London Press as one of the Council's regular series of publications. In the same month the Council published for itself a short paperback publication, *A Day Off Work?* by A D Weir, which constituted a report on the Courses for Craftsmen project. This publication was issued free of charge. In addition, 250 copies of a more detailed version of the same report were produced in duplicated form and made available on a more restricted basis.

At the January 1972 meeting of the Council, Dr James Craigie read a paper on the history of the Council. In it he recalled many personalities associated with the inauguration and development of the Council, and described some of the Council's achievements. This paper, in an extended form, has since been published in booklet form under the title *The Scottish Council for Research in Education, 1928-72*. Copies may be obtained from the Council free of charge.

It has been decided to establish a policy of issuing three distinct series of publications. These will be as follows:

| | |
|---|---|
| Series I | The Council's principal series of publications published as hitherto by the University of London Press. |
| Series II | Works either insufficiently weighty, or likely to be of too small a circulation, to be incorporated in Series I. (These will be published and distributed by the Council, and will be similar in style to *A Day Off Work?*. The possibility of making a small charge will be considered.) |
| Series III | Limited editions—made by reproducing, in an appropriate manner, manuscripts of works containing material worth preserving but unlikely to achieve a wide sale. (Copies will be distributed free of charge to selected libraries and other interested recipients. The Council will be named as publisher and copyright will belong to the Council.) |

**Bibliography of Scottish Education** (Dr J Craigie, Convener)

Earlier estimates of the date when the typescript of the *Bibliography of Scottish Education, 1872-1972* would be ready for the printer prove to have been over-optimistic and it now seems unlikely that this will be possible before the early part of 1973. This delay is much to be regretted but has been forced on the editor by the vast amount of material from official sources. This has turned out to be much greater than was originally expected and the work of examining it

all, recording it, and putting it in order will still take some considerable time. For example, the last half century has produced about five hundred Statutory Rules and Orders or Statutory Instruments, all relating to Scottish Education, and the Circulars, Memoranda and Minutes issued by the Scottish Education Department in the same period amount to more than double that number. Perhaps the observation may be allowed here that the glossy publications now increasingly favoured by the Department are much more attractive than its earlier unimaginative productions.

The amount of material dealing with every aspect of education has steadily increased over the years and is likely to go on increasing as the field of what is regarded as that with which education is concerned continues to widen as much as it has done in recent years. Thus, secondary education was of little or no interest to the State in 1872, but has so grown in importance since the late 1800's that this section in the *Bibliography* is likely to be the largest in the volume and to occupy something like twenty pages. And every other aspect of Scottish education has expanded in much the same way. All, that is, except one, Local History, which occupies less space, both proportionately and absolutely, than it did in the *Bibliography of Scottish Education before 1872*. There has also been, in this section, a kind of levelling-up. In the earlier volume the material referring to Edinburgh occupied about one-third of the whole section; now it has shrunk to one-sixth, and Glasgow, which there fell far behind Edinburgh, has now drawn level with it.

Members of Council may be interested to know that as the *Bibliography of Scottish Education before 1872* becomes more widely known there is increasing evidence that it is proving invaluable as a guide to the history of Scottish education in the period with which it deals.

**Assessment for Higher Education** (Dr D M McIntosh, Convener)

The Committee has received and discussed a report on the present stage of the project. This report, which shows most of the analysis of the data to have been completed, also constituted a report to the Social Science Research Council following the completion of the period in which it made a grant towards the cost of conducting the analysis. An extended version of this report will be published under the title *Selection for University in Scotland*. Publication is expected at the end of 1972. It is also expected that a final report will be ready in 1973.

No grounds have been found for recommending the use, for selection for university entrance, of Scholastic Aptitude Tests of the type widely used in the USA. Much attention has been given to assessing the predictive reliability of the Scottish Certificate of

Education and to the implications of these findings for admission policies.

**Courses for Craftsmen and Technicians and Pupils' Interests, Abilities and Future Progress in School and Work** (Mr R B Forbes, Convener)

For convenience of identification, the work of this Committee is now under three headings: (a) Craft and Technician Project, (b) Project on Pupils' Interests, Abilities and Future Progress in School and Work, and (c) Case Studies of Education and Training.

The Craft and Technician Project is nearly completed and a draft report, on the overlap in ability between students on craft and technician courses in further education, will be available by the end of 1972.

The Project on Pupils' Interests, etc is making steady if uninspiring progress. The information on test scores and school performance has now been analysed, while work is continuing on the additional information available for those sample members who entered employment in 1971. A most gratifying feature of this project has been the enthusiastic support from the head teachers of the sample schools.

As a result of discussions with industry the Committee has received approval from the Executive Committee to embark on a series of case studies of alternative systems of industrial training and education. Substantial financial support has been secured from the Lanarkshire Automobile Group Training Association, and a Research Assistant has recently been appointed to undertake the field work in connection with these studies.

**Younger Sibs Follow-up (1947 Survey)** (Mr J Maxwell, Convener)

This inquiry is now complete and a report has been submitted to the Social Science Research Council, who, with the Scottish Council for Research in Education, supported the inquiry financially. The interval of five years between the close of the 1947 Sample Follow-up and the attempt to trace the younger sibs led to failure to ascertain the present whereabouts of many of the sibs, and not all who were written to responded. Of a possible 1554 younger sibs, some information was obtained about 751 of them, and from 736 possible families, some information was obtained from 290. This rather inadequate sample is biased towards the higher IQ's, but is representative for family size and father's occupational class.

The intention was to ascertain whether the individual's educational and occupational career was determined more by his or her IQ level or by social class as indicated by father's occupation. The data were too complex and the number of cases in each category too few for any firm conclusion to be drawn. For example, the individuals

in the professional class were all of 110 IQ or above, all stayed at school till age 17 or later, and, with only one exception, obtained some kind of occupational qualification, mostly at professional level. Other occupational classes presented a pattern difficult to disentangle. An analysis of marriage and family proved to be impossible with too complex data.

What did emerge was that the current index of socio-economic status, namely father's occupation, appears to be inadequate; homogeneous classes like the professionally qualified cannot be directly compared with heterogeneous groups like skilled manual workers. Socio-economic status, or social class, needs much more precise definition and assessment before it can be meaningfully interpreted in educational or occupational contexts.

It is proposed to incorporate the results of this investigation in an article to be submitted for publication, probably in the *Journal of Bio-Social Sciences*.

**Educational Museum** (Dr J Craigie, Convener)

The policy of the committee remains unchanged in that it is not proposed at the present time to take any further steps towards the establishment of a museum, other than by storing materials that might be of value to such a museum when established.

**Organisation of Secondary Courses** (Dr D M McIntosh, Convener)

The Committee met in June 1971 and considered a draft proposal prepared by the Research Officer. The aims of the investigation were to measure and describe the extent of variation in outcomes for pupils experiencing different patterns of secondary education. The outcomes selected for study were the type of educational opportunities experienced by pupils and the extent of their involvement with school. The proposal was approved in principle and it was agreed that additional details concerning the sample of schools and data collection methods should be provided.

During subsequent discussions it was suggested that greater emphasis in the investigation might be placed on identifying particularly effective forms of school organisation. In view of previous research findings on the effectiveness of schools in relation to wider social and economic factors it appeared to be appropriate to study the organisation of schools in some detail. This has enabled a considerable reconceptualisation of the research programme. The chief aim has been to develop a theoretical model by means of which between-school differences in organisation may be identified and measured, and related to outcomes for pupils. On this basis it may then be possible to discover schools which are relatively more effective than others. A number of research models have been

proposed and discussed, and it is hoped shortly to present a detailed proposal.

## REPORTS ON PROJECTS

### International Project for the Evaluation of Educational Achievement

The aim of this project is to study in a systematic way how the educational outcomes in certain subject areas in different school systems are related to features of school organisation, curriculum practices, teacher characteristics, etc. Scotland has participated in three subject areas—Reading Comprehension and Science in 1970 and French in 1971.

For French two national samples, one of pupils aged fourteen, the other of pupils in secondary classes V and VI, took tests of Reading Comprehension, Listening Comprehension, Speaking, and Writing. Approximately 110 schools, 2000 pupils and 700 teachers participated in the French phase of the project. The checking and coding of the data obtained from the testing of French has been completed and the information dispatched to America.

For Reading Comprehension and Science three national samples of pupils aged 10, 14 and in sixth year of secondary school respectively participated in 1970. Print-outs of the initial univariate analyses for pupils, teachers and school for these two subjects have been received and further analyses will be available shortly. Tapes containing additional optional Scottish data have now been returned to the Council and the analysis of these is under way.

The Depute Director attended a meeting of the IEA Council in Budapest in October 1971 at which proposals for the future work of the Association and the progress of the present project were discussed.

### National Certificate Courses

The field work for the ONC stage of this project was completed last year with the collection of the 1969-70 examination results.

The analysis of the data is being carried out using a variety of multivariate techniques. The main results are now available for the Biology and Building samples and the results for the remaining courses—Chemistry, Electrical Engineering and Mechanical Engineering—should be available by December 1972.

At a conference for further education teachers, which the Council organised in Falkirk Technical College in September 1971, the Depute Director presented some of the interim results of the investigation.

It is hoped to extend the investigation by following up the samples into the HNC stage of their courses.

## SPONSORED AND GRANT-AIDED RESEARCH

**History and Influence of the Scottish Degree of Bachelor of Education** (Mr R E Bell)

The investigator has recently taken up a post with the Open University and, as a result, the time which he could devote to the project has been temporarily curtailed. However, the writing-up of the report on the questionnaire is well advanced, and it is hoped that in the autumn of 1972 the investigator will be able to take advantage of study leave granted by the University in order to complete this.

**Environment and Attainment in Primary School Children** (Mr J S Struthers)

The general strategy of the study has been to move away from the large-scale survey to intensive examination of a selected group. The Primary VI children from three schools with specific controlled characteristics which draw children from a wide range of social background were selected for study. The children were given a battery of three types of tests; intelligence tests, attainment tests, and scales assessing attitudes to various aspects of the school. The home environment was investigated by a combination of questionnaire and semi-structured interview conducted with parents.

The major aims of the research are firstly to provide a more detailed description of variation in parental influences than survey studies can present, and secondly to attempt to isolate some of the more immediately effective factors related to academic achievement at this age, The second aspect has proved more difficult than expected due to the emergence of complex variations in the patterns of relationships between boys and girls and between social class groups. Unfortunately, breaking down the sample into groups by both sex and class simultaneously produces groups so small as to make analysis difficult. However, the results should show that variables which overall are found to be related to achievement need to be interpreted in relation to specific groups of children.

**Subject Choice in Secondary Schools, with Special Reference to a Shortage of Suitably Qualified Applicants for Science Places in Universities** (Professor H J Butcher)

After a temporary discontinuation resulting from circumstances described in the Council's report for 1969-70, work on this project has been resumed and a report of the analysis of the follow-up is in preparation.

H-grade performance is known for 897 of the 1161 pupils originally tested. It is also known that 297 of these pupils went on to Edinburgh or Heriot-Watt Universities.

Analyses of two sorts have been carried out by Mr H J Pont (who was associated with the project from its inception until 1969):

(1) Using factor scores on the previously identified Science Orientation Factor (based entirely on data before any subject choice), "at risk" groups have been identified and their performance at O-grade and H-grade compared with "non-risk" subjects.
(2) Criterion groups (based on O-grade and H-grade performance and Faculty choice) have been compared on a number of variables. Regression analyses to determine the extent to which choice and level of performance can be predicted from pre-specialisation data have been carried out.

**From School to Work** (Professor M P Carter and Mrs J Haystead)

This project investigates the process of occupational choice and entry amongst Junior Secondary School pupils.

The final stage of data collection has been completed. This consisted of finding out which jobs or further education establishments were entered by those subjects who stayed at school until the summer of 1971. These children stayed at school for five years in order to take either more O-grade or a few H-grade Scottish Certificate of Education examinations. In fact, because of the shortage of employment in Aberdeen, some of this cohort went back to school.

Most of the data has now been analysed, although some of the tape-recorded interview material requires attention. Very briefly, the analysis suggests:

(1) Not every Junior Secondary School pupil makes a "choice" of school-leaving age, chiefly because many are not "encouraged" by their teachers to stay at school beyond the minimum leaving age. However, the majority are only too aware of the implications their lack of educational qualifications will have on their future job entries.
(2) The distinction between children leaving school aged 15 years and those remaining beyond the minimum leaving age is an important variable in the kind of jobs chosen from their second year to the time they actually leave school, the information they possess about these jobs, and their stated reasons for choosing them.
(3) The sources of most of the respondents' information about the jobs they chose, throughout the period of the research, was their parents. However, as one would expect, the Youth Employment Officer and teachers assumed increasing importance as the respondents' leaving date approached.
(4) Many children did not engage in any concerted effort to gain occupational information, to explore possible opportunities, or to find a vacancy in the kind of work for which they had expressed a preference. Statements made in interviews suggested that they easily accepted the fact that they could

not enter their chosen job and would, in many cases, accept the first one offered to them.

(5) This was supported by the finding that many respondents entered jobs for which they had not, on questionnaires between the second year and the end of the terms immediately preceding their entering work, expressed any desire to enter.

**Non-Intellectual Factors in Secondary School Success** (Mr L Maciver and Mr T W Fyfe)

The draft report of this research has now been completed, and edited, by a committee representing the Scottish Education Department, the Scottish Council for Research in Education, and Dundee College of Education.

By courtesy of the Scottish Council for Research in Education, the period of employment of our research assistant has been extended for a period of 6 months to enable finalisation of the project, including major revision of the draft report.

*School Involvement*

As school involvement was an important dimension of our survey design, certain features seem worthy of emphasis at this stage:

(a) After an interval of two years from the completion of data-collection from schools, some 25 schools were represented at the final meeting of the Investigation Research Committee in March.

(b) Considerable interest was expressed in the main research findings, while the necessity of communicating these findings to teachers in simple language was stressed.

(c) It was decided, with the consent of the College Principal, to place in every participating school one copy of the main research report, and 6 copies of a pamphlet-length "plain-language" report. This policy may well represent a significant means of disseminating research information to classroom teachers.

*Research Findings*

Some of the main findings of the investigation may be summarised thus:

(a) Placement on transfer in Certificate or Non-certificate Courses was, not unexpectedly, a major determinant of O-grade chances.

(b) The socio-economic category of parental employment is shown to correlate significantly with O-grade results, but not as highly as several other more specific factors.

(c) Measures of pupil and parental educational aspiration, ie whether or not the pupils, and/or their parent wished to do O-grades, correlated significantly with O-grade results. This

information was obtained when the pupils were in Secondary 2. It is significant that such a factor correlates more highly with O-grade performance than does the conventional crude measure of socio-economic class.

(d) The analysis of staffing conducted in some of the schools suggests that high qualifications of staff, and stability of staffing within a school (or in pupil experience, having fewer different teachers for a subject) are both conducive to better O-grade performance, while length of teaching experience did not seem to effect performance consistently.

*Publication of Research Report*

Printing facilities, now available from Dundee College of Education Learning Resources Department, will prove invaluable in supplying participating schools with research information. It is our intention, also, to seek to publish a report of intermediate length, and some more specialised articles for professional journals.

**Sociological Factors Associated with Irregular School Attendance among Secondary School Children** (Dr S Mitchell)

In the summer of 1971 the study was completed through interviews with two matched groups of good and bad attenders drawn from our original sample. The bad attenders comprised those children in second and third year classes who had been absent on more than forty occasions during the term covered by the original survey. The good attenders, all of whom had less than five absences recorded, were individually matched to the bad attenders by age, sex, school and class within school. Two main differences were found to exist. First the good attenders, particularly the girls, were more likely to remain in full-time education after statutory school-leaving age. Secondly, the bad attenders seemed to have more trouble in adjusting to work than the good attenders. This was particularly marked among the boys where 58% of the poor attenders were found to have changed jobs at least once since leaving school compared with 28% of the good children. The poor attenders also accounted for twelve out of the thirteen young people who were unemployed at the time of interview. An article concerning the project, which appeared in *Education in the North, 1972*, is reprinted on pp. 52-62.

**Arithmetic/Mathematics Sets in Primary School** (Mr J Maxwell)

This pilot investigation is now complete and a report was published in the *Scottish Education Journal* on 24th December 1971. The inquiry encountered various unforeseen difficulties. The P2, P4 and P6 classes of six schools in the Border counties participated, and though the programme was not completed equally in all schools,

certain tentative conclusions can be drawn. A syllabus on Sets, containing twelve terms to be demonstrated and defined and seven symbols, was drawn up and taught by the teachers of the three classes referred to. The children were tested after a few weeks, and teachers' opinions invited. If a standard of 80% of the pupils answering each test question is taken as a standard, there were few questions which did not reach this standard in at least one school. The concept of intersection of sets gave difficulty throughout. Apart from this, there seems no evidence that the mathematics of sets cannot be taught to children successfully in any of the three class levels used in the inquiry. Teachers' observations varied; there were some indications that teachers tended to under-estimate the ability of their pupils to learn the material.

**Sociological Study comparing the Educational and Career Patterns of Scottish and English Graduates** (Professor R K Kelsall)

This study owes its origins to the National Survey of 1960 Graduates, of whom 870 men and 560 women took a first degree in Scotland. At the same time some 103 men and women whose permanent homes were in Scotland graduated elsewhere in Britain. The present inquiry involves detailed study of this Scottish component of the national sample.

The research falls into three main sections; firstly a comparison of the social, educational and occupational characteristics of men and women who graduated from Scottish and English universities in 1960; secondly an investigation of the characteristics of graduates school teaching in Scotland and of those doing other types of work there; the third area of inquiry involves the preparation of data pertaining to 1960 graduates which will be used for a comparison with material collected during the course of the Council's "Assessment for Higher Education" project.

Some seven months after the inception of the inquiry the computer has been programmed for the extraction of the necessary data which were stored on magnetic tape during the course of the larger investigation, tables have been requested and, for the most part, have been analysed. Consultations are now going ahead regarding co-operation with those concerned with the Council's "Assessment for Higher Education" project.

The next few months will be devoted to the writing up of the results of the investigation and to the preparation of a final report.

**The Attainments of Students following SCE and GCE Courses in Further Education Colleges** (Mr A J Hastie)

This project involves the investigation of students in Colleges of Further Education in Glasgow, with a view to establishing the importance of personality characteristics, personal circumstances,

nature of previous education and age in their success in SCE and GCE examinations and in their subsequent and career achievements.

During October of last year 151 day and 144 evening students, drawn from three FE Colleges in Glasgow, and 15 other examination candidates were studied. All 310 filled in a 23-item questionnaire which requested information about their personal and educational background and motivation. Nearly all of these also completed the Eysenck Personality Inventory (B) and $AH_4$ test of general intelligence. 145 of the day students also completed the APU Vocabulary Test.

A parallel sample of 228 school pupils drawn from $S_4$ and $S_5$ years of six comprehensive schools in Glasgow completed the same tests and answered a modified form of the questionnaire.

The scoring of the tests and processing of the other information has been completed and it is now possible to identify and describe a number of groups within the sample in terms of age, sex, marital status, social class as defined by (a) father's and (b) own or husband's occupation, and educational background. Work is proceeding relating the students' scores in the three tests to these groups and comparing them with norms for other groups.

When SCE and GCE results become available during the summer, correlations will be sought between examination successes and the sociological, psychological and educational factors already studied. Ultimately, however, the object of the research is the establishment of the relationship between these factors and the long range of achievements of the students in institutions of higher education or in their career advancement.

**Individual Differences and Computer-assisted Instruction**
(Dr J A M Howe)

During the school year 1970-71, boys from two Edinburgh schools took part in a computer-assisted instruction experiment in German and Latin. A study of the boys' expectations about CAI, and the changes in their attitudes towards it during the experimental period, was an integral part of the experiment. The main research tool used for the investigation of attitudes was a rating scale, based on the Semantic Differential technique. This consisted of nine pairs of objectives, related to teaching, on which the boys rated four learning situations: doing homework, lessons with their current teacher, lessons with their ideal teacher, and computer-assisted instruction.

All the boys taking part in the CAI experiment completed these rating scales before the experiment began, half-way through it, and when it was completed. Their form-mates completed the same rating scales before and after the experiment, and thus acted as a control group for the participants. During the experiment, the boys were also given questionnaires covering aspects of their more general

attitudes to academic work, their individual work-style, and some personality measures.

The main conclusions were:

1. Pupils prefer CAI in a school subject they enjoy, and when the teacher of the subject is liked.
2. Overall attitudes to CAI declined slightly relative to human teaching over the two terms, from a very positive expectation to a more neutral position.
3. The pupils' main reservations were that they could not contribute their own ideas, or argue with the system. This suggests that dialogue systems will be more popular with some.
4. Girls appeared to be more apprehensive about CAI, but we have not been able to study this in detail so far.
5. The majority of participants felt that CAI had helped them to improve their performance in the language taught, and about half the sample said that taking part in the experiment had increased their liking of the subject in class.

## LIAISON WITH OTHER ORGANISATIONS AND CONSULTATIVE SERVICES UNDERTAKEN BY THE COUNCIL'S STAFF 1971-72

### The Director

| | |
|---|---|
| *Papers* | "Special Education in Canada"—Conference for Teachers of Handicapped Children, Jordanhill College of Education (11th March 1972). |
| *Conference Participation* | Council of Europe—Colloquium of Directors of Educational Research Organisations (10th-12th November 1971).<br>Council of Europe *Ad Hoc* Committee for Educational Research Annual Meeting (20th-21st June 1972). |
| *Committees* | The Educational Research Board of the Social Science Research Council.<br>Standardisation and the Presentation of Educational Research Projects and Results (9th March 1972).<br>The Open University Advisory Committee on Studies in Education Research Sub-Committee. |
| *Consultation* | The Craigie College Language Project.<br>The Edinburgh Reading Test. |
| *Visits* | German Research Centres (10th-15th April 1972). |

**The Depute Director**

| | |
|---|---|
| *Papers* | SCRE Research Conference for Further Education Teachers (4th September 1971). |
| *Conference Participation* | Meeting of Council of International Association for the Evaluation of Educational Achievement (Budapest, 4th-9th October 1971).<br>Meeting of Heads of Curriculum Development Centres (Aberdeen, 12th June 1972). |
| *Committees* | SCCAPE Research and Development Sub-Committee.<br>Steering Committee on Dundee College of Education Project, "Non-Intellectual Factors in Secondary School Success".<br>Open University Advisory Committee on Studies in Education.<br>Advisory Committee on Proposed Science Project at Dundee College of Education. |

**The Assistant Director**

| | |
|---|---|
| *Conference Participation* | Annual Conference of Society for Research in Higher Education (London, 16th December 1971). |
| *Committees* | Scottish Certificate of Education Examination Board: English Language and Interpretation Study Group.<br>Scottish Certificate of Education Examination Board: *Ad Hoc* Committee on an Experimental Examination in O-grade English.<br>SED Steering Committee on Reading Research Project now being conducted at Queen Margaret College, Edinburgh. |
| *Visits* | Meeting with the Librarian of the University of London Institute of Education (London, 12th April 1972). |

## SUMMARY REPORT OF PROJECTS

| Title of Project | Principal Research Worker | Starting Date | Approximate Duration | Approximate Total Cost £ | Grant paid by Council 1971-72 £ |
|---|---|---|---|---|---|
| Bibliography of Scottish Education Part 2 | Dr J Craigie | 1970 | 3 years | 4400 | — |
| Assessment for Higher Education | J L Powell (since 1969) | 1961 | 11 years | 28500 | — |
| Courses for Craftsmen and Technicians: | | | | | |
| (a) Profiles of Craft and Technician Apprentices | A D Weir | 1969 | 3 years | 8000 | — |
| (b) Pupils' Interests, Abilities and Future Progress in School and Work | S J Closs and A D Weir | 1970 | 2 years | 11000 | — |
| Scottish Mental Survey—Younger Sibs Follow-up | J Maxwell | 1969 | 2 years | 3000 | — |
| Organisation of Secondary Courses (Stage 2) | M Corrie | 1971 | 4 years | Not decided | — |
| International Project for the Evaluation of Educational Achievement | G J Pollock | 1969 | 4 years | 15250 | — |
| National Certificate Courses | G J Pollock | 1966 | 6 years | 20000 | — |
| History and Influence of the Scottish Degree of Bachelor of Education | R E Bell | 1965 | 7 years | 1800 | — |
| Environment and Attainment in Primary School Children | J S Struthers | 1967 | 5 years | 7300 | — |
| Subject Choice in Secondary Schools, with special reference to a shortage of suitably qualified applicants for Science places in universities | Professor H J Butcher | 1965 | 5 years | 7500 | — |
| From School to Work | Professor M P Carter and Mrs J Haystead | 1967 | 5 years | 8680 | — |
| Non-Intellectual Factors in Secondary School Success | L Maciver and T W Fyfe | 1967 | 5 years | 3700 | — |
| Sociological Factors Associated with Irregular School Attendance among Secondary School Children | Dr S Mitchell | 1968 | 3½ years | 4125 | — |
| Primary School Mathematics (Sets) | J Maxwell | 1969 | 2 years (report published December 1971) | 450 | 50 |
| A Sociological Study Comparing the Educational and Career Patterns of Scottish and English Graduates | Professor R K Kelsall | 1971 | 2 years | 3750 | 2993 |
| Attainments of Students following SCE and GCE Courses in FE Colleges | A J Hastie | 1971 | 1 year | 110 | 110 |
| Individual Differences and Computer-assisted Instruction | Dr J A M Howe | 1971 | 2 years | 4000 | 2000 |

GRANTS FROM EDUCATIONAL AUTHORITIES FOR YEAR TO 15TH MAY 1972

| | |
|---|---|
| Aberdeen | £243·48 |
| Dundee | 527·00 |
| Edinburgh | 1016·88 |
| Glasgow | 1404·00 |
| Aberdeenshire | 207·25 |
| Angus | 132·50 |
| Argyll | 74·00 |
| Ayrshire | 579·45 |
| Banffshire | 67·20 |
| Berwickshire | 30·00 |
| Bute | 16·67 |
| Caithness | 47·15 |
| Clackmannan | 67·77 |
| Dumfriesshire | 127·25 |
| Dunbartonshire | 414·00 |
| East Lothian | 80·38 |
| Fife | 492·22 |
| Inverness-shire | 142·80 |
| Kincardineshire | 36·00 |
| Kirkcudbrightshire | 48·00 |
| Lanarkshire | 1062·00 |
| Midlothian | 415·00 |
| Moray and Nairn | 90·00 |
| Orkney | 24·00 |
| Peeblesshire | 17·54 |
| Perth and Kinross | 173·80 |
| Renfrewshire | 558·74 |
| Ross and Cromarty | 89·00 |
| Roxburghshire | 54·78 |
| Selkirkshire | 30·45 |
| Stirlingshire | 321·00 |
| Sutherland | 20·50 |
| West Lothian | 188·93 |
| Wigtownshire | 44·85 |
| Zetland | 24·00 |
| Total | £8868·59 |

GRANTS FROM LOCAL AND DISTRICT ASSOCIATIONS OF THE EDUCATIONAL INSTITUTE OF SCOTLAND FOR YEAR TO 15TH MAY 1972

| | |
|---|---|
| Aberdeen | £10·00 |
| Banffshire | 5·00 |
| Berwickshire | 5·00 |
| Caithness | 10·00 |
| Clackmannan | 4·00 |
| Cowal | 2·00 |
| Deer | 5·00 |
| Dunbartonshire | 5·00 |
| Dumfries | 10·00 |
| Dundee | 2·10 |
| East Lothian | 5·00 |
| East Sutherland | 3·15 |
| Edinburgh | 10·00 |
| Garioch | 5·00 |
| Kincardineshire | 2·00 |
| Kintyre | 4·00 |
| Kirkcudbrightshire | 6·00 |
| Lewis | 5·00 |
| Lochfyneside | 1·05 |
| Lorn and Morvern | 1·00 |
| Midlothian | 5·00 |
| Moray and Nairn | 5·00 |
| Orkney | 6·00 |
| Roxburghshire | 5·00 |
| Selkirkshire | 5·00 |
| Shetland | 3·15 |
| Shetland North Isles | 0·50 |
| Stirlingshire | 6·00 |
| West Lothian | 10·00 |
| Wigtownshire | 1·05 |
| Total | £147·00 |

CONTRIBUTIONS FROM GRANT-AIDED SCHOOLS FOR YEAR TO 15TH MAY 1972

| | |
|---|---|
| Dundee High School | £24·84 |
| George Heriot's Trust | 12·50 |
| Hutchesons' Grammar School | 5·00 |
| Marr College | 18·00 |
| Merchant Company Schools | 90·00 |
| Robert Gordon's College | 24·58 |
| St Aloysius' College | 8·50 |
| St Joseph's College, Dumfries | 5·00 |
| John Watson's | 15·00 |
| Total | £203·42 |

CONTRIBUTIONS FROM OTHER SOURCES

| | |
|---|---|
| Scottish Infant Mistresses' Association | £10·00 |
| Association of Teachers in Religious Education | 5·00 |
| Total | £15·00 |

# THE SCOTTISH COUNCIL FOR RESEARCH IN EDUCATION

## BALANCE SHEET AS AT 15TH MAY 1972

| 1971 | Assets | | |
|---|---|---|---|
| | *Fixed Assets:* | | |
| | Office Furnishings at cost *less* depreciation written off: | | |
| £5890 | Total Cost to 15th May 1972 | | £12342·42 |
| 3990 | *Less* Depreciation written off to date | | 5667·42 |
| £1900 | | | £6675·00 |
| | *Current Assets:* | | |
| £162 | Cash Balance | £212·47 | |
| 446 | Balance in Bank | 1741·72 | |
| 1502 | Sums on Deposit | 9·39 | |
| 3280 | Sundry Debtors and Prepaid Charges | 5288·44 | |
| £5390 | | | 7252·02 |
| £7290 | | | £13927·02 |

| 1971 | Liabilities | | |
|---|---|---|---|
| | *Current Liabilities:* | | |
| £3491 | Sundry Creditors and Accrued Charges | | £3779·70 |
| 2967 | *Publications Fund* | | 4409·47 |
| | *Funds:* | | |
| | General Fund—15th May 1971 | £832·34 | |
| | *Add* Repayment of Grant made in previous years | 1483·30 | |
| | Special Grant from the Scottish Education Department | 5024·00 | |
| | | £7339·64 | |
| 832 | *Deduct* Deficit for year to date | 1601·79 | 5737·85 |
| £7290 | | | £13927·02 |

JAMES CRAIGIE, *Member of Council*
JAMES CARMICHAEL, *Member of Council*

EDINBURGH *8th June* 1972.—We have audited the Accounts of The Scottish Council for Research in Education for the year to 15th May 1972. In our opinion proper books of account have been kept and the Accounts which have been prepared in accordance with the provisions of the Companies Acts 1948 and 1967 are in agreement with the books, and the Balance Sheet and Income and Expenditure Account give respectively a true and fair view of the state of the Council's affairs and of its deficit for the year ended on that date.

ROBERTSON, CARPHIN AND COMPANY, CA., *Auditors.*

## ABSTRACT OF ACCOUNTS FOR YEAR TO 15TH MAY 1972

| 1971 | INCOME | |
|---|---|---|
| | *Grants:* | |
| £1500 | Educational Institute of Scotland | £1500·00 |
| 8010 | Education Authorities | 8868·59 |
| 5 | Association of Directors of Education in Scotland | 5·25 |
| 119 | Local and District Associations of Educational Institute of Scotland | 147·00 |
| 111 | Grant-aided Schools | 203·42 |
| 35000 | Scottish Education Department | 40000·00 |
| 100 | Scottish Secondary Teachers' Association | — |
| — | Miscellaneous | 15·00 |
| £44845 | | £50739·26 |
| 351 | Interest on Deposits | 282·31 |
| £45196 | | £51021·57 |
| — | Deficit carried down | 1278·20 |
| £45196 | | £52299·77 |
| £1804 | Surplus brought down | — |
| — | Net deficit for year | 1601·79 |
| £1084 | | £1601·79 |

| 1971 | EXPENDITURE PAID AND ACCRUED | |
|---|---|---|
| £15505 | Salaries | £24157·56 |
| 2004 | Staff Pension Contributions | 2343·61 |
| 18525 | Investigations and Special Grants | 13663·51 |
| 321 | Testing Material, Technical Journals, etc. | 515·58 |
| 938 | Information Services | 1431·76 |
| 1033 | Council, Committee and Officials' Expenses | 1306·78 |
| 609 | Postages and Telephones | 630·96 |
| 175 | Audit Fee | 175·00 |
| 1495 | Printing and Stationery | 848·48 |
| 605 | Hire of Equipment | 452·96 |
| 750 | Rent, Rates and Feu Duty | 1330·77 |
| — | Heating and Lighting | 222·33 |
| — | Cleaning | 210·05 |
| — | Legal Expenses | 348·50 |
| 81 | General Insurance | 85·89 |
| 459 | National Insurance | 665·44 |
| 166 | Replacements and Repairs | 1063·04 |
| — | Removal Expenses | 180·13 |
| 226 | Miscellaneous Expenses | 990·39 |
| 500 | Depreciation | 1677·03 |
| £43392 | | £52299·77 |
| 1804 | Surplus carried down | — |
| £45196 | | £52299·77 |
| — | Deficit brought down | £1278·20 |
| 1000 | Transferred to Publications Fund | — |
| 281 | Deficit on Younger Sibs Account | — |
| — | Deficit on Assessment for Higher Education Account | 323·59 |
| 523 | Net Surplus for year | — |
| £1804 | | £1601·79 |

## PUBLICATIONS FUND

| 1971 | | | 1971 | | |
|---|---|---|---|---|---|
| £3348 | Balance unexpended at 15th May 1971 . | £2966·84 | £3237 | Expenditure . . . . . | £604·47 |
| 1856 | Income from Publications . . . . | 2047·10 | 2967 | Balance unexpended at 15th May 1972 . | 4409·47 |
| 1000 | Transferred from General Fund . . | — | | | |
| £6204 | | £5013·94 | £6204 | | £5013·94 |

## ASSESSMENT FOR HIGHER EDUCATION

### ABSTRACT OF ACCOUNTS FOR YEAR TO 15TH MAY 1972

| 1971 | Income | | 1971 | Expenditure | |
|---|---|---|---|---|---|
| £1334 | Grant from Social Science Research Council | £19·33 | £1334 | Computing Costs . . . . . | £342·92 |
| — | Balance of Expenditure over Income transferred to General Fund. . . . | 323·59 | | | |
| £1334 | | £342·92 | £1334 | | £342·92 |

# PREVIOUSLY PUBLISHED ARTICLES RELATING TO COUNCIL PROJECTS OR WRITTEN BY COUNCIL STAFF

## IN DEFENCE OF EDUCATIONAL RESEARCH

by
W BRYAN DOCKRELL
Director, Scottish Council for Research in Education

Lord James was reported recently as advocating more thought and less research in the Humanities and Social Sciences. In a period of rapid educational change the teacher might well echo Lord James' concern about the contribution made to practice by "research". Is the growing list of books, journals and reports of educational research really contributing to an understanding of educational issues or should these resources be diverted to other activities?

Attractive as Lord James' dichotomy is at first, it seems a strange antithesis on second reading. Thought and research are surely not alternatives. All research requires the classical educational virtues of imagination, reflection, and verification. Research has rightly emphasised the importance of verification often to the neglect of the other two components. There is sometimes a tendency to confuse the mere accumulation of data, an undigested mass of facts, with knowledge. Complications of statistics, the preparation of tables of enrolment or costs, are not research, but may well provide the indispensable basis for research. Research cannot contribute to the

current discussions about comprehension and selection or the desirability of educational priority areas without the facts. Nor can it contribute without the imagination to ask the right questions and the appropriate reflection on the answers provided.

The stress on the rigorous statistical verification of hypotheses is an essential aspect of research. At the recent leaving certificate examination in Paris, the "bachot", the secondary school students of Paris were offered as a subject for discussion "tout raisonnenent vigoureux est-il de nature mathématique?" While that may be putting it rather strongly the educational researcher will rightly insist that, until it has been verified, an opinion is an opinion and should not be confused with a fact. He may continue to believe that this or that way of teaching is the most effective, but until he has demonstrated that it is, he must distinguish between his own convictions and incontestible evidence.

If there is a tendency to confuse research with "data-mongering" there is equally a tendency to confuse speculation, particularly speculation related to experience, with research. The case study of a particular school which combines information about that school with speculation about the effects of, for example, the grouping procedures practised in it can be enlightening. However, until the speculation is turned into precise statements which can be shown to have a general validity, it is not research. Teachers need not be deterred from publishing their impressions. They should be careful, though, not to mislead their readers into thinking that their guesses are facts. This danger is particularly marked in "action research" which is often more action than research. A few statistical tables do not transform opinion into evidence. One of the earliest and possibly most influential books on the organisation of secondary education pointed out that the "evidence" in its figures and tables was not statistically significant and therefore was not a basis for generalisation. Unfortunately, this caution was left to a note at the back of the book which many readers seem to have missed.

This confusion about the research status of much educational work would not matter if it were not the purpose of virtually all educational study to affect practice, either immediately or in the long run. It is hard to imagine any study in education, certainly any sociological or psychological study, which would not have implications for practice. In the less practical disciplines the educational historian records the past and helps us thereby to understand how our present institutions arose and the purposes they were meant to serve; and the philosopher helps to define concepts not as part of an arid word game, but to clarify thought about important educational issues.

The contribution that research can make to important educational issues is always limited. There may not be time to conduct an adequate study on some important issue. There are restrictions on the experiments that we can make with children. Researchers in the United States were recently reprimanded for trying to hold up the implementation of education reform in the interest of research. Schools must adopt the procedures which seem likely to be best even though they will disrupt the researcher's carefully controlled design. We cannot hold back from children the programme which seems likely to be best for them.

In any case, the educational researcher often has to bring in the Scottish verdict, "not proven". The contribution of any specific variable to the long-term outcomes of education is marginal. For example, if the question for research is the desirability of beginning instruction in a second language at 8 or 11 and the criterion is mastery of that language at 16, the contribution of a relatively short period of weekly instruction for the years between 8 and 11 is likely in the long run to be slight. The advantages of early instruction are likely to be most noticeable in the early years and fade as factors like the attitude of the pupil and his family, the competence of the teachers, and opportunities for language instruction and practice of the language have opportunity to assert themselves. This complexity of the processes resulting in any important educational outcome has been one of the factors leading to the lack of crucial and definitive studies.

In any case, educational policy is dependent on factors other than the findings of the researcher. Values play a major role in all educational decision-making. While values are rightly a necessary basis for educational decision-making, the danger is that educational research will be misinterpreted to fit these values. An example is the generalisations about streaming. Streaming is disliked by many people of liberal, progressive inclinations and so there is much criticism of this form of school organisation no matter what its advantages. There is a great deal of evidence that children in the lower streams, particularly of secondary schools, become disaffected and antagonistic. It is by no means clear, however, that this antagonism is a function of the school organisation and that merely changing the organisation would contribute to the solution of these pupils' problems.

Since educational research, good educational research, is inevitably limited and as far as the major issues are concerned its implications are tentative, would the harassed teacher be well-advised to follow Lord James' advice and pay less attention to research? Clearly not. In education more than in most fields we are committed to the belief that knowledge is preferable to ignorance.

While in education we might want to avoid phrases like "research shows" for research rarely shows anything definitive, research can make an essential contribution. The map that the educational researcher can provide is incomplete. There are many unexplored regions and many mistaken guesses, but, given adequate support, the researchers can reduce those areas of ignorance and provide information which cannot usurp the role of thought but can provide a sounder basis for educational decision.

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## IDENTIFYING AND INTERVIEWING SCIENCE STUDENTS AT RISK OF FAILURE

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### Introduction

Recently Heywood (1971) has written a very full account of student wastage. The present study was designed to identify students at risk of failure and to evaluate remedial action.

Nisbet and Welsh (1966) have pointed out that an early warning system based on the December class examination results can be of help in identifying potential failures, and it has long been the practice in Dundee for the Faculty of Science to arrange for Advisers of Studies to interview such students. Recently, the conducting of these interviews has been taken over by a sub-committee of the Faculty Board, and the research reported here was performed in conjunction with this sub-committee.

The Robbins report on Higher Education (1963) has pointed out that 82% of students drop out for academic reasons, but this does not mean merely lack of ability. There are many factors which contribute to lack of academic success.

The purpose of this research was to identify factors which may contribute to the failure of students, concentrating on those factors which might be changed as a result of interviewing students who were "at risk". Some months after the interviews the students were again questioned to see if there had been any long-lasting change in these factors. In the meantime efforts were made at the departmental level to remedy deficiencies which had been revealed by examinations and by interviews.

### Methods

In November 1969, first year students in the Faculty of Science at Dundee were given a class test in each of their (three) subjects. For most of the subjects, this test consisted of a number of multiple

choice or short answer items. This new test was in addition to the customary December and March class examinations, and its purpose was to pick out as early as possible those students who were at risk of failing at the end of the session.

Since students have their studies discontinued if they pass in fewer than two subjects out of three, the policy in general was to interview students who had less than 40% for two subjects in the November tests. Similar criteria were used for the December and March examinations, the students being interviewed by two senior (not professional) members of staff in November, January and April. Twenty-three students were interviewed in November, a further 28 (as well as the previous 23) in January, and 10 more in April (together with a re-interviewing of the 28 first seen in December).

In the interviews, it was hoped to discover any factors relevant to the poor performance of the student. The general theme was that the Faculty was anxious about students who were "failure risks". The students were accordingly encouraged to work hard and effectively, and to seek help at once if they were in difficulties. Where students seemed to be ruining their own chances by insufficient work (and they were often unaware of this), then it was deliberately pointed out that students with similar terminal examination results had often failed to pass the degree examinations (where 50% is the pass mark). Apart from this, the atmosphere of the interview was intended to be encouraging, and complaints and difficulties were sympathetically dealt with. In about 90% of cases, at least one cause of weakness was discovered, and suggestions were made as to how a difficulty might be overcome. Most students appeared to accept the interview as helpful and appreciated that someone was willing to discuss their difficulties.

The information on the student's background, study, motivation, etc, was derived from two questionnaires given to first year students in the Faculty. The first was completed by 165 students in November 1969, within a week of the November tests. There was 100% return of questionnaires completed under supervision at practical classes. The second questionnaire was completed in May 1970 by 132 of the group (8 had withdrawn), mostly before a lecture and, for others, by appointment with one of the investigators at the University Department of Education.

The first questionnaire began with a number of background questions, essentially limited to factors which might be relevant academically and to facts concerning study conditions and hours of work.

Following this were sixty statements with which the students were asked to agree or disagree. These sixty statements could be divided into four sets from which scales could be derived for work habits, motivation, adequacy and personality. Forty-four of the sixty had been used in a previous questionnaire given to nearly 1000 first year chemistry students at Scottish universities (Hoare and Yeaman, 1971a, b) and these statements were chosen for the present questionnaire because answers to them had been shown to correlate with the pass/fail chances of the students in the First BSc chemistry degree examinations.

The "work habits" statements were mostly concerned with organisation and aptitude for informal study. "Motivation" statements ranged from expression of ambitions to opinions about university studies. "Adequacy" was regarded as competence to cope satisfactorily with university life and the new teaching and learning environment. Its items included criticisms of the courses and expressions of personal difficulties. The "personality" statements were mostly chosen from those used by Professor Entwistle and included roughly equal numbers used for extraversion/introversion and neuroticism scales. Essentially this scale could be defined as the combination of those personality attitudes which correlated with pass/fail chances.

The second (May) questionnaire was different from the first in that there seemed no necessity to repeat the background information (except hours and evenings worked). Since no great change would be expected in personality, the relevant statements were also omitted in the questionnaire, together with a few others. The remaining forty statements were supplemented by a further thirty-five, the opportunity being taken to test further statements with a view to subdividing the scales of work habits, motivation and adequacy.

The questionnaires were intended to be independent of the interviews, although a few of the statements used in May were derived from opinions expressed by students at interviews. Although, in general, there was an apparent agreement between the results of the first questionnaire and the student weaknesses revealed in the November and January interviews, no proper correlation was possible because, in order to maintain the most favourable atmosphere and be of most constructive help to the students, no attempt was made to standardise or structure the interviews.

## Results

Of the 165 students, 75% were men. Twenty-eight per cent were born in 1950, 50% in 1951 and 4% in 1952 (the rest being older). Thirty-eight per cent were domiciled in Scotland and most of the rest in England. Twenty per cent completed university entrance qualifications in the fifth year at a Scottish school, and 18% needed an extra year to complete their qualifications. Eighty per cent of

students with SCE qualifications had followed the modern "alternative" syllabus, but only one or two from England had followed a Nuffield course. The English students commonly had A-level passes in Chemistry, Physics and Biology whereas Scottish students had Higher passes in English, Pure Mathematics, Physics and Chemistry. Previous qualifications were too varied and did not correlate sufficiently well to be used as a predictive device for university performance although students with 2 E-grade passes at A-level had less than a 50% chance of success.

Most students spent between 1½ and 3 hours per week writing up practical work, and an average of 6 hours on problems and preparing for tutorials. On average, students spent a further 6 hours per week on non-set work, though some, as shown in Table Ia, spent very little time on this. The changes in these indicated times between November and May for four important groups are shown in Table Ib.

TABLES I. INFORMAL WORKING HOURS

TABLE Ia. NOVEMBER QUESTIONNAIRE

| (Hours per week) | % of Students P | T | O | E | (Evenings per week) |
|---|---|---|---|---|---|
| 0–1 | 39 | 0 | 10 | 6 | 0–2 |
| 1½–3 | 45 | 5 | 19 | 22 | 3 |
| 3½–6 | 12 | 37 | 26 | 35 | 4 |
| 6½–10 | 2 | 44 | 25 | 26 | 5 |
| >10 | 0 | 11 | 17 | 7 | 6 |

TABLE Ib. COMPARISON OF MAY AND NOVEMBER QUESTIONNAIRES

| | | No. | % of Students P | T | O | E |
|---|---|---|---|---|---|---|
| *Increased time* spent by students | Interviewed and passed | 15 | 26 | 0 | 93 | 46 |
| | Interviewed and failed | 22 | 27 | 27 | 36 | 27 |
| | Not interviewed and passed | 90 | 14 | 17 | 44 | 27 |
| | Not interviewed and failed | 5 | 20 | 0 | 20 | 0 |
| *Decreased time* spent by students | Interviewed and passed | 15 | 46 | 33 | 6 | 6 |
| | Interviewed and failed | 22 | 13 | 50 | 31 | 4 |
| | Not interviewed and passed | 90 | 27 | 33 | 30 | 28 |
| | Not interviewed and failed | 5 | 80 | 60 | 0 | 100 |

Time spent on P: practicals
T: set problems and tutorials
O: other (i.e. non-set) work
E: number of evenings per week spent mostly working.

TABLE II

Correlations of (i) November Questionnaire Scales and (ii) May Questionnaire Sub-Scales

| Subscale Code | | (May Subscales) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Adequacy* | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 |
| 83 | explicit | | 0·38 | 0·23 | 0·35 | 0·16 | 0·33 | 0·27 | 0·07 | 0·10 | −0·13 | 0·24 | 0·50 |
| 84 | implicit | | | 0·17 | 0·28 | 0·11 | 0·20 | 0·28 | 0·03 | 0·04 | −0·09 | 0·24 | 0·31 |
| | *Work Habits* | | | | | | | | | | | | |
| 85 | organisation | | | | 0·44 | 0·38 | 0·44 | 0·33 | 0·15 | 0·16 | 0·25 | 0·27 | 0·24 |
| 86 | distraction | 0·35 | | | | 0·30 | 0·56 | 0·44 | 0·29 | 0·02 | 0·19 | 0·24 | 0·30 |
| 87 | private study | | | | | | 0·30 | 0·20 | 0·20 | 0·16 | 0·16 | 0·34 | 0·27 |
| 88 | industry | | | | | | | 0·29 | 0·30 | 0·21 | 0·34 | 0·24 | 0·27 |
| 89 | background | | | | | | | | 0·13 | 0·09 | 0·03 | 0·26 | 0·28 |
| | *Motivation* | | | | | | | | | | | | |
| 90 | ambition | | | | | | | | | 0·22 | 0·29 | 0·49 | 0·31 |
| 91 | competitiveness | | | | | | | | | | 0·19 | 0·21 | 0·15 |
| 92 | application | 0·01 | | | 0·33 | | | | | | | 0·07 | −0·16 |
| 93 | satisfaction/interest | | | | | | | | | | | | 0·50 |
| 94 | persistence | | | | | | | | | | | | |

(November Scales)

Values of these Correlation Coefficients which are significant at Various Levels.

| | $p<0.05$ | $p<0.01$ | $p<0.001$ | $p<0.0001$ |
|---|---|---|---|---|
| May | 0·14 | 0·18 | 0·23 | 0·28 |
| November | 0·15 | 0·20 | 0·26 | 0·30 |

In grouping the items from the second part of the questionnaires into scales, it must be ascertained that the scales so produced are fairly homogeneous and each item is making a contribution to the scale to which it is assigned. For the November questionnaire, this was shown by correlating each statement with the scale to which it was assigned, making allowance for its own contribution to that scale. This indicated that all the items were satisfactory.

For the forty statements which were common to both questionnaires and form the basis of the investigation, it was also thought useful to have a cross-comparison: for this, the average score on the scale in the May questionnaire for those students who gave the undesired response to the item in November was subtracted from the average score of those who gave the desired response. In all cases, the items were clearly contributing to the scale to which they had been assigned (in excess of that due to their own inclusion).

In the May questionnaire, the scales were subdivided. The correlations between these subscales are shown in Table II in the form of product-moment coefficients. The correlations between the November scales are also shown.

It will be noted that the correlations between explicit and implicit adequacy and between the subscales of work habits are mostly highly significant, but the correlations between the motivation subscales are poorer and less uniform, though usually nevertheless significant. The application subscale is particularly interesting, having the only negative correlations (of border line significance) and seeming to correlate equally with work habits. However, consideration of the statements—such as "It's worthwhile giving up some leisure time now, if it helps you to do better in the university exams"—shows that the correlations are not unexpected.

Entwistle and Wilson (1970) have pointed out that correlations between scales of 'study methods' and 'motivation' are to be expected. The results in Table II show similar correlations between 'work habits' and both 'adequacy' and 'motivation'. There is considerable homogeneity in the scales of 'work habits' and 'adequacy', but the 'motivation' scale is clearly less homogeneous.

Essentially, this project was 'applied education' in that the questionnaires had to be prepared to help solve a problem. Nevertheless, the above analysis shows that the statements included were all useful in establishing scales of 'work habits', 'motivation' and 'adequacy'. Twenty-four of the forty statements had already been shown, in a previous investigation, to correlate with pass/fail achievements in chemistry at the first year university level. It now remained to find how good their predictive powers were for the whole Faculty of Science.

**Comparisons**

Table III illustrates the predictive powers of the November and December examinations and the various measures and scales derived from the November questionnaire. The values have been interpolated graphically for comparisons of the accuracy of predictions.

The November tests were a success in that, of the 23 students interviewed on the basis of their results, 16 failed. Of the additional 28 interviewed in January (as a result of poor performance in the December examination), 16 failed or withdrew. Thus the total of 51 students identified included 32 of the 42 ultimate failures or withdrawals. Judging by December marks alone, 11 students scored less than 20% in each of two subjects, and 10 of these had their studies discontinued. Fifteen out of 18 scoring less than 30% in each of two subjects (but not in the previous group) also had their studies discontinued. However, only 8 of the 18 students scoring less than 40% on each of two subjects (and not in the previous groups) were unsuccessful in obtaining the requisite two passes in June or September.

Ten "failures" were not "predicted" by the November or December examinations, but 5 of these were identified in March, two more withdrew, and one was absent from the December and March examinations. Thus only two failures were completely unpredicted. In addition, only one of the ten would have been missed (though a further 15 interviewed) if the qualifying standard had been raised from 40% to 45% for interviews in November or January. Thus it is clear that examinations in November and December were adequate to reveal almost all students "at risk" for June and September degree examinations with an accuracy of 70% for two-thirds of the failures and 60% for all except one or two.

In most cases, the questionnaire revealed at least one weakness which might have been a cause of failure, but the overall results were poorer than those of the examinations for the purposes of

TABLE III. SUCCESS OF VARIOUS METHODS OF PREDICTING FAILURE NUMBERS (AND PERCENTAGE) OF STUDENTS WHO FAILED OR WITHDREW IN THE X STUDENTS AT THE BOTTOM OF THE CLASS FOR:

| X= | 10 | 20 | 30 | 40 | 50 |
|---|---|---|---|---|---|
| November test | 7 (70) | 12 (60) | 17 (57) | 22 (55) | 25 (50) |
| December examination | 9 (90) | 18 (90) | 25 (83) | 31 (75) | 33 (66) |
| Scales Motivation | 3 (30) | 7 (35) | 10 (33) | 14 (35) | 17 (34) |
| Personality | 5 (50) | 8 (40) | 12 (40) | 15 (37) | 18 (36) |
| Work Habits | 6 (60) | 10 (50) | 13 (43) | 17 (42) | 21 (42) |
| Adequacy | 9 (90) | 14 (70) | 18 (60) | 21 (52) | 25 (50) |
| T-Score | 7 (70) | 11 (55) | 15 (50) | 19 (47) | 23 (46) |
| H-Score | 7 (70) | 12 (60) | 16 (53) | 20 (50) | 24 (48) |

prediction. Partly this was due to the effect of some subscales (see Table IV).

In an attempt to increase the success of the individual scales in this direction, the responses to the statements were weighted according to the pass rate of chemistry students who had given the same response in the earlier research (Hoare and Yeaman, 1971b). Nominal average values were used for the items not used in the previous questionnaire. However, this resulted in no increase in the accuracy of prediction.

Entwistle and Wilson (1970) had achieved greater success by combining scales of study habits and motivation. Therefore all 60 items were combined, with weighting as above. This produced the "H-score" but, as shown in Table III, no increase in accuracy of prediction.

TABLE IV. PREDICTIVE POWER OF SUB-SCALES

| | | | | A | B | C | D | E |
|---|---|---|---|---|---|---|---|---|
| *November* | Revised | | Work Habits | (13) | 7·52 | 5·41 | 2·12 | 0·16 |
| | | | Motivation (same) | (16) | 10·80 | 9·93 | 0·88 | 0·06 |
| | | | Adequacy | (15) | 9·20 | 6·74 | 2·46 | 0·16 |
| | Extraversion-introversion | | | (5) | 2·86 | 2·78 | 0·08 | 0·02 |
| | Neuroticism | | | (5) | 1·97 | 1·81 | 0·16 | 0·03 |
| *May* | Adequacy | Explicit | | (6) | 4·32 | 3·22 | 1·10 | 0·18 |
| | | Implicit | | (6) | 2·82 | 2·04 | 0·79 | 0·13 |
| | | Total | | (12) | 7·14 | 5·26 | 1·89 | 0·16 |
| | Work Habits | Organization | | (6) | 2·95 | 2·11 | 0·84 | 0·14 |
| | | Distraction | | (6) | 2·56 | 1·15 | 1·41 | 0·24 |
| | | Study Technique | | (6) | 2·79 | 2·63 | 0·16 | 0·03 |
| | | Industry | | (6) | 3·41 | 2·44 | 0·97 | 0·16 |
| | | Background | | (6) | 2·36 | 1·59 | 0·77 | 0·13 |
| | | Total | | (30) | 14·07 | 9·92 | 4·15 | 0·14 |
| | Motivation | Ambition | | (6) | 3·65 | 2·96 | 0·69 | 0·12 |
| | | Competitiveness | | (6) | 2·68 | 1·93 | 0·76 | 0·13 |
| | | Application | | (6) | 3·84 | 4·00 | −0·16 | −0·03 |
| | | Interest | | (6) | 4·36 | 3·37 | 0·99 | 0·17 |
| | | Persistence | | (6) | 4·00 | 3·07 | 0·93 | 0·16 |
| | | Total | | (30) | 18·53 | 15·33 | 3·21 | 0·11 |

Number in sample = 132 (105 passes, 27 fails).
A: number of items in scale or subscale.
B: average score on scale for those who passed, ie, were allowed to continue their studies.
C: average score on scale for those who failed, ie, withdrew or were required to discontinue their studies.
D: difference B − C.
E: relative efficiencies of scales D/A.

An alternative approach is to consider that a particularly weak mark on any scale is more serious than several minor weaknesses. This was taken into account in the T-score. For this, the student was awarded ten points if his score was in the bottom tenth of the class scores on a scale, nine points if in the bottom ninth (but not bottom tenth) and so on, as far as two points for being in the bottom half. This was done for each of the four scales and the total added to similar scores for working time and evenings spent working (up to five points each), thus giving a possible total of 50 points for the highest failure risk. Three students (all of whom failed) had T-scores of 43 whereas 7 (all of whom passed) had scores of 0. However, on the whole this method was no more successful than the previous ones, though it did predict some failures that were overlooked by the other scales.

As has been suggested, the November questionnaire did agree with the interviews in identifying the weaknesses to which the poor examination performances might be attributed. In addition, it also revealed weaknesses in all ten of the failures not predicted by December. However, it would have required interviews for a further 40 students if these 10 were to be included by reason of their answers in the questionnaires.

The questionnaires appeared to be primarily of use in assessing the effects of the interviews. For this purpose, the December examination results were taken as the best criterion of failure risk. A study was therefore made of the eighteen borderline students

TABLE V. SCORES OF SELECTED GROUPS OF STUDENTS

| | | Average | Borderline Passes | Borderline Fails | Exceptional Passes | Predicted Fails |
|---|---|---|---|---|---|---|
| Number Answering Both Questionnaires | | 132 | 7 | 6 | 4 | 16 |
| Adequacy | Nov. | 5·4 | 5·1 | 3·3 | 5·5 | 4·0 |
| | May | 5·3 | 5·4 | 4·8 | 4·5 | 3·8 |
| | Total May | 6·7 | 7·1 | 5·7 | 4·8 | 4·9 |
| Work Habits | Nov. | 5·8 | 7·3 | 4·2 | 7·3 | 4·7 |
| | May | 5·4 | 6·0 | 3·2 | 8·8 | 4·0 |
| | Total May | 13·2 | 13·7 | 7·9 | 14·6 | 10·1 |
| Motivation | Nov. | 9·1 | 9·8 | 10·0 | 9·5 | 8·8 |
| | May | 9·0 | 9·2 | 8·4 | 9·5 | 8·4 |
| | Total May | 17·6 | 18·0 | 15·3 | 17·6 | 16·4 |

Nov., May: Scores on the group of items common to both questionnaires.
Total May: Total of complete scale used in May.
Pass, Fail: Whether students are allowed to continue their studies.
Borderline: Students with 30% to 40% in each of two subjects in December.
Exceptional, Predicted: Students with less than 30% in each of two subjects in December.

(scoring between 30% and 40% on two subjects) together with the four students with poorer results who yet passed. All except one of these students were interviewed in November or January (he was interviewed in April).

For these 22 students, eight of whom failed, the November H-score arranged 6 failures in the bottom 7 (out of 22) and the T-score all 8 failures in the bottom 12. Only 17 completed the May questionnaire but, as shown in Table V, the adequacy (November only) and work habits scores were markedly lower for those who subsequently failed (significant at the 1% level) and the motivation scores were slightly lower (insufficient numbers for significance).

At first sight it appears that interviews were having little effect but this was because changes tended to cancel in giving scale totals. Thus Table VI shows that students have become increasingly aware of the need to work but they apparently find it increasingly difficult to start work in the evenings, fewer read through lecture notes and more said they could do better if somebody made them work. They increasingly said it was difficult to work where they lived.

Two items may represent success for the interviewing system. There is a correlation between failure and reliance on a week or two of concentrated revision and between failure and having plenty

TABLE VI. RESPONSES TO SELECTED QUESTIONS (%)

| | Average | Borderline Passes | Borderline Fails | Exceptional Passes | Predicted Fails |
|---|---|---|---|---|---|
| No. of Students replying | 132 | 7 | 6 | 4 | 16 |
| Rely on week or two of concentrated revision | 71 (57) | 57 (71) | 100 (83) | 0 (25) | 81 (50) |
| Read through lecture notes | 24 (48) | 43 (57) | 17 (33) | 50 (50 | 13 (38 |
| Important to earn money in at least one vacation | 86 (82) | 57 (57) | 83 (83) | 50 (50) | 94 (94) |
| Slow to start work in the evenings | 72 (61) | 71 (43) | 100 (100) | 0 (50) | 94 (81) |
| Seem to have plenty of free time | 35 (22) | 29 (43) | 67 (33) | 0 (0) | 50 (19) |
| Must work to capacity to pass | 67 (59) | 86 (71) | 100 (100) | 100 (75) | 94 (81) |
| Wish didn't have to take at least one course | 71 (80) | 57 (71) | 100 (83) | 50 (75) | 81 (81) |
| Need somebody to make them work | 38 (25) | 43 (29) | 83 (67) | 75 (0) | 62 (31) |
| Difficult to work where they live | 38 (28) | 43 (14) | 67 (0) | 50 (25) | 50 (31) |

Figures in brackets represent answers in November.
Other figures are for answers in May.

of free time. There are also significant differences between scores of students who subsequently passed and those who subsequently failed.

There is also the evidence shown in Table Ib that 14 out of 15 students who were interviewed and passed had increased their working hours whereas only 8 out of 22 who failed had done so. The importance of working for a sufficient number of hours in non-formal study was stressed at interviews, and students (at a later date) were willing to attribute their increased work to the effect of the interview. This is in accord with the work of Entwistle and Entwistle (1970) who showed that the number of hours worked, motivation and study habits all gave a correlation with achievement in the degree examination. Similarly, Maclay (1968) has reported that there was a high failure rate for students who worked for less than ten hours per week (outside formal instruction).

No comparison was possible with previous years, except with respect to failure rates for students with similar entrance qualifications or similar results in the December examinations. These correlations showed that the failure rate might have been 2-3% higher if no interviews had taken place in 1968-69 and 1969-70.

## Conclusions

It is clear from the records of the Faculty of Science that December terminal examination results were very effective in predicting possible failure in the following June and September degree examinations; students with poor results (less than 30% in two subjects) had no more than a 15% chance of continuing their studies beyond first year. November tests were sufficiently accurate to make diagnosis in November worthwhile.

While the questionnaires, intended to assess such attributes as adequacy, work habits and motivation, were able to indicate causes of failure, they were less effective in predicting failure than the December examinations. The questionnaires were useful in establishing that, for borderline students (according to the December examinations), those with the better work habits were much more likely to pass, ie gross inadequacy was a primary cause of failure, but, if the inadequacy was small, good work habits were a decisive factor.

The group of students who were interviewed and subsequently passed were outstanding in that they almost all increased their hours of non-set work. There is good reason for believing that the interviews helped to bring about this increase in working hours.

Students "at risk" of failure were made very aware of their need to work to capacity but, as with warnings about smoking, the effect on habits was temporary and nearly 90% of those who failed relied mostly on a week or two of concentrated revision. Only 37% of those who passed (and were "at risk") relied on such concentrated

revision but it is noteworthy that the average figure for the class was 71%.

It is clear that many students were taking at least one subject reluctantly and that extra tuition was not a remedy if motivation was absent. The importance of motivation in student success was highlighted by a few cases (eg where a girl student had found a very attractive flat for the *next* year) when the motivation suddenly improved and the student's study habits and results were correspondingly changed.

It seems that if further progress is to be made in remedial action, universities will have to concentrate on improving motivation. In this respect the action of such universities as the Open University and Aberdeen University in employing counsellors can be viewed with interest and approbation.

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## THE ABSENTEES

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Just how compulsory is compulsory education? This is one of the questions which must be of considerable interest to education authorities, teachers and pupils when the school-leaving age is

raised in the autumn of this year. How far will school attendances drop among the adolescents undergoing involuntarily that extra year at school? Considerable attention is clearly being devoted to devising programmes of work which will encourage the youngsters' co-operation and interest; probably efforts are also being made to devise methods of ensuring attendance by using negative sanctions against offenders. We can only speculate about the possible outcome of an event which has not yet occurred.

Furthermore, one of the problems about absence from school is that, though far from uncommon, it is a relatively undocumented aspect of child behaviour. Where detailed studies have been carried out they have tended to concentrate on the most severe cases and, in particular, on those children who have been selected for psychiatric or psychological attention because of prolonged or persistent truancy or because their absence was attributed to psycho-neurotic factors (ie school phobia). Such cases have been described in detail elsewhere (Tyerman, 1968; Hersov, 1960; Kahn and Nursten, 1964).

The present paper deals with the wider field of absence as a whole, examining some of the educational and personal characteristics of children who fail to attend school and particularly of those whose absence appears to contain a voluntary element and hence can be seen as avoidable. The findings it presents may provide some foundations, however slight, for estimating the effect on attendance patterns of the raising of the school-leaving age.

## Methods

The study was based on the analysis of the attendance records for the autumn term of 1969 of pupils attending seven secondary schools in one education area of Central Scotland. The schools selected consisted of:

(a) two sets of paired secondary schools, one selective, one non-selective, which drew their pupils from the same district—one set pertaining to a highly industrialised area, the other to a county town and its surrounding villages;
(b) two comprehensive schools—one in a rural area, the other in a more mixed industrial-mining-rural setting;
(c) one junior secondary type of school in another urban area.

In each case coverage was limited to children who were *below* statutory school-leaving age at the beginning of the term since it was felt that those who stayed on at school voluntarily would differ from those who were there compulsorily, both in their attendance patterns and in their attitude to school.

## Extent of Absence

In all, the data provided us with information concerning approximately 3600 children of whom only about one-fifth had perfect attendance records for the relevant term. Of those who had absences recorded, just over half had lost only 10 or fewer half-day sessions

(equivalent to one school week or less) during the term. At the other extreme, 9% of the children had been absent on more than 40 occasions (ie had lost the equivalent of at least one month's schooling). The average number of sessions lost by both boys and girls lay between 15 and 16 half-days. This is the overall picture but clearly there were differences between schools and the absence rate of the selective high schools was found to be only half of that of the non-selective schools drawing their pupils from the same area. The highest absence rate (ie total absences as a percentage of total possible attendances) occurred in one of the junior secondary type schools where it reached 13% among second and third year pupils. This school was then housed in rather out-of-date and overcrowded conditions, had recently suffered some administrative difficulties because of the illness and subsequent death of the headmaster, and drew its pupils *inter alia* from one "problem" housing estate. No other school had an absence rate of over 10%.

The longer a child stays at school, the more likely he is to be absent. Within each school, attendance was highest among the first year pupils and in all cases, except one of the high schools, it dropped quite markedly by the second and third year. Thus *perfect* attendance was recorded for 29% of boys and 25% of girls in the first year, by the second year, this had dropped to 23% and 19% respectively; and by the third only 21% of boys and 14% of girls maintained full attendance. The proportion of children with 31 or more absences recorded, however, doubled among the girls from 7% of the first year to 14% of those in the third year and among the boys rose from 8% in the first year to 15% in the third year.

The level of absence, therefore, appears to increase as the child gets older, though it is true that the number of very bad attenders, that is those who were absent more than 60 occasions, seemed less in the third year than in the second—possibly because sanctions had been applied—and this meant that the absence *rate* for the school remained relatively constant between the second and third year pupils.

**Reasons for Absence**

The decreasing proportion of children achieving perfect attendance and the increasing number with moderately poor attendance records as they got older was of some interest since one would not expect an increased liability to illness in this age group (Bransby, 1951; Shepherd *et al*, 1971). We therefore attempted to examine not only the *extent* of absence but also its *cause*. A pilot study of parents' "notes" showed clearly that any classification or analysis by outsiders (such as the investigators) would be extremely unreliable since it was quite impossible for us to assess their validity; medical certificates signed by a doctor were, understandably, rare for short absences.

We therefore relied on the judgments of those who taught the children by asking them to make an assessment of the usual reasons for each child's absence using a standard list consisting of severe illness, mild illness, apparent illness (for less clear-cut causes), helping at home, trivial reasons and no satisfactory reason given. The results are summarised in Table I.

TABLE I. TEACHERS' ASSESSMENT OF REASONS FOR ABSENCE.

| Reasons for Absence | Percentage of those with absences during the term | |
|---|---|---|
| | Boys | Girls |
| Genuine illness | 74 | 69 |
| Apparent illness | 24 | 24 |
| Helping at home | 7 | 12 |
| Trivial or unsatisfactory reasons | 24 | 21 |
| Medical reasons only (including apparent illness) | 71 | 72 |
| Non-medical reasons only | 12 | 11 |
| Mixed medical and non-medical reasons | 17 | 17 |

NOTE—Categories in the top part of the table are not mutually exclusive and so total more than 100% (e.g. a child can be shown both as suffering from genuine illness and as helping at home).

Here it can be seen that the majority of children who were absent owed this wholly or in part to illness. Even if we exclude those whose absence is attributed to "apparent" rather than genuine illness, 50% of the boys and 56% of the girls were still recorded as being absent *only* for medical reasons. These, then, can be seen as the unavoidable absentees. Even here, though, there is reason for doubt since the difference between a medical and a non-medical excuse for absence may lie in the honesty of the parent rather than in the state of the child. But, accepting reasons at their face value, what of the 12% whose absence was for purely non-medical reasons? The bulk (86%) of this group fell into the category of those whose absence was for trivial or unsatisfactory reasons and such reasons also contributed to the absence records of 85% of the boys and 60% of the girls in the group who were absent for mixed medical and non-medical reasons. This is the overall picture for the total sample, but in fact there was surprisingly little variation between the different age groups or, as Table I shows, between boys and girls.

**Attitudes to School**

One of the most important questions which can be asked about prevention of absence from school concerns the extent to which such absence reflects adverse attitudes to school. We therefore administered questionnaires to one "matched half" of the children in an effort to ensure the maximum information with the least disruption of school time. These questionnaires were based on the NFER

schedules (Barker-Lunn, 1966) but were supplemented by additional items more suitable for our age group. We also asked the children to provide some basic information about their social background. The responses to each question on the attitude questionnaire were then compared for six categories of children according to their absence patterns during the first term of the school year, ie those with (1) no absence; (2) one to five half-day sessions of absence; (3) six to ten sessions; (4) eleven to twenty sessions; (5) twenty-one to forty sessions; and (6) more than forty sessions. The attitude items were each answered on a three-point scale reflecting a positive, intermediate and negative response—for example, Going to school is a waste of time: Yes/Not Sure/No. Applying the chi-square test of significance we then found that the following items revealed a high degree of association ($P=0{\cdot}01$) with extent of absence. In other words, for these items the proportion of positive responses diminished and the unfavourable responses increased as the amount of absence during the term increased.

*Boys*:

I would leave school tomorrow if I could.
I shall leave school as soon as I am allowed to.
I should (not) like to go to University/College when I leave school.
I want to start earning a wage as soon as possible.
Going to school is a waste of time.
I (don't) like school.
Doing well at school is (not) important to me.
I'm useless at school work.
I (don't) think I'm pretty good at school work.
When we have tests I (don't) get very good marks.
I don't seem able to do anything really well.
I find a lot of school work difficult to understand.
I'm (not) very good at maths.
I (don't) expect to do well in exams.
My teachers (don't) think I'm clever.
My teachers are (not always) nice to me.

*Girls*:

I would leave school tomorrow if I could.
I shall leave school as soon as I am allowed to.
I should (not) like to go to University/College when I leave school.
I want to start earning a wage as soon as possible.
School is boring.
I'm useless at school work.
I think I'm (not) pretty good at school work.
I find a lot of school work difficult to understand.

People who don't do their school work feel ashamed.
Other classes think they're better than us.
I have no-one to talk to at break.

Here then we have a clear and consistent picture of the association of absence with two constellations of attitudes; on one hand the view that school is an imposition to be evaded as soon as possible, on the other hand, particularly among the boys, the pupil's self-conception of lack of academic ability. Among the girls there also seems to be an associated sense of social inferiority in some cases—being in a position where one is shamed, and scorned by schoolmates. The boys, on the other hand, are perhaps more likely to run into trouble with authority.

These items, of course, constitute only the cases where a highly significant degree of association was demonstrated and it is perhaps also worth looking at the types of item which showed no relation to increasing absence. For instance, on the whole, poor attenders showed no greater anxiety about school than good attenders; nor were there differences between them regarding relationships with teachers or with other pupils; nor, with the exceptions shown for the girls, was absence positively related to perceived lack of social status within the school.

In this analysis we have, of course, included all types of absence and concentrated our attention solely on the number of sessions missed. Clearly, however, one might expect that those children whose absence was involuntary (ie the "genuine illness" category) would not necessarily have any more adverse attitudes to school than good attenders. The data are therefore being re-analysed, taking into account the cause as well as the duration of absence and, on the results so far available, it appears likely that this may produce even more clear-cut relationships between certain attitudes and voluntary absence from school. For instance 57% of the boys whose absence appeared to be for entirely non-medical reasons said that they would like to start earning a wage as soon as possible compared with only 23% of the boys whose absence was solely due to illness. Furthermore, within each causal category the proportion of boys wanting to start earning as soon as possible rose as the amount of absence rose. On the other hand, agreement with statements such as "I'm useless at school work", which imply a poor self-image, seem much more characteristic of the boys absent for mixed medical and other reasons. Indeed in several of the items there seems to be a tendency for the boys with poor attendance records for entirely non-medical reasons to have a better positive self-image and to see themselves, their classmates and even their teachers in a favourable light.

**Social Characteristics**

Poor attenders were more likely to come from families where the father was a manual worker and particularly an unskilled or semi-

TABLE II. TYPE OF JOB WANTED ON LEAVING SCHOOL BY ABSENCE CATEGORY (BOYS)

| Absence Classification | Percentage of Boys Wishing to be Employed in (a) Professional Administrative and Higher Executive Jobs | (b) Lower Executive and routine non-manual Jobs | (c) Skilled Manual Jobs (Apprenticeships) | (d) Unskilled or Semi-skilled Jobs | (e) Not Known or answer impossible to classify |
|---|---|---|---|---|---|
| No absence (N=109) | 24 | 22 | 28 | 5 | 22 |
| Good attenders (N=374) | 33 | 15 | 20 | 5 | 28 |
| Moderate attenders (N=200) | 27 | 21 | 19 | 12 | 21 |
| Poor attenders (N=67) | 22 | 8 | 16 | 24 | 29 |
| Medical absences only (N=389) | 31 | 18 | 17 | 7 | 27 |
| Mixed reasons (N=130) | 27 | 15 | 22 | 9 | [illegible] |
| Non-medical reasons only (N=49) | 14 | 18 | 29 | 25 | 14 |
| Cause of absence not known (N=73) | 40 | 8 | 19 | 11 | 22 |

skilled worker. They were also more likely to come from large families. Thus the average number of siblings of the boys who were good attenders (ie those with 10 or fewer absences) was 2·17 whereas the poor attenders (ie those with 31 or more absences) had on average 3·88 siblings apiece. When we also took into account the reason for absence it became obvious that in each causal category we obtained the same picture: the children with the most absence were those with the largest number of brothers and sisters. The largest families of all (where the respondent had an average of 4·71 siblings) were those of the boys with poor attendances whose absence was believed to be for entirely non-medical reasons.

Perhaps as a result of this larger family size the poor attenders among the boys were also found more likely to have older brothers and sisters who had left school and this was most pronounced among those who were absent frequently for strictly non-medical reasons. The presence of working older siblings in the home, presenting an example of increased personal and financial independence, could be seen as an influence away from the ethos of school towards that of the outside world.

Friendships also could be important in drawing children to, or away from, school and, here again, the poor attenders were found to spend more time with neighbourhood friends who did not attend the same school whereas the good attenders were inclined to mix outside school with classmates and other children from the same school as themselves. One "reason" which is often suggested for school absence is that it is easier for children to play truant when mother is out at work. We could find no evidence of this since the mothers of the non-medical absentees were no more often employed than the others. We did find, however, that boys with poor attendance for purely *medical* reasons were more likely to have working mothers than were the better attenders—a fact which is rather difficult to interpret without further information.

**The School Leaver**

What happens to the regular absentee when he leaves school? Does he adapt successfully to the working life he has been longing for? Or does he experience difficulty in settling to a regular work pattern? While the children were still at school we asked them what plans they had for the future and found that the level of their occupational aspiration was positively related to their level of attendance.

This is shown clearly in Table II by the increasing proportion of boys, as we move down column (d) from good attenders to poor attenders, who visualised themselves as occupied in unskilled or semi-skilled jobs when they left school.

Similarly, when we related future plans to cause of absence, we found that only one-third of the non-medical absentees saw them-

selves in white collar jobs compared with approximately half of the boys absent for purely medical reasons. At the other end of the scale, the proportion of boys seeing their future in semi-skilled or unskilled work rose very markedly in the non-medical category compared with the others.

We have recently been able to follow up some of these children, now aged 16 to 18, to find out what happened when they left school and entered the job market. Interviews were carried out with two groups of children matched individually by age, sex, school and class within school. One group consisted of bad attenders, the other of good. The first and most striking difference was that, despite the matching process, many more of the good attenders were still in full-time education. This was particularly marked among the girls where, out of the 79 girls in each group, 32 good attenders (40%) were still at school or college compared with only 10 of the bad attenders (13%). Among the boys the difference was less marked with 23 good attenders, out of 77, still in full-time education compared with 11 of the matched bad attenders who were still attending on a voluntary basis. (A further two boys with bad attendance records were interviewed while on leave from approved schools.)

Considering only the children who had left school it was found that the boys with a bad attendance record were much more likely to change jobs than boys who were good attenders. Thus, 58% of the bad attenders had been in at least two full-time jobs since leaving school compared with only 28% of the good attenders; 19% of the bad attenders had had more than three jobs, including two boys with five jobs apiece and one with eight employers, compared with 4% of the good attenders, none of whom had reported more than four jobs. Among the girls just over 60% of both good and bad attenders had only had one job but 10% of the bad attenders were in their fourth or subsequent jobs whereas none of the good attenders had had more than three. A further indication that the poor attenders might find it difficult to settle to work is provided by the fact that eight of the boys with poor attendance records were unemployed at the time of the interview compared with only one good attender. All the girls with good attendance records who had left school were still working but four of the bad attenders were unemployed, one sick and three had retired, temporarily at least, into housewifery.

In general, the bad attenders, particularly the boys, seemed much less settled—they were more likely to say that they wanted to do something different (but not necessarily better) in the future whereas the good attenders tended to see themselves as continuing in their present employment at least for the next two years.

## Conclusions

The analysis of this material is still proceeding but, from the results already reached, one of the main points to emerge is the presence among the bad attenders, particularly among those whose absences included some non-medical causes, of a group of boys of low socio-economic background who appeared alienated from school. This alienation did not appear to involve hostility to their own particular school, about which indeed they often appeared to feel quite favourably, so much as non-acceptance of the whole idea of having to spend time in an educational system which had no practical value for them and whose aims they could not share.

Education is often seen as a channel for upward social mobility—a way of getting into a white collar job or a skilled trade—but these boys did not have such aspirations. Rather they wished to earn a wage as soon as possible—to achieve immediate rather than deferred gratification. Their more varied occupational careers when they left school also suggests less ability to adjust to circumstances and less tolerance of frustration than appeared to be the case among the good attenders. Such young people are unlikely to settle happily to an enforced extra year at school. On the other hand, they are probably a fairly small group and their absence is already at a high enough level to constitute a known problem.

On the positive side it seems unlikely that the present good attenders will deteriorate. Their attitudes to school are more positive, their aspirations are in tune with the values of the educational system and they are already tending to stay on voluntarily in order to achieve additional qualifications.

More important for future planning is the likely effect of the extra year on the other categories of absentees. In most of the analysis by extent and cause of absence it has become evident that we appear to be dealing with a continuum with, at one extreme, the perfect attenders and those involuntary absentees who miss only a few days for reasons of genuine infection or injury; at the other end is the group we have just been discussing, those absent on many occasions for what appear to be voluntary reasons.

If we consider separately the two categories of (a) extent of absence and (b) causes of absence, we find that many of the answers to our questions showed trends, ie to increase or decrease in frequency progressively as we moved from good attenders to moderate attenders to poor attenders, on one hand, and from purely medical absentees, to mixed reasons for absence to non-medical, on the other. When we combine the two categories, however, there is often considerable overlap so that, for instance, people whose attendance is poor because of illness may have a less favourable attitude to some aspect of school life than do pupils who are less often absent but whose absences are mainly for non-medical causes.

In other words, the attitudes, family characteristics etc, which we have shown to be particularly associated with the children who are absent a lot for non-medical reasons are to be found to lesser or greater extent in the other groups also. For instance, the group of children absent a lot for "illness" contains at least some members who do not seem qualitatively different from their counterparts in the "mixed" category or even from those whose absence is for entirely non-medical reasons.

One result of the additional year, then, might be to produce slight shifts of absence patterns through increasing the non-medical component in each case. For instance, a boy whose absence in the third year was attributed entirely to medical reasons might, in the fourth year, start taking additional time off when he was not ill—thus moving into the "mixed reason" category and also increasing the extent of his absence. On the other hand, the validity of the illness label is not always easy to establish. Even if we ignore the possibility of deliberate falsehoods and parental collusion, estimates of the severity of importance of any given symptom will vary from one person to another so it would not be surprising if "genuine" mild illnesses also become more prevalent in some cases where this acceptable excuse for absence was already being manipulated to some extent, either by parents or children.

Whether or not the rate of absence increases from next September, then, will probably depend on the extent to which the fourth ye programme can catch the interest of the people who at present a absent for a moderate amount of time for medical or mixed reasons and those who are beginning to go absent on purely non-medical grounds but as yet only doing so to a mild extent.

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## WHO CARES ABOUT THE CRAFT APPRENTICE?

### A Report of a Study of the Attitudes to Further Education of 2000 Scottish Craft Apprentices

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The recent publication by the Scottish Council for Research in Education, *A Day Off Work*?, concentrates on a description of the attitudes towards further education of some 2000 craft apprentices in Central Scotland. The data were collected during 1968 and 1969 by means of questionnaire, interview and attitude scale and in this article a brief summary will be given mainly in terms of each category of student rather than each source of data. The categories of students involved can be considered in terms of the craft course attended or the mode of attendance. Respondents were drawn from the City and Guilds Craft courses in Catering, Electrical Installation Work, Mechanical Engineering, Fabrication Engineering and Carpentry and Joinery, and over 200 of these followed full-time or block release courses during the investigation.

Since we were dealing with entrants to craft apprenticeships it is not surprising that the sample members had generally received a "junior secondary" (secondary modern) type of education, while the majority of their fathers were in manual occupations. A comparison between national figures and those for sample members on these two dimensions indicates that in 1968 34% of Scottish secondary school pupils attended junior secondary schools against 47% of sample members and that, according to the Registrar-General's classification, 65% of the population are in manual occupations against 79% of the fathers of sample members, both differences being significant beyond the 5% level. Not surprisingly, both in view of their background and in view of the lack of formal entry requirements to craft courses, few held any Scottish Certificate of Education passes, although a comparison of those who entered craft courses in 1965 and 1968 indicated a growing tendency to hold such passes. A personal interpretation of this tendency would be that (a) employers are tending to frame job advertisements in terms of O-grade passes, and (b) the examinations are being attempted by school pupils lower down the ability distribution.

Many of the students had chosen their job in terms of their school experience or because of its future prospects. These two different tendencies are best illustrated by Joiners on the one hand, 70%of whom had been motivated by previous experience, and Electricians on the other, 65% of whom had been motivated by prospects. The interview evidence suggested that these jobs had been secured by personal contacts but the questionnaire evidence indicated a more important influence to be school and the Youth Employment

Service. It has been observed in a number of other studies that the influence of Careers Teachers and Careers Officers is not particularly apparent to school leavers, and that often a subject teacher, particularly in the crafts, is seen to have a more direct influence. The students' answers showed little awareness of an active training policy in their firms but, apart from the 25% who saw emigration as their main ambition, most students thought of their future as being mainly in their present job. The tendency for skilled and professional people to seek fulfilment through emigration is well-documented in the Scottish experience.

The criticisms of further education made by students fell into two main areas—the college and the course.

Their experience of the commercial provision of cafés and clubs made them a little critical of the facilities of their colleges. College played little part in the students' social and recreational life, mainly because of the students' lack of interest and their other established pursuits. Only 6% of our sample had had any experience of college clubs and activities, and yet an examination of their leisure interests indicated that these young people were fairly heavily involved outside the college. There are many possible explanations for this seeming paradox, but one which struck the writer was the difficulty in involving day release craft students in college activities, especially where the college had a fair sprinkling of full-time students following diploma or degree-level courses, who were able to command the largest share of the available social and recreational amenities.

In giving their opinions on their courses, the students preferred no one form of attendance above all others, although there was a tendency for students in the later years of craft courses to indicate a support for full-time courses. This could either have been due to a case of "distance lends enchantment . . ." or to a wish to have a second chance to make up for lost opportunities. Within the course, more workshop activities was the change most frequently requested, although many students were reasonably satisfied with their present course. The question of workshop activities came up on many occasions throughout the investigation. It is certainly not the case that this was an uncritical desire to escape the classroom because respondents were not slow to point out the irrelevance of much of the practical content of their courses, nor were they slow to highlight the inadequacy of some of the workshop equipment. It seems rather to have been due to their strong opinion that they were practical men who had chosen a practical job because of a desire to work with their hands rather than their heads. They did not necessarily despise the non-practical segments of their day, and in fact Theory was the second most popular subject. What they did dislike, however, was a lack of activity methods or a lack of association between the subject and their work which they noticed particularly in Liberal Studies, but also in Science and Calculations.

The problem of workshop versus classroom is of particular importance at present when courses such as the 500 series are largely replacing workshop activities and practical tests with laboratory experiments and projects. From the evidence of this study it would seem that craft students are best pleased when they are actively involved in the course and least pleased when sitting inactively. How far colleges are able to and will seek to increase the opportunities for student involvement in craft courses is open to doubt. It seems certain however that the gulf between training and education has widened so that many craft apprentices are wondering about the relevance of their further education.

One final difficulty sample members mentioned when discussing their college was the travelling involved in attending college and the consequent lengthening of their day of attendance. A policy of rationalising college courses where they can be operated in terms of efficiency in student numbers and utilisation of equipment makes some sense in technician and technologist courses, but in craft courses, where potential enrolments are larger and equipment costs lower, there seems less justification for centralising certain courses in one centre if thereby students have to travel twenty or thirty miles and often pass other colleges en route.

Students' general criticisms of their further education fell into four main areas. The facilities of the colleges, common rooms and refectories were seen as unsatisfactory; the fact that for some courses the day of attendance was longer than the day of work was criticised; the relevance of some parts of the course, eg Calculations and Liberal Studies was questioned; and improvement was sought in the flow of information from college authorities to students. This last criticism is again an indication of the difficulty of communicating with day release students in general and craft apprentices in particular. Colleges, not unnaturally, have a tendency to communicate best with those who attend most frequently and those who can comprehend the communications so that once more, as with college activities, craft apprentices felt left out of the communication network.

In terms of three major ways of analysing students, by college, by mode of attendance and by course, few differences appeared between the attitudes of students in different colleges. Between different modes of attendance, the evidence generally indicated that day release attendance was more likely to be associated with poor student attitudes than was equivalent full-time attendance. The indications were that course content, being composed of both education and training, and length of day being generally no more than 9.00 am to 5.00 pm, made a favourable impression on full-time students and ought to be more widespread. There is certainly a movement towards more block release and full-time courses throughout Britian, and if it were to continue our evidence indicates that it

could lead to an improvement in craft student attitudes to further education. An additional consequence from more intensive periods of study would be that the larger proportion of students involved in such attendance would be able to exert more pressure on the college authorities and make it more likely that improvements would follow in social and recreational amenities and in college communications systems.

The most important significant differences however were in terms of the craft course actually attended. This is not such a surprising finding with students, the majority of whom had four days' exposure in industry to each day in college.

On a number of occasions it was observed that the status of a particular trade within the community and the ways in which school-leavers found a job discriminated between the various courses investigated.

It is also apparent that the way an industry organises its training, the opportunities for promotion which exist within that industry and the student's perceptions of further education's relevance to his industry and his prospects are of importance to each course group. In Catering, for example, girls seeking to enter the School Meals Service are well aware of the opportunities for speedy promotion, and in Electrical Work, boys soon learn that certification can bring considerable financial advantages. In Mechanical Engineering, on the other hand, the size of many firms and the specialisation within them can discourage young men from being ambitious and can make them look cynically at the idea of further education as a "broadening" influence.

In courses such as Catering and Electrical Installation Work where the majority of students found no conflict between college and their jobs and ambitions, more favourable attitudes prevailed. In these courses, students typically supported their college, enjoyed their courses, and appreciated the purpose behind their further education. But in other courses where conflicts were evident, less favourable attitudes were found. Joiners, for example, indicated a conflict between the hours worked on the job and the hours worked at college, Mechanicals indicated a conflict between the "real" tasks at work and the "unreal" tasks in college, and the Fabricators indicated a conflict between the job they had and the job they desired. The Fabricators were a good indication of an unfavourable group. The majority were in jobs they did not enjoy, jobs they had entered after many earlier changes of employment. These boys had little record of success in education and were not open to much influence from the college. Much of the evidence on this group raises the question of the need to re-examine the jobs for which four years of day release are considered necessary.

This study of attitudes to further education among craft apprentices has indicated that a number of factors influencing attitudes

such as father's occupation and length of secondary education are outwith the control of technical colleges but that a number of other factors are open to influence from the further education service. Among these factors are the forms of attendance offered to each student, the facilities provided for student social and recreational activities, relationships between student and authority, the hours of attendance required of each student, the "practical" content of each course, and the students' success in external examinations and the consequence of that success in terms of job opportunities.

Many of these factors influencing the day release craft student are intimately concerned with "time"—expanding technologies demand more time on the course for existing subjects and additional time for new subjects; general education has to be allocated more time; shortened apprenticeships mean shortened courses in terms of years of study but conserved courses in terms of hours of study; more stringent requirements in terms of student enrolments mean more students have to travel greater distances for the most appropriate course, so that already a number of students are faced with a twelve hour day if they wish to attend college. And in addition there is pressure on students to become more involved in college clubs and societies. With these pressures it is not surprising to note wastage and deterioration in attitudes among some craft students.

The influential factors are also intimately concerned with the function of further education. Our evidence indicates that in some occupations further education is held in low regard, and that industry and education together will have to examine the causes, deciding either that many job entrants need less education and training than is presently offered or that there is a lack of opportunity for many job entrants to advance through taking advantage of further education. In essence, is attendance at a technical college designed to offer "further" education or is it only designed to offer the "associated" education required by employers or training boards or trades unions?

Turning for a time from the content of the report, *A Day Off Work?*, and interpretations which can be made directly from the data, there are a number of more general observations which can be made about craft students in further education.

If my interpretation of the data is correct, there are two main areas where a significant intervention can be made—the college and the course.

For a number of years, further education demand grew and further education places were created without much thought to the situation of the college or the competing demands of neighbouring colleges. As a result it became common for technical colleges to be comprehensive institutions as far as level of work and range of subjects was concerned. In more recent years, however, some of the larger authorities have attempted a rationalisation both by type of

work and level of work, with certain colleges having either specialist departments or specialist (ie higher level) courses. An example of the first would be a college of building and an example of the second would be a polytechnic.

With the demand for further education places levelling off, and with local government reorganisation in prospect, now is a convenient time to examine the competing claims of comprehensive/specialist colleges, especially with regard to the craft apprentice.

From the evidence available in *A Day Off Work?*, I would suggest that where rationalisation is possible it should be by level of course rather than by type of course. That is to say, congregate all craft courses in one district in one college rather than all engineering courses in one district in one college. This may seem to be tantamount to introducing selection in further education at a time when we are removing it from secondary education, but I consider that the advantages outweigh the disadvantages.

It has been argued that technical colleges with students following all levels and all types of job encourage a great deal of cross-fertilisation between occupational groups and within occupational groups and that the social contacts within such a college promote a greater understanding between people of dissimilar social backgrounds. Those who put forward such arguments seem to me to be totally unaware of the ways in which colleges are organised and blind to the actual social groupings which students form.

Colleges generally allocate their staff and their students, strictly according to the level and type of their specialisation. Indeed the grading of courses leaves colleges with little choice but to do this. Therefore the cross-fertilisation between courses is almost non-existent at the craft and technician level, and where day release is the dominant mode of attendance it is difficult to see what alternatives there are to such a pattern of organisation.

Social groupings equally tend to be formed along lines which parallel the "type and level" structure. The formal organisation of colleges is such that the distribution of breaks, lunches, free time, often seems designed to inhibit social interaction between types and levels of student in the totally comprehensive college.

Among the factors influencing social interaction are the size of the college, the formal organisation structure, the design and layout, and the opportunities for social activities outside the college. My argument is that decisions which have been made in present colleges on these factors have tended to operate against the craft student and that we have therefore to seek alternative types of college size, structure and design. The alternatives which seem most plausible are the small college, comprehensive by type and level, where, if the college is to function socially at all, craft students have to be involved, and the larger college, comprehensive by level, where, since all students are not only following, eg, craft courses, but also have a

more common educational and socio-economic background, there is a greater identity of purpose socially and academically, thereby promoting more social interaction among students and moreover among staff.

The importance one attaches to social interaction depends on how far one sees the purpose of further education in social terms and how far one sees the purpose in academic terms. From this writer's point of view, colleges where students were studying to a common level, where Student Associations were aware of the real needs of the student body, where facilities were open and popular and where students felt that supportive resources were at their call, would provide a much better background for craft apprentices than the present system does. But so long as day release remains the predominant form of attendance, the course, not the college, will remain the major influence on the craft student.

Among the improvements I would therefore suggest in craft courses are—making courses more "practical"; making days of attendance shorter; and organising courses in shorter steps where students were more aware of progression. The problems associated with "practical" and length of day of attendance have already been touched on, but the problem of alternatives to present course structure deserves considerable attention.

I can see little value in a system of craft courses geared hopefully to retaining a student for four or five years and attempting to pass on all the knowledge necessary in a job during these four or five years. There are now so many different requirements within different industries at craft level that course structure may have to be individually tailored for each course. The important decision to be taken is on the purpose of further education; in a sense the familiar "education or training?" decision—do we seek to meet the needs of the employer or the needs of the employee? The concept of "*education permanente*" is currently under close scrutiny and such a concept seems much more suited to meeting the needs of the individual, in that the opportunity to benefit from further education is not simply available between the ages of 16 and 20, but is available to the individual throughout his life.

One could envisage that, as is now becoming general, craft students would spend the first year or two of apprenticeship on "general" courses such as course 500 or course 550. Thereafter a critical decision would have to be made for each individual as to whether he could benefit from continuing his further education at that time. After taking this decision it would be reviewed periodically by employer and employee, with an opportunity for both parties to recommend a re-commencement of studies for a variable period. In this fashion, a series of modular courses would be available in most crafts and students could drop into any module at any time. For some students, it would be desirable to attend the modules "end-on",

but for many students there could be significant gaps between the modules. If such a system could be set up, then we would be more likely to meet the individual's needs when they arose. Such a system would also make more clear the purpose of craft studies in secondary schools. One can appreciate that in a situation where soon after leaving school a young person must take a specific craft apprenticeship or lose the opportunity almost forever, then some schools feel obliged to "prepare" young people for specific jobs. But where opportunities for craft apprenticeships are available at different times in a person's career, then schools can be much more general in their "preparation" of the 14- and 15-year-old, giving him the opportunity to sample a wide range of skills without feeling the pressures of having to make a hasty and often unwise choice.

These suggestions are similar in nature to some of the comments in sections 103 *et seq* of the recent Government discussion document *Training for the Future*, where a Training Opportunities Scheme is outlined. Of particular relevance to this article is the comment in section 106 that training (and education) will be open to ". . . younger people . . . who, for whatever reason, failed to acquire skills immediately after the end of their education or who find that they have mistaken their first choice of career."

This proposal provides an opportunity to revise many of our systems for preparing young people for employment, especially if taken together with the comments in section 107: "There will need to be comprehensive arrangements, both for making available information about courses, and for counselling applicants."

If colleges can be involved in these proposed new arrangements, then it is not too fanciful to foresee a much better set of provisions being made for the potential craftsman. Gone would be the days of the irrevocable choice, often made on the basis of insufficient information, and in its place would be an opportunity for an introductory general craft course, with a series of additional courses available later in life where the craftsman could update his skills or trade them in for new ones.

There would be a possible additional advantage, in that, having set up a system for communicating with and counselling potential students, colleges would see in this an opportunity for providing ongoing assistance to craft students, thereby remedying many of the ills which *A Day Off Work?* suggests exist.

For years the craft apprentice has been the poor relation in a further education service where glory is seen to lie in polytechnic status and CNAA recognition. He is still, however, the dominant statistic in student enrolments and the bread and butter of most staff. In view of the numbers of people involved, it is time to devote considerable resources to establishing the purposes of craft studies in further education and to end the neglect of the craft student.

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