A STUDY OF
PREDICTORS OF SUCCESS
IN
HEALTH VISITING AND SOCIAL WORK

BY

KENNETH AUBREY HACK

A thesis submitted in fulfilment of
the requirements for the Degree of
Doctor of Philosophy (Education) in
the Faculty of Social Sciences.

University of Aston in Birmingham

November, 1971

SUMMARY

With expanding courses of training for health visitors and social workers, there is an urgent need to investigate the predictors of success in these fields.

The present study was designed:

(a) to investigate cognitive and non-cognitive test differences between health visitor and social work students;

(b) to devise a measure to facilitate the assessment of practical work for the two groups; and

(c) to examine the relationship between a variety of predictor measures and theoretical and practical criteria.

The subjects consisted of 88 health visitor students and 81 social work students who began their professional courses in a college of further education in 1968 or 1969. At the beginning of their courses a variety of cognitive and non-cognitive tests was administered to the students who also answered a comprehensive questionnaire.

Two types of criteria were used. The first was based on theoretical course and examination performance while the second constituted an assessment of practical work in an agency. The health visitors' practical ability was assessed one year after completing their training and the social work students were rated at the end of their two year course when they had completed a six months' agency placement.

For the health visitors the most effective and consistent predictors of the theoretical criterion were a reading comprehension test and their school leaving qualifications. The practical criterion proved difficult to predict, not one

single variable correlating significantly and consistently with it.

For the social workers the validities of the predictor variables were generally higher. As with the health visitors, the reading comprehension test and school leaving examinations effectively predicted the theoretical criterion, but other cognitive tests and a questionnaire measure were also successful. Ability on the practical criterion was best predicted by the measure of persistence.

ACKNOWLEDGEMENTS

To Dr. James Rushton, whose advice and encouragement have ensured the completion of this thesis, the author is deeply grateful.

He is also indebted to Health Visitor and Social Work tutors of the City of Birmingham Polytechnic who made available every facility for the experiment and who gave generously of their time and experience.

Finally he wishes to thank two generations of Health Visitor and Social Work students without whose wholehearted co-operation this investigation would not have been possible.

CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

A. The Community Services

The last two decades have seen a vast expansion of the social services. This has been necessitated by the increasing demands made upon them. The Seebohm Report (1968) stated that "the great majority of children receive assistance from some of the social services at different stages of their development. In 1966 almost two million attended welfare clinics; nearly 900,000 visits were paid by health visitors to children born that year and a further 2¾ million visits were made to children born in the previous five years ..... Apart from such universal services which are widely used by all sections of the population, there are others used by only a small proportion of children and their families because of some special need or circumstance. There were, for instance, 69,000 children (or 5.3 per 1000 of the population under 18) in the care of local authorities in England and Wales in 1967 ..... Another 150,000 children and their families were helped in their own homes by preventive or rehabilitative work. Almost 8000 were in approved schools in 1966 and a further 7000 were being supervised while on licence from approved schools; 76,500 children were in special schools, just half of whom were classified as educationally sub-normal; 54,500 children were seen at child guidance clinics and 17,300 sub-normal or severely sub-normal children were receiving training, the majority at local authority centres.

"Figures such as these, however, tell us little about the extent of the need for help or about what help precisely is required, but the evidence we received and the long waiting lists for some kinds of education and treatment indicate that the present level of provision was sadly inadequate."

Not only the young make pressing demands upon the community services. Demographic data revealed by the Seebohm Report (1968) vividly illustrate the potential dimension of old people's need for social care and their families' need for help. In 1968 there were about six million people over the age of 65, representing 1 in 8 of the population, and a little over one-third of these were 75 or more. Moreover, the registrar general's projections suggest that at least for the next twenty-five years the number in the older age range will grow both relatively and absolutely.

Figures indicate that "whereas the population as a whole is estimated to increase between 1971 and 1991 by 17%, the range between 65 - 74 will increase by only 6.8%, but the group over 75 will increase by 35%. Since the major part of the problem of old age is concentrated on this higher age-group, the implications for the personal social services are obvious.

The crucial importance of preventing distress also becomes clear and represents one means by which the size of the care problem for the over 75's might be limited. Early identification of both medical and social need is essential. Indeed, much of the failure of the existing social services can be attributed to their inability to discover those with physical, mental and other difficulties before they have deteriorated to such an extent that preventive action is only marginally possible.

Local authorities are, however, faced with a formidable problem in identifying the elderly in need, for this is a never-ending task concerned with a continually changing population; but certain categories of old people are likely to be at greater risk than others, particularly many of those who live alone and are in the age group of 75 and over. The Sample Census, 1966, showed that in England and Wales there were $1\frac{1}{2}$ million old people living alone and nearly $1\frac{3}{4}$ million of 75 or over. Whilst by no means all of these are likely to need help from the social services, there are enough potential applicants for need to keep the

detection services continually at full stretch. And where need has been discovered it must be met if the confidence of old people is to be retained for the future.

A third area concerns the physically handicapped. Statistics, published by the Ministry of Health and quoted in the Seebohm Report (1968) reveal a marked increase in the number of handicapped people (young and old) registered with local authorities as physically handicapped between 1955 and 1967. The figures are set out below:

Table 1

Increase in number of handicapped from 1955 - 1967

Type of Physical Handicap	1955	1967
Blind	95,000	103,000
Partially Blind	18,000	34,000
Deaf	16,000	25,000
Hard of Hearing	10,000	16,000
Other physically handicapped	47,000	184,000

It is, thus, not surprising that the report concludes that "the services for the physically handicapped are in urgent need of development."

Finally, in the related field of mental subnormality and mental ill-health the picture is equally gloomy, for "published plans suggest that for years ahead many parts of the country will not have resources to provide adequate community care services."

Considerable confusion exists over the respective roles of health visitor and social worker, both of whom are indispensable to the effectiveness of the social services. This confusion, as the Seebohm Report notes, has inhibited collaboration between them. Indeed, the writer has observed that even on training courses within the same department of a college there is practically no interaction between the two groups of students or their tutors. Yet the Jameson Report (1956) states: "There is inevitably some overlap in the duties of health

visitors and social workers, for example in putting families in touch with appropriate health and social services, and both may be concerned in helping 'multiproblem' families." But, although there should be far greater co-operation between the two services in training and in practice, the report contends that "the main functions of the health visitor and social worker are distinct, and the two roles may be incompatible in the same person. Moreover, in terms of training it would be uneconomic to combine them." Before examining the training of the health visitor and social worker, it is important that their functions should be defined as precisely as possible.

B. 1. The Health Visitor

According to the World Health Organization Technical Report (No. 167) the problem of defining the role of the health visitor and the public health nurse is not peculiar to the United Kingdom. Expert committees within this organisation have produced an international definition which states: "Public health nursing is a special field of nursing which combines the skills of nursing, public health and some phases of social assistance. It functions as part of the total public health programme for the promotion of health, the improvement of conditions in the social and physical environment, rehabilitation and the prevention of illness and disability."

By relating this statement to the health visitor in the United Kingdom, her work in this country can be defined as follows:

The health visitor is a nurse with post-registration qualification who provides a continuing service to families and individuals in the community. Her work has five main aspects:

(i) The prevention of mental, physical and emotional ill-health and its consequences.

(ii) Early detection of ill-health and the surveillance of high risk groups.

(iii) Recognition and identification of need and mobilisation of appropriate resources where necessary.

(iv) Health teaching.

(v) Provision of care; this will include support during periods of stress, and advice and guidance in cases of illness as well as in the care and management of children. The health visitor is not, however, actively engaged in technical nursing procedures.

The Report of the Inquiry into Health Visiting (Jameson 1956) states that "in association with the general practitioner the health visitor will be concerned with a wider range of families than any other comparable worker. She will be in touch with the various family health and welfare teams. She has thus the opportunity to act as a common point of reference and a source of standard information, a common adviser on health teaching, a common factor in family welfare." Although agreeing that the health worker is a first line of defence in social action concerning the well-being of children, one who knows where elderly people living alone are beginning to fail and a source of strength to the unmarried or deserted mother, the Younghusband Report (1959) points out that "where no young children, sickness or ill-health cause her to visit a family she is less likely to be aware of difficulties in regard to adolescents and young adults, disturbed marital or family relationships, financial or employment problems." Moreover, the report asserts that "no single type of worker can provide a comprehensive service and the inter-relation of health, welfare and social needs makes it essential that no one should think they can ..... Both health visitors and social workers need to know enough to know when one competence ends and another begins."

2. Training, Knowledge and Skills.

The health visitor is a practitioner in her own right, detecting cases of need on her own initiative as well as acting upon referrals. She has skills and knowledge particular to her work and these are drawn

from her nursing background and from the additional preparation in her health visitors' course. She brings to her work in the community:

(i) observational skills;

(ii) skills in developing interpersonal relationships;

(iii) skills in teaching individuals and groups;

(iv) skills in organization and planning in her own sphere.

The knowledge she brings to her service is obtained:

(i) from her nursing background:

(a) human biology; (b) principles of bacteriology;

(c) processes of disease; (d) therapeutic methods;

(ii) from her obstetric nurse and midwifery training:

(a) pre-natal development; (b) factors influencing the subsequent health of the child; (c) care of mother and baby during and following delivery; (d) emotional factors associated with pregnancy and childbirth;

(iii) from her health visiting course:

(a) the development of the individual at all stages in the life cycle; (b) the development of the individual in relation to his social and cultural group; (c) the development of social policy; (d) the changing pattern of health and disease and the methods used to determine priorities in the services; (e) the principles and practice of health visiting.

The last area of the health visitor's training is designed:

(i) to sharpen the student's capacity to perceive early deviation from the normal;

(ii) to provide practice in the working out of a programme of help for the individual where it is required, which may include the use of other statutory and voluntary agencies;

(iii) to prepare the student to select the method of health education most likely to be successful in any particular instance;

(iv) to give an understanding of the principles of learning and teaching.

Through supervised practice the student is able to develop these skills and learn to help families and individuals and to establish the priority needs among her clientele.

To some extent the quality of health visiting is affected by the philosophy of the employing authorities, some of whom hinder development while others encourage professional growth. Since, however, the skills and knowledge outlined above are basic, it follows that they are used in any situation in which the health visitor operates and in any combination of duties. The group within the population to which they are applied and the problems brought to light may vary, but there is no essential difference between the health visitor in a rural or industrial setting, based on a geographically defined area or the list of a general medical practice. In the latter she is in a favourable position to compile a more comprehensive list of high-risk groups and, consequently, to maintain contact with those individuals and families likely to require assistance at some stage from medical or social agencies.

No other worker at present combines the type of knowledge and skills outlined, and the service the health visitor offers is essential if medico-social problems are to be contained within manageable proportions in relation to available resources in money and personnel, quite apart from the promotion of the health of the community in its widest sense.

C. The Social Worker

1. Functions.

To most people not actually engaged in it, social work presents a blurred picture. Mitchell (1965) states that "it appears there is often a conspiracy within the field to keep the public in the dark as to what it is all about." The confusion in the public mind probably results from the piecemeal development of the social services and the continued fragmentation of agencies and training plans; but the social

workers, too, have failed to be explicit about the essential nature of their job.

The Younghusband Report (1959) defines social work as "the process of helping people with the aid of appropriate social services to resolve or mitigate a wide range of personal and social problems which they are unable to meet successfully without such help. This process calls for both knowledge and skill."

Mitchell (1965) contends that "it is essential for social workers and social planners to be in continual interaction so that social policy for the community may be formed on the basis of known need. It is also the social worker's job to assess the nature and degree of trouble and to personalize social policy for the benefit of individuals and groups of people. The task may be to help them to adjust to changed circumstances, to accept stressful circumstances which cannot be altered, to improve poor personal or family relationships, or to regain confidence and self-respect ..... The areas of social difficulty listed above are by no means confined to any income group or social class."

In analyzing the cause of social problems, Mitchell stresses the importance of adverse interaction of a person and his situation, "his situation usually being the circumstances in which he lives and the people with whom he is in contact (his home and work, his family, friends and workmates and employers), and the circumstances of health, sickness, poverty or unhappiness which affect him. It is on the basis of situations that one of the classifications of social work is made. We speak of mentally and physically sick, handicapped, elderly, delinquent and unemployed people; of homeless families and 'problem' families; of children being maladjusted or 'at risk'. And social work agencies also tend to be organized along these lines".

Although the majority of social workers are employed by local or central government, many work in voluntary agencies which may be privately supported or partially financed by the State. In hospitals

and clinics are found medical and psychiatric social workers while probation officers are attached to courts and child care officers work in local authority Children's Departments. Local authority, health and welfare departments employ social workers of different kinds to help mentally and physically handicapped, mentally sub-normal, elderly and homeless people. Family caseworkers may work in the local authority or in voluntary organizations such as the Family Welfare Associations and Family Service Units.

According to the Younghusband Report (1959) the activities of the social worker are carried out by one of three recognized methods: casework with individuals; groupwork with groups and community organization with communities. "Casework is a personal service provided by qualified workers for individuals who require skilled assistance in resolving some material, emotional or character problem. It is a disciplined activity which requires a full appreciation of the needs of the client in his family and community setting. The caseworker seeks to perform this service on the basis of mutual trust and in such ways as will strengthen the client's own capacities to deal with his problems and to achieve a better adjustment with his environment. The services required of a caseworker cover many kinds of human need ranging from relatively simple problems of material assistance to complex personal situations involving serious emotional disturbance or character defect which may require prolonged assistance and the careful mobilisation of resources and of different professional skills.

Group work is directed towards giving people a constructive experience of membership in a group so that they may develop further as individuals and be better able to contribute to the life of the community.

Social work with communities is primarily aimed at helping people within a local community to identify social needs, to consider

the most effective ways of meeting these and to set about doing so in so far as available resources permit.

2. Training, Knowledge and Skills.

The Seebohm Report (1968) outlines the methods of training social workers which lead to recognition as one of the following:

(i) a qualified probation officer by the Home Office;

(ii) a qualified child care officer by the Central Training Council in Child Care;

(iii) a qualified medical social worker by the Institute of Medical Social Workers;

(iv) a qualified psychiatric social worker by the Association of Psychiatric Social Workers;

(v) a social worker in the local authority health and welfare services with the certificate in social work awarded by the Council.for Training in Social Work.

The methods of training with which this study is concerned are the two-year courses held in colleges of further education and university extra-mural departments for child care officers and social workers. Anticipating the recommendations of Seebohm, tutors of these two separate courses had, at the beginning of this investigation, achieved integration of the students in the first year, but, because of slight differences of emphasis by the two examining boards, (i.e. the Central Training Council in Child Care and the Council for Training in Social Work) full integration in the second year was not fully completed.

Mitchell (1965) stresses that whatever their particular field of employment, all social workers share a common area of knowledge and professional discipline. It is essential that they should have the necessary personal qualities for sustained contact with situations of stress. "People in trouble look for certain characteristics in the

person from whom they ask help. They hope to find someone who will treat them seriously without being critical or shocked; who will respect their feelings and their confidence; who will assure them that help will be given without robbing them of their independence, and who will give them a feeling of security and worth. It goes without saying that workers must have real concern for people, warmth, integrity, tolerance, imagination and a sense of humour." All these qualities are possessed by few, and training does not aim to change the student into a different person; rather it tries "to foster or acquire the right qualities and to discipline the less useful ones as well as imparting knowledge. The task in training is to try to equip people to give help more effectively and surely: hit and miss methods are inadmissable when people's happiness is at stake."

Heywood (1964) notes that, "First comes the learning of the common generic elements of social work; afterwards the student learns how to apply them to the particular field .....", while Brill (1962) stresses that social administration is also just as much part of social work as visiting is: "the social worker's skill is needed just as much in the office and on the telephone and in writing letters as it is in the visit and the interview. Colleagues can be just as touchy as customers, and other agencies can be just as contra-suggestible."

Heywood epitomises what social work comprises by referring to three "areas of knowledge": firstly, "common human needs and ..... society as a framework for meeting them; this involves the study of social structure and social change, of administration, local and central government ..... secondly, a study of human behaviour not only as we expect it to develop ..... under normal conditions, but also as we see it reacting under stress ..... thirdly, the student learns the technique of helping people under stress." Maintaining that not until the knowledge is effectively used does the student achieve understanding, Heywood emphasises that she should experience the importance of good administration in the agency where she trains.

These views are supported by the social anthropologist, Mead (1956), who refers to the need to understand the nature of maturation for human beings, the finished mature behaviour, the institutional patterns, and the way individuals are inducted into society.

The four main courses provided for both child care and social work students throughout the two-year course are as follows:

(i) Human Growth and Behaviour;

(ii) Principles and Practice of Social Work;

(iii) Social Influences on Behaviour;

(iv) Social Services and Social Policy.

In the first year the aim is to lay a broad foundation of knowledge and give the beginning of skill and discipline in social work, and in the second year to deepen and extend knowledge and skill so that the student is increasingly able to use them in practical work.

Although child care and social work students share an integrated programme during the first year, the former, in the second year, discontinue the study of normal growth and development and concentrate on social aspects of mental illness and subnormality and on emotional and learning difficulties in children. The administrative aspects of child care are studied in a course in law and administration which is linked to the study of child care practice within the casework syllabus.

In view of the almost complete integration of the Social Work and Child Care courses and in the light of the recommendations of the Seebohm Report (1968), both groups of students will be referred to as social work students and treated as one group.

D. Job Specifications

1. Health Visitor

A health visitor, who is a state registered nurse with a post-registration qualification or training in obstetrics, must have completed to the satisfaction of the Health Visitors' Training Council, a course in health visiting of one calendar year at a recognized centre.

The health visitor's work, which covers three broad areas, demands the following qualities:

(i) Work with the public:

(a) the ability to form and exploit a good relationship with her client, (b) insight into and a realistic treatment of social-medical problems, (c) adaptability, (d) self-reliance, (e) teaching ability, (f) the ability to cope with stress.

(ii) Work with her colleagues:

(a) the ability to co-operate effectively with health visitor and other professional colleagues, (b) the ability to form good relationships with senior staff.

(iii) Administrative work:

(a) the ability to organize her work efficiently, (b) the ability to make clear, accurate reports.

2. Social Worker.

The social worker is a man or woman who has completed to the satisfaction of one of the professional social work bodies (e.g. the Council for Training in Social Work, Central Training Council in Child Care) a one-year or two-year course, depending on age and previous qualifications or experience, at a recognized college or university.

The social worker's task may be divided into three areas and demands the following qualities:

(i) Work with the public:

(a) the ability to form, and make effective use of a good relationship with the client, (b) insight into problems and sound judgment in planning treatment.

(ii) Professional development:

(a) the ability to organize his work effectively, (b) the ability to apply theoretical knowledge and generalise from specific cases, (c) a knowledge of community norms and pressures, (d) ability to mobilise resources, (e) self-reliance, (f) adaptability and

flexibility, (g) self-insight.

(iii) Work in the agency:

(a) a knowledge of, and the ability to make effective use of, the agency, (b) the ability to co-operate well with colleagues and senior staff and to develop an effective relationship with other agencies.

CHAPTER II

STATEMENT OF THE PROBLEM

A. Practical Importance of the Investigation.

The Seebohm Report (1968) underlined the magnitude of the problems facing the social services in the following decades. In all sectors of the population - the young, the old, the mentally and physically handicapped, the children in care, the immigrants, the delinquents, the families under stress - the problems are pressing and increasing. Recognizing the need, the Health Visitors Training Council, the Central Council for Social Work and the Central Training Council for Child Care have expanded training facilities. Nevertheless, the number of applicants for admission to various colleges of further education and university departments far exceeds the number of available places. Within one college, for example, there are 45 places for approximately 230 applicants to the health visitors' course while only about 42 out of over 220 of those who apply for social work training will be successful.

The main responsibility for selection falls upon course tutors in each institution where hundreds of man-hours are devoted each year to the interviewing of candidates. Although guided by certain requirements which each applicant must possess, the tutors have neither the time nor the training to enable them to develop a reliable and valid selection procedure based on scientific principles. Thus, selection practices vary from one college to another, possibly with some modifications over time in the light of the tutors evaluation of the techniques they have employed. There is undoubtedly an urgent need for guidance, and committees to investigate methods of improving the selection of Health Visitor and Social Work students have been set up at both national and regional levels.

With keen competition for places, it is essential that the most suitable candidates should be selected. Moreover, it should

be borne in mind that just as it is wasteful to accept those with little chance of success, it is equally wasteful to exclude those who, though possessing no formal qualification such as the General Certificate of Education, might prove successful.

Accurate selection is also in the interests of the candidates themselves. Those unlikely to succeed in health visiting and social work should be detected as early as possible so that their abilities and aptitudes may be directed more profitably elsewhere and so that they may avoid the frustration, disappointment and sense of failure resulting from an unsuitable course of training. Furthermore, the saving in time to the student and expense to the local authorities would be considerable.

Not only is selection necessary for professional reasons but also out of consideration for the client who will later depend heavily upon the skill and knowledge of the health visitor and social worker. This factor, above all, necessitates the improvement of present selection techniques.

In the field, too, there is a need for health visitors and social workers to analyse their complex task, to weight the various components according to importance and thereby develop a practical criterion of success, however imperfect. Until this is done, ratings of workers will prove too subjective and unreliable since methods of assessment will vary from agency to agency. And if those in the training institutions are to teach and guide their students adequately, they need to know the constituents of job success and how course performance is related to subsequent work in the field.

B. Present Selection Procedures.

Health Visitors

(i) Pre-Interview Stage Requirements

(a) Age: at least 22 and not over 50.

(b) Professional qualifications: state registration as a nurse with a qualification or training in obstetrics,

(c) Educational qualifications: for younger candidates 5 'O' levels or the equivalent; for older, more mature candidates no formal school-leaving qualification is required.

(d) Relevant experience: not essential, but almost all applicants are engaged in nursing work at least on a part-time basis.

(e) Applicants must also first satisfy their sponsoring authorities who support their application.

All applicants fulfilling the above requirements attend for interviews.

(ii) Interview Stage.

Applicants with 5 'O' levels or the equivalent were excused formal entrance tests. (This exemption has subsequently been discontinued and all are now required to take the entrance tests.)

The tests consist of:

(a) N.I.I.P. Group Test 33 on which a minimum score of 110 is expected;

(b) an essay marked by course tutors on non-medical topics (e.g. "Homemaking"; "Problems in the World that Bother Me") to test the candidate's powers of self-expression particularly in fields unrelated to her work; three letter grades A, B or C are used, the lowest acceptable being B -.

Individual Interview.

The interviewing panel consists of three health visitor tutors who have before them the following information regarding each candidate:

(a) N.I.I.P. test score and essay grade in the case of those without 5 'O' levels or the equivalent;

(b) school leaving qualifications;

(c) other biographical data;

(d) references from employers;

(e) results of a recent medical examination including a chest X-ray.

Interviews look for the following qualities: (a) strong motivation; (b) concern for people; (c)sensitivity; (d) insight into problems; (e) a sense of humour.

All available information and the interview assessment are considered together. While high marks in the essay and test may not compensate for a poor interview assessment, a favourable interview assessment may compensate for a borderline test score and advanced age.

Approximately one-fifth of candidates attending for interview are accepted.

2. Social Workers

(i) Pre-Interview Stage Requirements

(a) Age: at least 19 and not over 50;

(b) Educational qualifications: candidates under 25 normally require 5 'O' level passes or 1 'A' level and 3 'O' level passes; English must be one of the subjects passed at either level. In the case of candidates over 25 no formal school leaving qualification is required.

(c) Essay: applicants are required to submit an essay of 500 words relating an experience in which they helped someone and describing their feelings and reactions. Qualities looked for in the essay are powers of written expression, feeling and self-awareness.

(d) Relevant experience: not essential but desirable;

(e) References: these are obtained from referees named by the applicant and usually include his employer or the headteacher of his last school.

(f) Biographical particulars: obtained from application form completed by candidate.

On the basis of the above information course tutors invite approximately one-half of applicants to attend for interview.

(ii) Interview Stage

(a) Each candidate has a half-hour interview with a course lecturer during the morning followed, in the afternoon, by an interview by a panel of two or three lecturers together with a social work practitioner,

(b) Qualities looked for at the interviews are: adequate motivation,

and clinics are found medical and psychiatric social workers while probation officers are attached to courts and child care officers work in local authority Children's Departments. Local authority, health and welfare departments employ social workers of different kinds to help mentally and physically handicapped, mentally sub-normal, elderly and homeless people. Family caseworkers may work in the local authority or in voluntary organizations such as the Family Welfare Associations and Family Service Units.

According to the Younghusband Report (1959) the activities of the social worker are carried out by one of three recognized methods: casework with individuals; groupwork with groups and community organization with communities. "Casework is a personal service provided by qualified workers for individuals who require skilled assistance in resolving some material, emotional or character problem. It is a disciplined activity which requires a full appreciation of the needs of the client in his family and community setting. The caseworker seeks to perform this service on the basis of mutual trust and in such ways as will strengthen the client's own capacities to deal with his problems and to achieve a better adjustment with his environment. The services required of a caseworker cover many kinds of human need ranging from relatively simple problems of material assistance to complex personal situations involving serious emotional disturbance or character defect which may require prolonged assistance and the careful mobilisation of resources and of different professional skills.

Group work is directed towards giving people a constructive experience of membership in a group so that they may develop further as individuals and be better able to contribute to the life of the community.

Social work with communities is primarily aimed at helping people within a local community to identify social needs, to consider

(ii) As Miller (1970) reveals, not all of the great number of background factors which might affect a student's ability and motivation to succeed have been adequately explored, and it was hypothesized that some of the large number investigated by the questionnaire in this study are significantly related to success.

(iii) Because of the vast amount of new reading required of students on both courses, it was felt that deficiencies in reading and comprehension ability would prove a serious handicap. This led to the formulation of the hypothesis that reading comprehension ability is significantly related to the academic criterion of success. In practical work, too, the health visitor's and social worker's task rests heavily on the use and interpretation of words, and a related hypothesis predicted that verbal comprehension ability and interest in language would correlate significantly with work success.

(iv) Both the health visiting and social work courses are highly intensive, subjecting students to considerable strain, and demanding the ability to work at speed and cope with stress as qualities of persistence and accuracy. It was hypothesized, therefore, that these characteristics are significantly associated with course success.

(v) Finally, the essentially different nature of the two types of criteria (the theoretical and the practical) led to the formulation of the hypothesis that the most efficient predictors of the theoretical criterion would differ from those of the practical criterion of success.

CHAPTER III

REVIEW OF RELATED LITERATURE

A. Introduction to the Literature

In spite of the central roles played by health visitors and social workers in the community services, there has been an almost complete absence of research into the effectiveness of present selection procedures for training courses and into methods of assessing practical performance in the field. Conversations with the relevant authorities (Miss E.E. Wilkie, psychologist and Chief Professional Adviser to the Council for the Training of Health Visitors; Dame Eileen Younghusband, Chairman of the Working Party on Social Workers; and Mr. I. Sinclair, Senior Research Officer, Home Office;) have confirmed the lack of research in this country. Nevertheless, in social work at least, there are signs (Council for Training in Social Work Publication, 1970) that Bradford University is trying to remedy this deficiency; there, investigations are proceeding with the aim of (a) designing a measure of effectiveness for child care officers; (b) relating selection methods to the academic and social casework performance of social work students; and (c) examining the relationship between academic achievement at school and university training for a social work career.

Evidence from abroad is also sparse, but in the United States attempts have been made to identify personality characteristics which distinguish between successful and unsuccessful therapists. Although these studies will be examined, this review, therefore, will survey the field of selection in general, assessing the value of different types of predictors in universities, colleges of education and nurse training.

B. School Leaving Examinations as Predictors

1. United Kingdom Studies

In his discussion of selection techniques, Furneaux (1961) underlines the fact that since those who are not admitted to

university courses do not take any examinations, no direct evidence can be obtained bearing on the validity of the decision to reject them. What is measured is the degree of success achieved by the selectors in predicting the results only of those admitted; the more successful they are in their selection, the more restricted will be the range of talent, and the correlation between predictor scores and criterion results will be low. Where the range of talent is relatively wide, however, - and this applies particularly to one of the two groups in the present investigation - the validity coefficient is likely to be higher.

Furneaux, like Dale (1958) and Cox (1967) also emphasizes the unreliability of examination marking, particularly in Arts subjects. He notes that in the United States where multiple-choice objective type examinations are widely used, the correlations between school-leaving examinations and university performance are higher than in Great Britain. This he attributes to two factors, the greater reliability of American examinations and the wider range of ability admitted to their universities.

Kelsall (1963) points out that the effectiveness of one particular selection practice can't be measured because of the insistence of certain minimum entry qualifications in terms of examinations passed. (Again, in one of the groups of the present study, this limitation does not strictly apply.) He adds that : (i) the relatively restricted range of intelligence among university students makes it unlikely that a close correlation between G.C.E. results and subsequent academic performance will be found as in dealing with a population of wider range of intelligence; (ii) the G.C.E. examinations serve purposes other than university selection and obviously they don't test exactly the same qualities needed for success in university either generally or in a particular subject; (iii) in many departments only those applicants with excellent records are allowed to pursue an honours course, so the relationship between admission qualifications

and subsequent performance may sometimes be a consequence of selection and not a measure of its validity; (iv) the most we can hope for is to be able to forecast not the rank order of accepted candidates, but the variation of risk attaching to the acceptance of particular groups of subjects.

The earliest major study was that of the Scottish Council (1936) who investigated the relationship between entrance examination results and university success. Of 472 students, 266 had been admitted in 1928 solely on the results of the Scottish Leaving Certificate Examination, (similar to the English School Certificate) while a further 84 had been accepted through a combination of this examination with another (e.g. Leaving Certificate and Preliminary Examination).

The results show that honours degrees are confined almost exclusively to those who obtained a mean composite mark of 50 or above in the Leaving Certificate Examination. Whereas the mean mark for Honours Degree graduates was 63.8, that for Ordinary Degree graduates was 55.0.

The prognostic value of the Leaving Certificate Examination is further illustrated by a small group of 43 students whose mean composite mark was 70 or over. Of these 28 gained first or second class honours degrees, 10 ordinary degrees and 5 discontinued their courses: of 62 students with mean composite marks of below 50, however, only 2 obtained first or second class honours degrees, 39 took ordinary degrees while the remainder failed to complete their courses or took no examination.

Other findings reported by the Scottish Council are as follows:
(i) the average number of higher grade passes in the Leaving Certificate obtained at the first sitting was highest among those who afterwards graduated with honours;
(ii) the mean number of failures in university degree examinations increases as the number of higher grade Leaving Certificates decreases;
(iii) the correlations between Leaving Certificate marks in English,

Mathematics, Latin and French and class or degree marks in the purely university subject of Philosophy are all low with the possible exception of English. (r = 38);

(iv) Natural Philosophy (Physics) marks correlate .47 with Higher Science Leaving Certificate marks, .38 with English but only .27 with Mathematics;

(v) the Leaving Certificate has little predictive value for medical students.

The report emphasizes that the data were derived from the entrants to one Scottish university in one session only and that no information was available regarding the success pupils who did not enter for, or who failed the Leaving Certificate Examination might have attained at the university had they been admitted. Furthermore, at the time of the study it was probably much easier to enter a university than now and the range of talent, as measured by the School Leaving Examination, among those admitted was greater than is the case today. However, the study has the advantage, not enjoyed by many subsequent investigations, of using as predictor an examination set and examined by one examining board.

The expanding demand for university and college places in the post-war period gave impetus to numerous researches into the validity of existing selection techniques. At Sheffield over a period of five years, Williams (1950) studied the relationship between Higher School Certificate results and performance in first-year university examinations. The faculties of Arts, Science and Medicine were included and the sample was restricted to those who had taken the Higher School Certificate of the Northern Universities Joint Matriculation Board. Of 68 correlations, 31 were not statistically significant. Indeed, some of the correlations between subjects taken at the two levels of examination were either low or negative; but this finding is to be expected when, for example, subsidiary French marks in the Higher School Certificate are compared with Physics results in

the University Intermediate Examination. Among the highest correlations were those between the same or similar subjects taken in the two examinations; thus in Latin the coefficient was .79 and in Biology .77. In general the results were more predictable in Science than in Arts subjects, confirming the findings of the Scottish Council.

Dale (1954), while commending Williams for her attempt to assess the predictive value of individual Higher School Certificate subjects, complains that her work lacks depth since she examined correlations for far too many subjects. Commenting on Williams'conclusion that "the Higher School Certificate in some subjects ..... does not provide an adequate prediction of the candidate's ability to do advanced work", Dale rightly criticizes her for using first year performance as the sole criterion of advanced work. The purposes of the two examinations also differ: whereas the aim of the Higher School Certificate marking is to produce an order of merit, the first university examination is used to grade into future Honours, future Pass degree and failing students. Moreover, both scholarship-seekers and many who fail take the Higher School Certificate examination a second time, a factor which Williams ignored. The size of the correlations between performance in the school and university examination is further reduced not only by the emphasis many university students place on their future Honours subject, but also by domestic problems and travelling difficulties. Williams's findings, then, need to be treated with caution and are, according to Dale, "not reliable enough for any verdict to be given about the prognostic value of the Higher School Certificate as a whole".

In his own research at University College, Swansea, Dale (1954) analysed the academic performance of a small sample of scholarship holders in arts, pure science and applied science. Although some relationship existed between Higher School Certificate performance and first year university results, he maintained that the most important factor impairing the predictive efficiency of the entrance examination was the different standards of teaching ability in the schools.

The work of Williams at Sheffield was continued by Austwick (1960) who studied the relationship between performance in G.C.E. "A" and "S" levels and subsequent performance in the Faculty of Arts. He totalled the "A" level marks of 245 students who had taken the N.U.J.M.B. examination and compared these with degree performance.

Austwick concluded that in the higher ranges of "A" level totals the number of failures was smaller and the proportion of Honours degrees greater. An analysis of those who had taken scholarship papers and their subsequent performance revealed similar results. Although claiming an association between "A" and "S" levels and Finals, the author maintains that any reliable cut-off point would be too high for practical purposes of selection. It is interesting to note that, while his correlations between performance in individual subjects and first year results were smaller than those of Williams, their order was similar. Austwick's smallest correlations were in English (.198 for Intermediate, .126 for Finals) and his largest were in Latin (.511 for Intermediate, .240 for Finals) and French (.623 for Intermediate, .635 for Finals). The coefficient for Finals was generally lower.

A pilot experiment with Physics students at Manchester by Warburton (1950) was designed to investigate the relationship between Higher School Certificate marks and first year average departmental marks. Resulting correlations were as follows: Physics Principal, .351; Pure Mathematics Principal, .322; Physics Scholarship, .255 and Mathematics Scholarship, .277. The author attributed the low correlations to the highly selected nature of the group. Like Williams (1950), Warburton found that both Higher School Certificate Principal and Scholarship Chemistry are better predictors of success in university Physics than is Physics itself, but he suggested that the discrepancy may be due to the fact that the variance of the marks of the Physics students in departmental examinations was only about 70% of that of the Chemistry group.

At the Queen's University, Belfast, Forster (1959), with a sample of 994 students, investigated the effectiveness of the Northern Ireland Senior Certificate Examination as a predictor of final degree performance as well as of first year attainments. This study is one of the few post-war researches which throws light on the value of the "O" level or School Certificate examination, which the Irish examination broadly resembled, as a forecaster of later academic success.

In the faculties of Arts, Science and Medicine, Forster found that progressively higher mean composite marks in the Senior Certificate Examination were accompanied by progressively better overall performance in final degree examinations. Thus the proportion of students in the Arts faculty who withdrew because of academic failure or graduated after delay decreased gradually from 71% for students with marks under 50 to 4% for those with marks of 75 and above. Moreover, within this range of marks the percentage gaining honours degrees increased steadily from two to seventy.

A further comparison based on mean composite marks derived only from science subjects showed that for medical students higher levels of these marks were associated with an improving final academic performance. The relationship between different levels of mark and final degree performance was, however, rather irregular: indeed, for these latter graduates the ordinary mean composite mark was a better predictor than the scientific mean composite mark.

A comparison between faculties showed that at any given level of marks, a considerably higher proportion of science than of arts students took honours and that below 65 a higher proportion of science than of arts students graduated without delay. Relating examination failure to mean composite marks, Forster found only minor differences between arts and science students. However, the results clearly demonstrated that students with similar attainments in the Senior

Certificate Examination stood different chances of academic success according to the faculty entered. Dale (1958) also found that in a typical English university one in every four gaining honours in applied science obtained a first class degree; for pure science the proportion was one in five, for commerce one in fifty and for arts one in seventy. The other degree classes followed a similar trend.

When Leaving Examination marks were related to first-year university examinations, Forster found highly significant product-moment coefficients of .67 in arts, .55 in science and .50 in medicine. Slightly lower was the correlation of .47 achieved with the scientific mean composite mark.

Forster further investigated the predictive power of the advanced level of the Senior Leaving Examination, but since it had only recently come into operation and was not then essential to gain admission to the university, his samples were reduced to 173 arts and 83 science students.

The author used two scoring systems: the first gave one point to each advanced level subject passed while the second allocated one for a pass and two for a distinction. Again, the criteria were first year and final year performance.

With arts and science students the average number of first-year subjects failed per student fell progressively as their advanced level score increased. Furthermore, arts students with four or more advanced level passes had a distinctly better final overall performance than those with fewer advanced level passes. In science, students with three or more advanced level passes also obtained a decidedly better degree than those with fewer passes. This part of Forster's research might have proved even more illuminating if he had devised a method of combining students' performance at both levels of the Leaving Examination and relating this to the criteria. Since the students did not require advanced level passes to qualify for

university entrance, their motivation in some cases may have been reduced; and, for these, ordinary level passes would have predicted more accurately.

At the University of Edinburgh, Gould and M'Comisky (1958) followed up 674 arts students who had taken the Scottish Senior Leaving Certificate. They found a significant but moderate degree of overall correlation between Leaving Certificate and university performance right through to final honours examinations. More specifically, they reported significant differences ($p < .01$) in overall academic attainment between those in the first 10% of intake to the Arts Faculty in their year and those below and also between those with Leaving certificates above the minimum level (i.e. 3 highers and 2 lowers) and those at the minimum entrance level . These findings agree with those of Dale (1954) at Swansea.

Pilliner (1960) at the same university, included in his samples 136 Ordinary and 93 Honours degree students and 148 Ordinary and 70 Honours students who began their arts courses in the years 1953 and 1954 respectively. He examined the efficiency of his predictor - the Scottish Leaving Certificate - from three viewpoints: (a) quantity, weight being given to the number of passes; (b) quality, more weight being given to higher marks in a few subjects than to mediocre marks in many; (c) a combination of both the above factors. His criterion of success was success or failure in degree examinations within a particular length of time.

It was found that there was little difference between the three predictors and that, whereas for 1953 entrants, ordinary degree results were more predictable, for 1954 entrants the opposite was the case. This finding is disturbing for those who pin their faith in 'A' levels as the most efficient predictors of success. The average correlation between Leaving Certificate results and the performance of five-years honours M.A. students of the 1953 intake was surprisingly low ($r = .06$) while that for the following year's intake was .33.

A further comparison revealed that consistently high correlations could be obtained in certain subjects such as French and Latin where the coefficients ranged from .4 to .7; for some subjects (e.g. Mathematics), on the other hand, the correlations were much lower.

With students reading for special degrees in the departments of English, French, Chemistry and Economics at Hull, Nicholson and Galambos (1960) obtained low correlations between G.C.E. and university results, but conceded that for the Chemistry and French departments, G.C.E. attainments were not entirely without predictive value.

One of the most thorough and comprehensive English investigations was that of Petch (1961) who assigned candidates to one of six categories on the basis of the results obtained in the N.U.J.M.B. advanced level examinations in 1956. Three years later, on completing their university courses, their degree performance was noted and assigned to categories ranging from first class honours to failed. A statistical analysis of the results indicated a genuine relationship between G.C.E. and degree performance classifications. However, in predicting degree from G.C.E. performance, discrimination between the three non-honours pass outcomes and the fail outcome was not possible; nor was there any effective difference between the lowest three G.C.E. categories as predictors. By combining various G.C.E. and degree categories, it was possible to obtain a correlation of .4 which the author described as "surprising and encouraging". He concluded that the G.C.E. "A" level result gave information of real predictive value about the degree performance.

Comparing G.C.E. performance with degree course completion, Petch found that the percentages decreased progressively from 95.8 for Category 1 (the highest) to 72.6 for Category 5; surprisingly, for Category 6 the figure rose to 84.61. The author noted some exceptions, however, such as some Category 5 students who obtained firsts and a small number of Category 1 students who failed in finals.

According to Petch, "it appears that the overall judgment of the G.C.E. performance is in closer agreement with the result of the final degree examination than is in general the verdict in one G.C.E. "A" level considered by itself.

Barnett and Lewis (1963), who applied refined statistical techniques to an analysis the data provided by Petch, reported that while "O" level grade in English Language had no appreciable value as a predictor of degree performance, the average G.C.E. grade whether "O", "A" or "S" level proved a positive predictor with all groups of students, "A" level average being the most important. They maintained that "O" and "S" level grades were not essential to useful prediction and that, because of differences between the universities, special predictive formulae would be required for a particular university.

Earlier, Petch (1959) had co-operated with Mountford (1956) in his survey of a three-year student entry to Liverpool University. Petch's sample comprised 120 students who obtained firsts (Group A) and 133 who failed to complete their courses (Group Z). He classified the school certificates of these students in one of the following ways: (i) M (a matriculation certificate); (ii) C (did not satisfy entrance requirements) and (iii) F (candidate sat but did not qualify for a certificate). Among the firsts in Group A were four times as many M as C certificates whereas among the failures in Group Z the two types of certificate were equally numerous. Furthermore, one in six "firsts" did not hold an M certificate compared with one-half of those in Group Z. Examination of the 22 C School Certificate holders who later obtained firsts frequently revealed weakness in a subject not directly related to the course successfully followed at the university.

Petch also related Higher School Certificate performance to membership of the two groups consisting of 108 students in Group A and 96 in Group Z. The higher school certificate was divided into five grades: (i) S (Scholarship standard); (ii) E (Exhibition standard: i.e.

slightly below that of S); (iii) G (a good standard in each of two principal subjects; (iv) P (Pass standard); (v) F (Fail).

Whereas approximately one-half of the "firsts" in Group A obtained "S" Higher School Certificates, a similar proportion of the unsuccessful in Group Z gained only "P" Higher School Certificates. Nevertheless, 16 out of 108 who obtained first class degrees had been classified as "P" or "F" on their Higher School Certificate results and 21 out of 96 who failed at university were in the "S" or "E" categories.

The results are described by Petch as "inconclusive", but it should be noted that interpretation of the data is confounded by inclusion in the sample of a large number of ex-service students some of whom had not taken any examination beyond School Certificate, and this many years previously.

At the University College of South Wales, Richards and Wilson (1961) were concerned with students reading for a pass degree in Physics. Finding little correlation between the actual marks of "A" level and degree examinations, they used a simple pass/fail classification of degree results. Of those whose "A" level Physics mark ranged from 40 - 44% only 44% qualified for a pass degree in Physics at the first attempt whereas of those with "A" level marks of 70 and above, 85% passed. The figures also suggest that the probability of passing the degree examination is almost constant at about 40% for "A" level marks of below 55%, but increases to 70% - 80% for "A" level marks above 60%. A comparison of performance in "A" level Mathematics and pass degree Physics produced very similar results.

In a study at the London School of Economics over three years, Himmelweit (1963) had samples of 471 Economics students, 122 Law students and 76 Sociology students. She related "O" and "A" level results to final degree performance.

Considering the age at which "O" levels were taken, the interval between "O" and "A" level and the number of "O" level sittings,

the author concluded that nothing relevant could be ascertained with regard to "O" levels for either the Economists or Sociologists; for Law students, however, the earlier they took "O" levels, the better their degree result. Thus, except for Law students, "O" levels had no predictive value. This confirmed the finding of Christopherson (1962) in his study of engineering degree course students.

Himmelweit reported a low but significant correlation (.14) between "A" level marks and degree results for the Economics students. Although better "A" level marks went with better Finals results, there were numerous exceptions. Among the Sociology students "A" levels only discriminated between those obtaining the best degrees (first and upper seconds) and the others; they failed to distinguish between those who passed and those who failed. For Law students the relationship between "A" levels and degree results was minimal and insignificant.

Himmelweit concluded that the usefulness of overall "A" levels performance as a predictor varies with the degree course the student is taking, the "A" level Examining Board and, in the case of high "A" level results, on the type of school attended.

Examining the relationship between individual "A" level subjects and Part I papers, she reported that a high mark in a relevant subject generally has the same amount of significance as a corresponding mark in any other subject, not more. An exception is Economics where a poor "A" level mark appeared to indicate either a lack of interest in or a flair for the subject at university.

Two major reviews of the evidence were published in the early 1960's. Drever (1963) wrote: "Academic examinations are widely accepted as predictors but in fact are not very good ones. The exception to this generalisation is that within certain subjects we can predict first-year university performance quite well. Scholastic leaving examinations were not designed for predictive purposes, nor were they meant to have their marks used competitively."

Kelsall (1963), in his review, concluded that though overall "A" levels were a useful aid to selection, more useful in some faculties than in others, their value decreased progressively as the borderline group of candidates was approached. He pointed out that greater value attaches to the first attempt at this examination than to the eventual standard reached. Kelsall also maintained that the case for a significant association between "A" level in one subject and in the nominally same subject at university was much weaker than for overall "A" levels and must be regarded as not proven. Finally, despite the findings of the Scottish Council (1936) and Forster (1959), he contended that the prognostic value of "O" levels was even less and that their results should be treated with caution.

Nisbet and Welsh (1966) reported that the group entering Aberdeen University with the minimum qualifications of three Highers had the smallest percentage of honours students and the largest percentage of failures. They maintained that if entrance standards had been raised and this group had been refused admission, the failure rate would have been reduced from 16% to 13% but only at the cost of excluding 89 others who proved successful, including 36 at honours standard. The honours classes recruited as many students from those with minimum entrance qualifications as from those with four or more Higher passes.

The authors concluded that the predictive value of the different aspects of entrance qualifications fluctuates from year to year and between faculties. While one item of information may distinguish the successful from the weak when selection is keen, its effectiveness may be considerably reduced when competition for places is less severe. Furthermore, whereas one item may be an effective predictor of a modest criterion of success, such as success or failure in the first-year university examinations, it may bear little relationship to success in a more demanding examination such as final

honours degree.

The fact that the value of individual "A" level subjects as predictors may vary with the group was demonstrated by Bagg (1968), who compared "A" level grades with first and final year performance in chemical engineering. His three groups comprised 556 successful United Kingdom students, 56 successful overseas students and 67 unsuccessful students. In the first group "A" level Physics showed the highest correlation with both criteria and Mathematics the lowest. For the overseas students the positions were reversed. Although Mathematics was also the weakest predictor for the unsuccessful students, in their case Chemistry gave the highest correlation.

In further research at the University of Manchester Institute of Science and Technology, Bagg (1970) compared "A" level and university performance of 621 Chemical Engineering students, 174 Civil Engineering students and 116 Geography and History students.

He concluded that the influence of "A" levels on first-year mid-sessional examinations was quite appreciable but diminished throughout the three-year course until it was of no real importance in Part II final examinations. Indeed, "the principal factors which influence performance at the university and control 85 or 90% of the variance of marks in Part II examinations are unrelated to "A" level results."

Bagg attributed the closer relationship between "A" levels and first-year examinations to the fact that the student was utilising knowledge gained at school since the university syllabus was not very far ahead of that of "A" levels. By the end of the course, however, there was little real connection between the subject matter of "A" levels and Finals.

For the arts group where "O" level History and Geography were combined with "A" levels, Bagg found that the overall influence of "O" and "A" level taken together was almost zero. Although the

influence of "A" levels was small, that of History was twice that of Geography.

In a severe indictment of the university entrance examination Bagg claimed that "A" levels are an unreliable and possibly hazardous predictor of future performance and that "such an examination mark is scarcely a measure of the subject by which it is labelled, but is more a measure of the various specific abilities used by the candidate by the application of his knowledge to the questions." Included in the measure is the efficiency of the school's teaching.

At Reading, Hamilton's (1968) sample was divided into three groups: Group A consisting of 32 students in the Faculty of Letters one-half of whom had failed their first-year examinations at the first attempt; Group B containing 62 students of the Faculties of Letters and Science in their final year; and Group C, comprising 169 students from these faculties who had been followed through from first term to Finals. The author's scholastic predictor variables, drawn from the student's U.C.C.A. application form, were average "A" level percentage, "A" level failure, "S" level entered and "S" level passed; the criterion variables were first-year and final examination results.

Among the factors emerging from the study were the unreliability of "A" level results and the differences in the patterns of scholastic and non-scholastic variables related to examination performance depending on the groups or sub-groups studied. While conceding that the most discriminating single variable was the last school examination, Hamilton noted that the relationship between school and university examinations diminished as the group became homogeneous with respect to sex, faculty, department or a combination of the three. In seven out of eight departmental sub-groups in Research Group C there were no significant correlations between "A" level and University total first-year examination marks, and in four of these departmental sub-groups "A" level performance could not discriminate reliably between students who passed and did not pass

this examination at the first attempt. Comparable results were obtained for Research Group B in relation to Finals. The other scholastic variables, considered alone, were even less useful.

With a random sample of entrants (N = 166) entering Birmingham University in 1964, Maclay (1968) compared "A" level results with degree performance three years later. Each "A" level subject mark was graded on a five-point scale and the student was assigned a score for his total performance. The author found that students who obtained a score of 14 or more from their "A" levels gained significantly more good degrees ($p < .02$) and students with a score of 9 or less gained significantly fewer good degrees ($p < .05$).

Reporting on the flow of candidates in science and technology into higher education, the Dainton Report (1968) stated, "There is a direct relationship between "A" level performance and subsequent degree performance; an appreciably higher proportion of those with top class "A" level performance, for instance, obtain first-class honours degrees than those with lower "A" level grade combinations; this is true of all fields of studies and particularly true of science and technology: it is likewise true of both men and women." As an example, the enquiry cited the fact that in science 39% of candidates with three "A" level passes at "good" gained first or upper second class degrees compared with 23% at "poor". In technology the corresponding proportions were 49% and 23%.

Abercrombie, Hunt and Stringer (1969) carried out an intensive study of selection methods and academic performance of 112 students admitted to the Bartlett School of Architecture at University College, London. They found that "A" level results were significantly related to performance and that students with more than two "A" level passes did better than those with only two. Although students with "A" level Art did slightly better in studio work than those without it, there was no difference in overall performance. As would be expected, students with "A" level Physics obtained slightly better results

in examinations in Structures and Scientific Principles of Building, but they also had slightly better academic records.

Studying success and failure at the University of Birmingham, Wankowski (1968) divided his sample of 102 into three groups: (i) Weak-Successful: those weak in their work but who passed the sessional examination and were allowed to continue their courses; (ii) Weak-Unsuccessful: those weak in their work who failed their sessional examinations and were asked to withdraw; (iii) Very Good: those considered very strong in their academic work and achievement.

Analysis of "A" level grades based on the U.C.C.A. classification revealed that the Weak-Unsuccessful tended to have higher admission marks than the Weak-Successful: 68% of the former group held top grades as against 46% of the latter, a difference which almost reached the .05 level of significance. However, the Very Good group, 87% of whom obtained top grades, differed significantly ($.01 < p < .005$) from the other two groups.

At Bradford University in a comparison of 68 drop-outs and 573 non-drop-outs, Cohen and Child (1969) analysed their school educational attainments, classifying "A" level results as good or poor. They found that 42.7% of the drop-outs obtained good "A" levels compared with 58.1% of the non-drop-outs. The difference between the groups was significant at the .025 level.

In one of the few studies concerned with social work students, McCulloch, Foren and Hitch (1968-9) of Bradford related "A" level results to the foundation year performance of 26 Applied Social Science (A.S.S.) students and 57 Joint Honours Degree (J.H.D.) students. Whereas the former group was selected on the basis of "A" levels, references on maturity of outlook and potential ability for social work, the latter group was selected almost exclusively on the basis of information contained in the U.C.C.A. form and "A" level performance.

The students' "A" level result in each subject was graded on a five point scale and the individual scores were summated to give an overall entrance qualification which was subsequently compared with results in each foundation year subject.

Although the "A" level mean of the A.S.S. group was lower than that of the J.H.D. group, the former did slightly better in foundation year examinations. When "A" level marks were compared with foundation year results, using a Spearman Rho Rank Order correlation, there was a significant positive relationship ($p < .05$) of .377 in the case of the A.S.S. students but no relationship in the case of the J.H.D. students. (rho = - .037)

The relationship between foundation year performance in a subject and possession or non-possession of an "A" level in that subject was studied together with the student's future specialization or non-specialization in his subsequent degree course years. For the J.H.D. students, with the exception of Politics, the mean of those with an "A" level subject who intended to specialize in that subject was higher than the mean of those who did not intend to specialize in the subject. For the A.S.S. students the mean of those with an "A" level subject who did not intend to specialize in that subject was in all cases higher than that of those without an "A" level who also did not intend to specialize.

In Psychology and Sociology - subjects for which no "A" level data were available - the mean performance of the A.S.S. students was better than that of the J.H.D. students (55.15✓49.25 for Psychology and 57.77✓53.04 for Sociology).

Comparing the "A" level scores of successful and unsuccessful students, the authors observed relatively small differences between those on the J.H.D. course. On the A.S.S. course the difference in "A" level performance between successful and unsuccessful students was much more clear-cut; a cut-off point for "A" levels of 7 eliminated all

failures but, above this, general "A" level performance was not indicative of success or failure.

The authors conclude that overall "A" level performance as well as specific "A" level subjects were of doubtful predictive value.

Also at Bradford, Smithers and Batcock (1970) checked the progress of four groups of students (N = 186); those from the schools of social sciences and business studies were labelled "social scientists" while pharmacy and optics students were called "health scientists". Although they found that degree performance was positively related to "A" level results, thus disagreeing with the findings of Bagg (1970), the authors reported that the coefficient failed to reach significance with either group taken separately. When social scientists and health scientists were combined, however, the correlation was significant at the 2.5% level.

Smithers and Batcock concluded that one reason why "A" level and degree results do not correlate more highly may be that schools and universities differ in their attitudes towards motivating students. "Schools tend to take responsibility for this; universities tend to rely on students' own intrinsic motivation."

Sherwin and Child (1970) studied the relationship between "A" level performance, the first-year examination and the final degree results of chemistry students who entered Bradford University in 1964 (N = 52), 1965 (N = 51), 1966 (N = 40) and 1967 (N = 38). The students' "A" level grades were converted into points ranging from A = 5 to E = 1.

The authors reported that students required an "A" level score of at least 6 points in order to have a greater than 50% chance of passing the first university examination. They also needed a chemistry grade better than D, a physics grade better than E, and more than two "A" level subjects. Students with "A" level mathematics appeared to have the best chance of success.

With regard to the final degree award, university examinations proved superior to "A" levels as a predictor. An interesting finding was that the final degree results of O.N.C. entrants (N = 14) were better than those of G.C.E. entrants (N = 228).

2. Overseas Studies

Many investigators in other English-speaking countries have studied the relationship between results obtained in the school leaving examination and later performance at the university. In interpreting the evidence, however, it should be borne in mind that British universities generally demand a higher entrance qualification and are consequently more selective, and that the American and Commonwealth samples often include a number of part-time students.

From his review of the literature Harris (1940) concluded that a definite relationship existed between school performance and college grades in the United States, particularly in such subjects as the physical sciences, music, languages, history and the social sciences; for the last two the correlations were .67 and .56. Himmelweit and Summerfield (1950), in their survey of American literature also reported correlations of the order of .5 between school and university results.

Garrett (1949), reviewing and interpreting investigations of factors related to scholastic success in colleges of arts and science and teachers' colleges, concluded that high school average and high school rank proved the best all-round predictors of college scholarship, the median product-moment correlation coefficients being .56 and .55 respectively. Because of the great variety of American colleges and universities and many different high school systems it would be unwise to generalise from these findings.

In New Zealand, Thomas, Beeby and Oram (1939) correlated marks obtained in the external University Entrance Examination, which was then the main method of qualification, with Stage I marks in the same subject. The median correlation was .35. Among this group, however,

were not only first year and advanced-year students but part-time as well as full-time students. The main conclusion was that while there was a general correspondence between University Entrance average marks and later university success, it was not close enough for prediction to be made for individuals on the basis of entrance marks alone; moreover, if the university wished to make a significant reduction in the number of failures by raising the entrance standard, it would need to fail at least one-half of those who were at that time passing the Entrance Examination.

Twenty years later Parkyn (1959) reported a similar study of the relationship between the entrance standard of the University of New Zealand and the performance of students taking Stage I subjects. The sample of over 4000 students included, as did the earlier investigation, full-time and part-time students as well as those in their first or advanced year of study. The median tau correlation coefficients between School Certificate marks and various criteria of university performance were as follows: 1st year full-time .36, last year part-time .18; advanced year full-time .15; advanced year part-time .17.

Parkyn also found that first year students who took two foreign languages or one foreign language together with mathematics did slightly better at university than did the rest. In most cases, however, the correlations between school attainments and university performance in individual subjects were similar in size to those found between school attainment and the general criteria of university performance. For French (tau = 51) and Maths (tau = 56) the correlations are higher. No significant relationship was found between the university performance of students and the different social studies subjects they had taken in the upper sixth form.

In an intensive study of 99 first-year students comprising 66 failures and 33 successes, Small (1966) divided the former group into one sub-group of 47 who had failed some but not all their subjects

("Pass/Fails") and another sub-group of 19 who had failed in every subject ("Fails"); the 33 successful students of the control group had not failed any subject. School Certificate Examination results were related to the university performance of the three groups and a chi-square test was used for the analysis.

Small found that the difference between the Fails and the Pass/Fails was not statistically significant, but the differences between the Pass/Fails and the Successes and the Fails and the Successes were highly significant ($p < .001$). In the first case, where no significant difference was found, it should be noted that the Pass/Fails ranged from those who had been almost entirely successful to those who had failed nearly every subject. It is thus rather surprising that the differences between the Pass/Fails and the Successes should be significant at the .001 level.

Foremost among the Australian research workers in this field is Sanders (1948) whose elegant statistical analysis and insightful interpretation of the results have been commented upon by various investigators. He concluded that "in every Australian university there is evidence in most faculties of a solid relationship between entrance examination results and the results of first-year university examination at least; but the extent of demonstrable relationships ... is not such as to give grounds for any educational complacency." The correlation between Leaving and University First-Year Examinations lay between .50 and .65 with the best estimate (Fisher) being approximately .55. More refined treatment, such as limiting the number of Leaving Examination subjects, grouping those more closely related to first-year studies or excluding second attempts improved the coefficient to between .50 and .80 with a best estimate of .63.

Sanders strongly advocated an actuarial approach to selection, asking whether the candidate was an acceptable risk. He revealed that in the Science faculties of Sydney, Queensland and Western Australia there is a close relationship between Leaving Examination results and

the percentage of passes in first-year university examinations. A minimum School Leaving Examination mark of 400 would achieve an 80% pass rate at university while a minimum mark of 500 would ensure that 90% were successful.

Relating School Leaving Examination marks to the first year university performance of 150 Western Australian graduates, Sanders found that the average first-year mark of those in the upper third of the Leaving Examination was 60.9, of those in the middle third was 50.4 and of those in the lower third was 42.4. However, because of some notable exceptions, the author would go no further than to conclude that those placed in the upper third in the Leaving Examination were most unlikely to fail at the university while those in the lower third were unlikely to do well and quite likely to fail. The above findings held good for the final degree.

Like the Scottish Council (1936) Sanders found that students who required more than one attempt to matriculate obtained relatively poor results at the university. This finding was subsequently confirmed by Theobald (1961) who found at the University of Melbourne that the failure rate of students who did not succeed in their first matriculation attempt was almost three times that of those who did. Further support came from Schonell, Roe and Meddleton (1962) who found that only one-third of the students who needed two attempts to matriculate graduated in minimum time.

In a later review of the evidence Sanders (1957, 1958) confirmed the positive relationship between matriculation results and university first-year performance and the lesser relationship with success in subsequent years at the university. Although there were variations between and within universities the correlation was estimated to be between .55 and .70; but if all years were considered, this fell to between .40 and .55. Sanders' second conclusion was: "On average, groups of students doing better or worse in the entrance examination will do better or worse in university examinations. But the individuals

composing the groups will only tend to do better or worse."

Hohne (1951), from his research at Melbourne, concluded that the entrance examination score was the best positive predictor of success. While those in the lowest entrance score band had only a 50% chance of graduating, those in the highest band had a 90%chance. He states that the entrance score is decidedly the best single predictor of university success and that those who do well at school, with few exceptions, do well at university. Furthermore, the best predictor of final success is first year university performance.

Examining the relationship between matriculation and first year performance of full-time students who began courses from 1957 to 1959, Anderson (1961) found that in all faculties except Architecture, where the pass rate was high at all levels of matriculation mark, the higher the average matriculation mark required for entry, the higher the student pass-rate proved to be. Prediction was more effective in Science and Engineering than in Arts, Law and Commerce. While in the more predictable faculties one could be fairly certain only about the results in the upper performance levels, the probability of success among the lower performers was about 50%. Hammond (1962) found a correlation of .54 between matriculation and first year university results. He noted many exceptions to the tendency for high first year results to accompany high matriculation scores. Moreover, the group with the poorest matriculation results did not differ markedly in their university performance from those with average matriculation results.

Cochrane (1962) related matriculation results to first-year examination performance at Monash University both by ranking students in both examinations and by calculating their average mark in both examinations. Although he found a significant correlation in both cases, he concluded that matriculation marks were of little reliable value in predicting university performance, particularly with the large middle group of students. Furthermore, the lowest 20% of matriculants in all faculties performed "relatively well".

Theobald (1961) reported a closer relationship between matriculation and university first-year examination results. Low matriculation scores were associated with a relatively high failure rate. Nevertheless, some students who did poorly in their matriculation examination were above average performers at the university.

In the major research by Schonell, Roe and Meddleton (1962), the authors examined the extent to which the promise of 400 full-time students enrolling at the University of Queensland in 1955 was fulfilled. The students were divided into five categories based on their marks in their five best subjects in the matriculation examination. Similarly, university performance was also classified under five headings:(i) those making normal progress; (ii) those delayed one year of the course; (iii) those delayed two years; (iv) those delayed three or more years; (v) those withdrawn from the university.

When chi-square tests were applied, the difference between successful and unsuccessful students was significant ($p < .01$) in relation to the five matriculation groups whether successful was interpreted as "making normal progress" or as "making normal progress" combined with "those delayed one year". A significant difference of the same magnitude with regard to the five matriculation groups also appeared between those who withdrew from the university and those who graduated or were continuing their courses.

A biserial correlation (matriculation score v normal progress/ failure to make normal progress) produced a coefficient of .48. As so many previous investigators have reported, the authors noted that, while matriculation scores are fairly closely related to success and failure, there are many exceptions to the relationship. Although 82% of those with the highest matriculation scores made normal progress and only 25% of those with the lowest matriculation scores did so, one in five students in the top matriculation group failed while one in

four of those in the lowest matriculation group succeeded. Schonell, Roe and Meddleton concluded that "it is obvious that the influence of schooling (over-and-under-teaching)and such factors as maturation and motivation are powerful influences to be taken into account in matters of success and failure."

Matriculation results and first-year university results in individual subjects were also compared. A significant relationship (Kendall's tan coefficient) was found in the case of Chemistry, Physics and Mathematics but not in English, French, History or Latin. This was attributed to the greater objectivity in the marking of the former group of subjects.

Reporting separately on this study, Meddleton (1960) concluded that, although there was a general, positive relationship, with the best correlations of about .5, between subjects taken at matriculation and first-year university examinations, matriculation results in a subject were not very accurate as a predictor of performance in that subject at the university. This finding confirms the earlier work of Sanders (1961) in his study of 1947 entrants. The latter, who found that subjects at entrance level correlated best with the same or related subjects at first-year level, obtained a highest correlation of .63.

At the University of Western Australia, Hogben (1961) found a significant though only moderate correlation between the performance of Science students and their matriculation results, while in Tasmania, Hughes (1960) obtained a correlation of .43 between matriculation and first-year results. In a similar study at the same university Hughes (1966) found a slightly better correlation of .50 which, when corrected for selection, was increasedto .60. He discovered that a good matriculation result in Arts predicted university performance better than did a good result in Science.

Finally, various studies in Australia reveal that the relationship between matriculation and first year performance at

the university is strongest at the highest and lowest levels of matriculation score. Sanders (1958), Gray and Short (1961) and Gunn (1963), who was concerned only with English, Martin (1959) with Biology and Bennett (1958), all confirmed that those who do well in the matriculation examination generally do well at the university, while those who do badly at matriculation generally fare poorly at the university.

At the University of Sussex a long-term experiment is being carried out to investigate whether sufficiently motivated students who left school early without formal educational qualifications could succeed as students. The report (University of Sussex Admissions Office Report, 1970) analysed the background and record of all unqualified students up to 1970. Since 1964, 62 students had in most cases done as well as conventionally selected students. The scheme had been strikingly successful in producing graduates in arts and social studies from material which most universities would regard as unpromising. But in science, only two out of the seven students admitted between 1965 and 1967 had graduated.

Although these results have implications not only for other universities but for other institutions of higher education, it should be noted that the unqualified candidates for admission to Sussex were subjected to a rigorous selection procedure of essays; interviews and an assessment of the individual's motivation and background as well as psychometric and reasoning tests, and the predictive value of all these measures combined must have at least equalled that of "A" levels. The students were probably more highly motivated than the typical student population and the "Hawthorne" effects produced by being "guinea pigs" should not be underestimated. Finally, the experimental group, contrary to expectations, included only one-third of students from unskilled or semi-skilled home backgrounds. Thus the majority were middle-class students who would find adjustment both to an academic atmosphere and to student life easier in a university which has a

predominantly middle-class intake.

3. Teacher Training.

There have been various studies both in the United States and in this country of the relationship between results obtained in school leaving examinations and performance on a teacher training course. In these cases, as in the present study, there are two main criteria, the theoretical and the practical. The latter undoubtedly demands different qualities from the former, but in the absence of any systematic job analysis, in view of the changing role of the teacher and because of the unreliability of assessments, findings must be treated cautiously.

Johnson and Morris (1937) reported that students admitted to the New York State College for Teachers with below average attainments were generally less satisfactory than others in practical teaching. An examination of the entry marks of poor teachers, however, showed that they frequently had high averages, leading the authors to suggest that in these cases failure could be attributed to personality weaknesses.

In this country Lovell (1950) found that the possession of a formal examination such as a school certificate was unrelated to teaching ability provided the student possessed a minimum level of intelligence. Although arriving at a similar conclusion, Walters (1957) reported further conflicting findings of a significant association at the .05 level between school certificate results and teaching ability for women and a significant correlation at the .01 level for men.

Warburton (1956) studied various academic qualifications as predictors of success in a one-year post-graduate course for trainee-teachers at the University of Manchester. With 95 students entering the Department of Education in 1952 and 105 entering the following year, he related three measures of their school certificate, two measures of their higher school certificate and degree class (honours v ordinary) to a Theory mark (based on examination papers and essays) and

a Practical Teaching mark.

When product-moment correlations between the predictors and criteria were calculated for the two years combined, all the academic predictors correlated significantly with the Theory mark but, except in the case of degree class where the correlation was .433, the coefficients were low. Of the two school examinations, the school certificate proved superior, the highest correlation ($r = .220$) being given by the number of credits and distinctions obtained in that examination.

In the case of the Practical Teaching mark, however, there was no relationship between the school examinations and success; and degree class correlated negatively and significantly ($r = -.197$) with performance.

Warburton, Butcher and Forrest (1963), with a sample of 100 post-graduate teacher trainees at Manchester University, related school leaving examinations and degree class to Final Theory Mark, Final Teaching Mark and Award of the Graduate Certificate of Education.

Although degree class was the best single predictor of all three criteria, the number of "O" and "A" levels correlated .244 ($p < .05$) with Final Theory Mark and .305 ($p < .01$) with the Certificate Award, but the relationship with Final Teaching Mark was not significant.

In a similar study of 259 students in three constituent colleges of education of Manchester university, Cortes (1968) compared cognitive and personality measures as well as biographical particulars with final examination grades in Educational Theory, Academic Subjects, Basic English and Practical Teaching. No relationship was found between school leaving qualifications and practical teaching ability. There were, however, significant correlations at the .01 level between the number of "O" levels ($r = .187$) and the number of "A" levels ($r = .246$) and Educational Theory marks.

Halliwell (1965), with 208 three-year trained teachers,

found that "A" level success correlated significantly with two of his criteria, Principles of Education (Course Work) and Principles of Education (Final Examination Result), but not with teaching grade.

Although primarily concerned with the relationship between personality, study methods and first year academic performance in a college of education (N = 118) and a university (N = 139), Entwistle and Entwistle (1970) noted that "A" level results correlated .27 with the criterion for the college students and .24 for the university students; both coefficients were significant at the .05 level.

Petty (1971) reported on a survey in Kent of 391 trained teachers who took up their first teaching posts at primary schools in the county in 1969-70. Their final college assessment was related to their academic qualifications on entering their training courses: college assessment ranged from above average to possible failure and academic qualifications ranged from 4 or fewer "O" levels to graduate status.

The data for non-graduates revealed no relationship between level of entry and final assessment. Those who possessed at least 2 "A" levels in addition to "O" levels were not considered at the end of their courses to be the most successful; indeed, those who entered college with 5 "O" levels or more but no "A" levels obtained almost identical results. Although all the graduates were rated competent or above average, their college assessment was not significantly better than that of the other groups. Furthermore, in the opinion of the present writer it is unwise to include graduates in the analysis since the nature and length of their courses as well as their own attitudes and those of the training staff towards them often differ markedly from those of the usual college of education students.

All investigations into the relationship between predictors and practical teaching ability are, however, severely limited by failure to define adequately and explicitly the criteria against which a teacher can be evaluated. Start (1966) demonstrated that whereas

on teaching practice assessing tutors were rewarding men for such qualities as extroversion, a child centred view, academic ability and maturity/sophistication, they rewarded women for general intelligence, academicability, dominance/protension and non-conformity. Their comments tended to indicate that they attached less importance to academic knowledge, instructional skills and personality traits.

Summary

The "A" Level (or Equivalent) Examination.

Investigators in the United Kingdom disagree over the value of the "A" level examination or its equivalent as a predictor of university success. While Bagg (1970) maintains it is practically useless in its ability to predict final degree results, Drever (1963) states that it is not a very good predictor and Pilliner (1960) reports that it is unreliable, varying from year to year as a predictive instrument, others, (Warburton, 1950; Austwick, 1960; Smithers, 1970) have found low to moderate correlations. At the other extreme Petch (1961) considers that with a coefficient of .4, it has real predictive value, Kelsall (1963) contends that it is a useful aid to selection and the Council for Scientific Policy (1968) notes a direct relationship between "A" level and degree performance.

Overall "A" level results have been found to be a better predictor than isolated subjects (Petch, 1961; Kelsall, 1963), and performance in the school examination at the first attempt is more predictive than the combined performance of two or more sittings. (Kelsall, 1963).

Many investigations (Nicholson and Galambos, 1960; Pilliner, 1960; Austwick, 1960; Himmelweit, 1963; Kelsall, 1963) show that the "A" level examination as a predictor varies with the subject, course and university. Considered as a whole, the examination has the greatest predictive value for French, Latin and Chemistry (Nicholson and Galambos; Austwick, 1960; Pilliner, 1960). There is disagreement over the predictive value of individual subjects. Williams (1950) and

and Abercrombie et al. (1969) reported the highest correlations between the same or similar subjects taken at "A" level and first year at the university, but Himmelweit (1963) found no such relationship.

It is generally agreed that the value of "A" level as a predictor diminishes considerably between university Part I and Part II examinations.

Those with poor "A" level results tend to be over-represented among drop-outs both in this country and in the United States (Summerskill, 1962; Wankowski, 1968; Cohen and Child, 1969).

"A" level performance generally correlates positively and significantly with the theoretical criterion in teacher training courses at colleges of education and university education departments, but it bears little relationship to practical teaching ability (Warburton, 1956; Warburton et al. 1963; Halliwell, 1965; Cortis, 1968); the inadequacy of the practical criterion should, however, be noted.

Although the best single predictor of university success, "A" levels fail to account for a very large percentage of the variation of university marks.

The "O" Level (or Equivalent) Examination.

The "O" level examination or its equivalent has not been extensively studied in relation to university performance. Whereas the Scottish Council (1936) and Forster (1959) found that progressively higher marks in the school examination were accompanied by progressively better performance at university, Himmelweit (1963) reported no relationship between "O" level and university results for economics and sociology students, though for law students the earlier they took "O" levels the more likely they were to do well. Barnett and Lewis (1963) found that "O" level in English Language had little predictive value.

In the field of teacher training at colleges and universities,

a low but significant correlation between "O" level results and the academic criterion of success has been reported in recent studies; but, as with "A" levels, the examination appears unrelated to practical teaching ability (Warburton, 1956; Warburton et al. 1963; Cortis, 1968). Final college assessment based on academic and practical work appears unrelated to entry qualifications (Petty, 1971).

Studies of the relationship between matriculation or its equivalent in the U.S.A., Australia and New Zealand, and college or university examinations reveals a generally higher correlation than that obtained in Britain where selection is more rigorous.

There is general agreement that prediction is improved by considering matriculation results at the first attempt (Sanders, 1948; Theobald, 1961; Schonell et al. 1962), supporting the findings of Kelsall (1963) in this country.

Although in these other English-speaking countries, the matriculation examination is the best single predictor of success at university, predicting most efficiently the best and poorest students, Schonell et al. (1962) noted exceptions to this relationship, and Cochrane (1962) reported its unreliability with the middle band of students.

Recent experiments (University of Sussex Report, 1970) indicate that in arts and social science, but not in pure science, students with no formal school-leaving qualifications perform as well as other conventially accepted students.

C. Cognitive Tests as Predictors.

1. United Kingdom Studies.

One of the earliest English studies was that of White (1931) who administered a general intelligence test, designed by Spearman, to 1840 students during the years 1922 to 1926. The results of the test, taken immediately after entry to University College, London, were compared with performance in the University Intermediate Examination at the end of the first academic year.

Although White did not apply refined statistical techniques to his analysis of the results, his findings nevertheless indicated the potential value of intelligence tests as predictors of success and failure. On the basis of test performance the students were divided into nine categories ranging from A (highest) to I (lowest), and the percentage of failures in each category was calculated. The results were as follows:-

CATEGORY	A	B	C	D	E	F	G	H	I
% OF FAILURES	10	10	16	19	27	13	21	32	50

The two highest and the two lowest intelligence groups produced the two lowest and the two highest failure rates, but the test was less successful in the middle range of scores, for example, the sixth highest intelligence group had the third lowest failure rate.

At Newnham College, Cambridge, Dale (1935) followed up 610 students of whom 370 had completed their degree course by July, 1933. The variety of tests which had been administered to the students on entry included those by Vernon and Cattell, the Simplex, the N.I.I.P. Group Test No.33, the Bedford College Test and the Newnham College Test. Dale found that the average test score for students obtaining Class I in the Final Tripos Examination was slightly higher than that of Class II students, and the mean of the latter was in turn slightly higher than that of Class III students; but the differences were not large and there was a discrepancy in many cases between placement in the test and in the examination. Moreover, the test scores of Class I students showed an especially wide distribution.

Dale concluded that "certain academic subjects seem to depend more largely than others on a high grade of general ability while others need a greater measure of one or more specific factors; selection of students for highly specialized degree courses does not appear to be made easier or more reliable by the use of mental tests."

The first major post-war English study was that of Himmelweit

and Summerfield (1950, 1951) at the London School of Economics. In their first paper the authors expressed dissatisfaction with existing procedures because, while selection of the most promising and unsuitable students was relatively easy, borderline cases could not be satisfactorily assessed. The results of school leaving examinations were considered inadequate because they could be considerably improved by cramming; and students with good higher school certificate results with only a moderate intelligence quotient might fail to maintain the standard when experiencing the sharp change in teaching methods at university.

Himmelweit and Summerfield sought to discover the effectiveness of psychological tests as predictors of success in the intermediate and Final Degree (B.Com. and B.Sc. Econ.) Examination of London University and to compare their value with that of the usual entrance examinations and interview. A battery of cognitive and conative tests was administered to 232 students: the former comprised (i) a general knowledge test; (ii) tests of reading tables, charts and graphs; (iii) seven tests from the Thurstone battery of primary abilities; (iv) two tests of completion and direction; (v) a short non-verbal and relatively pure test of intelligence (N.I.I.P. Test 70/1); (vi) an accuracy of performance measure based on the above tests.

The authors found that combinations of five of the cognitive tests and the index of accuracy were much superior to previous selection methods. Best predictor was the index of accuracy, and by combining tests a multiple correlation of .550 with an overall measure of performance in the B.Sc. (Econ) and B.Com. Final Examinations was achieved, leading the authors to conclude that "the findings clearly indicate the value of psychological tests for the selection of students" and that their use would result in a reduction of failure rates and an improvement in the quality of degrees. More important, Himmelweit and Summerfield indicated their value for a wider student body. In a subsidiary investigation they

compared cognitive test results of 48 Social Science students with their attainments in Certificate examinations taken in 1948. The multiple correlation coefficient was .601.

Satisfactory though the multiple correlations proved, effective prediction could not be based on single tests which in general had low correlations with the criteria. Of the cognitive tests, measures of verbal intelligence, arithmetical ability and cognitive achievement were found to predict academic performance better than non-verbal measures of intelligence.

In advocating the widespread adoption of psychological tests, the authors note two other reports which tend to confirm their findings. Petrie (1948) gave 57 medical students at St. George's Hospital, London, the most successful tests of the London School of Economics enquiry and compared the results with quality of work ratings made by two senior members of staff. The correlation between tests and combined ratings was .63. Eysenck (1947), though investigating cognitive tests only, found that the average coefficient derived from the 34 best American studies was .58. In three fields therefore - Economics, Social Studies and Medicine - the findings are remarkably similar.

The results of Himmelweit and Summerfield's inquiry, however, must be interpreted with caution since they were not studying a typical student population. A high percentage of ex-service students were included in the sample and the distribution of intelligence was probably much wider than is the case today; and the greater heterogeneity probably inflated the correlation between cognitive tests and the criterion.

Dale (1954), too, advises cautious interpretation of the results of this study on the grounds that when the equation derived from the 1947-8 sample (i.e. the same tests and weightings) was used to predict degree class of the 1949-50group, the multiple correlation coefficient was reduced from .56 to .41. Moreover, the same tests

with the same weightings are probably not valid for every type of university course and "research has made only little progress in such differentiation except on very broad lines." Dale maintains that the importance of Himmelweit and Summerfield's work lay in their exposure of the inadequacy of selection by interview and a general essay paper, their demonstration of the usefulness of an Index of Accuracy and their pioneering work in examining the possibility of a large number of tests for student selection. In supporting the authors' condemnation of the interview, Dale ignores the fact that the interviewers at the London School of Economics were confronted by an entirely new type of ex-service candidate and this factor alone may have considerably reduced its validity.

Drever (1963), reviewing the literature, criticizes Himmelweit and Summerfield's research on the grounds that such an elaborate test battery would probably not be acceptable in this country and, secondly, a correlation coefficient obtained by weighting components of a predictor when the outcome is known is unlikely to be obtained when real prediction is attempted because of the unreliability of academic examinations which is apt to introduce random variation from year to year. He contends that the single test such as the A.H.5 designed specifically for university selection purposes is more promising than the large battery. Reporting that coefficients, mainly in the Arts, in some cases exceed .4, Drever concludes that this is far from negligible in comparison with other predictors. "Intelligence tests don't differentiate sufficiently between candidates for admission to universities while elaborate batteries of tests have their drawbacks."

Valentine (1961) developed and administered his own high grade reasoning test to 622 training college students, 149 university first-year undergraduates, 222 graduates and 45 boys, aged 17-18 from Manchester Grammar School, King Edward's School, Birmingham and Nottingham High School, all of whom had won open scholarships to

Oxford and Cambridge.

With a maximum test score of 71, the schoolboys obtained a mean of 53.40, followed by first class honours graduates with 51.23, second class honours graduates with 42.48, third class honours graduates with 35.64, arts and science undergraduates with 34.75, and medical undergraduates with 30.16. The mean score of women training college students was 22.96 while that of men students was 27.61. Differences between first class honours and second class honours graduates ($p < .004$) and between second class honours graduates and pass graduates ($p < .01$) were highly significant while a less marked difference, significant at the .05 level, was recorded between second and third class honours graduates. This study indicates, therefore, a substantial relationship between Valentine's test and academic performance.

In a second study of Economics, Sociology and Law students, Himmelweit (1963) included the most successful tests of her earlier study and Furneaux's speed and level tests of intelligence in her battery of predictors. Regression analyses, carried out separately for each of the three degrees, resulted in multiple correlations between selected tests and Finals of .51 for Law and .48 for Sociology, which are similar in size to those obtained in the earlier enquiry when allowance is made for the greater homogeneity of the sample. Although the coefficient for B.Sc. Econ. students was considerably lower, when they were divided into three relatively homogeneous groups with regard to course content the three increased coefficients were .43 for the Statistics group, .34 for Economics and .29 for Government.

Acting on the suggestions made by Furneaux (1962), Himmelweit divided the students into those with high speed preference and those with low speed preference, previous work by the author (Himmelweit, 1946) indicating that these measures are related to extraversion and introversion. With homogeneous personality

groupings within each degree course the predictive value of tests increased for both extraverted and introverted students, but particularly for the former.

Analysing the contributions made by tests to success in the different courses, Himmelweit concluded that "it looks as if in each case the test which best predicts performance is the one which measures, not the quality most related to the degree course, but the quality without which the student might come a cropper in that particular course. It is the limiting ability which predicts (e.g. the capacity to memorize parrot-like in Law; the ability to deal with figures in Economics and the ability in the Statistics course to deal with the Economic History paper." The contributions made by different tests thus varied with the course. Rote memory and speed accuracy were most important for Law, general knowledge and general ability tests for Sociology and Government, a history information test for Statistics and arithmetic reasoning for Economics.

A longitutudinal study by Nisbet and Buchan (1959) related the performance of third year students at the University of Aberdeen to their intelligence test scores in the 11 + examination. The correlations ranged from .19 for medical students to .33 for arts students and are thus relatively useless for the prediction of rank order among accepted candidates. However, not only the highly select nature of the group but the long time interval must have considerably reduced the validity of the intelligence tests.

At Reading University Hamilton's (1968) sample consisted of first-year students, third-year students and students followed up from first term to Finals. Relating the students' scores on A.H.5 (total score, verbal score, non-verbal score and an accuracy and speed score) to examination performance, the author found no significant correlation and concluded: "It is clear that many variables may operate to nullify the effect of high intelligence, while a variety of other desirable personality characteristics can compensate for inadequacies in

reasoning power in the preparation for and taking of examinations. One implication of this lack of discriminating power is its bearing on the use of Scholastic Aptitude Tests in the selection of university students and, for that matter, students applying for other kinds of higher education. Since scholastic aptitude tests are closely related to intelligence tests (i.e. g, v: ed. and k constitute the major factors), they are unlikely to improve the present selection procedure if used on their own."

In their study of the relationship between mental health, academic performance and cognitive test scores with a sample of 284 chemistry students at University College, London, Banks, Kardak, Jones and Lucas (1970) used four measures: (i) A General Section Test (made up of items from Vernon's graph test; (ii) A.H.5, parts I and II; (iii) An unpublished general classification test of non-verbal ability, particularly of spatial relationships; (iv) Valentine's Reasoning Test. The criterion was academic performance in the final examination.

Of the total sample 56% visited the Health Centre over a period of six years and these were classified (a) physical attenders requiring treatment of some physical disorder and (b) psychological attenders who were further divided into three categories depending on the severity and duration of their disturbance.

The authors found that the drop-out and failure group used the service rather less than the others and that "reported symptoms" characterized those who stayed the course and did well. Moreover, whereas 53% of psychological attenders with minor symptoms obtained first or upper second class degrees, only 22% of non-attenders matched this performance.

The mean scores on the cognitive tests showed no relationship either to mental illness or academic performance, except for the Valentine Reasoning Test where the mean score was significantly higher for successful students in the psychologically disturbed category.

A further comparison revealed that psychological attenders scored significantly higher on the reasoning test than non-attenders ($p < .01$) and physical attenders ($p < .05$).

At the University of Sussex in a study of academic difficulty and psychiatric illness, Ryle and Lunghi (1968) administered a high-grade vocabulary test, the Nufferno Speed Tests and a personality test to nearly 200 students. One-half of the sample comprised successful students and the other half was divided into seven groups as follows: (i) those with academic difficulty who were patients; (ii) those academically adequate but also patients; (iii) those with academic difficulty but non-patients; (iv) the academically wasted who were non-patients; (v) the academically wasted who were patients; (vi) all patients; (vii) all with academic difficulty.

On the vocabulary test, the academically adequate students who were patients, a group of all patients and a group consisting of all with academic difficulty scored significantly higher than the controls. Although the Nufferno Tests revealed no significant differences between the groups, those students with academic difficulties who were patients, scored higher than the controls and those who had academic difficulties but were not patients obtained a lower score than the controls as did academically wasted students who were non-patients.

On the other hand, Kelvin and Ojha (1966) found a significant difference on A.H.5 between students who successfully completed their courses and those who withdrew; the mean score of the former group was 40.94, that of the latter, 33.81. However, it should be noted that the wasted and delayed students were more often unwilling to take the intelligence test, 51% co-operating as opposed to 71% of the successful. In addition, within the wasted group a smaller proportion of men came forward for testing and the mean A.H.5 score for women was lower than for men (32.09 v 37.60).

Kelvin, Lucas and Ojha (1965) had earlier shown that lower scores on A.H.5 are associated with poorer academic achievements.

Those gaining first-class honours degrees clearly obtained the highest scores with a mean of 44.89, while the mean score of students obtaining pass degrees was 36.77 and the mean of drop-outs or failures was 36.33.

At the University of Bradford Smithers and Batcock (1970) followed up 186 students who represented 93% of one intake of social scientists (social science and business studies students) and health scientists (pharmacy and optics students). Performance on the Nufferno Level Test of Intelligence was correlated with degree results. Although there was an obvious trend in the case of both the social and health scientists for those who did well on the test to obtain better degrees, the association was not significant. Conclusions must be drawn cautiously, however, because those who scored more highly on the test also tended to be better qualified in terms of "A" levels.

2. Overseas Studies.

(1) U.S.A.

In his comprehensive review of American researches Eysenck (1947) reported in practically all cases a low to medium positive correlation between tests and final marks at college. The coefficients generally ranged from .3 to .7 with a mean correlation of approximately .5. Noting that a correlation of .53 is not very useful for prediction since it indicates that less than 30% of the causal factors in college success can be measured by the test and that the percentage reduction of error in prediction over chance is only fifteen, Eysenck remains optimistic. The American investigations included good and bad tests administered to suitable and unsuitable populations by experienced and inexperienced workers. He also detected cases of statistical incompetence and inadequate techniques. But, most important and most difficult to correct, was the unreliability of the criterion.

Garrett (1949) who carried out a review in colleges of arts and sciences and teachers' colleges in the United States found that the median correlation between test scores and grades was .47. Although

this coefficient was too low to give a reliable prediction of college rank order, it was high enough to forecast pass or fail for those with high or low scores on the intelligence test, particularly when related to such evidence as "application to work and placing in the college entrance examination." The considerably longer General Achievement Test proved only slightly more efficient as a predictor than the intelligence test which in turn was superior to General or Special College Aptitude scores.

Miller (1970) notes exceptions to the relationship between intelligence and performance. The marked difference in performance between successful and failing medical students could not be explained in terms of I.Q. differences since their scores on tests were approximately equal (Schwartzman, 1961). Watson (1963) too, demonstrated that drop-outs were not necessarily characterized by low intelligence: she found 33% of drop-outs to be in the upper half of their class in ability and 20% of students who left college were in the upper tenth of the intelligence distribution.

Reviewing studies of drop-outs from American colleges, Summerskill (1962) reported that in ten out of eleven investigations drop-outs had a lower scholastic aptitude test score; but it should also be noted that they also had a lower average grade in secondary school.

(ii) Commonwealth.

Important contributions to research in this field have been made by Commonwealth investigators. Notable among these are Schonell, Roe and Meddleton (1962) who administered the A.C.E.R. Advanced Test B.40 to 400 students on their enrolment at the University of Queensland. On the basis of this test, which is designed to measure verbal and numerical reasoning ability, the students were placed in one of the following four classes: (a) I.Q. 135 - 144; (b) I.Q. 125 - 134; (c) I.Q. 115 - 124; (d) I.Q. 114 or less.

Results showed that while 59.5% of students in the highest intelligence group made normal progress, the percentage diminished progressively to 17.8% for the lowest group. The application of a chi-square test revealed a significant difference ($p < .01$) between students making normal progress and those not making normal progress in relation to their intelligence quotient. When students making normal progress were combined with those delayed one year and compared with the group comprising those delayed more than one year or withdrawn, the difference was significant at the .02 level. No significant difference was found between students who had graduated or were continuing their courses and those who had withdrawn from the university.

A biserial correlation between I.Q. score and academic progress (normal progress/failure to make normal progress) resulted in $r_{bis} = .39$. The results of this study are similar to those of Sanders (1948) who, in his survey of all Australian universities, obtained low coefficients, all below .5 and some as small as .1 and .2.

Schonell, Roe and Meddleton draw attention to the fact that two out of every five students in the highest intelligence group did not make normal progress while a similar proportion in the lowest but one group did. They found many individual cases of students with high intelligence who performed poorly and of those with low intelligence who did well.

When intelligence test scores were combined with matriculation scores, which had a higher correlation with academic progress ($r_{bis} = .48$), the resulting multiple correlation was identical, indicating that intelligence test scores contribute nothing to the predictive value of matriculation marks alone. This closely resembles the finding in England by Pilkington and Harrison (1967).

Again, this finding confirms the conclusion of Sanders (1948) that "there is not much purpose in endeavouring to establish the quality any given student is likely to show in his university work from an intelligence test score obtained at the time of his entrance

to the university. The Leaving Examination will provide a better indicator." But whereas Sanders found that the combined Leaving Examination and intelligence test give an improved forecast, Schonell, Roe and Meddleton did not find this to be the case; and while Sanders maintained that "students who show low Leaving Examination results and low intelligence test scores are decidedly poor university risks", the latter discovered that some of these students did succeed.

Parkyn (1959) related scores on scholastic aptitude tests to performance in Stage I subjects at the University of Canterbury, New Zealand. The S.A.T. Mathematical and Linguistic Tests were given to men and women, full-time and part-time, in their first year, and the criteria consisted of the number of units passed, the proportion of units passed and the average grade. For both Mathematical and Linguistic Test scores the correlations with the criteria in the case of first year full-time men students were remarkably similar, ranging from tan coefficients of .18 to .24; in the case of first-year full-time women students, however, the correlations varied from .16 to .38 for the Mathematical Test and from .17 to .41 for the Linguistic Test. Moreover, whereas the correlations between tests and criteria were considerably lower for part-time men students, the relationship between the correlations for part-time and full-time women students was much closer. In general the Mathematical Test appeared a slightly better predictor of success.

The A.C.E.R. Advanced Test B.40 was given to the above groups of students as well as to advanced-year full-time and part-time students. The correlations ranged from -.09 in the case of advanced-year part-time women students to .33 for first year women full-time students. An analysis of the results indicates that the test is a poorer predictor of advanced-year full-time students' performance than it is of first-year full-time students' performance.

Parkyn concludes that the differences in the university performance of students in Stage I subjects are not related at all

closely to differences in their general intellectual ability as measured by the tests. Although he found a tendency for a greater proportion of successes to lie in the upper range of intelligence, Parkyn reports that successes and failures appear at all points of the distribution of ability within the university group.

In Small's (1966) New Zealand sample were 33 successful students, 47 partially successful (pass/fails) and 19 failing students. The students' performance on A.C.E.R. Advanced Test B.40 or, in the case of those with linguistic difficulties, on Raven's Progressive Matrices, was related to first year university performance, classified as above. The author found considerable overlapping in ability among the three groups, though a distinct tendency for the most able to be in the successful group. Chi-square tests revealed a significant difference ($p < .01$) between the means of the failing and the successful groups and an even more marked difference ($p < .001$) between the means of the Pass/Fails and the successful groups. Small concludes that "complete success in the first year at university virtually requires intellectual ability that is above the average level of students, though this by itself is insufficient." He noted, however, that one student of I.Q. 111 was completely successful.

Small also used the Co-operative Reading Comprehension Test (also of Australian design) in an attempt to distinguish between the three groups. He found that the successful students were, as a group, markedly superior to the failing students ($p < .01$) for Vocabulary, Speed of Comprehension and Level of Comprehension. The difference between the means of the Pass/Fail group and the successful group for Vocabulary and Level of Comprehension was highly significant ($p < .001$) and for Speed of Comprehension distinctly significant ($p < .01$). Although the disparity in reading ability between the successful and unsuccessful students was apparent, the differences between the sub-groups of Fail and Pass/Fail failed to reach the .05 level of significance.

Schonell, Roe and Meddleton (1962) also related reading ability to academic success, hypothesizing that speed might be an important factor in a student's university performance. In their third year 330 students were asked to read a 900-word non-technical passage from "The Listener". They were warned that questions would be asked on the content, but were instructed to read the article as quickly as possible. A small but significant product-moment correlation ($r = -.23$) was recorded between intelligence test score and reading time measured in seconds; this relationship was mainly attributable to Arts students and to a lesser extent to the Medicine groups of faculties.

When speed of reading was compared with university performance, a chi-square test revealed no overall significant differences between groups with different reading speeds with regard to academic progress. It was noted, however, that Arts students who read faster fared significantly better in their courses. Unlike Small's study, the evidence presented did not justify the conclusion that students who read slowly are significantly handicapped in their studies.

3. Tests v School-Leaving Examinations.

One of the few studies designed specifically to compare the relative merits of high-grade intelligence tests and "A" levels as predictors of later academic performance was that by Pilkington and Harrison (1967) who followed up 246 students who took a first-year course in Psychology and then proceeded to degree courses in Arts and Social Sciences. The predictors were two intelligence tests (A.H.5 and Valentine Reasoning Tests), the student's mean "A" level mark based on his first attempt at two or more subjects, and his mean first-year examination mark. Degree results were divided into four categories according to classification.

While the A.H.5 test correlated .181 ($p < .01$) and the Valentine Reasoning Test correlated .276 ($p < .01$)with degree class,

the mean "A" level mark with a coefficient of .300 ($p < .01$) proved superior to both. Best of all, however, was the mean first-year university mark which had a correlation of .524 ($p < .001$) with the criterion.

The authors concluded that the two high-level intelligence tests predict degree classification no better than conventionally used "A" level marks and that even when the two test scores are combined with the mean "A" level mark, the resulting coefficient is only slightly higher than that obtained by the latter alone. Advising caution in interpreting the results, Pilkington and Harrison drew attention to the fact that their study was restricted to students from only two faculties of one university, and that the sample was biased inasmuch as all opted to read Psychology for at least the first year. But a more serious shortcoming in the experimental design should be noted. Before taking the intelligence tests, the students were told that the results were not important. Conversations with numerous students who have taken tests at other universities under similar conditions leads the present writer to conclude that this information seriously undermines the predictive value of the tests. If, in the sixth form, pupils were informed that "A" levels were not important for university entry, their reliability and validity as predictors of university performance would be considerably reduced. No wonder Pilkington and Harrison state that "it would be interesting to see whether the above results would be replicated if the two tests were given as part of a university entrance and selection procedure."

Sanders (1950), in Australia, compared the relative effectiveness of School Leaving Examination and an intelligence test in predicting first-year performance at the university. Although the former was definitely superior, when a broad comparison was made between students in the upper and lower halves in the first-year examinations, the difference was less marked. For a sample of 80 students the mean intelligence test score of the upper half was

48.6 and of the lower half, 33.6. The corresponding mean Leaving Examination marks were 50.3 and 31.4.

At the University of Western Australia with a sample of 132 science students, Anderson (1960) also compared the relative merits of intelligence level and matriculation marks as predictors of academic achievement. He found that failing students were spread over the whole range of intelligence and, like Schonell et al. (1962), some in the highest ability group fared badly. Had admission been restricted to those with a minimum I.Q. of 130, 68% of those who failed would have been refused a place, but at the cost of excluding 52% of those who subsequently passed.

Matriculation marks proved markedly superior. If students with average marks of less than 65% had been refused admission, half the failures and 14% of the successful would have been eliminated. A student with a good matriculation performance and a lower I.Q. was more likely to do well than another with a high I.Q. and poor matriculation marks.

With a sample of 99 first-year university students in New Zealand, Small (1966) compared scholastic aptitude test (Advanced Test B.40) and the School Leaving Examination as predictors of success. He concluded that the tendency for high marks in the Examination to be associated with success in the first year was a little more marked than was the association of the test with university success; i.e. there was less overlapping among three achievement groups on the results of the School Certificate Examination.

The author contended that this is to be expected since prior academic attainment is usually a more accurate predictor of later academic attainment not only because of the similarity in content but also because the two measures have in common other important components of academic success such as concentration, work habits and motivation. Justified though these conclusions may be, it should be borne in mind

that Small's criterion was first-year performance only, and that the correlation between the School Certificate Examination results and final degree is unlikely to be so high, if only because the criterion is different. In many cases first-year university syllabuses may represent an extension or even a repetition of school syllabuses whereas this similarity is hardly likely to apply to the final degree.

Lavin (1965), who also compared the relative merits of ability tests and school examinations in his review of American literature concluded that the best single predictor of performance on the college level was the high school academic record.

4. Teacher Training.

Cognitive tests have been used extensively in the field of teacher training. One of the best designed of the early studies was that of Vernon (1939) whose sample, over four years, included a large number of men and women graduates of a Scottish University who were taking a teachers' training course at a training centre where, unlike at university proper, they studied identical subjects. Their college performance on a variety of college subjects including teaching ability was related to intelligence test scores.

All the intelligence tests correlated positively with all the college subjects, though the coefficients were not always statistically significant. The test results agreed more highly with Psychology than with any other subject, for verbal tests the coefficient being .34 and for non-verbal tests .36. The author suggested that this may be partly because Psychology has the characteristics of a Science and Arts subject (as shown by factorial analysis by Vernon), partly because it is more reliably examined than other subjects and partly because new-type examining was adopted for some of the work; and since intelligence tests are also new type in form they correlate better with new-type than with essay type examination marks.

The most successful of the four verbal tests was the Nelson Denny Reading Test which correlated + .409 ± .035 with Psychology

but only + .257 ± .059 with the Stephenson non-verbal intelligence test. When the two tests were combined and correlated with Psychology, the coefficient rose to + .535 ± .032 which indicated that "we might make some use of tests for practical prediction."

It should be noted, however, that the mean correlation of verbal tests with teaching skill was only .10 and for non-verbal tests it was even lower (.05). This finding suggests that we must look elsewhere than to tests of intelligence for predictors of success in occupations which involve contact with others, whether children in the classroom, the child in care, the mother in the home or the patient in the clinic.

With similar highly selected samples in the United States other investigators, notably Pyle (1928), Broome (1929), Odenweller (1936) and Nandi (1941) failed to discover a relationship between intelligence and teaching ability. On the other hand La Duke (1945) and Kemp (1947) did find significant correlations between intelligence and teaching success. The finding of Carlile (1954) that whether or not a significant relationship occurs depends on the nature of the intelligence scale used offers an explanation of the conflicting evidence.

Eysenck (1947), reviewing mainly American studies, concluded that in the field of teacher selection the result has "uniformly been that forecasts based on assessment of 'g' are relatively useless; while predicting with moderate accuracy the success of prospective teachers in their examinations, correlations of tests with actual teaching ability as assessed by subjective estimates are rather low." The failure may lie not so much with intelligence tests but rather with the unreliability of the criterion. Moreover, personality qualities rather than high intellectual ability probably contribute more to success.

Among a battery of tests given by Warburton (1950) to 120 students in the Department of Education were an Anagrams and a

Controlled Association Test to which creative type answers were required. Test results were correlated with ratings for course work essays, tutorials and notebooks and practical teaching. The above two tests, with correlations of .266 and .277, proved the most successful in the experiment. Correlations ranged from .1 to .3 and were higher for practical teaching than for the more theoretical criterion. A departure from the more mechanical type of multichoice intelligence test was thus suggested. This finding on the importance of choice of test thus supports the explanation of Carlile (1954) above to account for conflicting results.

Allen (1956) compared the predictive efficiency of different selection procedures for admission to a college of education. The tests comprised a vocabulary test, an N.I.I.P. verbal intelligence test, and Raven's Progressive Matrices. She found Progressive Matrices to be the least useful part of the test battery; although correlating positively (r = .111) with the final English examination, with all teaching practice grades, the final half-yearly assessment, the final examination in Principles of Education and the total examination mark, the correlations were slightly negative ranging from -.004 to -.049.

The total examination results were best predicted by the average test grading (r= .569), and in the other compulsory examinations the verbal intelligence test gave the best prediction of success with correlations of .511 with Principles of Education and .551 with English results.

The vocabulary test correlated .340 with the first general assessment of college work, but with the final assessment the validity rose to .530, producing the best single prediction of the selection tests. It was also the best single predictor of success in the English examinations at the end of the first year with correlations of .422 with Essay, .521 with Language and .504 with final English grade. With second year examination results the

correlations were lower (.326 to .413), but with the total examination grade the vocabulary test correlated .477. It should be noted, however, that the verbal intelligence test revealed weaknesses in language shown by the older students more effectively than did the vocabulary test.

Allen concluded that it is "unlikely that any student with a poor vocabulary will be able to complete a teachers' training course successfully. Such a student will be hampered in the classroom by an inability to express ideas clearly and to develop her pupils' use of language, and in her own academic work by her inability to read and understand books of a fairly high level. Therefore it is not surprising that the vocabulary test gives a satisfactory prediction of college success."

Evans (1958), at University College, Cardiff, included in her battery two intelligence tests (Moray House Adult Intelligence Test; Raven's Progressive Matrices) which were administered to 109 students taking a post-graduate teacher-training course. Test scores were related to results of examinations in Theory of Education and Practical Teaching at the end of the year.

Neither test correlated significantly with Practical Teaching marks, the correlations being as low as .048 and -.061. With Theory of Education marks, however, the Moray House Test correlated .207 ($p < .05$) and Raven's Progress Matrices correlated .211 ($p < .05$). By combining the two tests the coefficient was increased slightly to .24 ($p < .05$).

Evans concluded that, although intelligence tests are of no real value in attempting to forecast practical teaching ability, the significant association ($p < .01$) between marks in Theory of Education and practical Teaching indicates that the selection of students likely to do well in Theory of Education might improve the sample.

With 170 students taking a two-year training course and 208 taking a three-year training course for teachers, Halliwell (1965)

found no significant relationship between N.I.I.P. Group Test No.33 scores and teaching grades. However, the test scores correlated significantly with success in Principles of Education (course work) and Principles of Education (final examination results) for the two-year trained group and with success in Principles of Education (final examination results) for the three year trained group. A second intelligence test, the A.H.5, failed to correlate significantly in either group with the theoretical and practical criteria of success.

Cortes (1968), with 259 students in three constituent colleges of education of the University of Manchester, reported that although A.H.5, Pt.I and a vocabulary test correlated significantly with Educational Theory, main subject and basic English marks, there was no relationship between the tests and practical teaching ability.

Gibbons and Savage (1965) administered the A.H.5 to 60 college of education students and related their scores to the results of an examination in Education graded on a nine point scale. The correlation between the A.H.5 Verbal Score and examination results was -.167; for A.H.5 Performance Score the coefficient was +.160 and for the Full Scale Score it was -.022. As a result the authors conclude that"the data cast some doubt on the value of an intelligence measure in relation to a population of limited cognitive range."

5. Nurse Training.

Cognitive tests have also been used as part of the selection procedure in nursing. Lee (1959), using an economical procedure of five short personality, intelligence and aptitude tests and a previous education rating, compared the results with ratings of 100 nurses in training. A multiple correlation coefficient was computed and resulted in R = .629; for the N.I.I.P. Group Intelligence Test No.20, Pt.I the coefficient was .307.

In an investigation which related intelligence to the wastage of student mental nurses, Crookes and French (1961) followed the

progress of 136 trainees and compared their performance with their scores on Raven's Progressive Matrices (untimed). Although the test scores correlated fairly highly with examination success, they bore no relationship to eventual completion of the course (bis r = .03). The biserial correlation coefficients between Matrices scores and examination success became progressively smaller throughout the course, ranging from .53 at Preliminary Training School to .21 for the Final Examination. The decreasing size of the coefficient could not be accounted for by the effects of selection at each examination stage, for the proportion of students in each Matrices grade was similar at each stage. It is possible that such factors as application to work and persistence increased in importance at successive stages. Matrices Grade III was found to contain the highest proportion of successful students, indicating that no more than average intelligence is required to succeed as a nurse.

In a study by Bannister, Slater and Radzan (1962) scores on Progressive Matrices were available for 91 candidates not screened by any selection procedure entering the training school of a mental hospital in 1955/56. On leaving the hospital's employment or in September, 1960, if then still employed, each member of the sample was rated I ("good"; n = 27), II ("satisfactory", n = 46); III ("unsatisfactory"; n = 18) on the basis of her work history. An analysis of work efficiency ratings revealed that neither nationality nor age or sex was related to work success, though the Matrices scores of Irish and Commonwealth nurses were significantly below United Kingdom and European groups. In spite of Raven's (1960) claim to the contrary, the latter finding suggests some cultural bias in the test.

If the Matrices test scores had been used as a criterion for accepting or rejecting within this candidate sample, the most discriminating cut-off point would have been the rejection of those below I.Q. 90. The effect of this in terms of efficiency ratings would then have been as follows: "Good" (0% rejected); "Satisfactory"

(20% rejected); "Unsatisfactory" (50% rejected). For a reasonably brief test, the Matrices seems to achieve a fairly high level of predictive discrimination. However, although 50% of the unsatisfactory nurses were below I.Q. 90, in the group above this level there was virtually no relationship between intelligence and work success. This finding confirms that of Crookes and French (1961) that while the good nurse needs a minimum amount of general intelligence, above this level other factors such as temperament and motivation may assume increasing importance; and the intelligence quotient is probably an inefficient discriminator between the average and the excellent nurse.

Compared with the normal selection procedure (the General Nursing Council Entrance Test designed by the N.I.I.P.), the Progressive Matrices was highly successful since if the former had been used, 24% of the "good" candidates, 44% of the "satisfactory" candidates and 18% of the unsatisfactory candidates would have been rejected.

Frisby (1962) criticizes this paper on the grounds that the authors emphasize the value in the validation of a screening test of administering it to an unselected population. "Where a test is to be used as a supplement to an existing procedure or where, as in the case of these General Nursing Council Tests, it is not part of the selection procedure but represents a requirement to be met by certain candidates before they proceed to the selection procedure, an unselected sample of the relevant population is not in fact an important requirement. The question is: What is the effect of the use of the test with that proportion of the candidate population judged suitable by the other criteria used in the selection procedure? This is the practical as opposed to the theoretical issue."

Frisby also notes that the authors do not make it clear whether all nurses were still in training or had passed the Final State Examination at the time the work efficiency ratings were made.

Moreover, the text seems to suggest that efficiency ratings were obtained for nurses who withdrew from training, which, unless all were rated unsatisfactory, seems a rather curious procedure.

Summary.

Although some investigators (e.g. Hamilton, 1968) have found little relationship between intelligence and academic attainment, the weight of evidence from this country and abroad suggests a positive and often significant correlation between test results and examination performance at the university. Students with the highest measured intelligence generally do well while those in the lowest intelligence range tend to fare poorly. However, as Schonell et al. (1962) noted, there are many exceptions to this rule, and even the most favourable coefficient derived from researches is too low to enable selectors to forecast rank-order among candidates.

Findings reveal that tests are less efficient predictors of academic success than "A" levels or matriculation results and three studies (Schonell et al. 1962; Small, 1966; Pilkington and Harrison, 1967) show that, even when test scores are combined with "A" level or matriculation marks, the resulting coefficient is no higher or only slightly higher than that given by the latter measure alone.

Although not generally used, vocabulary tests have proved successful in discriminating between successful and unsuccessful students (Small, 1966; Ryle and Lunghi, 1968). The former study (Small, 1966) also demonstrated the predictive value of speed and level of comprehension, but Schonell et al. (1962) reported no overall difference between groups of different reading speeds with regard to academic progress, though considered alone, the Arts students who read faster performed significantly better.

In colleges of education and university training departments test results frequently correlate positively and significantly with the academic criterion of success, verbal tests generally proving

more efficient predictors than non-verbal tests (Allen, 1956; Halliwell, 1965; Cortis, 1968). There appears little relationship between tests and practical teaching ability in this country, though in the United States the evidence is less clear-cut, a minority of researches providing evidence for a positive relationship.

Non-verbal and verbal tests correlate positively and significantly with success in nurse training, though there is evidence that their main use is in establishing a cut-off point; with candidates of above I.Q. 90 the size of the coefficient falls considerably (Crookes and French, 1961; Bannister et al. 1962).

D. Non-Cognitive Tests as Predictors

1. Projective Techniques.

(i) Rorschach Inkblot Test.

Of the projective tests of personality the Rorschach Inkblot Test has been most commonly used. Munroe (1942) who used her own modification of the test found it to be superior to either the Bernreuter Personality Inventory or the College Aptitude (Intelligence) Test for predicting women's academic grades. A later study by Munroe (1945) also showed that Rorschach scores for neuroticism predicted the academic performance of college students slightly better than did the intelligence test. However, the combined neuroticism-intelligence score was a more efficient predictor than either alone.

Montalto (1946) examined the relationship between the Harrower-Ericson Multi Choice Rorschach scores and college achievement, but found a zero correlation with academic grades. McCandless (1949), using Munroe's method, also discovered that the Rorschach failed to predict the achievement of college students. But Osborne and Sanders (1949), using the same version of the Rorschach as Montalto (1946) above, reported significant differences between achieving and non-achieving college students in 24 of the 30 response groups of the test; and in 29 of the 30, the differences favoured the achievers. The authors concluded that it was possible to establish Rorschach

patterns which would significantly differentiate between the two groups.

Gaier (1952) found that anxiety, rigidity and negativism inferred from Rorschach responses were important in determining the extent to which individuals can perform complex problem-solving, but unimportant in the acquisition of information.

Rust and Ryan (1953) found little in the Rorschach results to account for over-achievers and under-achievers when intelligence was held constant. In a more recent review of the literature Lavin (1965) concluded that the Rorschach Test "is a poor instrument for the prediction of academic performance."

Although both questionnaire and projective techniques have been used to measure achievement motivation it is the latter type which has been most frequently used in studies relating to academic attainment. The author of the test, McClelland (1953), found correlations as high as .39 between n Ach (need for achievement) and academic performance.

Lavin (1965) cites nine college studies all of which were adequately controlled for ability. In only four studies was there a positive relationship between achievement motivation and academic performance, but this may be partly due to the unreliability of projective measures.

2. Personality Inventories.

(i) Minnesota Multiphasic Personality Inventory.

Numerous investigators have studied the relationship between adjustment and academic performance, using the Minnesota Multiphasic Personality Inventory. Hahn and Singer (1944) reported that when New York commerce students were divided into pass and fail groups, a low Sc (Schizophrenia) score by the successful was the only distinguishing factor; and Altus (1948), who related the performance in Psychology of 25 under-achievers and 25 over-achievers to

M.M.P.I. scores, found that under-achievers tended to be more immature and unstable.

On the other hand Owens and Johnson (1949), using the M.M.P.I. with two other personality measures with 164 engineering freshmen at Iowa State College whom they classified as under-achievers, normal achievers and over-achievers, reported that under-achievers revealed not the slightest symptoms of a neurotic or psychotic character. Social extraversion was also found to characterise the under-achievers.

McQuary (1953) studied 174 first-term students who had sought help from the Student Counselling Centre. Among 23 variables in his factor analysis were cognitive tests and the social introversion scale of the M.M.P.I. The latter had a loading of +.36 on an achievement factor.

Schofield (1953) with a sample of 83 male medical students, used the total honour point ratio at the end of the junior year as the criterion, and related this to M.M.P.I. scores. He found that the factors Hy (Hysteria), Pd (Psychopathic deviate) and Sc (Schizophrenia) discriminated between the highest and lowest quarters of the group; as the above traits became more marked, so performance declined.

Frick and Keener (1956), in a validation study of the prediction of college grades, found correlations of -.3 between grades and the factors Pd and Ma. They also showed that by combining these scores they could add substantially to the prediction obtained from aptitude scores alone.

Freshmen and seniors at a liberal arts college at Hamilton were studied by Yeomans and Londin (1957) who related M.M.P.I. scores to the performance of the top and bottom quarters of each group. In both cases high achievement was significantly associated with low Pd (Psychopathic deviate), Ma (Hypomania), Hs (Hypochondriosis) and M.F. (Masculinity-feminity) scores.

Jensen (1958) related M.M.P.I. scores to academic

performance at different ability levels for a group of freshmen. He found that in a low-ability group low achievers were higher than achievers on the schizophrenia, hypomania and fake scales.

After isolating all items on the M.M.P.I. scale which discriminated between high and low achievers, Hackett (1960) cross-validated these items on a new sample and obtained a correlation of .61 with grade-point average. Low achievers were distinguished from high achievers by being emotionally labile, defensive about revealing weakness and by lacking warmth and acceptance of others.

Other American studies have shown the M.M.P.I. to be unrelated to performance. Burgess (1956) found that, with a group of male engineering students, M.M.P.I. scores failed to distinguish between over-achievers and under-achievers. Quinn (1957), having controlled for ability, reported no relationship between the M.M.P.I. and academic attainment; and this finding was confirmed in a similar study by Gallese (1959). Although Clark (1953) found that with one sample of women students some items differentiated between over-achievers and under-achievers, in a second sample these same items failed to do so. Finally, although Stone and Ganung (1956) found that women students with T scores of 70 or above on one or more categories of the M.M.P.I. obtained slightly lower average marks than those who scored in the normal range, they did not control for intelligence.

In New Zealand Small (1966) included the M.M.P.I. in his battery of tests administered to 99 university students divided into three groups: completely successful (N = 33); partially successful (N = 47) and complete failures (N = 19). When the scores on the nine scales of the inventory were compared with the three groups there was clear support for the view that a certain amount of nervous tension often accompanies academic success. There was little evidence for the view that anxiety or nervousness frequently causes examination failure, though Small noted a few cases in which it

seemed to be a possibility. The successful group had higher mean scores (i.e. they were more tense) on the hypochondriosis, depression and hysteria scales while the complete failures had lower scores than the other two groups on the hysteria scale.

A significant difference ($p < .05$) on the hypomania scale between the lower mean scores of the successful students and the other two groups could be construed, according to the author, as exemplifying the need for students to be able to organize and discipline themselves and resist tendencies towards distraction and diffusion of effort.

Miller (1970), cites two further American studies which provide evidence in favour of a relationship between the M.M.P.I. and academic performance. Grace (1957) found that the more effective and persistent students, who thus eventually gained most degrees, were more independent and responsible as measured by the dominance scale of the M.M.P.I. The second study by Weiss, Segal and Sokol (1965) investigated over six years with a sample of 4839, emotional disturbance in a men's liberal arts college. They found that over 11% showed significant emotional impairment. Drop-outs tended to come from the group of students of high verbal aptitude with emotional impairment; but students with a mathematical aptitude were least likely to drop out.

(ii) The Bernreuter Personality Inventory.

The Bernreuter Personality Inventory has also been used to predict academic achievement. With 129 first year men students at the University of Pennsylvania, Brotemarkle (1933) reported a significant relationship between neurotic tendency and scholastic aptitude. Less encouraging results were reported by Nemzek (1938) who assessed the value of the B.P.I. for purposes of direct and differential prediction of academic success as measured by teachers' marks. The difference predicted was between the average score of

five intelligence tests and scores in English, History, Social Studies and Languages. The data revealed that the B.P.I. had negligible value for direct or differential prediction.

In an attempt to improve the prediction of college success, Super (1942) examined the relationship between school achievement and Bernreuter scores. The results showed practically no relationship.

The predictive value of various tests of emotionality and adjustment in the guidance of prospective teachers was studied by Green and Staton (1939). They found that high achievers were more interested and self-sufficient than low achievers on the B.P.I. scale.

In other studies in the field of teacher training the B.P.I. has achieved little success. Ward and Kirk (1942) obtained only very low correlations while Seagoe (1946) with a sample of 25 teachers found low correlations between the inventory and teacher effectiveness.

(iii) The Guilford-Zimmerman Temperament Survey.

Goedinghaus (1954) studied the relationship between temperament and academic achievement by correlating students' scores on the G-Z T.S. with college grade point averages. He found that factors R (Restraint which Eysenck equates with introversion-extraversion), T (Thoughtfulness) and F (Friendliness) correlated .42, .34 and .25 respectively with college success.

In a similar study Bendig and Sprague (1954) correlated G-Z T.S. scores of 155 Pittsburg University students, taking the introductory course in Psychology, with their total scores in university examinations. The correlations were lower than those of Goedinghaus (1954), but in this study, too, a significant relationship was obtained between achievement and restraint which, as noted above, loads on introversion.

Witherspoon and Melberg (1959) reported low but significant correlations between grade-point averages of college students and factors R (Restraint) and P (Personal Relations), and, for male

students, M (Masculinity).

(iv) The Maudsley Personality Inventory (M.P.I.) and the Eysenck Personality Inventory (E.P.I.).

Furneaux (1956) who administered the M.P.I. to a large number of English university students found that those who do well score more highly on neuroticism and lower on extraversion. He found that neurotic introverts obtained 79% academic success in first-year examinations, stable introverts had 74% of success and neurotic extraverts gained 64% of academic success; easily the least successful group were the stable extraverts with only 39% success.

Lynn (1959) postulated that if Eysenck's theory that neuroticism was identical with autonomic drive and extraversion was identical with fast accumulation and slow dissipation of reactive inhibition was accepted, high educational attainers should both score highly on neuroticism and low on extraversion. Using 300 first-year university students and control groups of occupational therapists and male apprentices, he found results to support the two predictions at a significant level. Lynn suggests that the effects of neuroticism are twofold, disorganizing and motivational, but that at university level the latter more than offsets the adverse influence of the former, leading to persistent effort and regular study habits.

Broadbent (1958) gave the M.P.I. to Cambridge graduates, comparing the scores of those with good and poor degrees. Since the two groups did not differ in intelligence, the finding that those who did well were significantly more introverted than those who did poorly suggests that introversion-extraversion acts independently of intelligence in affecting educational performance.

Savage (1962), with 168 first year students in the Faculty of Arts at New England University, Australia, compared their M.P.I. scores with subsequent degree results. Stability was found to be positively related to their academic performance.

Bendig (1960) studied the relationship between extraversion, neuroticism and student achievement in introductory Psychology courses. Although he found a tendency for the introverted university students to do well, there was no association between neuroticism and attainment.

Lynn and Gordon (1961) examined the relationship of neuroticism and extraversion to the intelligence, as measured by the Mill Hill Vocabulary Scale and Raven's Progressive Matrices, and attainment of 60 male university students. They concluded that the extravert is handicapped in academic work as in other tasks requiring sustained concentration because of his tendency to fatigue and to give up more quickly. On the other hand, neuroticism is advantageous because it is related to size of vocabulary, to conditionability and to speed.

Kline (1966) investigated the relationship between extraversion, neuroticism and academic performance among Ghansian university students. The E.P.I. scores of first-year students were related to performance in the intermediate examination in arts which was the only common measure among them. Extraversion was found to be correlated significantly and negatively with success, but neuroticism, though negatively related, failed to reach significance.

At the University of Bradford, Smithers & Batcock (1970) with a sample of 186 social and health scientists, related E.P.I. scores to degree performance. They found a significant relationship ($p < .01$) between introversion and success for the social scientists but not for the health scientists. On the other hand while there was no relationship between neuroticism and success in the social science group, there were indications of a positive association in the health scientist group.

The M.P.I. and E.P.I. have also been used to test for differences between drop-out or failing students and those who are successful. Using the E.P.I., Lucas, Kelvin and Ojha (1966) found

that the mean neuroticism and extraversion scores for wasted and delayed students were not significantly different from those of successful students. In a similar study Kelvin, Lucas and Ojha (1965) related neuroticism scores to the class of degree obtained. The data revealed that when tested during the first year at college those who subsequently obtained firsts had a mean N score of 28.4 and those who failed or dropped out had a mean score of 23.4. The equivalent scores for second class, third class and pass degrees were 24.5, 22.5 and 22.4 respectively. On retest two and a half years later the mean N score of those obtaining firsts had declined to 25.6 and the mean score of the drop-outs or fails had increased to 27.6. These differences do not, however, reach significant levels. The authors also showed that the worse the class of degree obtained, the higher became the mean extraversion scores.

Ryle and Lunghi (1968), with the E.P.I., reported no significant differences on N or E scores between students in difficulty, those who dropped out and the controls, though they confirmed an association between extraversion and poor class of degree.

At the University of Bradford Cohen and Child (1969) administered the M.P.I. to 59 drop-outs and 541 non-drop-outs, studying engineering and science. Although the difference between the groups failed to reach significance, drop-outs were more inclined to be stable extraverts (35.6% v 25.5%) and neurotic introverts (30.6% v 27.3%) and less inclined to be neurotic extraverts (20.3% v 26.1%) and stable introverts (13.5% v 21.1%). Like Furneaux (1956), the authors found the highest failure rate to be among stable extraverts, but while Furneaux reported neurotic introverts to be the most successful group, in the Bradford study they were comparatively unsuccessful.

The relationship between M.P.I. and E.P.I. scores and success in colleges of education has also been studied. Halliwell (1965) included the M.P.I. in his battery of tests to investigate the

validity of selection methods used in a teacher-training college. The two student samples comprised a two-year trained group (N = 170) and a three-year trained group (N = 208). The criteria consisted of Principles of Education (course work), Principles of Education (final examination results) and Final Teaching Grade.

With the two-year trained group stability was the only significant predictor of success, in Principles of Education (course work). In the case of the three-year trained group, the M.P.I. failed to correlate significantly with any of the three criteria.

Gibbons and Savage (1965) compared the E.P.I. scores of 60 college of education students with their results in an examination in education graded on a nine-point scale. The relationship between neuroticism and academic success proved almost non-existent ($r = -.088$) which conflicts with the findings of Lynn (1959) and Savage (1962). Between extraversion and academic 'failure', however, a significant correlation ($r = +.299$) at the .05 level was reported, supporting the findings of Furneaux (1957), Broadbent (1958), Lynn (1959 and Savage (1962) who all found significant relationships between introversion and academic success.

Entwistle and Entwistle (1970) studied the relationship between personality, study habits and first-year academic performance with 139 university students and 118 college of education students. In the case of the university group they reported a significant correlation ($p < .05$) between introversion and success, but in the case of the college students the coefficient of .11 proved insignificant. No relationship between neuroticism and attainment was found for either group. The authors concluded that although introverts tended to have better study methods, this only partially explained their higher attainment.

Entwistle and Wilson (1970) administered the E.P.I. to 72 graduates (35 men and 37 women) taking a Diploma in Education at Aberdeen University. The sample included specialists in both arts and

sciences as well as graduates who had taken general courses.

With academic performance categorised into good honours (a second class degree obtained without any examination failure), honours/ordinary (weaker honours and best ordinary degree students) and poor ordinary (those whose degree contained some element of failure), the authors found that whereas the introverts fell overwhelmingly into the good honours category (16 out of 24), extraverts predominated in the honours/ordinary (15 out of 24), and poor ordinary (16 out of 24) categories. There was however, no significant difference between unstable and stable students with regard to degree classification.

It should be noted that other measures employed in this study indicated that introversion was related to high motivation and good study habits while extraversion was associated with low motivation and poor study habits.

In a study at Exeter, Kline and Gale (1971) administered the E.P.I. to 455 students over a period of five years. They correlated the results with the marks obtained in a three-hour essay type examination in Human Development. No stable pattern of correlations emerged either for year groups as a whole or for special groups. Nor when the sample was divided into three levels of introversion and neuroticism did the groups differ significantly in their examination performance. The authors concluded that "it is unwise to state as a general finding that academic success at the university is correlated with introversion and neuroticism."

(v) The 16 P.F. Test.

Cattell (1957 (a)) maintained that higher general achievement is likely to be obtained by schizothymes (Factor A-), praxernics (M-) and those with low ergic tension (Q_4 -). Based mainly on research done in American universities, Cattell (1957 (b)) gave some correlations of his factors with academic attainments. Factor A- (schizophrenia) was found to be important in academics generally: correlations of .3 - .4 had been found between A-score (on ratings) and academic success, and

this also applied to questionnaire material. Cattell stated that extensive studies then proceeding would probably reveal that better examination performance should be obtained by students who are schizophrenic (A-), high on ergo strength (C+), withdrawn (H-), praxernic (M-) and free of excessive id pressure (Q_4-). There was less significant evidence for high control (Q_3), desurgency (F-), security (O-) and freedom from paranoid tendency (C-).

The above findings were confirmed by Cattell, Beloff and Coan (1958) who held that the correlation between achievement and intelligence tests at secondary school could be raised from .5 to .7 by use of personality factors measures, representing a gain of approximately 100%.

With a group of 90 volunteer students who had passed their first year examination at the University of Keele at their first or second attempt, Locke (1958) obtained significant correlations between two separate university examinations and the 16 P.F. test. These factors, (+(stability), M+ (conventionality), O-(confidence), Q_3+ (willpower) and Q_4 (calmness), were correlated separately for each of the two university examinations, but in no case did they correlate significantly with both criteria, confirming the evidence of Hartog and Rhodes (1936) and Dale (1958) on the unreliability of examinations. However, the results indicate that stable students with plus ratings on Factors C, M and Q_3 and minus ratings on O and Q_4 do better in examinations.

Using a large sample of 743 merit scholars and 578 Certificate of Merit winners drawn from a sample of 7500 finalists in a nation wide competition in which 166000 High School Seniors participated, Holland (1959) correlated personality scores with freshman grades or honour point scales. Stability, defined as responsibility, socialization and self-control, tended to be related to academic achievement as was sociability with low social presence both of which are associated with introversion.

The following year Holland (1960) reported on the relationship between the 16 P.F. test and the three academic criteria of freshmen grades in college or honour point ratio, the college's supply of talent and the college Ph.D. productivity index. His sample consisted of nearly 700 comprised high aptitude students drawn from 277 colleges and universities. The factors G+ (persistence) and Q_3 (self-control), both of which are associated with stability, were significantly related to success. However, the opposite was found at Harvard; here, where standards are exceptionally high, it was the anxious rather than the stable who tended to be more successful.

Cattell (1960a) administered his test to a sample of 1300, consisting of United States Navy midshipmen and underwater demolition trainees and non-flying officers in the Royal Australian Air Force. Success, he found, was related to emotionality or anxiety. With a sample of medical students instability (L+Suspiciousness and Q_4+ Tenseness) was positively correlated with academic success. These findings indicate that a certain degree of anxiety in the training situation is conducive to success.

Cattell (1960b) also found that stability (C+Emotional stability), O- (Confidence), Q_3 +(High Self-sentiment) Q_4- (Low Ergic Tension) is associated with the ability of slow readers to improve in a reading training programme.

In the field of musical education, the findings of Karras (1960) at Kent State University indicated that aptitude was related to stability (C+ and O-) as well as to extraversion (F+, Surgence and H+, Venturesomeness).

A comparison by Holmes (1960) of the 16 P.F. profiles of 350 freshmen (survivors and non-survivors) with junior and senior undergraduates revealed that the most important factors in terms of multiple regression weights were C+ (Stability) and Q_3 (Self-control). There was a definite relationship between stability (C+, L-, O-, Q_3+, Q_4-) and academic performance.

With a sample of Australian undergraduates Anderson (1961) found that introversion (F-, Desurgency and Q_2, Independent thinking) was correlated with success.

Warburton (1963) confirmed the findings of Karras (1960) when in various faculties he found that artistic subjects scored high on extraversion.

In an Australian study of 157 first-year university Mathematics students Flecker (1959) reported that the only factor in the 16 P.F. test which distinguished between passing and failing groups was factor Q_1+ (conservatism v radicalism), the latter lacking an experimental or critical approach.

At the University of Keele, Locke (1963) found that extraverted students of high surgency and dominance performed better in examinations. It should be noted, however, that a high proportion of Arts students attend Keele and, as Warburton (1963) discovered, extraversion is related to success in the Arts.

The 16 P.F. has also been used as a predictor of success in teacher-training colleges. In an attempt to discriminate between good and poor teachers, Schwartz (1950) administered the 16 P.F. to 34 students in training. He found no significant relationship between primary source traits and teaching success.

Lamke (1951) gave the 16 P.F. to a small group of high school teachers in their first year of teaching. Good teachers tended to be more gregarious, adventurous, frivolous, polished, fastidious and cool with abundant emotional response, stronger artistic and sentimental interests and greater interest in the opposite sex. Poor teachers, on the other hand, were more shy, cautious, conscientious, easily pleased and more attentive to people.

Montross (1954) compared the 16 P.F. test, Churstone's Temperament Schedule and objective type measures of temperament devised by himself with two composite teacher criteria. Although five

of the six objective measures developed by Montross correlated significantly with the criteria, of the other two tests only factor A (Cyclothymia) of the 16 P.F. gave a significant correlation.

In a training college for technical teachers Dickinson (1963) investigated the relationship between the 16 P.F. tests and marks in English, Education (Paper 1) and Education (Paper II). His sample consisted of 112 men and women aged 25 to 40. He found a significant correlation between anxiety (primary factor O) and Education (Paper I).

Although Warburton, Butcher and Forrest (1963), with a sample of 100 post-graduate students, reported that degree class had the highest correlation with educational theory marks and the final certificate, the 16 P.F. test was most successful in predicting practical teaching ability. In the final theoretical examinations, too, factors C+ (Stability) and G+ (Perseverance), with correlations of +.194 and +.236, were significantly associated with success.

Tarpey (1965) included the 16 P.F. test in her battery which was administered to 128 students in four colleges, three Irish and one English. In three colleges there was no significant relationship whatsoever between any personality factor and teaching mark, but at the fourth - a three-year Irish college for women, unaided, independent and fee-paying - there were a few significant relationships. With this group of 28 third-year students correlations with teaching mark were as follows: A (Sociability), r = -.442; H - (Shyness) r = -.408; G (Persistence) r = +.446; M (Imaginitive), r = -.372). However, the number of students was probably too small and the students too unrepresentative to draw any firm conclusion from this exception to Tarpey's general findings.

In a follow-up study Start (1966) administered the 16 P.F. to 35 members of a mixed staff of a Lancashire secondary modern school. He related test scores to the headteacher's rating of his staff on nine criteria which included teaching ability.

The best teachers tended to differ from the others on factor A- (Aloofness), B+ (Intelligence), E+ (Dominance), L- (Relaxed Security),

M+ (Absentmindedness), Q_1 (Conservatism of Temperament) and Q_3 (Poor Self-Sentiment Formation). As teaching ability was linked with sex, correlations partialling out sex indicated that factors L- and M+ were significantly ($p < .05$) associated with rated teaching ability and that H+ (Adventurous) marginally failed to reach significance.

(vi) The Rokeach Dogmatism Scale.

Also studied in relation to academic achievement is dogmatism, defined by Rokeach (1960) as "a relatively closed cognitive organization of beliefs and disbeliefs about reality, organized around a central set of beliefs about absolute authority which in turn provides a framework for patterns of intolerance towards others." To a sample of 100 American sociology students Ehrlich (1961) administered the Rokeach Dogmatism Scale, the Ohio State Psychological Examination and two objective tests of sociology taken during the first and last weeks of the academic quarter. Of the original sample 57 took the sociology test for the third time and the Dogmatism Scale five months later.

The size of the correlation between dogmatism and each sociology test performance increased progressively from -.30 ($p < .05$) to -.54 ($p < .001$). Partial correlations between sociology test results and dogmatism, with O.S.P.E. scores held constant, gave coefficients for Test 1 of -.24 (non-cognificant), -.48 ($p < .01$) for Test 2 and -.49 ($p < .01$) for Test 3. The author concluded that dogmatism is inversely related to degree of learning in the classroom situation.

With a sample of 166 randomly selected students taking an introductory course in psychology, Christensen (1963) administered an academic aptitude test at the beginning of term, the Rokeach Dogmatism Scale half-way through the term and a multichoice test and essay to measure achievement in psychology at the end of term. The dogmatism scores failed to correlate significantly with either the aptitude test results or the psychology marks. Nor, when aptitude test scores were held constant, were partial correlations either substantially different

or significant. The author concluded that dogmatism was unrelated to classroom learning and abilities to synthesize or analyse. The findings thus contrast markedly with those of Ehrlich (1961).

Criticizing Christensen on methodological grounds, Costin (1965) designed his experiment in order to take into account the effect of pre-course knowledge which might have some bearing on what was later learned on the course. His sample included 67 students enrolled for an introductory course in psychology. The Rokeach Dogmatism Scale and a multi-choice psychology test was given at the beginning and end of the semester and a verbal reasoning test was administered in the middle of the semester. All correlations between dogmatism and post-course achievement were negative but insignificant. With scholastic ability held constant, the partial correlation between dogmatism and post-course achievement was -.15; with both ability and pre-course achievement held constant the partial correlation between dogmatism and post-course achievement was +.07.

White and Alter (1967) gave the Dogmatism Scale to 2099 students in 14 introductory psychology classes ranging in size from 33 to 319 at the University of Utah. The Dogmatism Scale was taken from three to five weeks before the end of the quarter and the scores were correlated with the summated marks derived from the correct answers on various psychology examinations.

The statistically significant correlations tended to come from the larger classes, the weighted average correlation being -.18 ($p<.01$). Although there was considerable consistency in the sign of the correlation, the range of the correlations was wide; for men the coefficients ranged from -.52 to +.13 and for women from -.42 to +.20. The authors concluded that the predictive power of the Dogmatism Scale is not impressive.

At the University of Bradford Smithers and Batcock (1970) related the Dogmatism Scale scores of social science and health students to their degree performance. In the case of the social

scientists those obtaining a good degree were significantly ($p < .02$) more open-minded than others, but the performance of the health scientists appeared to be independent of the level of dogmatism. Nevertheless, the authors concluded that the high standard deviation of the scores of failures in the social science group indicated that both the open-minded and the closed-minded were at risk.

In the field of social work Tosi (1970) examined the effects of varying levels of counsellor and client dogmatism on client perceptions of the relationship following an initial encounter. Client perceptions of the relationship were measured by the Barrett Lennard Relationship Inventory which yields the four relationship components of empathy, unconditional positive regard, level of regard and congruence: the four components were combined into a total rating for each client. Levels of counsellor and client dogmatism were determined by the Rokeach Dogmatism Scale and, on the basis of their scores, the subjects were classified as high, medium or low.

The sample consisted of 12 male counsellors who were trainees at Kent State University and the clients were 40 males and 29 females who were seeking educational and vocational counselling. A major finding was that client ratings of the relationship were increasingly higher as more openners occurred in the dyad. The highest rated relationships were given by low and medium dogmatic clients interacting with low and medium dogmatic counsellors while the lowest rated relationships were in dyad types consisting of high dogmatic counsellors and medium and high dogmatic clients. In dyad types where at least one partner was low in dogmatism, client ratings of the relationship were relatively high.

3. Miscellaneous Studies.

(i) Personality and Academic Success.

Fleming (1928) gave tests of emotional stability to 341 freshmen at Columbia University and correlated the scores with college scholarship grades. On the Liard Test Schedule B2 a

significant negative correlation was found between stability and grades, but for the other tests there was no significant relationship.

Jasper (1930) constructed his own depression v elation test which correlated significantly with Conklin's Introversion Test. He obtained a significant correlation (r = .12) between academic performance and depression with 195 students at Willameter University. Since there is a substantial relationship between Jasper's and Conklin's tests depression can be regarded as a form of introversion.

At the University of Queensland Olsen (1955) made a factorial analysis of examination results and, after isolating scholastic attainment, speed and accuracy and arithmetical ability as factors, isolated a fourth "introversion factor", suggesting a link between introversion and examination success; this factor, however, contributed only 2.4% to the total variance.

Drought (1938) used Bell's Adjustment Inventory and the Wisconsin Scale of Personality Traits with college students to predict overachievement and underachievement measured by the discrepancy between predicted and obtained grades, but found no significant difference between overachievers and underachievers on any of the eight scales.

Grooms and Endler (1960) examined the effects of anxiety on academic achievement with 116 university students, aged 18 to 32, who completed the Pennsylvania State University Aptitude Examination and the Mandler-Sarason Test Anxiety Questionnaire or the Sarason-Gordon Adult Form of Anxiety and Worry. The students were divided into three groups of high anxiety (N = 22), medium anxiety (N = 47) and low anxiety (N = 22). No direct significant relationship was found between test and anxiety and academic achievement (semester grade-point averages). Nor did high anxiety subjects differ significantly from low anxiety subjects in achievement or aptitude. There was, however, a significant negative correlation between test anxiety and aptitude.

From an anxiety questionnaire Spielberger (1962) identified a group of high-anxious and a group of low-anxious college freshmen. After the groups had been sub-divided into five levels of scholastic ability on the basis of college examination scores, the investigator studied the joint effects of anxiety and scholastic ability on (a) the grade-point average at the end of the freshman year, and (b) the drop-out rate due to academic failures by the end of the senior year.

Spielberger found that at the extremes of ability anxiety exerted little effect on academic performance: thus, whatever their anxiety level, poor students did poorly while the most able students either overcame the effects of anxiety or derived increased motivation from this condition. In the middle range of ability, however, high anxious students obtained significantly poorer grades than low anxious students. The detrimental effect of anxiety was also in evidence in the analysis of drop-outs. One-fifth of the 129 high-anxious students left college because of academic failure compared with one-seventeenth of the 138 low-anxious students.

Some of the tests already reviewed (Rorschach, M.M.P.I. and the Bernreuter Personality Inventory) together with Murray's Thematic Apperception Test, the Roseweig Picture Frustration Test and the College Inventory of Academic Adjustment (Burrow) were administered to 20 overachievers and 20 underachievers at Penn State College. The investigator, Burgess (1956), concluded that overachievers were less labile in their affective reactions, tended to be more constructive and were more inhibited in response to pleasurable aspects of the environment; their intellectual adaptivity was greater, their approach to problems was more cautious, concretistic and intellectual, their control of emotional reactions in the face of strong auto-stimulation was greater and they were more motivated for college study, enjoyed it better and expected to derive more benefit from it; they were also more efficient in the planning of their time and tended to be better adjusted to the college situation. Underachievers, however, chafe to

a greater degree under environmental circumstances and in general show easy, labile affectivity. Although they are better able to establish rapport in the social situation, they are more dependent in their attitude towards others. Their motivation for academic achievement is weak and they tend not to enjoy the college situation. Finally, they tend to see their environment as a desirable one. Burgess's conclusions suggest a positive relationship between achievement and stability.

Himmelweit and Summerfield (1951), at the London School of Economics, included six measures of personality in their battery: these were the Shipley Inventory (Format C), the Multiple Group Rorschach Test, two measures of level of aspiration, a speed test and an accuracy test. With a combined sample of 232 students from two different year groups, they related the test scores to final examination results. In comparison with the cognitive tests, these conative measures had low correlations with the criteria. Certain conative tests, however, especially the Index of Accuracy, did correlate significantly with the criteria and substantially contributed to the multiple correlation coefficient. The successful student, in addition to possessing intellectual qualities, is characterised as being relatively free of tension, able to work at high pressure and having good powers of concentration. He also tends to avoid guesswork in answering problems, preferring to leave unanswered any questions he is uncertain about.

In an attempt to elucidate the factors responsible for overachievement and underachievement, Himmelweit and Summerfield (1951) compared the personality scores of 40 overachievers and 40 underachievers. They found no significant differences between the two groups on tests measuring adjustment such as the Multiple Choice Rorschach and the Shipley Personality Inventory, on tests measuring speed of performance and on a measure of the student's tendency to

guess answers too difficult for him. Commenting on their short group methods of assessing personality, the authors suggest that more refined techniques might reveal differences in personality structure.

Alexander (1935), in a factor analysis of eighteen tests of ability, aptitude and scholastic performance, found, in addition to the cognitive factors 'g', 'v' and 'F', a temperamental factor "which exercises an important influence on success in all school subjects." This factor he identified as "persistence." The earlier findings of Howells (1933) who in a comprehensive study with 74 students obtained a correlation of .10 between persistence and intelligence and .44 between persistence and college grades, support Alexander's views. Ryans (1938), too, studied group persistence in relation to school success and found that whilst it was unrelated to intelligence, there were high correlations of from .73 to .79 between this trait and school marks.

In Australia, Schonell, Roe and Meddleton (1962) decided against the use of personality tests in their investigation at the University of Queensland partly because of their doubts about the efficiency of these measures. They acknowledged, however, that the student's personality, the quality of his adjustment and the strength of such traits as persistence and determination may be important factors in success at university.

Hamilton (1968) administered the Edwards Personal Preference Schedule and the Dynamic Personality Inventory to three groups of students at Reading University; these consisted of 32 first-year students in the Faculty of Letters, 62 final year students in the Faculties of Science and Letters and 169 students from both these faculties who had been followed up from their first term to Finals.

Correlational and between sub-group analysis indicated that individual personality characteristics made a substantial contribution to examination performance. The characteristics most frequently involved were: need for social aggression and social role playing;

heterosexual interest; proneness to day-dreaming; the balance in the need to be socially dominant and independent to the need to be submissive to authority and dependent on and supported by others; giving a socially accepted good impression of oneself; persistence, achievement motivation; being restless and impulsive or their opposites and a need for neatness and organization in one's personal life.

Abercrombie, Hunt and Stringer (1969) also included the Dynamic Personality Inventory among a variety of measures (e.g. academic record, referee's report, A.H.5) which were related to the first year performance in studio work and four written examinations of 78 male students at the Bartlett School of Architecture. The D.P.I. gave "rather inconclusive and very few significant correlations with the criterion."

Vernon (1931) gave the Study of Values to a small group of professors, lecturers and research students in Psychology and found they possessed a distinct pattern of interests. They were especially strong in theoretical or intellectual, aesthetic or cultural interests and relatively lacking in economic or business, political or power-seeking and religious interests. Strong (1938) with his Vocational Interests Blank, confirmed and extended this view, showing that professional psychologists would like to be authors, poets or sculptors, university professors and mathematicians, but would hate to be salesmen or business agents. At school they enjoyed the biological subjects most.

Morea (1969) administered the Connolly Occupational Interests Questionnaire to 45 out of 64 students taking a business studies degree. After their first year examinations the students were divided into three groups: the pass group, the borderline group and those who had withdrawn. According to the Connolly Questionnaire the pass group were less interested than the other two groups in "people as individuals" but more interested than the withdrawn group in

"codifying, classifying and arranging data." The author commented upon the inadequacy of first year examinations as a criterion of success and suggested that withdrawal from the course may be related to dull syllabuses and poor teaching.

(ii) Personality and Teaching Success.

Many investigators have used a variety of personality tests and rating scales in attempts to predict teaching ability. With a group of 100 male training college students, Panton (1932) found a significant relationship between teaching marks and the following traits listed in order of importance: (i) care and appearance; (ii) initiative, leadership, sense of humour and speech; (iii) ambition, tact; (iv) persistence, sociability. Morris (1929) used a measure of leadership (Trait Index L) which she validated by comparing the responses made to various items by 52 weak and 63 strong teachers. When the trait index was given to 60 college seniors, a correlation of .51 was obtained between their scores and teaching practice marks.

Dodd (1933), using the Coxe Orleans Prognosis Test for teaching ability with 90 student teachers, found correlations of .060 to .454 between scores on various parts of the test and supervisors' assessments of teaching ability. The correlation of teaching ability with the whole test score was .425 which, when the separate sections were weighted in accordance with test instructions, was reduced to .390. With a modified version of the same test with British students, Nandi (1941) found that the highest correlation with teaching success ($r = .277$) was obtained with Part I of the test. The multiple correlation with the five parts of the test was .399.

Odenweller (1936) compared the measures of 560 teachers on 22 traits with their teaching effectiveness. When a comparison between the top and bottom eighths of the distribution was made, sixteen of the traits discriminated significantly between the groups. The correlation between effectiveness and personality as judged by principals and supervisors was .825; and when personality was assessed

by three teachers of the same institution the correlation was reduced to .533.

Vernon (1939) administered Boyd's Personality Questionnaire to 200 post-graduate students taking a teacher training course at a Scottish university and related their scores to marks obtained in the Psychology examination. He reported that the better students were more tense, dependable, better at concentrating and less liable to depression and emotional instability. Vernon concluded that "it would seem that both the cognitive and oretic factors which contribute to ability in Psychology may be analysed and measured with some degree of success."

Von Haden (1946) obtained ratings of teachers on eight personality traits and found correlations with teacher ratings significant at the .01 level for energy, initiative, professional judgment and work habits.

Brookover (1940) found that teachers having a high degree of interaction with their pupils tended to be rated high as instructors by their pupils, the correlation being .64. The same author (Brookover, 1945)administered questionnaires on 66 male history teachers to the teachers themselves, their pupils, their superintendents and those who employed them. Analysis of the completed questionnaires revealed that teachers who enjoyed closer and more congenial relations with the pupils were considered both by their pupils and by their employers to be more efficient. The criterion of pupil gain did not, however, confirm this view.

Leeds (1950), in an attempt to measure the attitude of teachers to their pupils and to differentiate between those teachers who had good relations with their pupils and those who had not, gave his Pupil Teacher Inventory to 100 teachers who were rated by the school principal, the pupils and Leeds himself. A multiple correlation of .595 was obtained between the scores on the inventory and the three criteria. A significant difference was also found

between the mean scores on the inventory of the superior teachers and those of the inferior teachers.

Some American investigators have related the personality of the teacher to pupil achievement. Davis (1934) observed that the most successful teachers were strict disciplinarians and that the schools which practised military discipline tended to have the most successful children as judged by the Minnesota State Board Test. La Duke (1945), in his study of 34 teachers and 200 pupils, considered pupil gain in relation to certain personality traits, attitudes and the intelligence of the teachers, but only the last yielded a statistically significant coefficient of .61. Gotham (1945) also found little relationship between the personality of the teacher and pupil gain.

Phillips (1953) gave written English, intelligence and personality tests to 75 training college students. Correlating these scores with teaching practice marks, he found that the English and intelligence test results produced such low correlations that they made no useful contribution to selection procedure. The personality test, however, proved much more successful and correlated .505 with teaching marks. In this projection test designed to reveal the students' personality and attitude to children through answering questions based on pictures, it was found that the most important attributes were 'sympathetic understanding of children', 'friendliness and good disposition' and 'emotional stability'.

Downie (1952) correlated the M.T.A.I. scores with freshmen and sophomore students at Washington State College with A.C.E. Psychological Examination results, overall grade point averages and grades in education. All the correlations were significant at the .01 level except for freshmen M.T.A.I. scores and freshmen grades in education. There was also some relationship between scores of sophomores on the M.T.A.I. and instructor ratings, high scores on the inventory tending to be accompanied by such comments as 'enthusiastic about teaching'

and 'should get along well with children'. Inventory low scores on the other hand were inclined to be associated with such comments as 'doubtful how much appeal he will have'. For freshmen the relationship for those with high scores on the inventory was similar, but not for those with low scores.

Evans (1958) administered two intelligence tests as well as the M.T.A.I. and the Teachers and Teaching Inventory to about 100 graduate teacher training students and related the results to teaching ability and Theory of Education scores at the end of the academic year. Although no test correlated significantly with teaching ability, all except the Teachers and Teaching Inventory gave significant correlations at the .05 level with Theory of Education marks. Practical teaching ability and Theory of Education marks were significantly correlated at the .01 level. The author concluded that since success in Theory of Education was correlated to a small extent with scores on the intelligence tests and the M.T.A.I., the use of these tests in conjunction with other relevant data might improve slightly the selection procedure.

(111) Personality and Social Work Success.

A few studies in the United States have tried to distinguish between effective and ineffective social work therapists. Knupfer, Jackson and Krieger (1959) reported an association between the therapists' confidence in themselves and their degree of competence, supporting the earlier finding of Bandura (1956) that freedom from anxiety is essential to the therapist's effectiveness in relieving his patients' anxieties.

Whitehorn and Betz (1960) found that the Strong Vocational Interests Blank successfully differentiated between successful and unsuccessful therapists of schizophrenic patients. Whereas the former's responses revealed an interest in verbal matters, resembling those of such groups as lawyers, the latter's responses showed an interest in mechanical matters, resembling those of

mathematics and science teachers. These differences were assumed to reflect variations in the degree of understanding, permissiveness with patients and an ability to establish a trusting relationship. The authors also reported that effective therapists expressed their personal attitudes more freely than less effective therapists.

In a retrospective study of the therapeutic process as observed by the patient, Strupp, Wallach and Wogan (1964) noted those patients who felt they had the therapist's respect and interest tended most often to judge themselves and to be judged by their therapists as having been successfully treated. Also related to success was the patient's experience of the therapist as warm, natural, unstudied and attentive as opposed to cold, distant formal or extremely passive. Patients who were uncertain about how the therapist felt towards them tended to have a less successful treatment experience.

Focusing on therapist variables of self-congruence or genuineness, accurate empathy and unconditional positive regard, Truax and Carkhuff (1965) examined the therapeutic interaction directly through the analysis of tape-recordings. Increases in the level of the therapist's empathy and positive regard within a single session were found to be related to the depth of the patient's intrapersonal exploration. In a further study Truax et al. (1966) demonstrated that therapists providing high levels of these conditions showed greater patient-improvement than therapists providing lower levels.

In a study of community health workers by Toban (1970), professionals and non-professionals compared each other's skill on eleven social work functions. The questionnaire responses of 31 professionals and 47 non-professionals revealed that both groups felt the professionals superior at helping patients with long-term problems and that the non-professionals were more effective in showing the patient that someone cares.

To facilitate a further comparison each non-professional's supervisor rated him on a four-point scale, producing 23 "praised" and 24 "criticized" non-professionals. The praised non-professionals' assessments of non-professional skill were positively correlated with favourable views of training. The praised non-professionals' scores on the skill scale were also significantly correlated with favourable perceptions of the job, material benefits, effects of inter-professional meetings, importance of the job, degree to which the actual job approached an ideal job and smoothness of inter-personal relations in the job. In contrast, criticized non-professionals' assessments of non-professional skill correlated negatively with favourable views of training. Their scores on the skill scale were significantly correlated with relatively pessimistic educational expectations and with perceptions of the staff as prejudiced towards minority groups.

Summary.

Evidence on the value of projective techniques as predictors of academic success is conflicting, partly because of the unreliability of this form of measurement.

Although there is also conflicting evidence on the value of the M.M.P.I., investigators have found that social extraversion (Owens and Johnson, 1949; McQuary, 1952), immaturity (Altus, 1948), psychopathology (Schofield, 1953; Frick and Keener, 1956; Yeomans and Londin, 1957), hypomania (Frick and Keener, 1956; Yeomans and Londin, 1957; Small, (1966) and schizophrenia (Hahn and Singer, 1944; Schofield, 1953) characterize under-achievers. The findings on the relationship between instability and under-achievement are, however, contradictory.

Evidence in favour of the B.P.I. as a predictor of academic success and practical teaching ability is both conflicting and unimpressive. On the other hand studies with the G-Z.T.S. indicate

the existence of a relationship between restraint, which loads on introversion, and academic success.

Frequently used in Britain are the E.P.I. and M.P.I. While there appears strong evidence in favour of an association between introversion and attainment, the findings on a relationship between neuroticism and success are contradictory.

From the variety of results obtained with the 16 P.F., those factors which most frequently correlate with academic achievement are C+ (emotional stability), Q$_4$+ (high self-sentiment), O- (confident adequacy), Q$_4$ - (composure) and G+ (persistence). As a predictor of teaching ability, the 16 P.F. has had varying degrees of success. Three investigators (Schwartz, 1950; Montross, 1954; Tarpey, 1965) have found it to be virtually useless while others (Warburton et al., 1963; Start, 1966) disagree over the factors related to teaching skill.

Studies with the Rokeach Dogmatism Scale have produced conflicting findings, though there is possibly a positive relationship between open-mindedness and academic achievement. There is also evidence of a similar relationship between open-mindedness and success in social work, but further research is needed.

A number of miscellaneous studies using varied techniques indicate that the more highly motivated and persistent students usually do best. They also present conflicting findings on the relationship between stability and achievement, though the weight of evidence shows that the more anxious students figure prominently among drop-outs. In practical teaching, stability appears to be correlated with success. Correlates of therapist effectiveness (in addition to the inverse relationship with dogmatism mentioned above) derived from social work samples are empathy, ability to establish a trusting relationship, and freedom from anxiety.

E. Biographical Data and Course Factors as Predictors.

1. General.

Rodger (1965) maintains that in any venture success depends on capacity, inclination and opportunity and that the importance of the second factor is commonly under-rated. He quotes from his own experience of a manpower survey in Fiji. Although the two ethnic groups - the Fijians and the Indians - were roughly equal in educational capacity, the Indian thirst for education far outstripped that of the natives. Rodger concluded that "there can be no doubt that the easy-going nature of the Fijians and the effects of their culture have been a handicap to them in competition with other immigrant races."

Writing more specifically about the supply of suitable students in this country, Vernon (1963) suggests that the main factors are as follows:

(i) the educational and vocation aspirations of the family; its expectation that the children will undertake an arduous educational career and eventually enter high level jobs, and the material and moral support it provides towards these ends;

(ii) the child's own drives, interests and ideals;

(iii) the traditions and current attitudes in the schools the child attends and in society generally, and the prestige of occupations requiring university (or other higher institutional) training;

(iv) the effectiveness of teachers and teaching methods in developing favourable attitudes among pupils towards, and attainments in, the academic subjects and education generally.

In the following review of the literature the various background and motivational influences are considered under two main headings, but it should be appreciated that factors in one category frequently interact with those of another to the advantage or disadvantage of a student's course attainments. The dividing line

between each category is therefore arbitrary and artificial.

2. Biographical Data.

(i) Sex.

In his review of investigations of factors associated with success in Colleges of Arts and Science and Teacher Colleges in the United States, Garrett (1949) found that the intelligence test scores of women were more closely related to scholastic attainment than those of men. This finding is confirmed by Lavin (1965) who concluded that women achieve a higher academic performance than men, their attainments being more nearly in accord with their measured ability than is the case with their male counterparts.

Many Australian studies have investigated differences between the sexes. Following the progress of Sydney students over a period of nine years, Philp and Cullen (1955) found that with school achievement, faculty and age held constant, men tended to obtain, especially in Science, a greater proportion of credits and fewer failures than women. This confirmed an earlier finding by Sanders (1948) in his study of Western Australia entrants. In spite of good individual performances by women, the latter reported that men were significantly more successful, irrespective of course, and that this was true both for minimum-time and eventual graduation rates of full-time and part-time students. Moreover, while full-time men students who failed their courses often made a further attempt, women tended to withdraw. Women also, more than males, discontinued their courses for reasons other than failure.

Evidence from other studies has been less definite. Theobald (1961) found that the overall performance of Melbourne students was similar; when the first-year examination marks were related to the matriculation results of Science students, men were generally superior. Similarly, Gunn (1963) also reported no difference between men and women in their first-year results in

English at Sydney, but the superior matriculation qualifications of the women indicated that they were less successful at the university.

Punch (1966) provided further evidence of male superiority by comparing the numbers of graduates of each sex with the respective numbers of entrants four years earlier. In 1957, of those entering Australian universities in 1953, 44.9% of men and 32.2% of women graduated. The corresponding percentages for 1960 were 43.3% for men and 36.3% for women, while in 1963 the percentages were 46.5% for men and 39.2% for women. In 1961, however, a national report on full-time students (quoted by Punch) revealed no significant differences between the sexes.

At Belfast, Forster (1959) found that a lower proportion of women than men achieved honours degrees in Arts, the difference being highly significant ($p < .001$). In Science, too, there was a significant difference ($p < .01$) between the sexes in favour of men. Furthermore, 57% of the honours degrees obtained by men were in the first or upper second class of honours compared with 42% for women.

There were no statistically significant differences in Arts, Science or Medicine between the proportions of men and women students who withdrew through academic failure. This result conflicts with that of Sanders (1948) who found that women were more likely to withdraw through failure.

Forster also related university performance to mean composite mark in the Senior Certificate Examination. In the Faculty of Arts, of those entering university with mean composite marks of between 55 and 69, a higher proportion of men graduated in minimum time, the difference between the sexes being significant at the .01 level. In the group with mean composite mark of 70 and above an equally significant difference occurred between men and women who graduated with first and second class honours in favour of the former. Although in Science a higher proportion of men than women with marks between 55 and 69 obtained honours degrees, the difference was not

significant.

Forster attributes the better academic performance of men not to superior innate capacities but rather to the fact that women are less academically ambitious.

On the other hand Craig and Duff (1961) who investigated failure in the Faculty of Science at Edinburgh University, found men to have a higher failure rate than women.

The general findings of Newfield (1963) with a large sample drawn from nearly all British universities supports that of Forster. He found that men tended to obtain a higher class of degree than women, 8% of the former as opposed to 3% of the latter achieving a first. A higher percentage of women obtained lower seconds 23½% v 19½%) and they also recorded more pass degrees (20% v 13%).

When courses of study were analysed, Newfield discovered that in Arts subjects there was virtually no difference between men and women in relation to good degree performance, but men were superior in Science subjects, 42% compared with 34% of women obtaining a good degree. The marked superiority of men in Arts, as reported by Forster (1959), is thus not confirmed.

(ii) Age.

From their total sample of 232 students reading for degrees in Economics and Commerce at the London School of Economics, Himmelweit and Summerfield (1951) made a comparative study of 40 over-achievers and 40 under-achievers (those whose academic attainments were better or worse than their performance on cognitive tests indicated). They found age to be unrelated to examination results.

Brown and M'Comisky (1955) matched 70 ex-national servicemen entering Edinburgh University in 1949 and 1950 with a group of "schoolboy" students of the same years of entry. In the Faculty of Arts degree results of the two groups were roughly similar. In the

Faculty of Science, both groups obtained approximately the same percentage of honours degrees, but proportionately fewer pass degrees were gained by the ex-national servicemen.

At the University of Wales, Aberystwyth, Lewis (1958) compared the performance of ex-national service students (N = 105) with that of "schoolboy" students (N = 272) in the Faculties of Arts and Science; the mean age of the former group was 20 yrs. 10 mths., that of the latter 18 yrs. 4 mths. Both groups were equated on the basis of higher school certificate attainments. For Arts and Science students the percentage of ex-national servicemen obtaining an honours degree was less than that of the schoolboy students, though only in the case of the Science students did the difference reach the 5% level of significance. Similarly, the percentage of ex-national servicemen obtaining a good honours degree was smaller and in the case of the Science students the difference was significant at the 5% level.

In Science, proportionately fewer ex-servicemen experienced initial course failure in the first year ($p < .01$); their subsequent record as regards course failure was, however, inferior to that of the schoolboy students, but the difference was not significant. In the Arts group the "schoolboys" had a slightly better record with regard to course failures, 54% as opposed to 47% gaining degrees without any failure.

During the years 1946-49, Forster (1959) related age to performance for the entrants to three faculties at the Queen's University, Belfast.

In the Arts faculty he found little difference between the overall performance of 17 and 18 year-old women who entered university with mean composite marks of under 55 in the Senior Leaving Examination. For men 17% more of the 18 year-old obtained pass degrees in the normal minimum period, and 14% more withdrew because of academic failure. At mean composite marks of between 55 and 69,

10% fewer women 18 year-olds gained pass degrees after delay and 6% more of the 18 year-olds withdrew on account of academic failure, but for men there was little difference between the overall performance of the two age-groups. At mean composite marks of 70 and above, 9% fewer of the 18 year-old women obtained honours degrees and 16% more of the 17 year-olds achieved good honours degrees; the percentage of 18 year-old men obtaining good honours degrees was only one-half that of 17 year-olds.

In the Science faculty, at mean composite marks of under 55, 11% fewer of the 18 year-olds withdrew through academic failure. At mean composite marks of between 55 and 69, 13% fewer of the 18 year-olds withdrew because of academic failure while at mean composite marks of 70 and above, 16% fewer of the 18 year-olds graduated after delay or withdrew through failure; moreover, 12% more of the 18 year-olds obtained degrees and a higher proportion received good honours degrees.

A different picture emerges in the Medical faculty where, at mean composite marks of under 55, 9% fewer of the 18 year-olds graduated in normal minimum time and 13% more of the 18 year-olds graduated after a delay of one year or more. At mean composite marks of between 55 and 69 and of 70 and over, the overall performance of 17 year-olds was also superior to that of 18 year-olds.

At University College, London, Hopkins, Malleson and Sarnoff (1958) found that failure was not related either to age or to whether the student had done national service.

Howell (1962), in a study of the entry to British Universities in 1955 of several thousand students, reported that all age-groups experienced the same rate of failure and that there was only a slight tendency for younger ones to gain better degrees.

Many researches and reviews of the relationship between age and academic performance have been carried out abroad. Although

Harris (1940), in his review of American literature, concluded that younger students tended to obtain better degree results, he also noted that they were often of higher intelligence and that when intelligence was controlled there was no significant difference between the age-groups. Sanders (1963), in Australia, also reported in favour of younger students, though he (Sanders, 1951) had previously found that ex-servicemen of a median age of 23 yrs. 6 mths., fared better than students who entered university direct from school. This result Sanders attributed to the ex-servicemen's greater maturity and desire to obtain degrees in a minimum time because of their age.

A major Australian study concerned with the age variable was that of Schonell, Roe and Meddleton (1962) who divided over 1000 students enrolling at the University of Queensland from 1950 to 1952 into three age-groups: (i) those under 18 (N = 337); (ii) those 18 to 20 inclusive (N = 625); (iii) those 21 and over. These students were further divided into (a) those making normal progress; (b) those delayed one year; (c) those delayed two years or more; (d) those who withdrew.

A statistically significant difference was found in favour of the youngest group. Of the under 18's, 55.5% made normal progress compared with 32.4% of those aged 21 and over. Moreover, while 41.4% of the latter withdrew from their courses, only 19% of the under 18's did so.

Analysis according to faculties revealed that the youngest students did significantly better ($p < .01$) in the Arts group with 61.6% of under 18's making normal progress compared with 42.4% of the 18-20 age-group; in addition 18.6% of the former withdrew against 27.3% of the latter. In the other faculties - Engineering, Medicine and Science - the under 18's did better than the 18-20's, but in each case the difference was not significant.

With the 1955 intake (N = 400) the over 21 age-group was

excluded from the analysis because it was both small and unrepresentative, including a high proportion of Asian students. When the two younger age-groups were compared with regard to academic progress over four faculty groups, no significant difference between them was found. A further divergence from the earlier 1950-52 results appeared in a study of those who withdrew; whereas in the earlier study, a higher proportion of the 18-20's abandoned their courses (30.1% against 19%), in the 1955 sample the withdrawal rate was higher for the younger age-group (24.6% against 16.8%).

The authors concluded that there was little evidence of the superiority of younger full-time students entering university under the age of 18. They note, however, that their findings differ from those of Philp and Cullen (1955) at the University of Sydney.

Studies in the field of nursing indicate that age is an important variable. Although Petrie and Powell (1951) reported that "there was a significant tendency for the older nurse to be a better nurse" ($r = .248$), the authors did not refer to the relationship between age and intelligence test performance.

In a sample of 100 nurses from the Royal Devon and Exeter hospital, 83% were between the ages of 19 and 22 at the time of testing, and within this range no differences in criterion efficiency on test results were found. However, the remaining 17%, aged 23 to 32, received significantly higher criterion scores, while their mean scores on most of the cognitive and aptitude tests were the same as, or lower than, the rest of the sample. Thus, if age were not taken into account, prediction would suffer. The author of this study, Lee (1959) suggested that "the older nurse may have a greater sense of vocation, has made a more realistic and well-considered choice of occupation, has a higher stake in success and is likely to have other related advantages of character and personality. In considering test scores we should have to conclude that they are not sensitive to these qualities and that test scores

generally decline with age."

(iii) Family Size.

The relationship between size of family and performance at school or university is complex. Although Bernstein (1958) and Douglas (1964) reported an inverse relationship between number of siblings and school attainment, Nisbet (1961) also found a similar relationship between family size and intelligence. It is probable, too, that larger families belong to a lower-socio-economic class.

Jones (1962), in a comparison between 11+ attainments and examination results at the end of the first year in a Welsh co-educational grammar school, reported a highly significant association between being an only child and improvement. Douglas (1964) found that, whether working or middle class, children from larger families (i.e. four or more children) did not perform as well on intelligence tests as children from smaller families. He suggested that this is due to the fact that children in large families suffer more deficiencies of care in infancy and that their mothers show less interest in them.

At the tertiary level, Furneaux (1963) found that engineering, science and arts students tended to come from professional families, particularly if the families were small. However, with 40 over-achievers and 40 under-achievers at the London School of Economics, Himmelweit and Summerfield (1951) found that size of family failed to distinguish between the two groups. Nor did Hopkins, Malleson and Sarnoff (1958) in their study at University College, London, discover a relationship between number of siblings and success or failure.

The findings of Small (1966) in New Zealand indicated a tendency for success to be associated with smaller rather than with larger families. With 99 students divided into three groups (the pass group who had not failed any units; the pass-fail group who

had failed some but not all units; the fail group who had failed all units), the difference between the mean number of children in the families of the pass group and that of the fail group was probably significant ($p < .05$). But no significant differences were found between the means of the pass and pass-fail groups and between the pass-fail and the fail groups.

Maclay (1968), at Birmingham University, related family size to degree performance with a sample of 166 students chosen at random from those beginning their courses in 1964. She found no association between the two variables.

(iv) Birth Order.

Although Douglas (1964) found elder children to be slightly superior to only children on secondary selection tests, he quotes Scottish investigations which showed no relationship between birth order and ability. Schoonover (1959), in the United States, also found no relationship between birth order and academic performance.

Galton (1874) observed that distinguished men of science were more often eldest or only sons than youngest ones, while Roe (1953) found that three-fifths of her sample of 64 eminent scientists consisted of first-born sons. She hypothesized that not only are eldest sons likely to develop more independence than younger siblings, but that the latter are also more likely to experience failure and inferiority in competition with the former.

Small (1966) investigated the relationship between birth-order and the first-year performance of students at the University of Wellington. He divided his group into first-born and not first-born, but a chi-square test revealed no significant difference between the two. The study by Maclay (1968) at Birmingham University also found no relationship between birth order and degree results.

(v) Socio-economic Status.

Various studies have illustrated the influence of the social

class complex of factors on academic attainment at the grammar school. Jones (1962), who compared 11+ results with end of first year attainments in a Welsh grammar school, found a significant relationship between deterioration and the fact that neither of the parents had attended a grammar school. His comparison of social class extremes revealed an almost significant correlation between deterioration and the father's being a manual worker, with a similar but opposite relation for improvement. For children who improved there was also a highly significant relationship with their mother's attendance at a grammar school.

A similar case-study approach by Griffiths (1958), who investigated the causes of deterioration, led the author to conclude that "home background is a principal cause of deterioration in academic performance, that the degree of encouragement given to academic endeavour is related to the cultural background of the parents and that the highest percentage (i.e. 56.4%) of the deteriorators belong to parents of the unskilled occupation category." He found that at least one parent of every improver had received a grammar school education whereas in every case except one the parents of the deteriorators had not been to this type of school.

Jones (1962) and Evans (1961), in their related studies, also stress the importance of the attendance of at least one parent at the grammar school. However, Evans, in his study of premature and early leavers in three Welsh grammar schools, found less evidence among sixth form pupils who stayed to take the external examination, of an association between academic attainment and social class than at earlier stages. Nevertheless,premature and early leavers were on average of distinctly lower social class and of inferior attainments than those who entered the sixth form. Evans further discovered that a much smaller percentage of children of semi-skilled and unskilled manual workers than children of

professional workers passed in more than five subjects in the "O" level examinations, but the difference just failed to reach significance.

The conclusions of the above small scale studies are supported and extended by Furneaux (1961) in his mammoth investigation into selection at all stages of the educational system. He states: "The selection of students for admission to universities really begins when children are born, for a child's academic history is strongly influenced by the social class into which he is born ..... The children of semi-skilled and unskilled workers are much less likely to pass the examination governing entry to grammar schools than those whose fathers are in managerial and professional occupations. The standards achieved by the former children show a progressive deterioration throughout the grammar school course compared with those set by the latter group. The differences in performance are almost certainly determined in large part by the difficulties which lie in the way of the children from the less fortunate group. Once pupils have entered advanced sixth forms, it seems that the selective efforts of social class determinants have ceased to operate; presumably the only pupils from the less fortunate groups who survive to this stage are so exceptional as to be quite uncharacteristic of their groups as a whole. Social class determinants seem to have very little effect in deciding whether a pupil in the upper sixth applies to a university, and none at all in determining whether he is accepted or not. So far as application is concerned, the most important determinant seems to be whether the pupil wishes to have a university education.

"Of those pupils who survive into the upper sixth form, it seems to be the children of clerical workers who are the least likely to wish to enter university. The proportion who actually apply is, however, greater than the proportion who express the wish to continue

their education in this way ..... There seems to be some possibility that pupils whose fathers are in clerical occupations are subjected to unusually strong external pressures which lead some of them to continue their education beyond the point which they themselves really desire."

Furneaux found a relationship between occupational group membership and the proportions of pupils expressing the desire for university education. An analysis of answers to a questionnaire asking students whether, irrespective of all practical considerations and of what their chances might be, they would "very much like to spend several years studying at a university", showed that 90% of those from the professional occupation groups, 81% from the skilled, 60% from the clerical and 82% from the less skilled replied in the affirmative. However, the proportion of those wishing to have a university education who are actually able to apply is much the same for pupils in all occupational groups with the exception that for girls having fathers in skilled occupations the proportions who apply is reduced. Moreover, the chances that a "willing applicant" will be admitted is much the same for members of all the occupational groups except for the girls from the less-skilled group whose chances are slightly reduced. For all "unwilling applicants" the chances of admission are reduced.

The study by Himmelweit and Summerfield (1951) with two groups of 40 over-achievers and 40 under-achievers at the London School of Economics failed to find differences between them in their socio-economic backgrounds or in the number of homes where one or both parents had been to university.

Dale (1963) suggests that social class handicaps may not affect academic performance at university level and that the highly-selected working class children who do succeed in reaching university may have either a sufficiently high level of ability or persistence, or both, to compensate for their handicaps. It should also be noted

that some successful working-class children have a background better than average for their class. Dale quotes indirect evidence from Worswick (1957) concerning Oxbridge, and Malleson (1958) at University College, London, suggesting an inverse relationship between occupational class of the father and the student's academic results. Although these findings differ from those of Himmelweit and Summerfield (1951), an explanation may be that entry to both Oxbridge and University College, London, is biased against the working class, so that those working class students securing admission are of exceptional ability; at the London School of Economics, on the other hand, the bias operates in the other direction.

In a later study at University College, London, Malleson (1959) concluded from his analysis of failure rates and academic performance of students in arts, science, law, engineering and political economy that, in general, social class exerted little influence. Nevertheless, the figures show that whereas 35% of the highest social class failed to graduate, only 10% of the next lower social class group were unsuccessful.

Newfield (1963), in his survey of British universities, divided degree results into three categories and compared students' performance with fathers' occupation, classified as manual or non-manual. He analysed the performance of men and women separately. For men there was virtually no difference between the percentages of students from manual and non-manual families in the categories of "good", "mediocre" and "fail"; but a higher percentage of women students from non-manual families (37% compared with 30%) obtained good honours degrees. With degree performance dichotomized into satisfactory and unsatisfactory, there was no difference for women in performance between the two occupational groups, but for men, students from manual families were superior, (72% compared with 67%) classed as satisfactory).

Newfield further compared the performance of students from manual and non-manual families in three faculties. In Arts the percentage obtaining good honours degrees was identical but whereas in Science, students from non-manual families did better (44% v 37%), in Technology the percentages were significantly reversed (30% v 42%).

Two recent researches by Bagg (1970) at the University of Manchester Institute of Science and Technology and by Smithers and Batcock (1970) at the University of Bradford indicate that working class students obtain the best degrees. The latter, with social science, business studies, pharmacy and optics students, reported that twice as many students with non-manual backgrounds were admitted to the university as those from manual backgrounds.

Among the first two groups, classified as "social scientists" 38.4% of good degrees (first and upper seconds) were gained by working class students and 21.2% by those in higher social groups. The figures for the latter two groups of students, designated "health scientists" were 28.3% and 12.9%. Smithers and Batcock maintained that their figures lend considerable support to the theory that where it is hard for a working class student to secure a place there will be an inverse relationship between social class and performance since he records an earlier survey at Bradford which showed that where there was less competition for places there was a high percentage of drop-outs among working class students (Cohen and Child, 1969).

Cohen and Child (1969) compared the social class of 66 drop-outs and 516 non-drop-outs from Bradford University. The students were all scientists or technologists and were categorised according to their fathers' standing in the Registrar General's Classification of Occupation. The two groups differed significantly, 28.8% of drop-outs coming from occupational classes I and II compared with 44.7% of non-drop-outs. The authors point out that this picture of social class origins is at variance with the situation in other universities

which are more highly selective academically and socially. At these latter institutions working class students probably require superior talents to secure places and therefore are less likely to number among the drop-outs.

In a study of the relationship between mental health and student wastage at University College, London, Lucas, Kelvin and Ojha (1966) investigated 198 students whose progress had been delayed or who had dropped out of their courses. They noted that failing students came from a lower socio-economic group than successful students but the relationship was confused; the unsuccessful students were also of lower ability, were less sociable and suffered from a higher incidence of psychiatric morbidity.

There have also been investigations in other institutes of higher education. Isaac (1969) studied the social origins of first-year students at a college of education in the north of England; the students were predominantly working-class, 57% coming from families where the father's occupation was skilled, semi-skilled or unskilled. In part of his study Isaac related success in the B.Ed. qualifying examination, held during the first year at college, to the educational level of the students' fathers. He found that the degree of success (45%) of the group whose fathers had manual jobs greatly exceeded that of other groups. Only 19% of those whose fathers were in Class II occupations (professional) passed, and none of those whose fathers had the highest occupational rating succeeded.

These results should be interpreted with caution, for all students did not sit the B.Ed. qualifying examination and the numbers involved were too small for any firm conclusions to be drawn; moreover, candidates from families in the lowest occupational groups were more selective about sitting the examination. It is evident that the working class students were very successful academically and it is also clear that those students from professional homes who

had applied unsuccessfully for a university place were unsuccessful in this student-teacher sample. Indeed, of the 21 students who failed to gain university entrance, 16 opted to take the B.Ed. examination but only 3 passed.

Isaac suggests that colleges should carefully consider encouraging a higher proportion of students who seem to have overcome difficulties to obtain a college place.

Venables (1963), whose sample consisted of engineering students in four technical colleges, reported positive correlations between examination success and both family connections with the engineering industry and the students' fathers being in skilled or managerial occupations. She found that where the sons of unskilled and semi-skilled parents did excel and the sons of professional and managerial fathers proved inferior, these students were not typical of their group. The former tended to be the more intelligent of their class, the latter the less able of their class.

Venables also discovered that sons of semi-skilled and unskilled manual workers from secondary modern schools proved more serious students than their middle class grammar school counterparts. She suggested that the former, unlike the latter, may be motivated by aspirations of upward social mobility.

Maclay (1968), with a randomly selected sample of 166 students at Birmingham University, reported that the social class of the father was unrelated to degree performance.

There is conflicting evidence from other countries. With intelligence partialled out, Harris (1931) with a sample of freshmen at City College, New York, found no relationship between fathers' occupation and college grades. An investigation by Crawford (1929), with intelligence held constant, however, revealed an inverse relationship between grades and parents' income. This finding was subsequently confirmed by Johnstone (1937) who reported that 58%

of those from poor families were successful students compared with only 42% of those with well-to-do parents. But Garrett (1949), in his comprehensive review of United States' studies, concluded that little relationship existed between parental occupations and college success.

In his analysis of factors associated with college drop-outs among high aptitude students, Astin (1964) found a highly significant correlation ($p < .001$) between the tendency to drop out of college and both the low level of the parents' education and the fathers' occupation.

Lavin (1965), in his review, cited thirteen studies which reported a positive relationship between social status and performance at high school or college, and this relationship held for all educational levels. He also cited six studies which revealed an inverse relationship between the two variables. Attempting to resolve the contradictory findings, he noted that the samples used in the studies which reported a positive correlation between socio-economic status and performance differed from those which reported an inverse relationship. In five of the six studies reporting an inverse relationship, the college performance of public school graduates was compared with that of private school graduates and in four studies the subjects were all men who attended some of the very top Ivy League colleges and were therefore likely to come from upper-class backgrounds; the public school graduates on the other hand were likely to be largely of middle and upper middle class origins. Since most of the research between socio-economic status and academic performance does not sample the upper-class segment of the socio-economic status range, Lavin suggests that the inconsistency between the results of various studies can be explained by differences in the socio-economic range sampled. He concludes: "The relationship between socio-economic status and

academic performance is positive through most of the socio-economic status range, but at the upper socio-economic status levels, it is inverse. When the sample does not include this upper segment, positive relations will be found. When the sample does include the upper range and does not go below the middle class, inverse relations will be found."

Lavin cites an investigation by Davis (1956) which revealed that public school graduates at Princeton were superior academically to private school graduates even when ability was controlled. Davis, assuming that private school graduates represented the upper classes, concluded that for public school graduates, college is an important means of enhancing status while private school graduates, needing only to maintain their status level, are less motivated. Another interpretation by Lavin is that private school graduates, coming from a "more directed regimen", encounter difficulty in adapting to the less structured college environment.

In Australia various studies have related socio-economic background to academic performance. Schonell (1963) found that working class students do not do as well as students from the homes of parents in professional, semi-professional and administrative groups, of whom many would presumably have attended college or university themselves. At the University of Tasmania, Scott (1959) discovered an association between performance and wastage on the one hand and socio-economic background on the other. High-grade residential area students, particularly from the metropolitan area, tended to produce superior performances, but the relationship was complex.

Hammond (1964), with nearly 1000 first-year students from various faculties, reported that with attainments and intelligence controlled, students from better social backgrounds proved superior. The author stated that prior connection of the family with university assisted adaptation from school to university. In a later study

Hammond (1964) also reported that students from professional and business families obtained better first-year results than those from a working class background. Although Theobald (1961), at Melbourne, found that occupational status failed to differentiate between failing and passing students in the one-year matriculation group, he reported that in the much smaller group which took two years to matriculate, those with working class fathers obtained poorer first-year results. At Adelaide, Rowe (1960) found no direct relationship between academic performance and occupational status of father, but the author discovered a positive correlation between the former and a general cultural factor in the students' background which in turn tended to vary positively with occupational status.

A few studies has used the size of family income as an index of socio-economic status, though the two are not necessarily closely related. Hughes (1960), at the University of Tasmania, found no association between family income and the students' academic performance. On the other hand Hammond (1964), at Melbourne reported a higher failure rate among those students whose fathers' annual income was below £1000.

A further index of socio-economic class is the general cultural background of the students, and Rowe (1960), in the study cited above, reported a positive relationship between university performance and cultural background. Hughes (1960b) assessed cultural standards by the number of books in the home. He found a substantial association between this number and the student's university performance. Sanders (1961), reporting the superior results of Western Australian independent school students at the university, attributed their success to more favourable cultural, social and economic factors operating in both home and school; and independent schools draw their pupils largely from higher socio-economic groups.

In New Zealand, Small (1966), using fathers' occupation as the best single index of social status, found no significant differences among three groups of successful, partly successful and failing first-year university students. Nor was there a significant association between the students' academic performance and the educational level of either of their parents.

Finally, Miller (1970) concluded that "it seems that cultural values, pressures and interests of different groups influence choice and success in occupations and professions and are the key, rather than socio-economic status itself which at best offers only a convenient system of classification, but not an explanation of differential achievement."

(vi) Type of Secondary School.

In this country, the Commonwealth, and the United States investigators have studied the relationship between the type of school attended and subsequent performance at college or university.

With 40 over-achievers and 40 under-achievers at the London School of Economics, Himmelweit and Summerfield (1951) found no significant difference between the groups with regard to schools attended.

At University College, London, Hopkins, Malleson and Sarnoff (1958) reported that the products of maintained grammar schools were more successful than those from independent and public schools and also had a lower failure rate. Although independent schools send a higher proportion of their pupils to university than do grammar schools and their cream are probably more attracted to Oxbridge in spite of the high reputation of the London college, it should be noted that the G.C.E. attainments of the two types of school were broadly similar. These findings in favour of ex-grammar school pupils are supported by Himmelweit (1963) and Marris (1964) and also, with regard to men boarders, by Howell (1962) and Franks (1966).

A major contribution has been the Franks Report (1966) which analysed the degree performance of 1006 men and 162 women graduates who entered Oxford in 1958-59. In the case of men, maintained grammar schools did best with 71.6% gaining good honours degrees (first and second class), followed by independent day-schools with 69%, the direct grant schools with 66% and independent boarding schools with 55.7%. However, if first class degrees only are considered it is the direct-grant schools which head the list followed by independent day-schools. In the case of women it is the independent boarding schools which obtain the best results with 70% gaining good honours degrees followed by direct grant with 69.8%, independent day schools with 61.2% and last, maintained schools with 55.4%. Examination of the figures of first-class honours degrees also reveal the superiority of independent boarding schools and the failure of women from maintained schools to obtain any degree in this category.

The figures for poor degrees (third class, fourth class and others) reveal similar differences between the sexes. The greatest proportion of men students (44%)obtaining poor degrees come from independent boarding schools and the smallest proportion (28.4%) from maintained schools, and for women the percentages (30% and 44.6%) are almost exactly reversed.

Further evidence is provided by Newfield (1963) who related type of secondary education to degree performance with a large sample of students from practically every British university. Students who had attended as day pupils at Headmasters' Conference and Direct Grant schools tended to fare better than all other groups, 45% obtaining good honours degrees compared with 39% of day pupils from L.E.A. grammar schools and 33% of boarders from Independent Headmasters' Conference and Direct Grant schools.

In a study of differences between successful and failing students in a London college of education, Mann (1961) discovered that their schools differed considerably in training for responsibility

and provision of opportunity for independent work. The poorer students had been spoonfed and treated as irresponsible throughout their school life significantly more often than the better students. Maclay (1968), however, with a random sample at Birmingham University, reported that a number of school variables were not related to degree performance: these included the number and type of secondary schools attended, whether the school was coeducational or single sexed, whether boarding or day, the student's attitude to school and his leaving age.

To account for the superiority of maintained grammar schools in obtaining first-class honours degrees (11% against 9% from direct grant schools and 3% from independent boarding schools) and their lower failure rate, Malleson (1959) pointed to the excessive and harmful pressures to achieve that had probably been placed on the middle-class boys. Himmelweit (1963) thinks that independent school-boys are less motivated, while Miller (1970) maintains that grammar school-boys are more highly selected for ability.

Miller (1970) reports a study and review by MacArthur (1954) in the United States which demonstrated the superiority of students from state-supported schools over those from private schools when intelligence and attainment were held constant. MacArthur suggested that higher middle-class boys are more "being oriented", measuring themselves more by personality and social criteria and with only a vague idea of what to study; the lower middle-class, on the other hand, measure themselves by achievement and have a clear choice of their major study.

Australian studies have produced different results from those obtained in this country. Sanders (1961) reported that 60% of students from all non-government schools graduated compared with 55% from government schools. This tendency applied to both the humanities and the sciences, but particularly the latter. Within the non-government schools, however, were both independent school

students whose rate was 65% and Catholic school students with a much lower rate of 53%. This order of achievement, first, independent, second, government and third, Catholic schools, was confirmed by Anderson (1959), who used as his criterion first-year pass results at the University of Western Australia. Anderson (1961) also revealed that, even with intelligence and reading scores held constant, Catholic school students obtained a consistently lower pass rate in Arts, Pure Science and Medicine than students from the other two type of school. Nevertheless, it should be noted that government schools produced proportionately three times as many minimum-time graduates as either Catholic or independent schools.

The poorer performance of Catholic school students is reported consistently. Analysing the graduation rate in Tasmania between 1951 and 1959, Hughes (1960a) found significant differences between Catholic school students (43%) and both government (69%) and independent (72%) school students. Three other investigations by Hohne (1951), Theobald (1961) and Hammond (1964) point to the superior performance of students from independent schools and to the higher failure rate of students from Catholic schools. A partial explanation is offered by Roe (1960) who noted a more marked tendency among independent school students than among those from the other types of school to maintain or improve their academic record between school and university.

(vii) Religion.

There has been comparatively little research into the relationship between religion and academic achievement. Hopkins, Malleson and Sarnoff (1958), in a comparison between students who graduated or failed to graduate at University College, London, reported that religion was unrelated to the performance of the two groups. This finding was supported by Maclay (1968) who also found that, with a random sample of students entering Birmingham University

in 1964, religion was unrelated to degree results obtained three years later.

Beard, Levy and Maddox (1964) investigated the possibility that intrinsic motivation (i.e. relatively enduring motives) might discriminate between over-achievers and under-achievers. Hypothesizing that religion is related to intrinsic motivation, they divided their samples of 36 electrical engineering and 34 mechanical engineering students at Birmingham University into non-conformists and others, the latter being mainly Church of England. With the electrical engineering sample there was an association between non-conformity (Methodists, Baptists and Presbyterians) and over-achievement. Seven over-achievers and two under-achievers were non-conformists while six over-achievers and twelve under-achievers belonged to other religions.

The authors stated that "it is a common observation that those students who take religion seriously exercise a more rigorous discipline than others in their personal lives. Non-conformists are particularly likely to have been influenced by the value system described as the Protestant Ethic, a work morality emphasizing the Devil's stake in idleness and self-indulgence. These non-conformist students came mostly from the lower-middle classes in whose upwardly mobile members achievement motivation is thought to be especially strong."

Analysis of individual cases revealed, however, that although there were a few instances in which the more severe non-conformist work morality was a strong influence on performance, most of the non-conformist over-achievers were not regular churchgoers, nor did they show any signs of self-abnegation associated with non-conformity. In view of this and also the fact that the mechanical engineering sample showed no relationship between non-conformity and over-achievement, the authors were forced to reject the hypothesis that there was any systematic relationship between ability and intrinsic motivation.

Although Maclay (1968), with a random sample of 166 students, also at Birmingham University, found no relationship between religion and degree performance, she reported that students who took an active part in church affairs obtained significantly more good degrees than other students (57% v 33%), and fewer failures (0% v 13%).

The evidence from the United States is also inconclusive. At the high-school level Strodtbeck (1958) found the performance of Jewish students to be significantly superior to Italian Catholic students. However, when the effects of socio-economic status were controlled, the influence of religion disappeared. Gerritz (1956), in his study of resident freshmen at the University of Minnesota, also reported that Jews were more likely to be high achievers than non-Jews.

In the section on "Schooling" reference is made to Australian investigations (Hohne, 1951; Anderson, 1959, and 1961; Hughes, 1960; Sanders, 1961; Hogben, 1961; Theobald, 1961; Hammond, 1964) which unanimously agree on the significantly inferior performance at university of children from Catholic schools. Whether this may be attributed to inferior teaching in overcrowded schools, to over-emphasis on religious training or games at the expense of academic subjects, to the influence of Catholicism on achievement motivation or open-mindedness, researchers have made no attempt to investigate.

3. Course Factors.

(i) Motivation.

Marshall and Simpson (1943) examined the relationship between vocational choice and college grades. They interviewed the same 124 students annually about the definiteness of their vocational choice, classifying them as definite, tentative or undecided. Those who remained undecided throughout their four year

course (14%) tended to do poor work.

In a review of the literature Himmelweit and Summerfield (1950) concluded that a positive relationship existed between interest in courses and examination success and that a student's poorer academic performance was related to uncertainty about his future vocation throughout his course. The same authors (Himmelweit and Summerfield, 1951), comparing 40 over-achievers and 40 under-achievers at the London School of Economics, found that under-achievers tended to have a more materialistic attitude towards their future vocation than over-achievers and that they may well have gone to university as a means towards a career rather than because of any intrinsic interest in the subject matter of their studies.

At University College, London, Hopkins, Malleson and Sarnoff (1958) pointed to the higher incidence of failure among those who had decided upon their careers earlier in childhood in response to parental aspirations, thus probably lacking a genuine interest in their studies. The failing group differed significantly from the successful group in stating that they had chosen their particular subjects as a means to a profession or as a result of parental pressure rather than because of interest and aptitude which were the responses characterizing those who graduated. The successful also chose University College because of its high reputation for their subject whereas the failures gave such reasons as "being in London" for their choice.

With small samples of electrical and mechanical engineering students at Birmingham University, Beard, Levy and Maddox (1964) reported that over-achievers were characterized by a tendency to read less material outside their field of study than under-achievers. While this tendency may benefit scientific students in examinations, it is unlikely to prove advantageous to arts and social science students from whom evidence of wider reading and interests are expected.

Science and arts students also differ in the influence that degree of vocational orientation exerts upon their academic performance, and Furneaux (1963) reported that, while in the case of engineering, applied science and medical students a definite career objective was positively associated with success, for arts and pure science students the relationship was less marked.

In his analysis of motivational factors in success and failure at Birmingham University, Wankowski (1968) divided his sample into three groups, the weak-successful, the weak-unsuccessful and the very good. He found that whereas 52.6% of the weak-unsuccessful and 26.5% of the weak-successful did not want to do their particular course, none of the very good students made this response. A chi-square test revealed a significant difference at the 5% level.

Wankowski further assessed the influence of motivation by comparing the weak-successful and weak-unsuccessful with regard to their future plans which included short-term vocational objectives and long-range goals over the following ten years. With responses classified as definite or vague/unknown, he found that the weak-successful students showed a significantly greater tendency ($p < .01$) to be more specific about both short-term and long-term goals. It is interesting to note that although the very good students were excluded from this analysis, they were 100% definite about their short-term and long-term goals.

An inquiry into the reasons for withdrawal of 179 students before or after examinations revealed that among those who withdrew voluntarily before examinations 61.3% were known to have reported a lack of interest compared with 15.9% of those who withdrew after taking the examinations. The author, noting that the weak-unsuccessful students and those who withdrew voluntarily possessed high G.C.E. "A" level grades, concluded that the four inter-related areas of influence which contribute to failure are uncertainty about

future goals, persuasion to enter university, lack of interest in the course and difficulties in studies.

In a comparison between 69 drop-outs and 79 drop-outs at Bradford University, Cohen and Child (1969) found that drop-outs were significantly less satisfied ($p < .05$) with their career choices and also less certain that they would in any case get what they had chosen than the successful students. The authors consequently stressed the importance of a strong occupational motivation. However, they noted that students in science and technology at Bradford tend to possess inferior academic qualifications to students in similar fields in established universities and that applicants with poor "A" levels must apply for courses not ideal for career choice and competence to deal with the course, leading to dissatisfaction and academic failure.

Also at Bradford University, Smithers and Batcock (1970) related various motivational factors to degree performance with a sample of 186 social and health scientists. The students' level of aspiration was assessed by asking them to indicate on Musgrove's scale the occupational level they hoped to reach at (a) aged 35 and (b) the peak of their careers. The authors found that on entry the health scientists who eventually gained a good degree held a significantly higher level of aspiration at the age of 35 ($p < .05$) than the other health scientists. Although initially there was no similar difference for the social scientists, after two years the less successful had developed a higher level of aspiration. Level of aspiration for career peak was unrelated to degree performance for either group.

Smithers and Batcock reported no difference between the successful and less successful of either group in their desire to pursue post-graduate courses for research degrees either on entry or after two years.

Satisfaction with occupational choice was measured by asking (a) the type of work they would ideally like and (b) the field which they would probably enter. For neither health scientists nor social scientists was there a significant difference in degree performance between the "concordant" and "discordant" students. However, among the health scientists there was a tendency for the "concordant" students to do better than the "discordant" students, 25% compared with 16.8% obtaining a good degree, and 13.6% compared with 22.7% gaining no degree.

Finally, the authors assessed satisfaction with present work on a five-point scale. In a comparison between the "very satisfied" and the "less than very satisfied" social scientists, they reported no significant difference in degree performance. The very satisfied health scientists, however, did significantly better than the "less than very satisfied", 22.2% compared with 0.0% obtaining a good degree and 13.0% compared with 31.0% gaining no degree.

A study of several hundred drop-outs in the United States by Iffert (1962) showed that lack of interest in their studies was given by 48% of the students as a reason for dropping out. In the same country Astin (1964), comparing "persisters with drop-outs", found that men "persisters" were significantly more satisfied with their career choice; for women, however, the difference was not significant. Miller (1970) cites a study in another culture by Sinha (1966) with 185 high achievers and 190 low achievers in an Indian university. The author reported that the high achievers had clearer vocational and professional aims than the low achievers, but the former were also of higher intelligence and more persistent, and both these qualities are positively correlated with academic success.

Isaac (1969), who examined results in the B.Ed. qualifying examination in a college of education, found that of 23 candidates

who did not name the college as first choice, 14 failed. This conflicts with the finding of Maclay (1968) who reported that the position of Birmingham in choice of university was unrelated to degree performance. Isaac also suggested that level of aspiration is an important factor and that colleges should carefully consider encouraging a higher proportion of students who have overcome difficulties to get into a college to attempt the B.Ed. course.

In the field of teacher training Evans (1958) administered a questionnaire to 41 women in a university education department, inquiring about the students' general interests as well as their interest in various aspects of work as a teacher. A comparison between the replies and final examination marks in Practical Teaching and Theory of Education revealed that students with many and varied interests were no more successful than those with fewer and less active interests. The author reported a significant negative correlation between interest in teaching and intelligence test results.

(ii) Place of Residence.

Although primarily concerned with the relationship between location of school and academic performance of arts, science and medical students at the Queen's University, Belfast, Forster (1959) suggested that living in lodgings or the long daily travel during term time may have influenced the results.

The figures provided by Forster show that 13.75% of students from Belfast schools obtained first or upper second class honours degrees compared with 8.88% of those from non-Belfast schools; moreover, whereas 18.75% of the former withdrew from their courses, the corresponding percentage for the latter was 28.88. It is, however, impossible to draw firm conclusions from these results. Not only did students from Belfast schools gain higher Senior Certificate Examination marks, but non-Belfast students contributed

a larger proportion of Combined Course students (those who took a degree and a teaching qualification) whose overall academic performance was foundto be poor. Finally, it is impossible to disentangle and assign their proper relative weights to such factors as sex and whether or not the student entered university directly from school.

Schonell, Roe and Meddleton (1962) investigated university performance in relation to whether students lived in the Brisbane metropolitan area or in the country, though the latter also included other towns and cities. They found that the average intelligence and matriculation scores of Brisbane students were superior and that approximately 55% of these students as opposed to 40% of the country students made normal progress. The authors suggested that among factors which accounted for the inferior performance of the country students were a deficient experiential background and difficulties in adjustment to life in a large city. Interviewing of country students revealed such difficulties as loneliness and emotional problems caused by living away from home for the first time, new friendships, social distractions and the development of important new interests.

Miller (1970) cites a study by Priestley (1957-58) at the University of Melbourne where suburban students living nearer the campus did better than rural students. According to Priestley, this was because rural families often failed to see the relevance of university study for their children and did not give them whole-hearted support.

American studies have produced similar findings. Summerskill (1962) reported a higher drop-out rate among rural than among town students while Lavin (1965) in his review concluded that northern students outperform southern students and urban students outperform their rural counterparts. Lavin suggests, however, that

a variety of factors could account for these results. Northern or urban students may be more intelligent, may belong to a higher socio-economic group and the schools they attended may be educationally superior.

(iii) Type of Residence.

Investigations into the influence of different types of residence on university performance in Britain indicate that this is not an important variable. Hopkins, Malleson and Sarnoff (1958) at University College, London, reported that the type of residential accommodation was unrelated to success or failure in the final degree examinations.

A large scale investigation in British universities by Newfield (1963) related degree performance to type of accommodation in the students' third year. With degree results divided into "good" (firsts and upper seconds), "mediocre" (lower seconds, thirds and passes) and "fail", his figures reveal that 42% of home students, 40% of students in lodgings and 38% of students in halls of residence obtained good degrees while the opposite trend (53% home, 56% lodgings and 60% hall) was evident for mediocre degrees. The failure rate (4% home, 4% lodgings and 3% hall) was almost identical for all three groups. When degree results were dichotomized into satisfactory (firsts and seconds) and unsatisfactory (third, passes and failures), the home and hall students' results were identical and only slightly superior to those of students in lodgings. Overall there seemed surprisingly little difference between the performance of students in different types of accommodation.

In evidence to the Robbins Committee, Hall (1962), who followed up the 1955 entry to British universities, also noted the similarity in performance between students living in hall and those in lodgings.

With a relatively small sample (N = 178) and with academic and personality variables uncontrolled, Marris (1964) reported that students who lived in halls at two British universities achieved only about one-third of the above average results in examinations and, in one university, residents achieved average or below average 30% more often than non-residents. An opposite but insignificant trend was found by Albrow (1965) at Reading University where 32 first-year students in halls did better in first-year examinations than the same number in lodgings; but the former devoted slightly more time to study than the latter.

Perhaps the most important finding and conclusion with regard to type of residence is that of Holbraad (1962) based on a study of over 3000 British university students. Although at Oxbridge those residing in hall obtained more first and second-class honours degrees, at other English universities type of residence bore no relationship to performance. What counted above all - and particularly in the case of women - was whether the students expressed satisfaction or dissatisfaction with their accommodation with reference to material comforts, privacy and working conditions. Among dissatisfied students the failure rate was twice as high and satisfaction with accommodation was significantly related to obtaining a good degree.

A more recent investigation by Maclay (1968) has, however, failed to confirm Holbraad's findings. With a randomly selected sample of 166 students who entered Birmingham University in 1964, she reported that accommodation, initial accommodation and satisfaction with initial accommodation were unrelated to degree performance. Nor was any association found between degree results and whether the student had spent any time in a hall of residence or the number of accommodation changes.

Australian researches present conflicting findings. Anderson and Priestley (1960) reported on the academic superiority

of students living in halls over those at home, with those in lodgings doing least well, but there may have been bias in the allocation of students to the different types of residence and it is possible that the hall students were intellectually superior.

Langley (1965) found that the superiority of students in residence over non-residents was true only for those in their first year; third-year examinations revealed a trend in the opposite direction.

Schonell, Roe and Meddleton (1962), at the University of Queensland, related type of accommodation to academic performance with a sample of 1067 full-time students who began their courses from 1950 to 1952 and 393 who entered university in 1955. Those who had lived in a university residential college for at least one year were designated college students while non-college students included all others living in private homes, hostels, lodgings or any other non-university accommodation throughout their course.

With the students divided into three groups (those making normal progress, those delayed and those who withdrew), the authors found that, in the case of women, non-college students had significantly better records ($p < .05$); and this was true for both the 1950-52 and the 1955 intakes. Non-college men also performed better but the difference was not significant.

Small (1966), in New Zealand, found no significant relationship between type of living accommodation (hostel, private board or flat, and home) and first-year academic performance at the University of Wellington. He concluded that "adjusting to the novelty of living away from home can't be held to be a major factor in student failure." Although some of his case studies suggested that students living at home were more susceptible to psychological stress than those living away from home, the point could not be maintained statistically.

In his review of studies in the United States, Harris (1940) reported conflicting evidence on the influence of type of residence on college performance. More recently, Miller (1970) cites a study by Suddarth (1957) who found the highest drop-out and graduation rates among students in hall, followed by those living at home and last by those in private homes or apartments. Students in sororities and fraternities were most successful, but these are selected at the end of the first year and have a middle-class bias.

Hountras and Brandt (1970), with groups of students matched on the basis of A.C.T. composite standard scores and social class, studied the influence of type of residence on grade point averages in five colleges of the University of North Dakota. They found that students in halls of residence obtained significantly higher grade point averages than students living at home or off the campus. However, when the results were analysed for each individual college, no significant differences could be discovered.

(iv) Financial Assistance.

Mountford (1956), who studied the university careers of three years' entry to Liverpool University, reported that among the causes listed by the 13% who abandoned their courses entirely were family financial worries.

Newfield (1963) compared students' source of finance with degree results at almost all British Universities. The best record was obtained by State Scholars (64% having good degree results), the worst by those receiving private funds, mainly from their own families (28% having good degree results). It is interesting to note that while at Oxbridge and London the performance of those with L.E.A. awards and those supported by a permanent employer was roughly similar as regards good degree results, at other British universities employer-supported students fared significantly better than L.E.A. award students by 58% to 31%.

Schonell, Roe and Meddleton (1962) related the type of financial aid received by 400 full-time students at the University of Queensland to their academic performance. They found that the higher the award, the better the students' records. Thus while 22 out of 25 Open Scholarship winners graduated in minimum time, three-fifths of Government Fellowship holders and one-half of Commonwealth Scholarship winners equalled this performance; but of those students with no official assistance only 6 out of 30 made normal progress. Two main reasons are suggested for the poor showing of the last group. Either their school attainments were poor or, coming from wealthy families, they may have lacked positive incentives such as vocational gain or negative incentives such as fear of losing a scholarship - a factor which may have contributed to the success of the other students.

Schonell et al. (1962) found that insufficient money to continue with the original course was listed as a reason for transfer to another course. They also reported from an analysis of the main reasons given by 60 students for their failure that financial worries accounted for 8.3% of the cases. In the United States, too, Summerskill's (1962) review of the evidence underlines the fact that financial difficulty is closely associated with dropping out from college, but it is difficult to disentangle the influence of ability and motivation in interpreting these findings.

Part of Small's (1966) study at the University of Wellington was devoted to an analysis of the performance of post-primary bursars. This group of students was more successful than other students in their first year at university, passing about 75% of the units taken compared with 58% by the latter. However, these results may be partly explained by the fact that the bursars were carefully selected for their awards on the basis of educational attainments, school recommendations and performance at an interview. Moreover, on the aggregate scores obtained from the three major correlates of

success - an intelligence test, previous attainments and reading skill - the superiority of the bursars was most marked.

(v) Newspaper Reading.

At the University of Durham, Moos, Laing, Odber and Bromhead (1954) investigated the reading habits of a representative sample of 225 students. They found, as far as the number of newspapers read by each student was concerned, little difference between honours and pass students, particularly when Sunday reading was considered separately. In daily reading habits a higher proportion of honours than of pass candidates (17% compared with 11%) read no daily newspaper regularly, but proportionately more honours students (23% against 17%) read four or more.

The preferences of the two groups of students were very similar. In both term and vacation, however, a much higher proportion of pass than of honours students (11% v 2.9% and 14% v 2.9%) read the local Northern Echo, but this may have been due to a different geographical distribution of honours and pass students' homes - a possibility not verified by the authors.

During vacations the reading habits of honours and pass students seemed to diverge at two points. The proportion of pass students reading the Times fell more sharply (from 25% to 4%) than that of the honours students (from 23% to 10%). However, 28% of all daily reading of honours students in vacation and 29% of pass students was found in the three quality newspapers, The Times, The Daily Telegraph and the Manchester Guardian - a very close resemblance. But while the proportion of honours students reading the Daily Telegraph in the vacation fell from 28% to 19%, the proportion of pass students reading it rose from 22% to 28%.

As regards Sunday reading habits the Sunday Times was of approximately equal popularity with both honours and pass students (25% and 29%), but the Observer was decidedly less popular among

pass students (44% and 56%). Although in the vacation, reading of the Sunday Times fell off by roughly the same proportion for honours and pass students, pass students were more loyal to the Observer. Finally, honours students seemed to be more ready than pass students to change their reading habits when coming into university residence.

(vi) Television Watching.

Studies in this country and the United States indicate that television has little effect on school performance. Nevertheless, Schramm et al. (1961) in their comparison of "Radiotown" and "Teletown" observed that the brightest and dullest children growing up with television entered school with a one year advantage in vocabulary enabling them "to get off to a fast start", this advantage was not maintained, however, there being no difference in total informational level in the sixth and tenth grades.

Himmelweit et al. (1958), comparing carefully matched groups of viewers and non-viewers in this country, reported that the two groups did not differ in their general informational level, that non-viewers obtained slightly better marks though the difference was not statistically significant, and that the slight loss in marks that might be attributed to television occurred primarily in the homes of the more intelligent. Two-thirds of the children were required to finish homework before being allowed to watch television.

At the tertiary level there has been very little research into the influence of television on academic performance. One small scale investigation with a sample of electrical engineering students at Birmingham University by Beard, Levy and Maddox (1964) revealed a significant difference between the viewing habits of over-achievers and under-achievers. Whereas 0 over-achiever and

6 under-achievers watched television for more than ten hours each week, 13 over-achievers and 7 under-achievers viewed for less than ten hours each week.

(vii) Relevant Experience.

As far as can be ascertained there has been no published research into the value of relevant experience for subsequent success in fields related to social work.

In the university training department at Aberystwyth, Pinsent (1933) found that men, but not women, with previous teaching experience tended to achieve higher teaching grades than those without this experience. However, pre-college teaching experience was related to a poorer academic record in the case of women, but not for men. Success in Theory of Education examinations did not seem to be connected with teaching experience either for men or women.

The following year Turnbull (1934), at Sheffield University, reported that students with previous teaching experience did a little better in practical teaching but definitely worse in degree work than those without experience. In Educational Theory the performance of the two groups was similar.

Saer (1941) confirmed the findings of Pinsent (1933), suggesting that success during the training year was more closely related to the type of pre-college school than to the length of experience. However, Lovell (1950), though finding that men with pre-college teaching experience of between four and twelve months obtained higher teaching grades, reported that experience of over one year further improved assessment.

Summary.

The weight of evidence indicates that men do better at universities than women. One reason advanced is that they are academically more ambitious.

Younger students tend to obtain better results than older students, but this may be because they are intellectually superior. A small minority of investigations (Sanders, 1951; Schonell et al. 1962, in Australia; Himmelweit and Summerfield, 1951; Hopkins et al., 1958 in this country) revealed a relationship in the opposite direction or no relationship between age and performance.

Research into the relationship between family size and birth order and attainment in higher education has been inadequate and inconclusive. The majority of investigators have found no relationship between size of family and university performance. Although with exceptional samples it has been found that first-born or only sons achieve academic distinction, with ordinary university students there appears no relationship between birth-order and degree results.

In Great Britain evidence on the relationship between social class, as determined by the father's occupation, and attainment in tertiary education is conflicting. Himmelweit and Summerfield (1951) and Maclay (1968) found no relationship, while Lucas et al. (1966) with failing students, Cohen and Child, 1969, with drop-outs and Venables (1963) in a technical college, reported in favour of students from the non-manual professional classes. Other investigators (Isaac, 1969; Bagg, 1970; Smithers and Batcock, 1970) pointed to the superior performance of working-class students. An explanation of these contradictory findings, suggested by Dale (1963), is that where entry to a university is biased against the working class there will be an inverse relation-ship between social class and attainment.

Evidence from the United States is similary contradictory. Lavin (1967) suggests that inconsistent results can be explained by differences in the socio-economic range sampled. He concludes that while there is a positive relationship between social class and performance through most of the socio-economic status range,

at the upper socio-economic status level, the relationship is inverse.

In Australia where various indices of social class have been used, the weight of evidence indicates the superiority of the student from the higher social classes. But in New Zealand, Small (1966) reported no relationship between fathers' occupation or educational level of parents and academic performance.

From his review of the literature Miller (1970) concludes that it is not social class itself but rather the cultural values, pressures and interests in the home that influence success.

Evidence on the relationship between type of school attended and university success is also conflicting. Whereas Himmelweit and Summerfield (1951) and Maclay (1968) found type of school to be unrelated to performance, Hopkins et al., (1958), Malleson (1960), Himmelweit (1963) and Marris (1964) reported on the superiority of students from maintained grammar schools. Howells (1962) and Franks (1966) noted the poor performance of men who were boarders at independent schools but the latter found that for women at Oxford best results were obtained by students from independent boarding schools and the worst by women from maintained grammar schools. Newfield (1963) recorded the poorest performance for boarders of both sexes and the best performance by students who had attended as day pupils at H.M.C. and Direct Grant schools.

In the United States students from state-supported schools do best, but in Australia the superiority of independent schools and the inferiority of Catholic schools is marked.

Mann (1961) in this country concluded that success is related to training in independence given by the schools while MacArthur (1954), in the United States, accounting for the inferior performance of private schoolboys, suggests that they evaluate

themselves in terms of social criteria whereas public-schoolboys measure themselves by achievement.

In this country the limited research finds no relationship between religious denomination and university performance, but Maclay (1968) noted the significantly better degree results of those taking an active part in church affairs. All Australian researches record the inferior performance of Catholic students.

The literature suggests that the following motivational factors are positively correlated with course success:

(a) interest in course of study (Himmelweit and Summerfield, 1950; Iffert, 1954; Hopkins et al., 1958; Wankowski, 1968);

(b) positive reason for choice of college (Hopkins et al., 1958);

(c) a less materialistic attitude to future career (Himmelweit and Summerfield, 1951; Hopkins et al., 1958);

(d) clear-cut career objectives and goals (Furneaux, 1963; Sinha, 1966; Wankowski, 1968);

(e) a higher level of course or career aspiration (Isaac, 1969; Smithers and Batcock, 1970);

(f) satisfaction with career choice (Cohen and Child, 1969; Smithers and Batcock, 1970).

The evidence indicates that students living in the university city do better than those from other towns or rural areas, but it is difficult to offer a satisfactory explanation. Among reasons suggested are travelling, poor lodgings, poorer schools attended and lack of cultural stimulation and motivation among rural students.

In British universities major researches reveal little relationship between type of residence and achievement. Smaller researches present conflicting findings. Abroad, the evidence is also contradictory and the key factor, often unexplored, may be whether the students are satisfied with their accommodation, whether home, hall or lodgings.

The evidence from abroad suggests a marked relationship

between success and financial award, but since the latter is related to entry qualifications it is difficult to assess its real importance. In this country, too, those holding the highest awards tend to fare best and drop-outs often give financial worries among their reasons for withdrawal.

The field of newspaper reading and attainments has been neglected. One study revealed little difference between honours and pass students in the number and type of newspapers read.

There have also been very few investigations into the relationship between the amount of time devoted to television and university performance. One small scale study by Beard et al. (1964) showed that over-achievers viewed less than under-achievers.

In the field of teaching, relevant experience has been found to be related to practical ability as revealed on teaching practice.

CHAPTER IV

PLAN OF THE INVESTIGATION.

A. Samples

The number of students involved in the experiment totalled 169, consisting of 88 health visitors (all women) and 81 social workers (41 men and 40 women). All the students belonged to the same department of a college of further education and began their courses in either 1968 or 1969.

1. Health Visitors
   - (i) 1968 intake: N = 45
   - (ii) 1969 intake: N = 43
2. Social Workers
   - (i) 1968 intake: N = 40 (20 men, 20 women) Eight withdrew at the end of the first year, five through examination failure, three for personal reasons.
   - (ii) 1969 intake: N = 41 (21 men, 20 women)

B. Criteria

In such professions as health visiting, social work, medicine and teaching, the most valid criterion is the quality of work done in the individual's chosen vocation at various stages of his career. However, as Eysenck (1947) points out, "while examination success is not final and doesn't guarantee success as a doctor or teacher, failure at the examination makes success impossible and failure certain." This statement applies equally to health visiting and social work. Although the whole question of the relationship between course success and subsequent performance in the field is an extremely difficult one requiring far more attention than it has so far received, assessment of course attainments forms an essential criterion.

For the assessment of practical work efficiency three methods were examined.

(i) Evaluation by clients of health visitor's/social worker's competence.

This form of assessment would most probably be based on the improvement experienced by the client. Although the method is superficially attractive with a high face validity and has been used in some American studies, the client is unaware of many aspects of the practitioner's work which may considerably influence the efficiency of the agency or the effectiveness of colleagues. Nor can the client be expected to assess accurately and objectively the extent of his own improvement: and if there has been no improvement or even a deterioration in his condition he may be reluctant to record this fact, especially if he is still dependent on the health visitor or social worker. Health visitors and social workers in this country also object to this method for ethical and professional reasons.

It should be noted that a summary of the research by Remmers (1963) showed no relationship between the evaluation of teachers made by their students and the grades the students received.

(ii) Assessment by course tutors.

Those most familiar with the aims of the training course and thus best able to judge whether the student is successful in translating theory into practice are the course tutors. However, the amount of time they could devote to this task and the number of aspects of the task they could competently assess without being a member of the agency, are limited. There is also the danger that the course tutor's assessment of a student's practical work may be coloured by his knowledge of the student's academic attainments at college.

In the field of teaching Morris (1970) condemns this form of assessment. The knowledge by the student that his tutor's task is partly to grade him adversely affects the tutor-student

relationship and confirms the student's feelings that he is not a professional practitioner, thereby hindering his effective acquisition of the role of teacher. Moreover, Shipman (1966) showed that towards the end of their college course and final assessment, students tended to regard tutors as assessors rather than advisers.

(iii) Assessment by experienced supervisors.

This method rests on the assumption that experienced supervisors are capable of recognizing the efficiency of their trainees. In teaching, Grotke (1955) showed that the closer the rater and ratee were in their educational aims, ideals and ideas, the higher the teaching assessment awarded by the rater was likely to be. For its success this form of assessment depends on familiarity and sympathy with the aims of the training course by supervisors as well as on common agreement on the nature of the criterion.

Discussions with course tutors and practising health visitors and social workers led to the conclusion that assessment by experienced supervisors was likely to prove the most reliable and valid measure provided their full co-operation could be secured.

Because of their highly concentrated theoretical course of only one year, the amount of practical work performed by health visitor students is limited. Their work is, however, relatively uniform throughout the country and this facilitates the follow-up of their post-course performance. For social workers, on the other hand, a variety of posts is available, each with its own specific type of work and requirements, and assessment might sometimes have to be made by supervisors who are themselves untrained or who may be unfamiliar or unsympathetic with the aims of the training course. These factors would greatly contribute to the unreliability of any scale designed to assess post-course performance. During their training course, however, social work students devote approximately

one-half of their timetable to practical work and, with close liaison between course tutors and agency supervisors, all of whom are in the West Midlands, the reliability and validity of assessments by the latter are likely to be increased.

The criteria adopted were as follows:

1. Health Visitors.

(i) Theoretical Criterion.

A mean standardised score based on three examination papers, case studies and an individual project was calculated for each student.

(ii) Practical Criteria.

One year after completing her course each former student was assessed by the agency supervisor most closely associated with her work. The assessment was based on observation and reports.

The former student was assessed on a five-point scale on various aspects of her work. Scores were then calculated for the following components:

(a) work with the public;

(b) relationships with colleagues;

(c) administrative ability;

(d) a composite weighted component made up of (a), (b) and (c); the weightings were derived by taking the mean weight (i.e. 45%; 27½%; 27½%) assigned by 10 experienced health visitors to (a), (b) and (c) respectively;

(e) an overall grading of performance on a five-point scale;

(f) the main practical criterion consisted of the mean standardised score of (d) and (e) and was used to reduce inconsistencies between the analytic and overall assessment.

(g) an assessment of the former student's fitness for promotion on a five-point scale.

(iii) Development of the practical criteria.

Stages in the development of the practical criteria were as follows:-

(a) A survey of health visitors' work provided by the Chief Medical Officer of the City of Birmingham was studied.

(b) The writer observed the work of a health visitor throughout a typical week.

(c) An assessment form was drawn up.

(d) Consultation with health visitor tutors led to modification of the form.

(e) Comments and criticisms were invited from practising health visitors to whom the form was sent.

(f) The form was further amended to meet criticisms.

(g) The revised form (see rear pocket) was sent to the former students' employing authorities for assessment of their practical work.

2. Social Workers.

(i) Theoretical Criteria.

(a) A mean standardised score based on course work and examinations at the end of the first year was calculated for each student.

(b) Because of differences in the final examination for social work and child care students, the examiners rated the combined group on a seven-point scale at the end of the second year.

(ii) Practical Criteria.

Practical work was assessed at the end of the student's final agency placement which consisted of three days per week over a period of six months. The assessment was made by the agency supervisor. Stringent efforts were made to increase the reliability and validity of the practical criterion. These took

the form of ensuring that the teaching supervisors were acquainted with the aims and content of the course as well as with the concurrent syllabus, and regular contact between supervisors and course tutors.

The supervisor's assessment of the student on a five-point scale on various aspects of his work was based on:

(a) regular supervision seminars with the student and records of supervisory sessions;

(b) evaluation through the student's reports and discussion of cases;

(c) discussion and comments from other agency colleagues;

(d) feedback from other agencies regarding the student's ability.

Scores were calculated for the following components:

(a) work with clients;

(b) professional development;

(c) work within the agency;

(d) a composite weighted component made up of (a), (b) and (c); the weightings were derived by taking the mean weight (i.e. 40%, 30%, 30%) assigned by 10 experienced social workers to (a), (b) and (c) respectively;

(e) an overall grading of performance on a five-point scale;

(f) the main practical criterion consisted of the mean standardised score of (d) and (e) and was used to reduce inconsistencies between the analytic and overall assessment;

(g) an assessment on a five-point scale of the student's desirability as a colleague. (Experienced social workers felt that at this stage any assessment of the student's promotion prospects would be unreliable).

(iii) Development of the practical criteria.

Stages in the development of the practical criteria were as follows:

(a) Based on his knowledge of social work acquired through

experience in a child guidance clinic, the writer drew up an assessment form.

(b) Consultation with social work tutors led to modification of the form.

(c) The amended form was sent to agency supervisors and comments and criticisms were invited.

(d) A meeting of supervisors, course tutors and the writer was held and the form was discussed in detail.

(e) A revised form designed to meet criticisms was drawn up in conjunction with course tutors.

(f) The assessment form (see rear pocket) was sent to agency supervisors.

C. Predictors.

Choice of predictors was influenced by the following considerations:

(a) the criteria are both practical and theoretical, the former involving the ability to help people under stress, the latter reflecting the ability to understand, evaluate and reproduce a considerable amount of reading material as well as to do individual work.

(b) the samples consisted of students of wide age-range, wide distribution of intelligence, varied educational and work experience and of different social backgrounds.

1. Cognitive Tests.

Since the courses are intensive and demanding, exposing students to considerable strain it was decided to incorporate in the battery problem-solving tests which would provide measures of (a) their ability to work at speed and to cope with stress, and (b) their powers of persistence and accuracy. To cater for the older students who had been out of touch with academic work for many years, untimed

and non-verbal tests were included. A reading comprehension test was also used to assess the students' ability to understand verbal material, a factor of vital importance to success on the theoretical criterion.

The complete battery of cognitive tests was as follows:

(i)	A.H.4 (Heim, 1956)	: a twenty minute test in two parts (verbal/numerical and non-verbal) of deductive reasoning for use with a cross-section of the adult population.
(ii)	Standard Progressive Matrices. Sets A, B, C, D and E. (Raven, 1958)	: an untimed test of non-verbal intelligence.
(iii)	Mill Hill Vocabulary Scale (Raven, 1965)	: an untimed verbal test of the intellectual level a person has attained.
(iv)	Nufferno Speed Tests (Furneaux, 1963)	: problem-solving tests providing measures of speed under stressed and unstressed conditions.
(v)	Nufferno Accuracy Test (Furneaux, 1963)	: a problem-solving test assessing accuracy.
(vi)	Nufferno Level Test (Furneaux, 1963)	: a problem-solving test measuring ability and persistence.
(vii)	Reading Comprehension Test for Personnel Selection (Haward, 1965)	: a test which evaluates the efficiency with which an individual can use verbal material with a technical content.

2. Non-Cognitive Tests.

The studies reviewed indicate that even the most successful intelligence tests account for little more than one-third of the variance of examination marks. And in courses which include a practical criterion such as teaching, the relationship between cognitive test performance and practical ability has often proved negligible and sometimes negative. Thus, in an attempt to improve

prediction, it was decided to use not only a comprehensive personality test but also measures of attitudes and occupational interests.

The non-cognitive test battery included:

(i) The 16 P.F. Test (Cattell and Eber, 1957) which measures the following 16 primary and 2 second-order factors:

Factor A: Sizothymia (reserved) v Cyclothymia (outgoing)

Factor B: Lower scholastic mental ability (less intelligent) v Higher scholastic mental ability (more intelligent)

Factor C: Lower ego strength (affected by feelings) v Higher ego strength (emotionally stable)

Factor E: Submissiveness (humble) v Dominance (assertive)

Factor F: Desurgency (sober) v Surgency (happy-go-lucky)

Factor G: Weaker super-ego strength (expedient) v Stronger super-ego strength (conscientious)

Factor H: Threctia (shy) v Parmia (venturesome)

Factor I: Harria (tough-minded) v Premsia (tender-minded)

Factor L: Alaxia (trusting) v Protension (suspicious)

Factor M: Praxernia (practical) v Autia (imaginative)

Factor N: Alertness (forthright) v Shrewdness (shrewd)

Factor O: Untroubled adequacy (placid) v Guilt proneness (apprehensive)

Factor Q_1: Conservatism (conservative) v Radicalism (experimenting)

Factor Q_2: Group adherence (group-dependent) v Self-sufficiency (self-sufficient)

Factor Q_3: Low integration (casual) v High self-concept control (controlled)

Factor Q_4: Low ergic tension (relaxed) v High ergic tension (tense)

Second Order Factor: Stability v Anxiety

Second Order Factor: Introversion v Extraversion

(ii) Connolly Occupational Interests Questionnaire (Connolly, 1968)

Interest field E : interest in the natural sciences

Interest field F : interest in people as individuals

Interest field G : interest in influencing people's attitudes and behaviour

Interest field H : interest in words and verbal concepts

Interest field J : interest in the arts

Interest field K : interest in codifying, classifying and arranging data

Interest field L : interest in using tools and manipulating materials as distinct from verbal concepts

(iii) Allport-Vernon-Lindzey Study of Values (Richardson, 1965)

(a) Theoretical : dominant interest is the discovery of truth

(b) Economic : primary interest is in what is useful

(c) Aesthetic : highest value is in form and harmony

(d) Social : highest value is love of people

(e) Political : main interest is in power

(f) Religious : highest value may be called unity

3. Questionnaire.

Cognitive and non-cognitive tests combined still fail to account for a large part of the variance of university and college examination marks. A third area of influences include a number of factors in the individual's educational and social background as well as his degree of vocational orientation. In order to study as many as possible background experiences and motivational influences which might be associated with success, the writer designed a questionnaire (see rear pocket) to investigate three inter-related fields. These, together with the scores assigned to responses, are as follows:

(i) Educational Background

(a) early examination success (success at 11+ = 3; success at 13+ = 2; took no examination = 1; failed = 0)

(b) status of school (public = 1; other independent = 2, direct grant = 3; grammar = 4, comprehensive/bilateral = 5; technical/commercial = 6; secondary modern = 7; elementary = 8; special = 9)

(c) type of school (coeducational = 1; single sex = 2)

(d) day or boarding pupil (boarding = 1; day = 2)

(e) leaving age (14 = 1; 15 = 2; 16 = 3; etc.)

(f) qualifications (each "O" and "A" level subject = 1; each school certificate credit or higher school certificate main subject = 1; each school certificate pass subject = $\frac{3}{4}$; each subject of other examining bodies e.g. R.S.A., U.E.I. = $\frac{1}{2}$;)

(g) self-rating of effort at school (on a five-point scale ranging from "considerable" = 1 to "hardly any" = 5)

(h) post-school courses (extra courses = 1; none = 2): in the case of health visitors their professional nursing training was excluded.

(ii) Family Background

(a) parents' educational background (college/university = 0; public school = 1; other independent = 2; direct grant = 3; grammar = 4; comprehensive/bilateral = 5; technical/commercial = 6; secondary modern = 7; elementary = 8; special = 9)

(b) parents' school leaving age (14 = 1; 15 = 2; 16 = 3; etc.)

(c) parents' occupation (professional/managerial = 1; clerical = 2; skilled manual = 3; semi-skilled manual = 4; unskilled manual = 5)

(d) parents' race (both parents English = 1; at least one parent not English = 0)

(e) family size (number of siblings = score)

(f) birth order (only child = 1; eldest = 2; second eldest = 3; etc.)

(g) mother at work (before student attended school = 1; not at work = 2)

mother at work (while student at primary school = 1; not at work = 2)

mother at work (while student at secondary school = 1; not at work = 2)

mother at work (during all above three stages = 3; during two stages = 2; etc.)

(h) parents' social class (working = 1; lower middle = 2; upper-middle = 3; upper = 4)

(i) parents' main daily newspaper (The Times, The Guardian, The Telegraph = 1; others = 0)

(j) parents main Sunday newspaper (Sunday Times, The Observer, Sunday Telegraph = 1; others = 0)

(iii) Course Factors

(a) age (number of years = score)

(b) sex (male = 1; female = 2) social work students only

(c) marital status (without children = 1; with children = 0)

(d) social work or child care option (social work students = 1; child care students = 0) social work students only

(e) relevant experiences (none = 0; under 1 year = 1; 1-2 years = 2; etc.)

(f) type of financial assistance (seconded = 1; other type of grant = 0)

(g) desire to take future qualifications (yes = 2; undecided = 1; no = 0)

(h) whether future qualifications would be in same field (yes = 1; no = 0)

(i) whether attendance at university preferred (yes = 1; no = 0)

(j) assessment of importance of educational qualifications and occupation among other factors in determining social class (assigned rank = score)

(k) own assessment of importance of health visitor/social worker in relation to occupation of similar status (assigned rank = score)

(l) assessment of society's rating of importance of health visitor/social worker in relation to occupation of similar status (assigned rank = score)

(m) difference between own and society's assessment given in (k) and (l) (same rank = 6; own assessment one rank higher than society's = 7; etc., own assessment one rank lower than society's = 5, etc.)

(n) present and future self-assigned social class (working = 1; lower middle = 2; upper middle = 3; upper = 4.)

(o) difference between own and future social class (lower = 0; same = 1; one class higher = 2; etc.)

(p) religion (Roman Catholic = 4; Non-Conformist = 3; Church of England = 2; Agnostic/Aetheist = 1); rating based on assumed influence and control the church exerts over its members.

(q) church attendance (once a week = 6; fortnightly = 5, etc.)

(r) television watching per week (not at all = 0; under 2 hours = 1; 2-4 hours = 2, etc.)

(s) main daily newspaper (The Times, The Guardian, The Telegraph = 1; others = 0)

(t) main Sunday newspaper (Sunday Times, The Observer, Sunday Telegraph = 1; others = 0)

(u) place of residence (at home with family = 1; away from home = 0)

(v) travelling time to and from college and placement (less than ½ hour = 1; ½ hour-1 hour = 2; etc.)

(w) reason for entering field of work (social workers urgently needed, satisfaction derived from social work, a desire to help people = 2; a higher social standing, pay/career prospects, a secure job, a chance to acquire a useful skill = 1; wanted a change, dissatisfaction with previous job = 0)

(x) alternative job preference (if helping people involved = 1; other job = 0)

(y) opinion of health visitors'/social workers' pay and prospects (rating on a five-point scale ranging from "very poor" = 1 to "excellent" = 5)

(z) college of choice: (first choice = 1; other = 0) : social work students only.

D. Administrative Arrangements

1. Predictor Measures.

Once a student has been accepted for, or has actually begun, a course of training, his attitude to tests and a questionnaire is likely to be different from that which he would have adopted if these had formed part of the selection procedure. It was essential, therefore to secure maximum co-operation and motivation so that the tests and questionnaire would reveal as accurately as possible the student's abilities, personality traits, interests and background characteristics.

The students were not approached until two weeks after their courses had begun in order to give them time to overcome the initial shock of adjusting to staff, timetable and course conditions. Each sample was seen separately by the writer who outlined the purpose of

the research. He explained the need to find out not only the kind of person who applies for courses in health visiting or social work but in what ways the two types of community worker differ. He also pointed to the need to discover whether factors associated with the academic criterion of success were the same as those related to practical ability, indicating that this had not proved the case with trainee teachers. The students were told that by agreeing to take part in the experiment they would be helping to make the selection procedure more efficient, thereby improving the quality of health visitors or social workers.

The students were repeatedly reassured that if they volunteered to take part in the experiment the results would be treated in the strictest confidence and that in no case would they be made available to their course tutors. If, however, the results could be used to the advantage of a student as in the case of examination failure, the writer, with the permission of the student concerned, would not hesitate to do so. As a further incentive the writer indicated his willingness to reveal the results of the tests to the students individually after they had been marked.

To stimulate interest in the experiment and to obtain maximum involvement, questions and discussion were encouraged. Each group expressed its willingness to co-operate, and testing sessions were arranged during normal lecture periods, with the permission of course tutors, so that the students would not have to give up any of their own free time.

A large room with adequate ventilation and lighting within the college was allocated for the testing sessions. At the front of the room was a raised platform which enabled the supervisor to see every student without difficulty.

With the assistance of a colleague the writer administered the tests and questionnaire to both groups. Everything possible was

done to put the students at ease and test instructions were strictly observed. The tests and questionnaire took approximately two weeks to complete. At the end of the last session the students were thanked for their co-operation and again reassured that the results and information would remain confidential.

Each test was hand-marked three times and where a discrepancy arose the procedure was repeated. The responses to those questionnaire items on which information was already available were also checked and, in the few cases where an inconsistency occurred, the matter was taken up with the student concerned.

2. Criterion Measures.

(i) Health Visitors

The marks of supervised examinations taken in June of the following year and of case studies and projects were submitted to the writer by the senior course tutor. The follow-up assessment forms of practical work were sent to agency supervisors twelve months after the students had completed their college course. These were returned direct to the writer.

(ii) Social Workers

The marks of supervised examinations taken at the end of the first academic year and of course work were provided by the senior course tutor who also submitted at the end of the second year a rating of each student on a seven-point scale based on second year examinations and course work. At the end of the second year, practical work assessment forms were sent to each agency supervisor (with whom the students had been working for the previous six months) and were returned direct to the writer.

E. Limitations of the Experiment.

Although the size of the sample was not large, the investigation was restricted to one training institution for the following reasons:

(a) Colleges vary in the type of selection procedure employed.

(b) This follows from differences in the methods of assessment. One college may place relatively more emphasis on practical work than on written examinations, while another may stress the importance of course work or individual projects. These differences of emphasis are likely to lead to differences in the organization of courses within colleges and, consequently, measures valid in one institution are not necessarily valid in another.

(c) Standards undoubtedly vary from college to college, depending on the individual requirements of the course organizer and her staff, on the selection ratio and the acceptable fail rate.

(d) The literature reveals wide variations in the validity coefficient of all types of predictors in different institutions.

An important limitation is that measurement is necessarily restricted to those accepted for the courses and who, when the tests were administered, had entered the organization; the motivation of some students to do well, particularly on the cognitive tests, may therefore have diminished. Moreover, all rejected applicants cannot be subjected to the time-consuming battery of tests administered to those accepted or to the same end of course assessments since some will return to their previous occupations with the intention of re-applying the following year while others will not pursue their application. Even those who do gain admission to similar training courses elsewhere cannot be satisfactorily incorporated in the experiment because there will be some, if only slight, variation in selection procedure, course conditions and the final assessment.

In order to obtain information on background and motivational influences, use of a questionnaire is essential, and this contributes to the unreliability of the findings. While responses to certain questions (e.g. age, school-leaving qualifications and length of

relevant experience) can be and have been verified, it is not easy to check the answers to others such as the amount of time devoted to watching television, whether the student's mother went out to work at different stages of his school life or his father's occupation. Furthermore, to assess motivation and degree of vocational orientation, the questionnaire must include not only factual but highly subjective items to reveal attitudes and opinions.

The criterion measures in every experiment of this kind are imperfect. Hartog and Rhodes (1935), Dale (1959) and Cox (1967) have demonstrated the unreliability of examinations. In the assessment of practical work, too, truly object measures are difficult to obtain. The form of assessment employed in this study is a task-oriented analysis which may omit some of the subtler aspects of relationships which may make an important contribution to work effectiveness.

A further difficulty arises from the students themselves. Both groups, and particularly the health visitors with their common nursing and obstetrics training background, have already survived at least one selection procedure, and the more successful the interviewing panel has been, the more difficult will the task of the predictors be, because of the homogeneity of the sample.

Finally, such factors as methods of teaching, study habits, adjustment to staff and fellow students, living away from home or coping with studying and family life at the same time, do not exert their full influence on the student until some weeks after the course has begun, and thus cannot be adequately assessed at the interview stage.

F. Treatment of Data

(i) The raw scores obtained from the standardised tests and the scores assigned to the questionnaire responses of health visitors and social workers were recorded separately. In the

16 P.F. test, scores for the second order factors of anxiety and extraversion were derived by converting the relevant primary factor scores to stens and computing in the manner recommended by Cattell and Eber (1957).

(ii) A 't' test was used to analyse differences between the means of health visitors and social workers on test scores for (a) the 1968 intakes; (b) the 1969 intakes.

(iii) An analysis of the difference between the means of high and low achievers in health visiting and between high and low achievers in social work was also carried out by means of the 't' test. Students in the top and bottom thirds on the main criterion measures were compared in (a) the 1968 intake; (b) the 1969 intake.

(iv) All predictor and criterion raw scores were normalised (with a mean of 0 and a standard deviation of 1) and then intercorrelated (Bravais-Pearson product-moment formula) for health visitors and social workers separately. Intercorrelations were obtained for (a) the 1968 sample; (b) the 1969 sample; (c) the combined samples.

(v) The most effective combination of predictors of each of the main criteria was calculated by the multiple correlation technique. This was carried out separately for health visitors and social workers with (a) the 1968 sample; (b) the 1969 sample; (c) the combined samples.

(vi) The correlation matrices of predictors and main criteria of the combined 1968 and 1969 samples of health visitors and social workers were separately subjected to a Principal Components factor analysis.

All correlations were computed on the University of Aston computer, using the "statistical package" series of programmes.

It should be noted that a limitation in the treatment of data concerns the measurement level which has been attributed to certain

questionnaire responses. While the statistical purist may have reservations about this procedure in the use of parametric tests, Ferguson (1969) maintains that assumptions of measurement level may be made provided they are recognized. The assumptions may, moreover, be necessary for a meaningful analysis of data. Such is the case in this study where product-moment correlation was the only technique whereby a large number of variables (test measures which met the measurement requirement and certain questionnaire responses which did not) could be inter-related. A precedent for a similar treatment of such data has been set by numerous researchers in this country in the field of education, notably Warburton, Butcher and Forrest (1963), Wiseman (1966) in his analysis of data for the Plowden Report and Miller (1971).

CHAPTER V

STATEMENT OF RESULTS

1. Raw Data

All predictor and criterion raw scores for the health visitor and social work students appear in Appendix 2.

2. Intercorrelations of Criterion Variables.

(a) Health Visitor Students Combined Samples (N = 88)

TABLE 2

CORRELATION MATRIX FOR THIRTEEN CRITERION VARIABLES

(Decimal Points Omitted)

Variable No.	92	93	94	95	96	97	98	99	100	101	102	103	104
92		467	565	304	406	712	137	148	206	265	147	036	253••
93			602	341	404	781	283	296	317	322	368	191	371••••
94				242	282	726	117	062	058	112	230	182	191
95					585	671	254	358	220	287	227	146	253••
96						732	301	353	331	343	257	094	304•••
97							313	340	309	354	340	163	365••••
98								715	637	915	749	616	878
99									554	820	558	332	707
100										812	580	443	736
101											716	565	916
102												677	924
103													675
104													

•p < .05 ••p < .02 •••p < .01 ••••p < .001

Key: 92 Examination paper 1 : Development of the Individual
93 Examination paper 2 : The Individual in Groups and Social Policy
94 Examination paper 3 : Social Aspects of Disease
95 Family case studies
96 Individual project
97 Main Theoretical Criterion: mean standardised score (92-96)
98 Work with the public
99 Work with colleagues
100 Administrative work
101 Weighted criterion (composed of 98-100)
102 Overall practical work grading
103 Fitness for promotion grading
104 Main Practical Criterion (mean of 101 and 102)

The significant correlations between almost all the theoretical criteria (Nos. 92 - 97) and the main practical criterion (No. 104) should be noted.

(b) Social Work Students Combined Samples (N = 73)

TABLE 3

CORRELATION MATRIX FOR FOURTEEN CRITERION VARIABLES

(Decimal Points Omitted)

Variable No.	95	96	97	98	99	100	101	102	103	104	105	106	107	108
95		465	729	645	420	809	625	253	339	260	304	342	286	347···
96			587	362	175	565	543	238	252	121	231	305	246	309···
97				785	338	844	772	351	475	348	419	479	388	485····
98					335	762	561	214	397	269	317	282	243	339···
99						624	405	234	324	281	289	304	230	311···
100							767	373	503	377	438	494	394	495····
101								372	497	384	430	551	485	495····
102									850	819	947	730	676	863
103										868	949	793	691	903
104											939	759	681	876
105												780	709	932
106													781	941
107														771
108														

· $p < .05$ ·· $p < .02$ ··· $p < .01$ ···· $p < .001$

Key: 95 Examination paper 1 : Social Policy
96 Examination paper 2 : Social Influence
97 Examination paper 3 : Human Growth and Behaviour
98 Examination paper 4 : Social Work
99 Examination paper 5 : Law
100 Main First Year Theoretical Criterion: mean standardised score (95-99)
101 Main Second Year Theoretical Criterion
102 Work with clients
103 Professional development
104 Work within the agency
105 Weighted criterion (composed of 102-104)
106 Overall practical work grading
107 Desirability of student as a colleague grading
108 Main Practical Criterion (mean of 105 and 106)

The correlations between the theoretical criteria (Nos. 95 - 101) and the main practical criterion (No. 108) are all highly significant.

3. Test Differences between Health Visitor and Social Work Students.

Details of the differences between health visitor and social work students on all test measures appear in Appendix 3.

(a) 1968 Intakes

TABLE 4

SIGNIFICANT DIFFERENCES BETWEEN HEALTH VISITORS AND SOCIAL WORKERS.

	N = 45 HEALTH VISITORS		N = 40 SOCIAL WORKERS			
TEST	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
Accuracy	15.24	2.86	13.68	3.05	2.424	.02
Reading Comprehension	18.76	4.53	15.72	4.95	2.941	.01
Connolly E	13.84	3.18	10.97	3.90	3.690	.001
Connolly F	18.00	3.58	19.62	2.50	-2.439	.02
16 P. Factor B	7.98	1.64	9.37	1.79	-3.717	.001
16 P. Factor E	10.09	4.26	12.47	3.85	-2.706	.01
16 P. Factor H	9.71	4.90	13.40	5.00	-3.428	.001
16 P. Factor O	12.80	3.42	8.80	2.91	5.825	.001
16 P. Factor Q_1	9.64	2.68	10.78	2.29	-2.114	.05
16 P.F. Anxiety	6.40	1.53	5.14	1.49	3.843	.001
16 P.F.Extraversion	4.19	2.10	5.31	1.97	-2.536	.02

TABLE 5

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

	N = 45 HEALTH VISITORS		N = 40 SOCIAL WORKERS		
TEST	MEAN	S.D.	MEAN	S.D.	t
Political Values	21.40	6.90	23.94	6.28	-1.777
16 P. Factor Q_4	13.71	3.96	12.03	4.28	1.871

The above tables indicate the superiority of health visitors in this intake on tests involving accuracy and reading comprehension. They are, however, significantly more interested in the natural sciences and less interested in people. The personality test reveals the social workers to be more intelligent, less anxious and more extraverted.

(b) 1969 Intakes

TABLE 6

SIGNIFICANT DIFFERENCES BETWEEN HEALTH VISITORS AND SOCIAL WORKERS

	N = 43 HEALTH VISITORS		N = 41 SOCIAL WORKERS			
TEST	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
A.H.4 Pt.1	39.19	6.20	42.46	6.78	-2.304	.05
A.H.4 Pt.2	36.91	8.65	42.24	8.92	-2.778	.01
A.H.4	76.09	13.29	84.71	13.39	-2.960	.01
Raven's Matrices	49.60	5.16	52.24	5.36	-2.298	.05
Level (Persistence)	343.07	78.41	376.17	69.21	-2.054	.05
Connolly E	13.37	3.17	11.68	3.39	2.357	.05
Connolly F	17.81	2.72	19.41	3.07	-2.524	.02
Religious value	28.98	10.93	22.55	14.64	2.273	.05
16 P. Factor G	13.37	3.79	10.88	3.62	3.080	.01

TABLE 7

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

	N = 43 HEALTH VISITORS		N = 41 SOCIAL WORKERS		
TEST	MEAN	S.D.	MEAN	S.D.	t
16 P. Factor B	9.49	1.39	8.76	2.15	1.838
16 P. Factor E	10.49	3.61	12.17	4.78	-1.811
16 P. Factor N	10.79	3.19	9.63	3.06	1.701

In this intake the superiority of social workers on both verbal and non-verbal intelligence tests is evident. They are also more persistent in a problem solving situation. As with the previous intake, health visitors appear more interested in the natural sciences and less interested in people.

4. Correlations between Predictors and Main Criteria

In Appendix 4 appear correlation matrices showing the inter-relationship of predictor variables.

TABLE 8

Health Visitors

PRODUCT-MOMENT CORRELATIONS BETWEEN PREDICTORS AND MAIN CRITERIA

(Decimal Points Omitted)

N =	45	43	88	45	43	88
PREDICTORS	THEORETICAL CRITERION			PRACTICAL CRITERION		
	1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES
A.H.4. Pt.1	253	258	255**	118	123	121
A.H.4. Pt.II	157	243	198	-099	-012	-057
A.H.4	218	279	247*	-010	050	018
RAVEN'S MATRICES	207	212	210*	-0.087	095	003
MILL HILL V.S.	191	329*	246*	-0.046	048	-007
STRESSED SPEED	442***	251	345****	340	-017	162
UNSTRESSED SPEED	524****	132	320***	342	-128	103
ACCURACY	262	189	223*	-058	-098	-078
LEVEL (PERSISTENCE)	378**	279	328***	074	-035	020
READING COMPREHENSION	504****	353**	418****	252	034	138
CONNOLLY E	000	074	036	-183	096	-049
F	036	-094	-019	-054	-044	-050
G	136	019	080	137	-051	047
H	349**	281	314***	107	055	083
J	-120	056	-045	012	-047	-012
K	043	-096	-016	-002	-094	-040
L	-397***	-258	-334***	-143	088	-042
VALUES: THEORETICAL	-077	063	-001	-069	-075	-072
ECONOMIC	-029	124	044	-192	-049	-126
AESTHETIC	-066	091	012	073	120	096
SOCIAL	032	047	040	-072	-160	-119
POLITICAL	217	-110	059	-039	036	-004
RELIGIOUS	-053	-124	-084	127	055	096
16 P.F. A	217	025	112	350	-112	105
B	120	060	081	148	229	165
C	-116	-271	-190	209	-156	036
E	032	169	093	-115	164	008
F	258	220	239	135	101	119
G	032	237	136	-001	-086	-043
H	152	290	211	-049	062	-001
I	-027	054	010	-125	-257	-184
L	075	113	094	157	050	103
M	-128	-259	-197	-223	-061	-135
N	237	011	118	064	103	084
O	-139	022	-055	-137	232	049
Q_1	-127	314*	077	-291	073	-123
Q_2	-041	023	-009	018	-075	-026
Q_3	-064	-288	-165	102	-432	-135
Q_4	-137	204	038	009	-023	-007
ANXIETY	-054	167	055	-040	221	084
EXTRAVERSION	287	275	279	039	154	091
11+ SUCCESS	106	-013	056	-075	095	000

PREDICTORS	THEORETICAL CRITERION			PRACTICAL CRITERION		
	1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLE
SCHOOL STATUS	-214	206	-013	119	-219	-037
COED SCHOOL	042	-171	-058	027	199	106
BOARDING PUPIL	-139	134	033	-025	-114	-076
LEAVING QUALIFICATION	303·	393···	348····	-021	213	095
EFFORT AT SCHOOL	018	-444···	-219	142	-033	053
LEAVING AGE	373··	-113	134	083	226	150
EXTRA COURSES	052	-168	-053	-102	-039	-073
AGE	-333·	-235	-281	-216	126	-047
COLLEGE TRAVEL	262	096	179	072	-107	-014
PLACEMENT TRAVEL	167	-013	087	-132	-029	-087
MARITAL STATUS	170	-216	-023	273	-116	-081
RESIDENCE	-045	244	076	-194	103	-069
RACE	-059	238	081	104	-077	020
EXPERIENCE	271	220	246	089	038	066
GRANT	160	159	159	003	-106	-044
FATHER'S SCHOOL STATUS	139	050	096	174	137	157
MOTHER'S SCHOOL STATUS	-027	-164	-088	050	203	117
FATHER'S LEAVING AGE	-145	139	-031	-170	-173	-168
MOTHER'S LEAVING AGE	146	142	142	046	-231	-065
FATHER'S JOB	-025	-056	-041	005	232	112
MOTHER AT HOME (PRE-SCHOOL)	-198	-360··	-269··	056	-315·	-107
MOTHER AT HOME (PRIMARY SCHOOL)	-158	-420···	-276···	-038	-119	-073
MOTHER AT HOME (SECONDARY SCHOOL)	-121	-309·	-213·	-012	145	063
MOTHER AT WORK (NO. OF STAGES)	187	423···	298···	000	088	040
BIRTH ORDER	-061	067	003	-062	-052	-057
NO. OF SIBLINGS	036	-286	-116	055	-001	029
PARENTS SOCIAL CLASS	-128	-184	-154	-090	-191	-139
OWN SOCIAL CLASS	-049	096	-071	-142	000	-076
FUTURE SOCIAL CLASS	067	-149	-039	-030	-148	-084
DIFF.BETWEEN PRESENT & FUTURE CLASS	149	-085	031	136	-190	-023
CLASS & ED.QUALIFICATION	055	144	098	-022	-182	-099
CLASS & OCCUPATION	-195	-076	-125	-063	-021	-038
JOB IMPORTANCE	100	029	069	353··	047	221
SOCIETY'S JOB RATING	-262	039	-109	-019	033	007
DIFF.BETWEEN OWN & SOCIETY'S RATING	-281	017	-145	-297·	-003	-163
DAILY PAPER	-075	-160	-118	027	-017	005
PARENTS' DAILY PAPER	-028	-065	-047	-056	-084	-070
SUNDAY PAPER	-104	-182	141	-217	-041	-134
PARENTS' SUNDAY PAPER	076	-095	002	010	139	063
TELEVIEWING TIME	-036	081	001	-190	-086	-144
RELIGION	-129	-205	-168	031	156	064
CHURCH ATTENDANCE	-131	-025	-081	052	179	109
FUTURE QUALIFICATIONS	190	083	136	067	036	052
IN SAME FIELD	064	108	081	-111	027	-053
UNIVERSITY PREFERRED	152	-098	028	130	-094	-112
OPINION OF PAY	-127	055	-044	-053	-346	-183
OPINION OF PROSPECTS	121	-093	015	040	-141	-044
REASON FOR ENTERING HEALTH VISITING	070	130	100	007	-013	-003
ALTERNATIVE JOB	012	184	084	188	-119	054

· $p < .05$ ·· $p < .02$ ··· $p < .01$ ···· $p < .001$

Table 8 shows the significant relationship between cognitive tests, school leaving qualifications, two occupational interest fields and the theoretical criterion but underlines the complete failure to predict the practical criterion.

TABLE 9

Social Workers

PRODUCT-MOMENT CORRELATIONS BETWEEN PREDICTORS AND THE MAIN CRITERIA
(Decimal Points Omitted)

	N = 40	41	81	32	41	73	32	41	73
	FIRST YEAR THEORETICAL CRITERION			SECOND YEAR THEORETICAL CRITERION			PRACTICAL CRITERION		
PREDICTORS	1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES
A.H.4. Pt.1	457***	448***	428****	451**	466***	445****	378*	058	189
A.H.4. Pt.II	310	253	361****	600****	111	320***	332	236	255*
A.H.4	423***	396**	441****	573****	310*	425****	388**	187	252*
RAVEN'S MATRICES	314*	125	294***	618****	131	347***	492***	078	232*
MILL HILL V.S.	431***	358*	347***	213	305	259*	-048	082	028
STRESSED SPEED	167	430***	368****	350*	354*	350***	294	074	150
UNSTRESSED SPEED	068	321*	180	202	449***	313***	197	-111	031
ACCURACY	205	379**	281**	548***	236	387****	427**	040	202
LEVEL (PERSISTENCE)	386**	475***	482****	607****	380**	482****	381**	399***	390****
READING COMPREHENSION	527****	427***	471****	580	384	477****	436**	-086	123
CONNOLLY E	-192	-194	-169	-125	-072	-096	-103	-260	059
F	147	-232	-194	-057	-259	-180	-009	097	066
G	-001	-099	025	386*	-250	167	438**	-156	050
H	239	084	047	-083	271	-018	-057	-189	-144
J	030	120	096	-025	190	095	-125	116	026
K	-009	-243	064	040	249	146	035	205	136
L	-151	088	101	-145	165	030	-180	064	-025
VALUES THEORETICAL	054	-216	-175	-238	-215	-224	-163	-110	-129
ECONOMIC	-156	-290	-203	-129	-375**	-267*	-127	-082	-098
AESTHETIC	-067	037	083	-307	043	-124	-242	-139	-179
SOCIAL	136	325*	247*	219	198	207	213	385**	316***
POLITICAL	078	-194	-059	029	-135	-066	-097	-112	-108
RELIGIOUS	-002	188	143	225	240	231*	213	070	124
16 P.F. A	-109	068	-030	044	001	019	049	070	063
B	259	108	249*	307	110	179	102	-226	-118

PREDICTORS		FIRST YEAR THEORETICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	SECOND YEAR THEORETICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	PRACTICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES
16 P.F.	C	-137	072	-013	-050	-048	-049	-117	103	033
	E	-216	-247	-201	026	-220	-119	105	-193	-094
	F	-252	-128	-127	-191	-032	-092	087	-264	-149
	G	-215	-203	-292	-119	-191	-156	018	054	-023
	H	-067	-214	-119	021	-258	-130	-155	-186	-171
	I	-029	286	131	-228	283	043	-188	226	064
	L	-125	-035	-042	-076	-022	-047	094	-083	-014
	M	-148	154	063	-205	119	-029	-135	-036	-029
	N	-082	-145	-091	235	-209	-002	184	-057	038
	O	-009	-047	-018	-042	142	060	-129	-226	-185
	Q	190	-178	-077	-011	-158	-100	-050	130	-102
	Q	-060	276	141	-228	241	061	-290	142	068
	Q	-036	-048	-112	-259	-122	-167	-300	-075	-140
	Q	015	156	148	122	137	130	-038	-036	-037
ANXIETY		030	107	128	097	211	160	-052	-046	-013
EXTRAVERSION		-201	-182	-185	-035	-189	-126	024	-261	-167
11+ SUCCESS		292	226	282	286	197	234	302	045	138
SCHOOL STATUS		138	-315•	-235	038	-343•	-173	233	239	233•
COED SCHOOL		-001	178	119	125	178	153	153	206	185
BOARDING PUPIL		-139	-078	-082	235	-049	096	443••	201	297••
LEAVING QUALIFICATIONS		545••••	402•••	443••••	392•	411•••	392••••	121	-115	-030
EFFORT AT SCHOOL		-103	-229	-121	040	-250	-101	056	-074	-016
LEAVING AGE		136	145	137	028	170	111	-079	-227	-178
EXTRA COURSES		-214	106	-057	-278	062	-051	-225	018	-075
AGE		-206	-280	-317•••	-403••	-379••	-383••••	-246	102	-040
COLLEGE TRAVEL TIME		-015	-046	041	106	-089	-085	-098	056	-013
PLACEMENT TRAVEL TIME		-094	-094	-064	-045	-202	-100	-047	-066	-059
MARITAL STATUS		199	114	132	163	316•	340	409••	-134	075
RESIDENCE		-038	-250	-154	-011	-218	-161	-090	060	001
RACE		288	269	252	261	183	237	312	214	249•

PREDICTORS	FIRST YEAR THEORETICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	SECOND YEAR THEORETICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	PRACTICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES
EXPERIENCE	256	229	294	374*	034	122	046	107	088
GRANT	184	292	255	079	126	103	043	163	119
FATHER'S SCHOOL STATUS	-194	-056	-055	081	-155	-052	240	127	167
MOTHER'S SCHOOL STATUS	-014	-182	-112	132	-319*	-120	342	110	194
FATHER'S LEAVING AGE	073	-018	-036	-195	143	-020	-361*	-071	-185
MOTHER'S LEAVING AGE	-030	025	035	042	208	135	-180	-166	-171
FATHER'S JOB	132	-105	-049	122	-017	045	071	-063	-014
MOTHER AT HOME PRE-SCHOOL	-112	270	009	-115	260	049	013	168	074
MOTHER AT HOME PRIMARY SCHOOL	-514***	-004	210	-512***	119	168	-188	014	-062
MOTHER AT HOME SECONDARY SCHOOL	-254	-070	-185	-411**	068	-137	-374*	-100	-189
MOTHER AT WORK	392*	-040	188	448***	-168	130	253	000	100
NUMBER OF STAGES									
BIRTH ORDER	-023	134	083	-128	054	-035	-370	-065	-182
NO. OF SIBLINGS	-166	-315*	-282	-244	-242	-243*	-265	-203	-224
PARENTS' SOCIAL CLASS	-234	094	025	-225	119	-034	-141	-143	-141
OWN SOCIAL CLASS	-028	-165	-030	-003	-151	-090	046	-227	-137
FUTURE SOCIAL CLASS	016	-161	005	203	-091	035	217	-133	-007
DIFF. BETWEEN PRESENT AND FUTURE CLASS	059	-009	044	302	067	161	263	107	160
CLASS & EDUCATIONAL QUALIFICATIONS	000	-041	054	264	003	087	096	160	135
CLASS AND OCCUPATION	-186	106	016	-161	345*	128	111	078	086
JOB IMPORTANCE	-169	169	-020	-090	139	041	029	-083	-045
SOCIETY'S JOB RATING	-262	-013	-152	045	-084	063	225	062	127
DIFF. BETWEEN OWN AND SOCIETY'S RATING	-138	-172	-118	101	-064	021	183	129	149
DAILY PAPER	071	021	-050	-174	-075	-118	-111	-156	-136

PREDICTORS	FIRST YEAR THEORETICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	SECOND YEAR THEORETICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES	PRACTICAL CRITERION 1968 SAMPLE	1969 SAMPLE	COMBINED SAMPLES
PARENTS' DAILY PAPER	154	482***	112	010	-181	-093	-143	-070	097
SUNDAY PAPER	117	-086	-104	-303	-139	-216	-130	-099	-111
PARENTS' SUNDAY PAPER	021	101	057	-146	056	-017	-010	-230	-161
TELEVIEWING TIME	-146	064	022	-097	-116	-108	-080	302	163
RELIGION	-183	148	041	148	247	201	240	-038	064
CHURCH ATTENDANCE	-105	080	050	163	187	175	271	-107	037
FUTURE QUALIFICATIONS	158	-022	-006	023	041	033	024	-040	-016
IN SAME FIELD	069	118	100	155	026	084	161	289	240*
UNIVERSITY PREFERRED	018	198	135	185	151	167	341	199	252*
OPINION OF PAY	-108	170	060	145	121	126	070	134	112
OPINION OF PROSPECTS	-418**	-100	-183	-203	-124	-129	-108	-152	-131
REASON FOR ENTERING SOCIAL WORK FIELD	-233	223	-048	-237	137	-041	143	169	156
ALTERNATIVE JOB	362	-151	034	-029	-276	-164	-150	254	105
CHOICE OF COLLEGE	-023	043	005	-088	095	002	-041	-025	-005
SEX	083	133	053	050	118	087	058	-093	-035
SOCIAL WORK CHILD CARE OPTION	433***	487***	525****	264	414***	344***	-020	069	036

* p <.05 ** p <.02 *** p <.01 **** p <.001

Table 9 reveals highly significant correlations between cognitive test predictors, school leaving qualifications, preference for social work rather than child care and both theoretical criteria. However, there are only two noteworthy predictors of the practical criterion: the measures of persistence and social value.

5. Multiple Correlations

The following tables show the most effective batteries of predictors for each of the main criteria at the .01 and .05 level of significance.

Health Visitors' Theoretical Criterion

TABLE 10

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968 (N=45)	Unstressed speed, Connolly L-; Difference between own and society's rating of job importance - .	R=.728	.01
	Unstressed speed; Connolly E-; Connolly L-; Religious values-; School status; Age-; Mother at home (primary school)-; Difference between own and society's rating of job importance - .	R=.898	.05

TABLE 11

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1969 (N=43)	Connolly L-; Mother at work during student's school and pre-school life.	R=.597	.01
	Connolly L-; School-qualification; Marital status; Mother at work during student's school and pre-school life.	R=.766	.05

TABLE 12

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968 & 1969 (N=88)	Reading comprehension test: Connolly L-; School qualification; Mother at home (pre-school) - .	R=.657	.01
	Unstressed speed; Reading comprehension; Connolly L-, 16 P. Factor M-; School qualification; Mother at home (pre-school)-; Difference between own and society's rating of job importance - .	R=.746	.05

The above tables reveal that the Connolly Occupational Interests field L- (a lack of interest in things rather than people and a liking for working with tangible things as distinct from verbal concepts) makes a significant and consistent contribution to the size of the multiple correlation coefficient.

Health Visitors' Practical Criterion.

TABLE 13

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968 (N=45)	None	-	.01
	Unstressed speed; Connolly L-; Aesthetic Values; 16 P. Factor A; 16 P. Factor C; Rating of occupation as determinant of class. Assessment of importance of health visiting-; Daily newspaper	R=.810	.05

TABLE 14

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1969	None	-	.01
(N=43)	16 P. Factor Q_3-; School status	R=.526	.05

TABLE 15

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968 & 1969	None	-	.01
(N=88)	None	-	.05

The above tables illustrate the difficulty of combining variables to predict the practical criterion.

Social Workers' First Theoretical Criterion.

TABLE 16

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968	None	-	.01
(N=40)	Mill Hill Vocabulary Scale; 16 P.Factor Q_1; 16 P.Factor Q_2-; School qualification; Racial origin; Parents' social class-; Opinion of prospects -	R=.923	.05

TABLE 17

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1969	None	-	.01
(N=41)	Mill Hill Vocabulary Scale; Reading comprehension; Social values; Rating of educational qualifications as determinant of class-; Preference for university; Social work option.	R=.886	.05

TABLE 18

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968 & 1969 (N=81)	Reading comprehension; 16 P. Factor L-; Racial origin; Social work option.	R=.714	.01
	Mill Hill Vocabulary Scale; Reading comprehension; 16 P.Factor E-; Boarding School attendance; Racial origin; Class aspirations-; Preference for university. Social work option.	R=.805	.05

From the above tables it can be seen that the Mill Hill Vocabulary Scale and Haward's Reading Comprehension Test or school qualifications make a notable contribution to the size of the multiple correlation coefficient with all three samples.

Social Workers' Second Theoretical Criterion.

TABLE 19

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968	None	-	.01
(N=32)	Raven's Matrices; Reading comprehension	R=.736	.05

TABLE 20

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1969	None		.01
(N=41)	A.H.4 Pt.1.; Economic Values-; Rating of importance of occupation as determinant of class-; Preference for university Opinion of prospects-; Social work option.	R=.834	.05

TABLE 21

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968 & 1969 (N=73)	Level (persistence); Age -	R=.572	.01
	Level (persistence); Reading comprehension; Age-; Family size-; Rating of occupation as determinant of class-; Religion; Preference for university; Opinion of prospect -	R=.783	.05

Cognitive variables make the largest contribution to the second theoretical criterion but the exact predictors vary with the sample.

Social Workers' Practical Criterion.

TABLE 22

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968	None	-	.01
(N=32)	Raven's Matrices; 16 P.Factor Q -; Boarding school attendance.	R=.727	.05

TABLE 23

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1969	None	-	.01
(N=41)	None	-	.05

TABLE 24

MOST EFFECTIVE BATTERY OF PREDICTORS

SAMPLE	BATTERY	COEFFICIENT	SIG. LEVEL
1968 & 1969	None	-	.01
(N=73)	Level (persistence); Theoretical values-. School status-; Family size -.	R=.580	.05

As with the Health Visitors, the technique of multiple correlation failed to produce a reliable and significant battery of predictors.

6. Differences Between High and Low Achievers.

Values of "t" for all predictor variables appear in Appendix 5.

Health Visitors' Theoretical Criterion.

1968 INTAKE

TABLE 25

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 15 HIGH ACHIEVERS MEAN	S.D.	N = 15 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
Connolly H	14.60	3.33	11.80	3.63	2.127	.05
Connolly L	6.80	3.38	10.93	3.97	2.964	.01
Political Values	24.53	3.81	18.47	5.84	3.252	.01
School Qualification	5.80	2.95	3.17	2.78	2.428	.05
School Leaving Age	4.07	0.70	2.80	1.08	3.692	.001
16 P.Factor Q4	11.47	3.87	14.47	3.27	-2.216	.05
16 P.Factor Extraversion	5.00	2.22	3.33	1.67	2.249	.05

TABLE 26

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t
Unstressed Speed	215.33	9.95	196.07	40.21	1.740
Level (persistence)	388.13	53.87	336.00	92.50	1.822
School Status	4.20	1.70	5.33	1.59	-1.816
Age	27.53	6.72	33.00	8.22	-1.928
College Travel Time	3.93	1.87	2.80	1.37	1.824
Placement Travel Time	3.40	1.89	2.40	1.12	1.703
Class Aspirations	2.53	0.64	2.07	0.70	1.815
Occupation and Class	2.00	1.00	2.80	1.08	-2.034

No cognitive test discriminated significantly between high and low achievers in this intake, though educational variables (school qualifications and leaving age) were effective. Two occupational interests fields, political values and two personality factors also discriminated between the groups.

1969 INTAKE

TABLE 27

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
Raven's Matrices	63.14	4.77	56.29	6.11	3.186	.01
Reading Comprehension	19.07	3.15	15.00	4.64	2.460	.05
School Qualification	6.57	2.63	2.93	2.37	3.707	.001
Effort at School	2.50	0.76	3.86	1.03	-3.831	.001
Relevant Experience	0.79	0.70	0.14	0.53	2.669	.02
Mother at Home (primary school)	1.57	0.51	1.93	0.27	2.249	.05
Mother at Work (No. of stages)	1.14	1.23	0.29	0.61	2.232	.05

TABLE 28

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t
Connolly L	7.71	3.47	9.79	2.46	-1.763
16 P. Factor Q_1	10.29	2.79	8.79	1.42	1.728
Residence	1.00	0.00	0.79	0.43	1.761
Mother at Home (pre-school)	1.79	0.43	2.00	0.00	-1.761

With the 1969 intake the school leaving qualification again discriminated significantly between the groups, but the other discriminating variables differed markedly from those of the previous year.

Health Visitors' Practical Criterion

1968 INTAKE

TABLE 29

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 15 HIGH ACHIEVERS		N = 15 LOW ACHIEVERS			
PREDICTOR	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
Sunday Newspapers	0.40	0.51	0.80	0.41	-2.287	.05

TABLE 30

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

	N = 15 HIGH ACHIEVERS		N = 15 LOW ACHIEVERS		
PREDICTOR	MEAN	S.D.	MEAN	S.D.	t
Unstressed Speed	218.13	8.69	201.60	29.93	1.985
Rating of Job Importance	4.10	1.28	3.07	1.79	1.751

1969 INTAKE

TABLE 31

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
PREDICTOR	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
School Qualific.	4.79	2.29	2.50	2.68	2.288	.05
Church Attendance	5.00	1.24	3.85	1.46	2.114	.05

TABLE 32

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS		
PREDICTOR	MEAN	S.D.	MEAN	S.D.	t
16 P.Factor B	9.86	1.41	8.85	1.34	1.836
School Status	3.64	1.50	4.77	1.42	-1.935
Coed/Single Sex School	1.93	1.62	1.62	0.51	1.877
Opinion of Pay	2.71	0.73	3.08	0.28	1.697

No significant&reliable variable distinguished between the groups.

Social Workers' First Theoretical Criterion

1968 INTAKE

TABLE 33

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 13 HIGH ACHIEVERS MEAN	S.D.	N = 13 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
A.H.4. Pt.1	42.54	11.03	33.38	7.24	2.405	.05
A.H.4	84.15	18.20	68.00	15.20	2.359	.05
Mill Hill V.S.	65.23	7.58	55.62	6.92	3.243	.01
Level (persistence)	401.46	74.88	328.46	46.78	2.864	.01
Reading Comprehension	19.69	4.05	12.77	4.19	4.114	.001
School Qualification	6.85	2.38	1.69	2.06	5.679	.001
Age	25.54	4.31	30.69	7.17	-2.135	.01
Marital Status	0.85	0.38	0.46	0.52	2.098	.05
Mother at Home (primary school)	1.38	0.51	2.00	0.00	-4.211	.001
Mother at Home (secondary school)	1.38	0.51	1.85	0.38	-2.56	.02
Mother at work (No. of stages)	1.54	1.20	0.38	0.51	3.082	.01
Social Work Option	0.77	0.44	0.23	0.44	2.954	.01

TABLE 34

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	N = 13 HIGH ACHIEVERS MEAN	S.D.	N = 13 LOW ACHIEVERS MEAN	S.D.	t
A.H.4 Pt.II	41.62	9.24	34.62	9.67	1.813
Stressed Speed	212.00	10.57	204.39	9.78	1.831
16 P. Factor G	9.77	2.62	12.46	3.97	-1.959
11+ Success	2.31	1.18	1.38	1.12	1.980

1969 INTAKE

TABLE 35

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
A.H.4. Pt.1	46.21	6.59	39.20	5.58	2.889	.01
A.H.4	89.93	12.21	78.29	14.39	2.224	.05
Raven's Matrices	56.64	3.73	52.57	4.24	2.599	.02
Stressed Speed	214.29	10.94	202.86	8.08	3.030	.01
Accuracy	16.86	1.29	14.86	1.66	3.430	.01
Level (persistence)	411.71	60.94	335.14	66.14	3.070	.01
Reading Comprehension	19.57	5.43	14.50	3.44	2.844	.01
School Qualifications	8.04	3.58	4.86	3.25	2.371	.05
Residence	0.50	0.52	0.86	0.36	-2.050	.05
Social Work Option	0.86	0.36	0.29	0.47	3.471	.01

TABLE 36

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t
Mill Hill V.S.	65.07	9.13	59.00	5.74	2.029
Unstressed Speed	215.43	12.44	205.36	13.47	1.980
Connolly F	18.50	3.06	20.57	2.34	-1.937
Age	25.57	4.20	31.21	9.15	-2.020
Alternative job	2.07	0.92	1.29	1.20	1.860

The above tables show clearly the success of cognitive variables in discriminating between high and low achievers on the first theoretical criterion. Those who prefer the social work option rather than child care do significantly better, as do the younger students.

Social Workers' Second Theoretical Criterion.

1968 INTAKE

TABLE 37

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 11 HIGH ACHIEVERS MEAN	S.D.	N = 11 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
A.H.4. Pt.II	42.09	8.03	31.18	7.64	3.113	.01
A.H.4	84.09	16.75	65.73	13.96	2.663	.02
Raven's Matrices	56.00	2.86	49.73	6.05	2.963	.01
Accuracy	15.18	2.32	11.64	3.41	2.714	.02
Level (persistence)	418.27	67.16	335.91	66.13	2.763	.02
Reading Comprehension	19.18	4.67	12.27	3.38	3.790	.01
16 P. Factor Q_3	9.45	2.42	11.73	2.24	-2.186	.05
School Qualifications	6.18	2.96	2.64	2.69	2.799	.02
Age	25.91	5.79	33.73	7.58	-2.593	.02
Marital Status	0.82	0.40	0.36	0.50	2.272	.05
Mother at Home (primary school)	1.45	0.52	2.00	0.00	-3.345	.01
Mother at Home (secondary school)	1.55	0.52	2.00	0.00	-2.737	.02
Mother at Work (No. of stages)	1.27	1.19	0.09	0.30	3.041	.01
Class and Educational Qualification	3.45	1.29	2.36	1.03	2.088	.05

TABLE 38

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	N = 11 HIGH ACHIEVERS MEAN	S.D.	N = 11 LOW ACHIEVERS MEAN	S.D.	t
A.H.3 Pt.1	42.00	10.23	34.55	7.16	1.887
16 P. Factor B	10.36	1.63	9.00	1.48	1.953
Reason for entering field	1.00	1.00	1.64	0.50	-1.810

1969 INTAKE

TABLE 39

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
A.H.4. Pt.1	46.43	7.22	38.29	3.83	3.591	.01
A.H.4	92.14	11.75	77.71	10.74	3.268	.01
Mill Hill V.S.	65.64	8.85	59.00	5.68	2.277	.05
Stressed Speed	212.36	11.28	202.43	7.41	2.653	.02
Unstressed Speed	217.43	10.79	204.29	11.42	3.015	.01
Level (persistence)	407.14	57.06	33.14	63.60	3.249	.01
Reading Comprehension	19.21	5.47	14.79	2.99	2.556	.02
Connolly F	18.50	3.37	20.93	2.40	-2.118	.05
Economic Values	27.50	7.16	33.75	4.93	-2.489	.02
School Qualifications	6.82	4.15	3.93	2.86	2.067	.05
Social Work Option	0.64	0.50	0.21	0.43	2.351	.05

TABLE 40

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	HIGH ACHIEVERS MEAN	S.D.	LOW ACHIEVERS MEAN	S.D.	t
A.H.4. Pt.II	45.71	8.74	39.43	8.41	1.867
Religious Values	26.82	14.86	17.64	9.88	1.855
16 P. Factor I	12.36	3.13	10.14	2.57	1.976
Marital Status	0.79	0.43	0.43	0.51	1.946
Religion	2.36	1.15	1.71	0.73	1.721
Alternative job	0.29	0.47	0.64	0.50	-1.839
Residence	0.50	0.52	0.86	0.36	-2.052

Cognitive measures again proved the most efficient discriminators between high and low achievers on the second theoretical criterion. Other measures, however, varied with the intake.

Social Workers' Practical Criterion.

1968 INTAKE

TABLE 41

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 11 HIGH ACHIEVERS MEAN	S.D.	N = 11 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
Raven's Matrices	55.36	2.66	50.00	7.24	2.198	.05
Accuracy	15.36	2.34	12.55	3.17	2.255	.05
Connolly G	12.82	2.93	9.00	3.29	2.742	.02
16 P. Factor Q_3	9.18	2.27	11.82	2.18	-2.653	.02
Extra Courses	1.09	0.30	1.55	0.52	-2.423	.05
Age	25.00	5.93	33.64	7.32	-2.900	.01
Marital Status	0.91	0.30	0.36	0.50	2.983	.01
Mother's School Status	7.18	1.60	5.00	2.65	2.227	.05
Father's School Leaving Age	1.82	0.98	3.82	2.64	-2.246	.05
Mother at Home (secondary school)	1.45	0.52	1.91	0.30	-2.423	.05

TABLE 42

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	N = 11 HIGH ACHIEVERS MEAN	S.D.	N = 11 LOW ACHIEVERS MEAN	S.D.	t
Reading Comprehension	18.45	5.43	14.00	5.00	1.906
16 P. Factor Q_2	9.91	3.36	12.00	1.90	-1.712
Birth Order	2.73	1.56	4.00	1.34	-1.953
Family Size	1.27	1.10	2.45	1.69	-1.851

1969 INTAKE

TABLE 43

SIGNIFICANT DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t	SIGNIF. OF DIFF.
Level (persistence)	409.07	54.62	348.00	80.31	2.267	.05
Social Values	47.39	3.41	43.86	4.61	2.220	.05
School Status	5.57	2.03	4.00	1.84	2.066	.05
School Leaving Age	2.64	1.22	3.86	1.66	-2.135	.05

TABLE 44

NON-SIGNIFICANT BUT SUGGESTIVE DIFFERENCES

PREDICTOR	N = 14 HIGH ACHIEVERS MEAN	S.D.	N = 14 LOW ACHIEVERS MEAN	S.D.	t
16 P. Factor Extraversion	4.14	2.14	5.82	2.24	-1.955
Day/Boarding Pupil	2.00	0.00	1.79	0.43	1.761
Further Qualification in Same Field	0.79	0.43	0.43	0.51	1.946

No measure discriminated significantly and consistently between high and low achievers with both intakes. However, cognitive variables and a measure related to interest in people (Connolly G in 1968; Social Values in 1969) are common to both lists of predictors.

7. Principal Components Analysis

Health Visitors

The loadings of 91 predictor variables and two main criterion variables appear in Appendix 6.

The following table shows the variance of each of the first ten components and their contribution to the total variance.

TABLE 45

PRINCIPAL COMPONENT ANALYSIS

N = 88

COMPONENT NO.	EIGENVALUE OR COMPONENT VARIANCE	ACCUMULATED VALUE AS % OF TOTAL VARIANCE
1	7.70	8.28
2	7.25	16.07
3	5.93	22.45
4	4.86	27.68
5	3.99	31.97
6	3.72	35.97
7	3.21	39.42
8	3.16	42.83
9	3.01	46.06
10	2.90	49.18

Social Workers

The loadings of 94 predictor variables and three main criterion variables appear in Appendix 6.

Table 46 shows the variance of each of the first ten components and their contribution to the total variance.

TABLE 46

PRINCIPAL COMPONENTS ANALYSIS

N = 73

COMPONENT NO.	EIGENVALUE OR COMPONENT VARIANCE	ACCUMULATED VALUE AS % OF TOTAL VARIANCE
1	9.18	9.47
2	7.46	17.16
3	7.10	24.47
4	5.27	29.90
5	4.73	34.78

COMPONENT NO.	EIGENVALUE OR COMPONENT VARIANCE	ACCUMULATED VALUE AS % OF TOTAL VARIANCE
6	4.12	39.03
7	3.65	42.80
8	3.25	46.15
9	3.03	49.27
10	2.70	52.06

CHAPTER VI

DISCUSSION OF RESULTS.

The Criteria.

An examination of the intercorrelations of criteria (see Table 2, p.173) reveals low to moderately high relationships (.242 - .602) among the five individual components of the main theoretical criterion of the Health Visitors. With the main theoretical criterion itself, Examination paper 2 (The Individual in Groups and Social Policy) has the highest correlation with a coefficient of .781 and the Family Case Studies the lowest (r=.671).

The three individual components of the main practical criterion also intercorrelate fairly highly (.554 - .715). Of these, "work with the public", has the highest correlation with the main practical criterion (r = .878), and "work with colleagues" the lowest (r = .707).

Correlations between the theoretical criteria and the main practical criterion are lower, ranging from .191 (just below the .05 significance level) for Examination paper 3 (Social Aspects of Disease) to a highly significant coefficient of .371 for Examination paper 2 (The Individual in the Group and Social Policy). Indeed, the latter predicts the main practical criterion slightly better than does the main theoretical criterion.

It is interesting to note that "fitness for promotion" has its highest correlation with "work with the public", suggesting that supervisors have tended to base their rating of the promotion prospects of the health visitor on her work with the public rather than on how effectively she co-operates with colleagues or on her administrative ability.

A measure of the reliability of the supervisors' ratings may be obtained by comparing the weighted component with the overall grading of performance. The coefficient of .716 indicates a high

degree of consistency between the two types of rating.

With the social workers the range of intercorrelations among the five individual components of the main theoretical criterion is greater than that of the health visitors, the lowest coefficient being .175, the highest .785. There are two high correlations between the individual components and the first year main theoretical criterion: these are the examinations in Human Growth and Behaviour ($r = .844$) and Social Policy ($r = .809$); lowest are the correlations for Social Influence ($r = .565$) and for Law ($r = .624$). Although the correlations between the individual components of the first year theoretical criterion and the second year theoretical criterion are slightly smaller, the pattern is the same, papers in Human Growth and Behaviour and Social Policy being the highest, Social Influence and Law the lowest.

There are high intercorrelations among the three individual components of the main practical criterion of the order of .8 and .9. Similar very high correlations exist between each of these components and the main practical criterion, "professional development" being the highest.

The correlations of the theoretical components with the main practical criterion are higher than those of the health visitors. It is interesting to observe that the first year main theoretical criterion and the second year theoretical criterion predict the main practical criterion equally well with a coefficient of .495 which is highly significant. The most successful individual theoretical component was Examination paper 3 (Human Growth and Behaviour) which correlated .485 with the practical criterion. Thus, of the theoretical components this particular paper was the most effective predictor of all three main criteria. Weakest predictors are papers in Social Influence and Law with correlations of .309 and .311. Nevertheless, it is encouraging to

note that the main theoretical criteria as well as every theoretical component correlate positively and significantly ($p < .01$) with the main practical criterion. It will be recalled that the practical work ratings were made by supervisors who had no knowledge of the students' academic attainments, and their assessments were thus not influenced by "halo" effects.

In order to establish a measure of reliability the weighted criterion was compared with the supervisors' overall grading. The coefficient of .780 was rather higher than that recorded for the health visitors ($r = .716$).

Test Differences between Health Visitors and Social Workers.

Four of the five conventional intelligence test measures failed to discriminate reliably between the two types of community worker. Although the two separate parts of A.H.4 and the test as a whole discriminated significantly in favour of the social workers in the 1969 intake, the direction of the differences was reversed in the previous year, though not significantly. The Mill Hill Vocabulary Scale also failed to reveal any noteworthy difference. It is interesting to observe that the intellectual measure of the 16 P.F. test (Factor B) was also inconsistent but opposite in direction to A.H.4; thus Factor B discriminated in favour of the social workers at a high level ($p < .001$) in 1968 but the following year it only marginally failed to reach the .05 level of significance in favour of the health visitors. Of this group of conventional tests Raven's Matrices proved consistent in direction ($t = -1.491$ for 1968 and -2.298 for 1969), but only in the latter year did the difference reach the .05 level of significance. Raven (1960), quoting the work of Burt, maintains that this test has a "g" saturation of 0.82, and that a person's score provides an index of his intellectual capacity whatever his nationality or education.

It appears, therefore, that on this type of test - an untimed, non-verbal test of power rather than of speed - social workers tend to be superior.

There was virtually no difference between the groups in either year on the Nufferno Tests of Stressed Speed and Unstressed Speed. Moreover, the Nufferno Accuracy Test, while discriminating significantly in favour of the health visitors in 1968, almost reached the .05 level of significance in favour of the social workers in the following year. Because of the considerable emphasis placed on accuracy in the formal training of nurses, it is surprising that their superiority on this measure in 1968 was not repeated in 1969. The most successful of the Nufferno battery was the Level Test or measure of persistence. In both years the social workers proved more persistent in a problem-solving situation, though the difference was only significant with the 1969 intake.

The health visitors were expected to do significantly better than the social workers on the Reading Comprehension Test, which consists of questions on a passage describing the physiology of the brain, because of their relevant frame of reference. In 1968, the test discriminated significantly in favour of the health visitors at the .01 level; and the mean difference in raw scores between the health visitors and social workers was 3.04, which is similar to the difference between adults and student nurses of 2.53 reported by Haward (1965). In 1969, however, there was virtually no difference between the groups, the social workers' mean score being very slightly higher. This may be partly explained by the fact that in the 1969 intake the social workers were significantly better at speed tests of intelligence (and speed makes an important contribution to success on the reading comprehension test), they were significantly more persistent in a problem solving situation and they also tended to be more accurate.

The Connolly Occupational Interests Questionnaire reveals two significant differences between the groups consistent over both years. The health visitors are significantly more interested in things, particularly in the natural sciences - knowing how phenomena occur, why they happen and what they lead to. Their original interest in these subjects has undoubtedly been reinforced by their nursing training. Nevertheless, Connolly (1969) reveals that in relation to the interest level of the general population, health visitors are approximately at the 50th percentile. It is the social workers who show lack of interest in the natural sciences with pereentiles of 27 (1968) and 32 (1969). In a second area - an interest in people rather than things, in which the concern is primarily for people as individuals - the social workers rate more highly, and the differences between the groups is significant at the .02 level for each year. In order to take this course of training, some social work students have given up more lucrative employment while others have sacrificed their standard of living to exist on a grant considerably smaller than their previous income for a period of two years. They are more likely to be motivated by a genuine desire to help people and to be "primarily concerned for people as individuals" than health visitors who may view their course of training as a means of escape from the rigid discipline of the hospital to a more independent and congenial post.

Least successful of the non-cognitive tests was the Allport-Vernon-Lindzey Scale of Values. Only one value revealed a difference between the two groups. The health visitors scored significantly higher ($p < .05$) on the religious value in the 1969 intake, and although the difference in 1968 was in the same direction, it was by no means significant.

Although in terms of reliable significant differences the 16 P.F. was unsuccessful, a closer examination of the "t" values

reveals consistency in the direction of the differences for certain traits. Reference has already been made to the unreliability of the intellectual measure (Factor B) of the 16 P.F. test. In addition to Factor B six traits discriminated significantly between the groups in 1968. The difference for Factor E was significant at the .02 level and marginally failed to reach the .05 level of significance the following year. This conclusion that social workers tend to be more dominant (or health visitors more submissive) is probably partly due to the submissive role the latter have been forced to adopt during their nursing training and partly due to the fact that half of the former consist of men. On the related Factor H there are also indications of a difference, and the health visitors tend to be more shy, restrained, diffident and timid, characteristics which may have been partly inculcated under authoritarian regimes in hospitals where everyone knows her place in the medical hierarchy. The mean scores on Factor Q_4 also show that health visitors are more likely to be conservative in their attitudes and to respect established ideas. Factor O reveals them to be more apprehensive, depressive or guilt-prone. In 1968 the health visitors were significantly more anxious, and although this tendency was evident in 1969, the difference was far from significant. The same pattern existed for the other second order factor, health visitors being significantly more introverted with the 1968 intake with a similar but non-significant tendency the following year. In 1969 Factor G alone discriminated significantly between the groups and the 1968 differences showed a similar trend without reaching the level of significance. This indicates that health visitors tend to be more conscientious, more persevering, more staid and more rule-bound. These are qualities one associates with nurses. Not only have they been subjected to various selection procedures at different stages of their training, they have had to display qualities of diligence and perseverance as well as having

had to conform to numerous regulations in order to survive their courses.

Thus, although there are indications of personality differences between health visitors and social workers, only two measures of Occupational Interests provide evidence in support of the hypothesis that tests would discriminate significantly and consistently between the groups.

Product-Moment Correlations.

Health Visitors' Theoretical Criterion.

With the health visitors particularly it should be appreciated that the processes of selection have been operating over a number of years. Courses of pre-nursing training, nurse training itself with its high drop-out rate, training in obstetrics which may attract a limited and biased sample of candidates and, finally, the motivation to perform a more socially orientated form of work have progressively reduced differences within the sample. Moreover, the fact that in order to gain admission to a health visiting course a nurse must first be sponsored by her local health authority and, secondly, be successful in the rigorous college selection procedure (see P.16) increases further the homogeneity of the group and the difficulty of the predictive measures.

Although there appeared a small positive and consistent relationship between A.H.4 and the theoretical criterion, in no case did the coefficient reach the .05 level of significance. Undoubtedly the size of the coefficients was reduced by the use, during the selection procedure, of N.I.I.P. Group Test No.3, which, Heim (1956) reported, correlated .597 with A.H.4.

A small positive and consistent relationship between Raven's Matrices and the criterion support the findings by Crookes & French (1961) in the field of nursing; but the related Mill Hill Vocabulary

Scale, which is an unsuccessful predictor with the 1968 sample, reached the .05 level of significance with the 1969 sample. This may be partly explained by the fact that, whereas in the first sample it correlates significantly with A.H.4 (r = .439), it is virtually unrelated to school leaving qualification; in the 1969 sample, however, while the Mill Hill Scale has negligible correlations with the other cognitive tests it is significantly (r = .432) associated with the school leaving qualification which in both year-groups is a significant predictor. Another factor which helps to explain the better performance of the Mill Hill test in 1969 is the fact that whereas in this year it only has a low correlation with age (a negative predictor of success), in the 1968 sample there is a highly significant relationship (r = .592) with age.

1968 INTAKE

TABLE 47

THE MILL HILL VOCABULARY SCALE AND RELATED VARIABLES.

	MILL HILL	SCHOOL QUALIFIC.	AGE	A.H.4	CRIT.
MILL HILL		-080	592	439	191
SCHOOL QUALIFICATION			461	098	303
AGE				009	333
A.H.4					218

1969 INTAKE

TABLE 48

THE MILL HILL VOCABULARY SCALE AND RELATED VARIABLES.

	MILL HILL	SCHOOL QUALIFIC.	AGE	A.H.4	CRIT.
MILL HILL		432	168	025	329
SCHOOL QUALIFICATION			-004	125	393
AGE				-350	-235
A.H.4					279

Furneaux's cognitive tests are consistent in showing positive relationships with the criterion, but their predictive validity is considerably lower in the 1969 sample, particularly in the case of the stressed speed, unstressed speed and accuracy tests. The following tables indicate a possible explanation.

1968 INTAKE

TABLE 49

THE NUFFERNO BATTERY AND RELATED VARIABLES.

	STRESSED SPEED	UNSTRESSED SPEED	ACC.	A.H.4 PT.I	A.H.4 PT.II	A.H.4	R.M.	CRIT.
STRESSED SPEED		741	308	074	258	202	259	442
UNSTRESSED SPEED			638	159	369	313	404	524
ACCURACY				220	509	433	647	262
A.H.4 PT.I					613	857	287	253
A.H.4 PT.II						932	541	157
A.H.4							484	218
RAV. MAT.								207

1969 INTAKE

TABLE 50

THE NUFFERNO BATTERY AND RELATED VARIABLES.

	STRESSED SPEED	UNSTRESSED SPEED	ACC.	A.H.4 PT.I	A.H.4 PT.II	A.H.4	R.M.	CRIT.
STRESSED SPEED		701	427	570	591	650	558	251
UNSTRESSED SPEED			696	529	656	674	545	132
ACCURACY				449	550	568	567	189
A.H.4 PT.I					589	850	540	258
A.H.4 PT.II						926	559	243
A.H.4							616	279
RAV. MAT.								212

The Nufferno Tests correlate much more highly with the conventional intelligence tests in the 1969 intake, meaning that the more intelligent students also tended to be more accurate and to be better able in a problem solving situation to cope with stress and speed. In the 1968 intake where there is a much smaller relationship between intelligence and the above qualities, the Nufferno Tests are better able to discriminate.

Although the fourth Nufferno test - the measure of persistence - is only significant in the 1968 sample, the 1969 coefficient ($r = .279$) indicates that it is a fairly reliable predictor of course success. The intensive one-year course involving frequent essays and tests, case studies, projects, formal examinations and course work makes considerable demands on the students who, in many cases, have to cope with considerable travelling and family life. It is interesting to note that in each sample there is an inverse relationship between age and persistence ($r = -.289$ for 1968; $r = -.325$ for 1969). The younger students therefore tend to apply themselves more persistently to their academic work, perhaps partly because the habits inculcated in their nursing training are stronger and partly because they have fewer family commitments.

The most successful cognitive test and the only one which proved significant with both samples was Haward's Reading Comprehension Test, which correlates significantly with all other cognitive tests except the Mill Hill Vocabulary Scale. During their course health visitors are confronted by a completely new type of reading situation. The concise factual medical textbooks of their previous training now give way to more abstract theoretical texts such as those on sociology and human growth and behaviour, and a completely new approach is required. Less emphasis is placed on rote learning and more on an intelligent interpretation of the

literature. The reading comprehension test thus appears to measure in part this ability. Both the finding by Hildreth (1934) that difficulties in dealing with text matter is a major factor in learning impairment associated with formal study, and the conclusion by Hunt (1940) that reading comprehension correlates more highly with the results of written examinations than any other test which presupposes no previous knowledge of the subject matter and no scholastic attainments other than language, appear to be supported by the results of health visitor students. It is indeed surprising that colleges of education and universities have almost completely ignored the value of a reading comprehension test in their admissions procedure.

Only two interest fields of the Connolly Occupational Interests Questionnaire are related to success. The coefficients are highly significant in the 1968 sample and marginally fail to reach significance in the following year. Those students who do better on the theoretical criterion tend to be more interested in the use of words, verbal concepts, and activities that require the use of verbal concepts and imagery. Since one of the major aims of the course is to develop the students' powers of written and spoken expression and to encourage reading in more theoretical books such as Sociology, the positive relationship of this variable to the criterion is not surprising; and the fact that it has negligible correlations with all cognitive tests except the Mill Hill Vocabulary Scale makes it a useful predictor. The poorer students tend to show a greater interest in things rather than people and a liking for working with tangible things - using tools and manipulating materials - as distinct from verbal concepts. In the two interest fields where a significant correlation might have been expected (an interest in people rather than things; an interest in influencing people's attitudes or behaviour) there was little

relationship with the criterion. It will be recalled that Morea (1969) with a sample of business studies students found that in two relevant areas (interest in people; interest in codifying, classifying and arranging data), the Connolly Test was successful in discriminating between successful and withdrawn students.

The Allport, Vernon, Lindzey Scale of Values achieved no noteworthy correlation with the criterion in either sample.

Not one of the eighteen traits of the 16 P.F. correlated significantly with the criterion but there are noteworthy and consistent relationships over the two years between the second order factor extraversion and theoretical success; in each case the coefficient just fails to reach the 5% level of significance. The positive relationship between extraversion and academic success in this study supports the findings of Locke (1963) at Keele and Warburton (1963) at Manchester who reported that this trait is related to success in the Arts. However, Anderson (1961) in Australia with the 16 P.F. and the overwhelming majority of investigators with the M.P.I. or E.P.I. reported that introversion is positively related to success. In the present study the correlations between extraversion and the cognitive tests are negligible and thus one cannot explain the relative success of extraverts in terms of superior intellectual ability. It is possible that the Connolly Occupational Interests Questionnaire provides a clue to the explanation. In both samples there are highly significant negative relationships between extraversion and two interest fields: an interest in codifying, classifying and arranging data,and an interest in things rather than people and a liking for working with tangible things rather than with verbal concepts. The greater interest of the extraverts in working with people and their preference for dealing with verbal concepts would

be expected to contribute to success on a theoretical criterion which relies heavily on verbal facility and is concerned primarily with human relationships. Perhaps it is the fact that extraverts tend to hold these interests rather than extraversion per se which makes for success.

The second order factor anxiety bears little relationship to success with either year-group. Although various researchers (Cattell, 1957a; 1960a; Furneaux, 1956; Lynn, 1959; Broadbent, 1958; Lynn and Gordon, 1961; Smithers and Batcock, 1970, with one of two groups;) have demonstrated significant relationships between neuroticism and academic performance, these studies have almost all been at the university level. There is some evidence that where examinations are less demanding the relationship is either negligible or in the opposite direction. Thus Warburton, Butcher and Forrest (1963) with post-graduate students in education found that Factor C+ (stability) was significantly associated with success. Using the M.P.I., Halliwell (1965) reported a similar finding with a two-year trained college group, while Gibbons and Savage (1965) found no relationship between neuroticism and an examination in education. A parallel may be drawn between the health visitors' course and those in university training departments and colleges of education, in which, with theoretical and practical criteria, the academic criterion of success cannot be as rigorous as that on university degree courses.

The questionnaire data produced only one item which was significant with the criterion in both year-groups. School leaving qualifications were significant at the .05 level in 1968 and at the .01 level the following year. With the academic criterion in colleges of education and university training departments there have been similar results. Warburton, Butcher and Forrest (1963) reported a correlations with Final Theory mark significant at the

.05 level while Cortis (1968), also at Manchester, found correlations significant at the .01 level between "O" levels and Educational Theory marks and between "A" levels and the same criterion. Halliwell (1965) and Entwistle and Entwistle (1970) both reported significant correlations between "A" levels and academic performance in a college of education. On an intensive one-year course such as that of the health visitors, higher educational qualifications must inevitably facilitate a speedier adjustment to course requirements, and the deficiency of the students with poorer school leaving attainments cannot be made good in such a relatively short time. Moreover, the highly significant correlations between school leaving qualifications and school leaving age indicate that the better qualified students tend to have had more recent school experience of academic study.

School-leaving age itself acts as a significant positive predictor with the 1968 sample but is insignificant and, indeed, in the opposite direction with the 1969 sample. The variable "age" (a negative predictor of success with both intakes) partly explains this discrepancy. In the 1968 sample a highly significant correlation ($r = -.563$) exists between school leaving age and age: thus the older students tended to leave school much earlier than did younger students. In the 1969 sample, however, there is practically no relationship between leaving age and age ($r = .053$).

A highly significant correlation ($r = .444$) appears in the 1969 sample between the students' assigned rating of their effort while at secondary school and the academic criterion, but in the previous year there is virtually no relationship ($r = -.018$). Effort at school is virtually unrelated to all but one cognitive test in both samples: the exception is the Mill Hill Vocabulary Scale which in both year groups correlates significantly with "considerable effort" at school. Thus cognitive tests throw no

light on the discrepancy between the predictive validity of effort at school in the two samples. However, in the 1969 sample there are highly significant relationships between effort and Factor G (16 P.F.) and school leaving qualifications. Thus those who stated that they put more effort into their school work tended to be more conscientious, persevering and well-organized (Factor G), and to possess better school leaving qualifications, both of which correlated positively and, in the latter case, significantly with the criterion. In the 1968 sample rating of effort at school is unrelated to Factor G ($r = .007$) and has only a small relationship with school leaving qualifications.

Other school factors (11+ success; status of school; coeducational/single sex school; whether a boarding pupil) have only small or inconsistent correlations with the criterion. These findings thus confirm those of Maclay (1968) at Birmingham University.

Although the variable "age" only reaches significance in the 1968 sample, the size and direction of the coefficient in 1969 indicates a relationship between this factor and academic attainments. The younger students tend to do better in theoretical work. But the relationship is by no means as simple as this. The older students in 1968 tend to do less well on cognitive tests, to have left school earlier, to have a poorer school leaving qualification and, most important of all, with a correlation of .750, to have family responsibilities. In 1969 they tend to perform less well on cognitive tests and to have family responsibilities. Since lack of familiarity with learning and test situations may in part explain the poorer performance of older students on cognitive tests and in subsequent examinations, family responsibilities may be the factor which aggravates their difficulties. It should be noted, however, that there appears to be little relationship between marital status per se and the criterion. The negative relationship between age

and theoretical success supports the findings of the majority of investigators in this field but conflicts notably with the results in this country of Himmelweit and Summerfield (1951) and Hopkins et al. (1958). However, it should be noted that the latter were concerned with longer courses of training at universities whereas the course of one year in this study affords little time for the older student to make good her learning deficiencies. Furthermore, in terms of age, educational attainments and intelligence, the subjects involved in the above studies were probably more homogeneous than the health visitor samples.

Although not significant, the consistency of the correlations between the amount of previous relevant experience and success indicates that those who have previously worked as a school or clinic nurse tend to do better in examinations. This is not in accord with the findings on teacher training courses where, on the theoretical criterion, Pinsent (1933) found in the case of women an inverse relationship between academic record and previous teaching experience while Turnbull (1934), who compared those with and without previous teaching experience, reported no differences between the groups in Educational Theory.

With size of grant, too, there is a consistent relationship with the theoretical criterion, but the few nurses who were seconded to the health visiting course on full salary as opposed to those on smaller local authority awards, tended both to be more intelligent and to have had more relevant experience. The literature indicates that in this country and abroad those holding the highest awards tend to fare best, but investigators have found it difficult to draw firm conclusions since the size of the financial award is often related to entry qualifications. In the present study, with the 1968 intake, size of grant was negatively correlated with school leaving qualifications ($r = -.157$), but the correlations with the conventional intelligence test measures ranged from .265 to .430.

With the 1969 intake, on the other hand, while grant was significantly correlated with school leaving qualifications ($r = 0.407$), the correlations with the intelligence test measures, though positive, were all much smaller and non-significant. It appears, therefore, that it is not the amount of the grant per se which accounts for superior performance.

The only other noteworthy relationships were those between theoretical performance and whether or not the mother went out to work during the student's school life. In all cases, though only with the 1969 intake is the level of significance reached, the mother's going out to work is associated with success. It should be noted that in the 1968 sample this variable has in most cases a highly significant relationship with the conventional intelligence test measures. In the 1969 sample this relationship is generally slight, but the mother's going out to work bears a stronger relationship with reading comprehension ability. Thus, in both year groups the variable is related to other variables whose predictive validity has already been noted. Nevertheless, the size of the correlation between "mother at work" and the cognitive variables does not appear to explain completely the academic superiority of the students whose mothers went out to work. As a result of her mother going out to work in her formative years, the student may well have developed powers of initiative and independence which subsequently stood her in good stead. But it would be unwise to conclude that the child whose mother goes out to work is likely to prove superior academically at the student level. Further research is needed.

The Practical Criterion.

The table of correlations (see p.177) between predictor variables and the criterion presents a depressing spectacle. In no case does a predictor reach the lowest significance level with

each year group. The cognitive predictors are particularly weak and in some cases are slightly negative. Although with the 1968 intake the stressed and unstressed speed tests reached the .05 level of significance, the following year they correlated negatively with the criterion. The large number of personality and questionnaire variables are similarly unsuccessful.

Three reasons may account for the failure of the predictor variables. First, in spite of strenuous efforts to counteract this, the criterion measure may not be reliable or valid. Secondly, the homogeneity of the intakes on entering their training courses has already been noted. Their subsequent training or "conditioning" to the role of the health visitor together with the performance of practically identical work in the field can serve only to increase the homogeneity of the sample. Thirdly, is it not unreasonable to expect measures of intelligence, personality, interests and motives to remain static, to predict an assessment of performance two years later? In the intervening period a highly stimulating, intensive course followed by a completely new type of job situation must surely modify some of the above characteristics.

Product-Moment Correlations.

Social Workers' First Year Theoretical Criterion.

The most effective predictors of the first year theoretical criterion in both the 1968 and 1969 samples were the verbal cognitive tests. Thus A.H.4 Pt.I proved superior to A.H.4 Pt. II, the Mill Hill Vocabulary Scale to Raven's Matrices, and Haward's Reading Comprehension Test was the most efficient of all. Although non-verbal intelligence was also positively correlated with success, it was, as would be expected, acquired intelligence (the result of the interaction of genetic factors with environmental influences or Vernon's Intelligence B) that made

the larger contribution to academic attainment. The fact that the size of the various correlations was higher than that of most university studies may be largely due to the heterogeneity of the social work samples in terms of educational background, ability and age; the university samples on the other hand tend to be relatively homogeneous as regards these three factors.

Haward (1965) claimed that a candidate's order of placement on the reading comprehension test will show a positive relationship with his placement in any formal examination results other than those referring to manual and/or non-verbal skills. Ballard (1948) also maintained that modern methods of education and training assume two things: the capacity to work alone and the ability to extract knowledge from text matter. He further contended that if ever one single test were to be used for selection and prediction, that test should be one of silent reading. It should be noted that Haward's test places a premium on speed and that it is this factor combined with powers of comprehension that contributes to high test performance. The second most effective predictor, A.H.4 Pt.I, also relies heavily on speed. In the first year of the course particularly, when students are confronted with new and sometimes bewildering subjects, great demands are made on their capacity for speedy understanding of material. Those who fall behind through slowness in grasping and applying new concepts and through weak comprehension seldom do well in first-year examinations.

Furneaux's "new-type" cognitive tests varied in their ability to predict successfully the first year academic criterion. Although his stressed speed and unstressed speed tests both correlated positively with success, it was only in the 1969 sample that they reached the level of significance with stressed speed having a stronger association with the criterion. Accuracy was

also related to success but only significantly in the 1969 sample. The most successful predictor of first year attainments and, indeed, of all criteria, in this group was the Level Test which was designed to reward persistent application as well as ability. During the first year of the course when the student must adjust to new and perhaps uninteresting subjects, to serious study for the first time or after an interval of years, to living away from home or coping with studying and family life at the same time, his powers of persistence will be sorely tried.

Another highly significant predictor is the school leaving qualification. An interesting observation is that although this measure correlates highly with A.H.4 Pt.I and with the Reading Comprehension Test, it has only a low correlation with the Level Test. This is surprising since school leaving attainments would be expected to depend largely on persistent application to work. Related to school leaving qualifications are the status of the school attended and success at the 11+ examination. However, there is a highly significant and negative relationship between school leaving qualification and age. Thus those who possess superior educational qualifications tend to be both younger and more intelligent.

The questionnaire item (Social Work/Child Care option) was also highly successful as a predictor. Those who opt for social work in general rather than for child care work do significantly better in first year attainments. However, this item has a small but significant correlation with A.H.4 intelligence test and with the Reading Comprehension Test and highly significant correlations with school leaving qualifications and with age, the last being negative. Thus, those who opt for social work rather than child care tend to be younger, to be more intelligent and to have superior educational qualifications; they

also tend to have had more relevant pre-school experience and to possess a better grant. Nevertheless, an additional factor may help to explain the higher attainments of social work students. It may well be that child care students may be motivated to take the course more because of a genuine concern for children than for academic reasons and the significantly positive correlation between child care option and Connolly F ("an interest in people in which the concern is primarily for people as individuals") appears to confirm this.

Connolly's Occupational Interests Questionnaire proved completely ineffective as a predictor and the Allport-Vernon-Lindzey Scale of Values achieved only two coefficients worthy of note. The pattern of correlations between economic value scores and the criterion is consistently negative and marginally fails to reach significance in the 1969 sample. According to Richardson (1965): "The economic attitude frequently comes into conflict with other values. The economic man wants education to be practical and regards unapplied knowledge as waste. In his relations with people he is more likely to be interested in surpassing them in wealth than in serving them (social attitude)." It is possible, particularly during the first year, that students scoring more highly on the economic value fail to see the practical relevance of much of the theoretical material. The attitudes of the student high on economic values are undoubtedly reflected in his written work and may help to depress his course and examination marks.

The opposite relationship holds for social values where high test scores tend to be accompanied by high theoretical marks. The highest value for "social man" is a love of people. He prizes other people as ends and is therefore kind, sympathetic and unselfish. He is likely to find the economic attitude cold and

inhuman.

Although the correlations between these two values and the criterion may be considered low, it should be remembered that each student has been subjected to rigorous interviewing in which a prime aim of skilled interviewers has been to detect adequacy of motivation for social work. In these circumstances the predictive coefficients may be considered satisfactory and would undoubtedly have proved higher in an "uninterviewed" group.

Investigations have established the fact that various aspects of cognitive functioning are resonant with the values an individual holds. A person recognizes more quickly words related to high values when presented to the eye (Postman, Bruner and McGinnies, (1948) and to the ear (Vanderplas and Blake, (1949). He associates more rapidly and in a manner congruent with his values, (Bousfield and Samborski, 1955; Brown and Adams, 1954; Dunn, Bliss and Siipola, 1958; McGinnies, 1950). He is more efficient in grouping, retaining and recognizing items consistent with his values (McGinnies and Bowles, 1949; Mayzner and Tresselt, 1955, and Postman and Schneider, 1951). These various findings tend to be supported by the correlations with the first year criterion.

The 16 P.F. was generally unsuccessful as a predictor of performance. Although Factor B (intellectual ability) reached the lowest significance level with the combined group, it failed to do so with each sample individually. Nevertheless, there appears to be a small positive relationship between higher scholastic mental capacity and success. Surprisingly, with both year groups there is a small but consistent negative relationship between Factor G (conscientiousness) and the theoretical criterion, a finding which conflicts with the results obtained by Warburton, Butcher and Forrest (1963) who reported a significant positive

association between conscientiousness and Final Theory Mark with a group of 100 post-graduate trainee teachers. A probable explanation of the unexpected result in the present study is the highly significant correlations in both year groups between Factor G and age which is negatively related to the theoretical criterion.

Of the two second order factors anxiety shows practically no relationship with success but extraversion is negatively though not significantly related to the criterion. It will be recalled that in the health visitor samples it was the extraverted students who tended to do better in examinations. There is no easy explanation for this difference. Perhaps the answer lies in the nature of the criterion. Previously health visitors had been accustomed to convergent thinking tests whereas on this course a completely new style of answering questions was required, a style which is likely to favour the extravert. Moreover, the extravert would probably be better able to establish contact with clients and agencies which would be necessary in the case studies and projects which also form part of the theoretical criterion.

Although the correlations between age and the social work criterion do not reach significance, there are indications that the younger students tend to do better on the theoretical criterion. However, there is a small negative relationship between all intelligence tests (except the Mill Hill Vocabulary Scale) and age; in the case of the Reading Comprehension Test the negative correlation is highly significant. In addition the older students are more likely to reside at home ($r = -.389$) and to have children; and the tension caused by course and family commitments must inevitably detract from the quality of their work. These disadvantages considerably outweigh the decided tendency (as noted above) for the older students to be more conscientious.

Previous relevant experience is also associated with success and in the combined sample reaches the lowest level of significance. Previous practical experience in the social work field provides the student with a frame of reference which makes many of the lectures more meaningful and therefore interesting. This result supports the findings for the health visitors and, as noted previously, conflicts with those reported in teacher training studies. It should be mentioned, however, that the more experienced social work students tend also to have higher social values scores (which is confirmed by the fact that they have been working as unqualified social workers on a lower salary scale) and to be slightly more intelligent.

One of the most interesting results is the relationship between race and the criterion. Those students who have two English parents tend to do better than those with one or no English parent. However, they tend to be slightly more intelligent and also appear more motivated to seek a future qualification in the same field. The overwhelming majority of non-English parents were of Welsh, Scottish or Irish extraction. It is possible that their children do not adjust so easily to a course in a college of predominantly English students as do the latter. The writer knows of a Midland girl student who dropped out from a Welsh university after one year because she claimed the Welsh girls would have little to do with her. While this situation is unlikely to exist on a social work course, differences in temperament, background and possibly upbringing make for learning difficulties.

A sociological explanation might also be advanced for the superiority of those with English parents. This is the extent to which certain occupations are conspicuous in different cultures. The attitude of the Welsh, Scottish and Irish may not

be so favourable as that held in this country. The Welsh and Scottish, at least, attach considerable importance to a university degree. Consequently many of their more promising candidates would enter the field of social work via a degree and a post-graduate diploma, and those who embark on a two-year certificate course in social work in this country probably constitute the less able. The Irish students in this study were confined to the bottom half of the distribution of cognitive measures.

There is a low but consistently positive relationship between size of grant and attainment but the former is associated with experience and higher scores on A.H.4, Raven's Matrices and the Reading Comprehension Test.

A small negative relationship was found between family size and the criterion. While the literature regarding studies in this country at the university level suggests there is no relationship between these two variables, various investigations with children (Bernstein, 1958; Douglas, 1964) report an inverse correlation between number of siblings and school attainment. The effects of family size thus appear to operate at a younger age. But it is interesting to note that in studies abroad where entrance to the universities is less competitive there is an association between family size and attainment. In New Zealand, Small (1966) showed that the most successful students tended to come from smaller families. In terms of heterogeneity the Social Work sample undoubtedly bears greater resemblance to the New Zealand sample than to those entering universities in this country. A further point which should be noted is that small positive relationships also exist between smallness of family and intelligence, an association also reported by Nisbet (1961) in his study of school children.

Second Year Theoretical Criterion.

The high predictive validity of A.H.4 Pt.1 and the Reading Comprehension Test carries over into the second year. On the other hand A.H.4 Pt.II and Raven's Matrices, both similar in their aims, are inconsistent. Highly significant correlations between these measures and the second year criterion were obtained with the 1968 sample, but relatively very small ones with the 1969 sample. A possible explanation is the fact that in the earlier sample there exists a much stronger relationship between the two non-verbal tests and both reading comprehension ability and school leaving qualifications. These results therefore tend to support the findings of Allen (1956), Halliwell (1965) and Cortis (1968) that verbal tests prove more efficient predictors than non-verbal tests.

Although still a positive predictor, the Mill Hill Vocabulary Scale is less effective and does not reach the level of significance. With the second year theoretical criterion the stressed speed test is a significant predictor with both 1968 and 1969 samples and the unstressed speed test coefficients show a marked increase in validity. The combined requirements of course work assignments to complete, practical work assessments and examinations impose considerable strain on the students in the second year and their ability to cope with this appears to be reflected in their stressed and unstressed test scores. The role of accuracy as a significant predictor with the two samples is reversed. On the first theoretical criterion it reached the .05 level of significance with the 1969 sample, but on the second theoretical criterion it is significant with the 1968 sample. It would appear, therefore, that at some stage of the course accuracy of working relates to academic success. As with the first

academic criterion, the Level (persistence) test remains a highly significant positive predictor, indicating the importance of this quality throughout the course. Finally, the reading comprehension test is equally successful and this suggests that the samples have not become more homogeneous in this ability.

An interesting observation is that whereas with the 1968 sample the size of the coefficients of eight of the ten cognitive predictors increased with the second year criterion, with the 1969 sample the size in seven cases was reduced. This may have been due to the fact that in the 1968 sample the eight students who withdrew through examination failure or inadequate motivation at the end of the first year were distributed throughout the whole intelligence range and so did not increase the group's homogeneity. The 1969 sample, on the other hand, remained intact throughout the two years.

Although the Connolly Occupational Interests Questionnaire is unsuccessful and the Scale of Values has only one significant correlation, the latter suggests that students holding stronger social and religious attitudes and weaker theoretical and economic attitudes tend to be more successful. This confirms the findings obtained with the first year academic criterion.

The 16 P.F. is not notably successful. Although, as with the first year criterion, there appears a definite but non-significant relationship between Factor B (intelligence) and attainment and small negative associations between Factor G (conscientiousness) and Factor Q_3 (self-control) and the criterion, the correlations are generally weak or inconsistent.

Of the biographical measures, the school leaving certificate again proved highly successful, indicating that the first year of the course had done little to reduce the discrepancy in attainment between those with higher and those with lower qualifications on entry.

Considerably more marked with the second year criterion was the relationship between age and academic success. It appears, therefore, that a selection panel should not expect the adverse effects of age on theoretical performance to be reduced after one year's academic study; indeed, they seem to increase.

As was noted with the first year criterion there is again a small negative but consistent relationship between number of siblings and achievement. But again, the slightly higher intelligence and school leaving qualifications of the students from smaller families should be noted.

Finally, the relationship between choice of social work option rather than child care and success is repeated in the second year though the size of the coefficients is smaller. This difference is probably explained by the fact that with the first year criterion the association between intelligence test performance as well as school leaving qualification and opting for social work is slightly stronger than is the case in the second year of the course (the size of the combined sample having fallen from 81 to 73).

The Practical Criterion.

According to Evans (1959), "Teaching is a complex process calling for many abilities, no one of which is by itself sufficient to ensure success. At the same time each of these abilities makes a small but necessary contribution to success." This statement, in the opinion of the writer, applies equally to social work and must partly account for lower correlations than those found between the predictors and the theoretical criteria.

Almost all the conventional intelligence test measures still correlate positively with the practical criterion but the size of the coefficients is noticeably reduced; and the Mill Hill

Vocabulary Scale, relatively successful as an academic predictor, is completely unrelated to practical success ($r = .028$). Thus intelligence, and particularly verbal intelligence, is not so closely associated with success in the field; similar findings apply to the reading comprehension test.

With the practical criterion the Nufferno measures are generally unreliable. In the 1968 sample stressed speed, unstressed speed and accuracy are positively related to the practical criterion, but in the 1969 sample hardly any relationship exists; with the first two of these tests the results obtained with the theoretical criteria are thus reversed. Considerably more successful is the Level (persistence) Test which, as with the academic criteria, is a highly successful predictor. The criterion in the field also seems to demand persistent application in the attempt to resolve people's problems.

Although the Connolly measures of occupational interest were unreliable predictors, the Scale of Values proved more successful in this respect. Most important and encouraging was the association between higher scores on the social work value and practical success, a relationship, though less marked, that was found with the academic criteria.

The 16 P.F. test was completely unsuccessful as a significant predictor and the only two points worthy of note are contradictory. The more successful tend to be more shy and diffident (Factor H) but also more placid and self-assured (Factor O). In the field of teaching Warburton, Butcher and Forrest (1963) reported three significant predictors of practical ability (conscientiousness, sensitivity and self-control); none of these was successful with the social workers. Nor do the two second order factors, anxiety and extraversion, make any contribution towards the solution of the selection problem.

The questionnaire predictors are also less successful with the practical criterion. Of the school-related variables two correlations are worthy of note. Those students who attended lower status schools tended to be rated more highly in their practical work. Since the overwhelming majority of their clients have also attended secondary modern schools and consequently are from a similar social background, the establishment of rapport and the subsequent exploitation of this relationship to the benefit of the client may have been facilitated. Apparently conflicting findings exist, however, for those students who were boarders (i.e. at higher status schools) tended to do better at practical work. Their boarding school experience may have made it easier for them in the social situations of dealing with clients and colleagues. Nevertheless, relatively few students have attended boarding school and this, therefore, cannot be regarded as an important predictor. The school leaving qualification which proved a reliable and significant predictor of both academic criteria was practically unrelated to practical ability. This indicates that although those who enter upon their courses with poorer qualifications do less well on the theoretical aspects of social work, they partly compensate by obtaining practical work ratings as good as those with better entry qualifications.

The influence of age is also considerably reduced as a predictor of the practical criterion, showing a negative correlation with the 1968 sample and a positive relationship with the 1969 sample, though neither was significant. Marital status also proved an unreliable predictor, being positive and highly significant with the earlier intake and being negative but non-significant with the later intake. As with the theoretical criteria, the variable "race" was positively correlated with practical success. It is possible that those whose parents are English are able to establish better relationships than those who come from homes where the parents are

from other countries in the United Kingdom or from the Commonwealth.

Unexpectedly, the negative relationship between size of family and success, evident with the theoretical criterion, applies equally with the practical ratings. This conflicts with the findings of Warburton, Butcher and Forrest (1963) who reported a non-significant but suggestive positive relationship in practical teaching.

The questionnaire measures of motivation recorded small but consistent positive correlations with the criterion. Thus those who obtained better practical ratings tended also to prefer to take further qualifications in the same field, to have preferred attendance at a university and to have more genuine and less materialistic reasons for taking the course.

Finally, the marked superiority of the social work option students on the academic criterion is completely eliminated in practical work ratings, the coefficient revealing virtually no relationship.

Multiple Correlations.

Health Visitors.

Although with each sample and with the combined samples a predictive battery was computed which reached the .01 level of significance, the individual predictors did not remain constant. However, the Connolly Occupational Interests field L-, appears a reliable component and contributes significantly to the size of the multiple correlation coefficient. The addition of a cognitive measure such as an intelligence or comprehension test or the school leaving qualification is essential to the predictive battery.

The practical criterion proved difficult to predict even through the technique of multiple correlation. Variables which made

up the battery with the 1968 intake were unsuccessful in the following year.

Social Workers.

As with the health visitors, a battery of measures significant at the .01 level was computed for all three groups (1968, 1969 and the combined samples). The most reliable and noteworthy component of the battery predicting the theoretical criteria was the Mill Hill Vocabulary Scale. To improve prediction, a further measure, such as the reading comprehension test or the school leaving qualification, should be combined with the above intelligence test.

It was not possible to compute a significant and reliable battery of predictors of the practical criterion.

Differences between High and Low Achievers.

Health Visitors' Theoretical Criterion.

In this and in every subsequent analysis, high achievers are defined as those students whose mean standardised score placed them in the top third of the distribution of marks while low achievers consist of the bottom third.

The data reveal that only a very small number of predictor variables discriminate between high and low achievers and, what is more discouraging, these generally appear to vary with the intake. Nevertheless, a closer examination indicates a relationship between successful discriminators in the two samples. Thus, while a better school leaving qualification, a higher school leaving age and a superior status school characterize the high achievers in 1968, a better school leaving qualification and a rating of greater effort at school are associated with success in 1969. Although only the school-leaving qualification discriminates significantly between the two groups in each year, the results underline the importance of educational variables.

The same cognitive tests do not discriminate significantly and consistently in favour of high achievers, though with each intake there are cognitive measures which either reach or marginally fail to reach significance. In 1968 there are the Nufferno tests of stressed speed and persistence in problem solving situations, while in 1969 they are Raven's Matrices non-verbal intelligence test and a reading comprehension test.

Connolly Occupational Interests field L also appears a reliable discriminator. The weaker students tend to be more interested in things rather than people and to like working with tangible things as distinct from verbal concepts.

Two questionnaire measures are worthy of note. Although the amount of relevant experience discriminates at a high level of significance in favour of the high achievers in the 1969 sample, the value of "t" (1.601) with the previous year-group indicates the importance of this variable. Secondly, while in 1968 the better students are clearly younger, the following year they tend to be slightly older. Thus age alone does not discriminate reliably between the two groups.

The Practical Criterion.

With the practical criterion the search for a successful, reliable discriminating variable proves even more elusive. Contrary to expectations the weaker health visitors of 1968 tend more than the better health visitors to read a quality Sunday newspaper, and although with the following intake the difference between the groups is only slight, it is nevertheless in the same direction. Perhaps the better health visitor is more exhausted physically and mentally - at the end of her working week and prefers the less intellectually demanding Sunday newspapers.

Although the high achievers of 1968 are also more successful in the unstressed speed test, the following year the

difference between the groups is markedly reduced.

In 1969 a cognitive variable - school leaving attainments - discriminates significantly in favour of the better health visitors in the practical criterion, confirming a much less pronounced difference in the same direction with the previous intake. Thus the health visitor who is more successful in both her theoretical course work and in her post-course practical work tends to possess higher school leaving qualifications. The high achievers of 1969 also have higher religious values, and although in 1968 the difference between the groups is only small, it is in the same direction.

Differences between High and Low Achievers.

Social Workers' First Year Theoretical Criterion.

High achievers differ from low achievers in obtaining significantly higher scores on the conventional intelligence test, A.H.4., particularly on part I which consists of verbal/numerical problems. Their superiority in this sphere is confirmed by a better performance on the Mill Hill Vocabulary Scale, also a verbal intelligence test. Although verbal intelligence appears to be a necessary ingredient of academic success, the high achievers also tend to do better on non-verbal tests, but as would be expected on a criterion heavily loaded with verbal material, the difference is less marked. However, the non-verbal test which distinguishes between the two groups varies from year to year; with the 1968 intake it is A.H.4., Pt.II, and with the 1969 intake it is Raven's Matrices.

Most successful of the verbal cognitive tests was the Reading Comprehension Test which discriminates between the two groups at a high level of significance. This finding thus confirms the results of Small (1966) who reported the marked superiority of successful over failing students on a reading comprehension test. In Small's test as in the one used in the present study, speed of

comprehension makes an important contribution to success. Schonell, Roe and Meddleton (1962) also found that Arts students who read faster fared significantly better in their courses.

Further evidence of the need to be able to solve problems at speed and also under stressed conditions is provided by the Nufferno battery. Although the difference in stressed speed test performance between high and low achievers was only significant in the 1969 intake, the value of "t" in the 1968 intake suggests that the better students are better able to cope with working at speed and under stress. But it is the Level Test which discriminates most significantly and most reliably. The quality of persistence in a problem solving situation which the test claims to measure appears to be transferred to course performance. Finally, the fourth measure of this battery, the Accuracy Test, discriminates at a high level of significance between the groups in the 1969 intake but fails with the 1968 intake.

Only two of the large number of questionnaire variables discriminate reliably between the groups. The high achievers begin their courses with significantly better school leaving qualifications and they also express a preference for social work as opposed to child care. Investigations both in this country and abroad indicate that school leaving examinations are the best single predictor of success, predicting most efficiently, as in the present study, the best and poorest students. Although those students who opt for social work are markedly superior to those preferring to enter child care, the correlation matrix reveals the superior performance of the former on cognitive tests and in school leaving examinations.

The better students also tend to be younger. It is obvious that those who have had more recent experience of academic work will adapt more easily to a theoretical course than older students. Indeed, because of this fact, the gap between the groups in terms

of course work and examinations is likely to increase during the year. Himmelweit and Summerfield (1951), however, in their comparison of over-achievers and under-achievers reported that age was unrelated to examination results. But the difference between the two types of achievers in their investigation and that of the present study should be noted. Whereas Himmelweit and Summerfield defined over and under achievers according to whether their academic attainments were better or worse than their performance on cognitive tests indicated, in the present study high and low achievers consist of the top and bottom thirds on the theoretical criterion, irrespective of their performance on cognitive tests. There are indications that if the present study had been concerned not with high and low achievers but with under and overachievers, the influence of age as a discriminator would have been reduced because of the small negative relationship between age and intelligence tests and the highly significant negative relationship between age and the reading comprehension test. It is interesting to note that reading comprehension ability rather than higher intelligence helps to explain the better performance of the younger students.

Other questionnaire measures proved unreliable. In the 1968 intake those students who had children did significantly poorer in examinations, but in the 1969 intake the difference was negligible. Again the difference can be explained in terms of cognitive predictors. Whereas in the earlier intake lack of family responsibilities correlates significantly ($r = .411$) with reading comprehension ability in the later intake there was virtually no relationship between these two variables ($r = .064$). There is also another possible explanation. In the 1969 sample there is a much stronger relationship between family responsibilities and being a female student ($r = .539$ as opposed to $r = .258$); and the fact

that women may be better able to cope with family and student life than men may partly account for the negligible relationship between marital status and course attainment in 1969.

Students whose mothers went out to work at different stages of their school career did significantly better than those whose mothers stayed at home in the 1968 sample, and particularly was this true at the primary school stage. No such difference was found, however, in the 1969 sample. The reason may be that in 1968 those students whose mothers went out to work tended to be more intelligent (particularly as measured by the non-verbal part of A.H.4), to be superior at reading comprehension and to possess superior school leaving qualifications. In the 1969 intake there was very little relationship between the mother of the student going out to work and either his reading comprehension ability or his school leaving certificate.

In the 1969 intake high achievers differed significantly from low achievers in type of residence, the latter tending to reside at home. Although in the 1968 intake the difference was in the same direction, it was by no means significant. The matrix of intercorrelations points to a possible explanation. In 1969 those students living at home tended to be significantly less persistent ($r = -.417$) as measured by Furneaux's Level Test; in 1968 the relationship between the two variables was negligible ($r = -.039$). The ability of the Level Test to discriminate between high and low achievers has already been noted.

The total failure of the non-cognitive tests to distinguish between good and poor students on the first theoretical criterion was disappointing. Only two out of thirty-one measures approached the .05 level of significance. In 1968 low achievers obtained higher scores on Factor G of the 16 P.F. test indicating that they were less conscientious and persistent; although the value of "t"

was lower in the 1969 sample it was in the same direction and tends to confirm the results of the Nufferno Level (persistence) Test. Less confidence can be placed in the reliability and validity of the second non-cognitive measure, Connolly F (an interest in people), since it discriminates almost significantly in favour of low achievers in the 1969 year group whereas in 1968 the high achievers obtained a slightly higher mean score.

Second Year Theoretical Criterion.

As with the first year theoretical criterion, cognitive predictors proved the most effective in discriminating between high and low achievers. An interesting observation is that whereas with the 1968 sample the non-verbal intelligence test, Raven's Matrices, is effective, its verbal counterpart, the Mill Hill Vocabulary Scale, replaces it in the 1969 sample. However, on the first year theoretical criterion the roles of these two tests were reversed. Thus the Mill Hill Vocabulary Scale distinguished between good and poor students with the 1968 sample on the first criterion and Raven's Matrices with the 1969 sample. It appears, therefore, that both "acquired" and "innate" intelligence, as Raven (1960, 1965) defines what these two tests measure, is essential to success on the theoretical criteria.

Another effective verbal measure which discriminates significantly and consistently is Haward's Reading Comprehension Test. Furneaux's test of persistence is also effective, but further measures in this battery, the accuracy test and the stressed and unstressed speed tests only discriminate significantly with one of the two intakes. The school leaving qualification, however, proves a reliable and significant discriminator.

One further variable which discriminates significantly with the one intake and marginally fails with the other is marital

status, which indicates that those students without children are more successful.

The Practical Criterion.

No variable discriminates significantly and reliably between high and low achievers on the practical criterion. A closer examination of the tables (p.197-197), however, reveals types of predictor common to both years. One test of the Nufferno battery, the individual measures of which intercorrelate highly, discriminates in each year group; the test of accuracy is effective in 1968 and the measure of persistence in 1969. Verbal intelligence tests completely fail to discriminate.

A further similarity in the discriminators of the two year groups relates to involvement with people. In 1968 the high achievers are significantly more interested in changing people's attitudes and behaviour while in the following intake they have significantly higher social values.

A third common area embraces educational variables. While in 1968, the better students' fathers attended lower status schools and left school earlier, in 1969 it was the better students themselves who attended lower status schools and who left at an earlier age.

The Factor Analyses.

Although Anstey (1966) maintains that factor analysis is not a good method of assessing the value (as opposed to the content) of tests and prefers the Multiple Correlation technique, he concedes that if a criterion is included inthe analysis, the similarity between each test and the criterion can be noted.

It was decided to intercorrelate the scores on the predictor and main criterion variables for each combined group of students and then subject each matrix to a principal components

analysis from which the first ten components would be extracted.

Health Visitor Students

As relatively few loadings reached the level of significance in terms of the Burt-Banks formula (Child, 1970), all loadings greater than ± .150 were considered in the interpretation of factors. The following tables also include the loadings of the two main criteria on each component.

TABLE 51

Major Loadings on Factor 1 - Applied intelligence

Variable	Loading
A.H.4. Pt.2 (non-verbal) int. test	.295··
A.H.4 intelligence test	.289··
Accuracy test	.240·
Raven's Matrices (non-verbal) int. test	.239·
A.H.4. Pt.I (verbal/numerical) int. test	.207
Level (persistence) test	.205
Unstressed speed test	.186
Stressed speed test	.176
Mother at work (No. of stages)	.164
Reading comprehension test	.157
Mother's school leaving age	.155
Main theoretical criterion	.136
Main practical criterion	-.008

·· significant at .01 level
· significant at .05 level

Almost all the loadings on the first component are by cognitive tests, and particularly important are the loadings of non-verbal intelligence measures. The noteworthy loadings by cognitive tests which also assess accuracy, persistence and problem-solving ability under stressed speed and unstressed speed conditions suggest that this factor may be designated applied intelligence. While the main theoretical criterion makes a small positive contribution, the loading by practical ability is almost zero.

TABLE 52

Major Loadings on Factor 2 - Social status

Variable	Loading
Parents' social class	.264·
Status of father's school	.244·
Own social class	.236·
Father's school leaving age	.228·
Status of mother's school	.227·
Parents' daily newspaper	.203
Mother's school leaving age	.196
Future social class	.193
Father's job	.186
16 Personality Factor Anxiety	-.185
Daily newspaper	.167
Status of school	.164
Parents' Sunday newspaper	.161
16 P. Factor Q4 (tense)	-.160
16 P. Factor O (apprehensive)	-.151
Main theoretical criterion	-.040
Main practical criterion	-.052

· significant at .05 level

All the significant loadings on this factor are related to social class or indicators of social class, such as the status of parents' school and the father's school leaving age. Both the theoretical and practical criteria are not associated with this factor.

TABLE 53

Major Loadings on Factor 3 - Extraversion

Variable	Loading
16 P.F. Extraversion	.294··
16 P.F. O (apprehensive)	.263·
16 P.F. H (socially bold or venturesome)	.246·
Connolly H (interest in words)	.230·
Connolly K (interest in codifying & arranging data	.210
Religious values	.194
Religion	-.187
Connolly J (interest in the arts)	.186
Connolly L (interest in tangible things)	-.179
Church attendance	-.165
Main theoretical criterion	.103
Main practical criterion	.018

·· significant at .01 level

· significant at .05 level

This factor tends to be dominated by loadings from variables which indicate an outgoing personality and an interest in using words. While the theoretical criterion has a small loading on this factor, the practical criterion makes no contribution to it.

TABLE 54

Major Loadings on Factor 4 - Immaturity

Variable	Loading
Age	-.306··
16 P.F. : Q_2 (self-sufficient)	-.224·
Marital status	.206
Unstressed speed test	.201
Mill Hill Vocabulary Scale	.199
16 P.F. : A (outgoing)	.196
Raven's Matrices	.189
Church attendance	.184
Level (persistence) test	.181
16 P.F. : N (shrewd)	-.165
Religious values	.160
16 P.F. : Extraversion	.157
Televiewing time	-.151
Accuracy test	.151
Main theoretical criterion	.089
Main practical criterion	.075

·· significant at .01 level
· significant at .05 level

Because of the significant negative loadings of age and self-sufficiency, and the notable contributions of marital status(without children), this factor may be suitably designated immaturity. Neither criterion shows any relationship with this factor.

TABLE 55

Major Loadings on Factor 5 - Vocational dedication

Variable	Loading
16 P.F. : G (conscientious)	.234·
Travelling time to college	.226·
Marital status	-.211
Reason for entering field	.197
Difference between present & future class	.196
Relevant experience	.180
Family size	.177
16 P.F. : A (outgoing)	.158
Residence	.154
Religious values	.152
Main theoretical criterion	.172
Main practical criterion	.058

·significant at the .05 level

The heaviest loadings on this factor are from variables which indicate vocational dedication. Thus, there are positive contributions from conscientiousness in spite of two variables which contribute to the students' difficulties: these are a longer travelling time to college and having children. To counterbalance these problems, however, there are notable positive loadings from variables which indicate sincere and less materialistic motives for entering health visiting, religious values and also previous relevant experience in this field.

The loading from "difference between present and future class", revealing evidence of aspirations of social mobility , tends to conflict with vocational dedication. However, it is uncommon to find dedication totally unrelated to achievement motivation, one aspect of which may be higher social class membership.

While there is a noteworthy loading from the theoretical criterion, the practical criterion makes practically no contribution.

TABLE 56

Major Loadings on Factor 6 - Stability

Variable	Loading
16 P.F. : Anxiety	-.269·
16 P.F. : O (apprehensive)	-.244·
16 P.F. : Q_4 (tense)	-.221·
Family size	-.217·
16 P.F. : Q_3 (controlled)	.194
Desire for future qualification in same field	-.193
Desire for future qualification	-.190
University preference	-,185
16 P.F. : C (emotionally stable)	.184
Mother at home (primary school)	-.174
Opinion of pay	.168
Reading comprehension	.163
16 P.F. : M (imaginative)	-.162
Economic values	-.150
Main theoretical criterion	.123
Main practical criterion	.065

·significant at .05 level

The major negative loadings on this factor are from personality variables which indicate stability. It is interesting to note that there are also noteworthy loadings from variables which indicate lack of academic motivation, satisfaction with the health visitors' salary and a lower economic value. The loadings of the criteria on this factor are low.

TABLE 57

Major Loadings on Factor 7 - Self-assertion

Variable	Loading
Social values	-.261·
Mother at work (No. of stages)	.228·
Mother at home (pre-school)	-.201
Televiewing time	-.194
Mother at home (secondary school)	-.191
Religion	.184
Connolly G (interest in changing people's behaviour)	.184
Level (persistence) test	-.168
Aesthetic values	-.165
Travelling time to college	.163
Connolly J (interest in the arts)	-.162
16 P.F. : Q_4 (tense)	.155
Political values	.154
Main theoretical criterion	.101
Main practical criterion	.083

· significant at the .05 level

The dominant variables of this factor involve lower social values and going out to work during the student's early life. These predictors, combined with an interest in changing people's attitudes and behaviour and stronger political attitudes, indicate that this factor may be labelled self-assertion. The loadings of the criteria are very small.

TABLE 58

Major Loadings on Factor 8 - Altruism

Variable	Loading
Political values	-.256·
16 P.F. I (tender-minded)	.247·
16 P.F. N (shrewd)	-.244·
Connolly J (an interest in the arts)	.229·
Theoretical values	-.197
Social values	.190
Alternative job	.188
Economic values	-.187
Religious values	.175
16 P.F. : M (imaginative)	.171
Father's occupation	.166
Marital status	-.155
Main theoretical criterion	-.051
Main practical criterion	-.025

· significant at the .05 level

The variables which load significantly on this factor fall under the broad heading of personality. A lack of power-seeking, tender-mindedness, naturalness and an interest in the arts are qualities not associated with the cut and thrust of political and business life. Nor, indeed, judging from the very small negative loadings of the criteria on this factor, do they appear related to theoretical and practical achievement in the field of health visiting. As would be expected, there are notable positive loadings from social values, religious values and an alternative occupation concerned with helping people, and negative loadings from theoretical and economic variables.

TABLE 59

Major Loadings on Factor 9 - Academic motivation.

Variable	Loading
Additional courses	.250·
Effort at school	.220
Connolly H (interest in words)	.217
Theoretical values	-.213
Leaving age	.203
School qualification	.193
Aesthetic values	.193
Mother at home (secondary school)	.184
Boarding/Day pupil	-.179
Connolly J (interest in the arts)	.173
Reading comprehension test	.166
16 P.F. Q_1 (experimenting)	-.164
16 P.F. N (shrewd)	.156
Mill Hill Vocabulary Scale	.152
Main theoretical criterion	.220
Main practical criterion	.151

· significant at the .05 level

The most important contributions to this factor are made by educational variables. Most prominent are additional courses (not related to health visiting), the self-assigned rating of effort made at school and interest in the use of words and verbal concepts. A higher school leaving age and a superior school qualification are other notable variables. Factor 9 has a higher loading from the theoretical and practical criterion than any other factor.

TABLE 60

Major Loadings on Factor 10 - Low educational status

Variable	Loading
School qualification	-.250•
16 P.F. C (emotionally stable)	.221•
Society's view of job	.211
School leaving age	-.208
Rating of occupation as class determinant	-.203
School status	-.192
A.H.4. Pt.I (verbal/numerical) int. test	.182
A.H.4. intelligence test	.177
16 P.F. : O (apprehensive)	-.183
16 P.F. Anxiety	-.172
Connolly F (interest in people)	-.170
16 P.F. Q_2 (self-sufficient)	.165
University preferred	.160
Stressed speed test	.157
Unstressed speed test	.156
Main theoretical criterion	-.058
Main practical criterion	-.017

• significant at the .05 level

The significant loadings on this factor are from poor school qualifications and emotional stability. Related to the former are notable loadings by a lower school leaving age and a school of lower status, while the latter is supported by personality variables which indicate placidity, (16 P. Factor O) and self sufficiency (16 P. Factor Q_2) and the second order factor, lack of anxiety. The two criteria make virtually no contribution to this factor.

This factor analysis makes one positive contribution to the solution of the selection problem. Both criteria are associated with a variety of educational variables which fall under the heading of "academic motivation". As would be expected, the loading of the theoretical criterion on this factor is higher than that of the practical criterion.

The theoretical criterion also has a definite association with the factor designated "vocational dedication" and is related

to a lesser extent with "applied intelligence" and "emotional stability".

But the main contribution of the factor analysis is negative in that it indicates those broad areas with which the criteria are not associated. These are (a) social status; (b) extraversion; (c) immaturity; (d) self-assertion; (e) altruism; (f) low educational status. In addition the practical criterion appears unrelated to applied intelligence and emotional stability.

Social Work Students

The following tables also include loadings greater than ± .150 and those of the three main criteria on each component.

TABLE 61

Major Loadings on Factor 1 - Academic attainment

Variable	Loading
School qualification	.229
Age	-.204
Stressed speed test	.199
Reading Comprehension test	.196
Status of mother's school	.196
Mother's leaving age	.192
A.H.4 intelligence test	.191
Status of school	.184
Accuracy test	.167
First year theoretical criterion	.184
Second year theoretical criterion	.177
Practical criterion	.031

The first component has one variable (the school leaving qualification) which is virtually significant, its loading being .229 instead of the required .230. Variables that are associated with higher academic attainment (e.g. ability to cope with problem solving under stressed speed conditions and reading comprehension ability) also load prominently on this factor. Associated with the school leaving qualification are the higher status of the student's and mother's school. The inclusion of age should also be noted

and the correlation matrix shows that it is negatively correlated with school leaving qualifications and academic success. As would be expected, the two theoretical criteria make notable contributions, but the practical criterion is unrelated to this factor. Thus, analysis of the composition of the first component adds little to the information derived from the correlation matrix.

TABLE 62

Major Loadings on Factor 2 - Lack of social and educational status

Variable	Loading
Status of father's school	-.207
Social class of parents	-.198
Father's school leaving age	-.197
Nufferno Level Test	.195
Father's occupation	-.188
Own social class	-.185
First year theoretical criterion	.084
Second year theoretical criterion	.123
Practical criterion	.132

The second factor has no significant loading but the most prominent variables appear related to parental social class, particularly that of the father who, partly through his educational background and partly through his subsequent occupation, largely determines the family's social class as measures of this concept are officially constituted. It should be noted that many of the loadings are negative. There are also small loadings by the second year theoretical and practical criteria on this factor.

TABLE 63

Major Loadings on Factor 3 - Motivation for social work

Variable	Loading
Grant	.217
Connolly Interest Field G (interest in changing people's behaviour)	.209
Experience	.202
A.H.4 intelligence test	.194
Difference between present & future class	.165
Aesthetic value	.167
16 P.F. Factor N (shrewd)	.164
16 P.F. Factor Q_2 (self-sufficient)	.160
Sex	-.160
Social value	.158
Unstressed speed test	.154
First year theoretical criterion	.132
Second year theoretical criterion	.122
Practical criterion	.127

The third factor has no significant loading, but those most prominent appear related to the practical side of social work. The correlation matrix reveals that size of grant is associated with previous practical work experience. Those students who have worked as unqualified social workers at a lower rate of pay were probably more strongly motivated, and it is interesting to note that two other relevant variables load on to this component. These are Connolly G (interest in changing people's attitudes and behaviour) and social values. All three criteria make similar small but positive contributions.

TABLE 64

Major Loadings on Factor 4 - Materialism

Variable	Loading
Religious value	-.318··
Church attendance	-.316··
Religion	-.314··
Economic value	.219
Theoretical value	.202
Connolly Interest Field K (interest in codifying and arranging data)	.176
Mother at home (secondary stage)	.174
Aesthetic value	.172
Father's school leaving age	.158
Mother at work (No. of stages)	.151
First year theoretical criterion	-.004
Second year theoretical criterion	-.037
Practical criterion	.000

··loading significant at the .01 level

This factor has heavy loadings on variables related to lower religious values and a lack of church membership and attendance. In view of further noteworthy positive loadings on economic and theoretical attitudes and the presence of Connolly K (interest in codifying, classifying and arranging data), the component is essentially concerned with materialistic values. The three criteria make virtually no contribution to this component.

TABLE 65

Major Loadings on Factor 5 - Controlled introversion

Variable	Loading
16 P.F. : Q_3 (controlled)	.248·
16 P.F. : F (happy-go-lucky)	-.244·
16 P.F. : Extraversion	-.236·
16 P.F. : E (assertive)	-.209
Connolly G (interest in changing other people's behaviour)	-.198
Theoretical value	.174
Connolly L (interest in codifying and arranging data)	.164
Televiewing time	.159
Father's school leaving age	.158
Age	.157
Economic value	.156
First year theoretical criterion	-.021
Second year theoretical criterion	-.059
Practical criterion	-.011

· significant at the .05 level

Factor 5 is essentially a personality component. According to Cattell and Eber (1957) the Q_3+ person shows self-control, persistence, considerateness of others and conscientiousness. Cattell and Stice (1954) claim that in group dynamics a high Q_3 score especially picks out effective leaders who will contribute more than others to problem raising and solution offering. High Q_3 is also associated with success in mechanical, mathematical and productive organizational activities, and it is interesting to note in this respect the loading of Connolly L on this component.

Factor Q_3 is also the highest loaded factor in the integration v General Anxiety second order factor of Cattell's test and, according to the author, represents the level of development of the conscious self-sentiment, i.e. the extent to which the person has crystallized for himself a clear, consistent admired pattern of socially approved behaviour.

The other 16 P.F. factors loading onto this component tend to be opposite traits. Factor E is also associated with leadership according to Cattell and Eber (1957), but the loading in this study is negative. Significant negative loadings were also recorded for extraversion and one of its most important components, Factor F (surgency). The combination of significant loadings indicate a factor of controlled introversion.

However, the criteria are unrelated to this component which thus adds nothing to the selection problem.

TABLE 66

Major Loadings on Factor 6 - Home background

Variable	Loading
No. of stages mother worked	-.300·
Mother not at work (pre-school)	.294·
Mother not at work (secondary school)	.217
Own social class	-.189
Difference between own & society's perception of job importance	.184
Parents' daily newspaper	.177
Family birth order	.176
11+ success	.175
16 P.F. C (emotionally stable)	.167
Travelling time to placement	-.159
Marital status	-.158
School status	-.171
Future class aspirations	-.152
First year theoretical criterion	.047
Second year theoretical criterion	-.001
Practical criterion	-.063

· significant at the .05 level

Factor 6 involves mainly those variables related to the student's social background e.g. the extent to which his mother worked before and during his school life, his social class, birth order, 11+ success. But again the loadings of the criteria on this component are negligible.

TABLE 67

Major Loadings on Factor 7 - Identification with social work

Variable	Loading
Opinion of job prospects	.226
16 P.F. Q_4 (tense, frustrated)	.208
Coeducation or single sex school	.191
Connolly H (interest in verbal concepts)	.188
16 P.F. : B (intelligent)	-.181
Economic value	-.182
Connolly L (interest in using tools & materials	-.180
Interest in further qualifications in same field	.187
Mother at home (primary school)	.177
Future qualifications	.173
Opinion of pay	.177
View of society's rating of social work	.175
Anxiety	-.176
Family birth order	-.161
First year theoretical criterion	.058
Second year theoretical criterion	.125
Practical criterion	.155

Although no loading on this component reaches significance, many of the variables are related to the occupation, and it is interesting to note that the practical criterion has a small but definite positive loading on this factor.

TABLE 68

Major Loadings on Factor 8 - Power seeking

Variable	Loading
Sex	-.268·
Political value	.267·
Social value	-.245·
Connolly L (interest in manipulating tools)	.244·
16 P.F. (A) (outgoing)	-.257·
16 P.F. (L) (suspicious)	.191
Mother not at work (primary school)	.207
Mother at work (No. of stages)	-.191
University attendance preferred	.180
Mill Hill Vocabulary Scale	.173
Alternative job	-.166
16 P.F. (B) (intelligence)	.161
School leaving age	-.161
First year theoretical criterion	-.007
Second year theoretical criterion	.004
Practical criterion	-.040

· significant at the .05 level

This factor contains a higher number of significant loadings than any other factor. The dominant variables relate to sex (being a male) and strong political (power-seeking) attitudes and lower social values. With other notable loadings on Connolly L (interest in using tools as distinct from verbal concepts), being reserved (16 P.F. Factor A-) and being suspicious (16 P.F. Factor L), it is not surprising that there are negligible loadings on this component by the criteria.

TABLE 69

Major Loadings on Factor 9 - Job satisfaction

Variable	Loading
Opinion of prospects	.216
Opinion of pay	.216
Difference between present & future class	-.211
16 P.F. I (tender-minded)	-.193
Connolly E (interest in the natural sciences)	.175
16 P.F. Extraversion	.172
16 P.F. C (emotionally stable)	.164
16 P.F. L (suspicious)	.156
16 P.F. N (shrewd)	.155
Unstressed speed test	.154
Stressed speed test	.153
First year theoretical criterion	-.232
Second year theoretical criterion	-.142
Practical criterion	-.189

This factor is important in that it is the only one on which all three criteria have prominent, though negative, loadings, the first failing marginally to reach the .05 level of significance. It is thus not surprising that the most important loadings are on variables related to the job of social work. Such are the two highest predictor variables. Favourable opinions of pay and prospects in social work are associated with lack of aspirations for higher class membership and with tough-mindedness. The last personality characteristic is the opposite to tender-mindedness and sensitivity which are qualities looked for by selection panel interviewers, and, as would be expected, the practical criterion loads negatively on this factor.

TABLE 70

Major Loadings on Factor 10 - Social mobility aspirations

Variable	Loading
No. of siblings	.248*
Future class	.233
Grant	-.214
Difference between present and future class	.203
Effort at school	.198
Relevant experience	-.192
16 P.F. : N (shrewd)	.194
16 P.F. : O (guilt-prone)	.187
Coeducation or single sex school	.185
Society's view of social work	.187
Theoretical value	.161
Connolly J (interest in the arts)	.163
Unstressed speed	.160
Sunday newspaper	.156
Connolly E (interest in the natural sciences)	.151
First year theoretical criterion	-.157
Second year theoretical criterion	-.077
Practical criterion	-.137

* significant at the .05 level

Most of the major loadings on this factor are from variables that are directly or indirectly related to future class aspirations. The correlation matrix reveals a small but nevertheless definite negative relationship between size of family and lower social class. Other variables in the above table serve to reinforce in the students a feeling of deprivation, e.g. lower grant, lack of relevant experience. The noteworthy loading of Factor O on the component suggests that feelings of guilt and anxiety may be associated with this deprivation. The consequence may be a desire to climb the social ladder.

Although the principal components analysis has not added significantly to the information derived from the correlation matrix, it has served to clarify and support certain conclusions. These may be summarised as follows:

(i) the positive relationship between cognitive test and previous attainment variables and the theoretical criteria;

(ii) the lack of any relationship between the cognitive test predictor variables and the practical criterion;

(iii) the small but definite association between all criteria and previous experience and occupational interest;

(iv) the complete lack of relationship between all the criteria and a factor defined as materialism which embraces lack of interest in religion, higher theoretical and economic values and an interest in codifying, classifying and arranging data;

(v) a lack of association between home background and the criteria;

(vi) a lack of relationship between higher political value scores, lower social value scores, interest in manipulating tools rather than people, and the criteria;

(vii) a negative association between the criteria and variables related to job satisfaction;

(viii) a negative association between first year theoretical and practical criteria and social mobility aspirations.

CHAPTER VII

CONCLUSIONS

The following conclusions are based on the results obtained with two intakes of students in one training institution. Whilst the findings may apply to similar students in other colleges, one should generalise with caution. There is, however, an urgent need to carry out this type of investigation throughout the country so that these conclusions may be confirmed or refuted.

1. In conjunction with course tutors and experienced supervisors in the field, practical work assessment forms for health visitors and social workers have been drawn up. With correlation coefficients of the order of .7 and .8 between the supervisors' ratings of students on individual work components and their overall assessment, the reliability of the forms is fairly high. Their validity has, however, yet to be established. This may be attempted through comparing the scores obtained by students on the present forms with those obtained with other methods of assessment such as ratings on relevant personality traits that are considered vital to success. It should be remembered that the criterion measure of health visitors and social workers is not static and that as the nature of their work changes so, too, must the criterion be modified. Furthermore, assessment after only one year in the case of health visitors constitutes a short term criterion. During the first year in a new job, motivation and enthusiasm are high. A longer-term criterion, of five or ten years, would probably prove a more accurate and reliable measure.

2. Although the first hypothesis that cognitive and non-cognitive tests would reveal significant differences between health visitor and social work students was confirmed, there was a disappointing inconsistency in the direction of the differences, particularly with

regard to cognitive measures. A non-verbal test of power, Raven's Matrices, did prove reliable in terms of direction, but the difference reached significance level in favour of the social workers with only one intake.

Only two of the forty-one measures revealed reliable and significant differences. These were from the Connolly Occupational Interests Questionnaire which showed the health visitors to be significantly more interested in the natural sciences while social workers showed a significantly greater interest in people.

Although the personality test failed as a significant and reliable discriminator, it did suggest with consistency certain differences between the groups. The social workers tended to be more dominant and the health visitors appeared more shy and diffident. The latter also tended to be more conservative in their attitudes, more guilt-prone, more anxious and more introverted.

3. The theoretical criterion with both groups of students was easier to predict than the practical criterion. Thus, the fifth hypothesis that the most efficient predictors of the theoretical criterion would differ from those of the practical criterion was largely upheld. The exception was the Level (persistence) Test which, with social work students, proved a significant and reliable predictor of both types of criterion. However, while the predictors of theoretical success have been established, those of practical ability have not yet been identified.

4. Two measures proved significant and reliable predictors of the health visitors' theoretical criterion. These were Haward's Reading Comprehension Test and the school leaving qualification. Younger students tend to obtain better examination results, and academic success is positively associated with the amount of previous relevant experience and with secondment on full salary. A lack of interest in using tools and manipulating materials as distinct from

verbal concepts also characterizes high achievers. The health visitors' practical criterion proved impossible to predict and no variable discriminated significantly and consistently between high and low achievers.

5. Both theoretical criteria of the social workers were effectively predicted by several cognitive variables. Most prominent were (a) Haward's Reading Comprehension Test; (b) the Nufferno Level (persistence) Test; (c) the A.H.4 intelligence test; and (d) the school leaving qualification. Preference for social work in general rather than child care is also related to success. Students with family responsibilities obtain poorer academic results, particularly on the second year theoretical criterion.

As with the health visitors, the practical criterion was difficult to predict, but the measure of persistence, which successfully predicted the theoretical criteria, was effective with all three samples. Higher social values are also positively correlated with practical ability.

Thus the third hypothesis that reading comprehension ability is related to success is supported in relation to the theoretical criterion, but not with regard to practical attainments.

The results also demonstrate the positive and generally significant relationship between the Nufferno battery (measures of ability to cope with problems under stressed and unstressed speed conditions, and of accuracy and persistence) and the theoretical criterion. However, with one exception the hypothesis that these variables are also associated with practical ability cannot be upheld. The exception is the test of persistence which is a significant predictor of the social work practical criterion.

6. An analysis of the value of the different types of predictor of the theoretical criteria underlines the marked success of cognitive variables (tests and school leaving qualifications) and the failure of

practically all non-cognitive and questionnaire measures. With the practical criterion all types of predictor (except the persistence measure for social workers) are ineffective.

7. The technique of multiple correlation demonstrated how effectively a battery of variables could improve prediction of the theoretical criteria of both groups of students. Although the exact predictors which made up the battery varied with the intake, the results indicate that health visitor tutors should combine the Connolly Occupational Interests field L with one other cognitive measure (the unstressed speed test, the reading comprehension test or the school leaving qualification). The battery of predictors of the social work theoretical criterion should include the Mill Hill Vocabulary Scale and either Haward's Reading Comprehension Test or the school leaving qualification.

For both health visitors and social workers a significant and reliable battery of predictors of the practical criterion proved impossible to compute.

8. The factor analyses contributed little of positive value to the solution of the selection problem.

9. The most effective predictors of the practical criterion for both groups are course theoretical attainments, a finding which must give encouragement to course tutors. Those subject which predict practical ability most effectively (e.g. The Individual in Groups and Social Policy for the health visitors and Human Growth and Behaviour for the social workers) should receive higher weightings in the assessment of the theoretical criterion. In this way the predictive validity of the academic criterion will be increased. And since the theoretical criterion correlates significantly with the practical criterion, course tutors should adopt the most efficient predictors of the former, thereby improving prediction of the latter.

10. Finally, college tutors should establish even closer links with practising health visitors and social workers. More frequent use of the latter should be made on training courses while tutors would benefit from periods of practical work in the field where they could examine the theories and effectiveness of the techniques they have imparted to their students.

BIBLIOGRAPHY

ABERCROMBIE, M.L.J., HUNT, S. and STRINGER, P. (1968). Selection and Academic Performance of Students in a University School of Architecture. London: Society for Research into High Education Monographs.

ALBROW, M.C. (1965). The Influence of Accommodation upon 64 Reading University Students (Mimeo). Reported in Miller, G.W. (1970).

ALEXANDER, W.P. (1935). Intelligence, concrete and abstract. British Journal of Educational Psychology Monograph Supplement, 19.

ALLEN, M. (1956). A Comparison Between Group and Individual Selection Procedures in a Training College. M.Ed. thesis, University of Manchester.

AMES, V. (1943). Factors related to high-school achievement. Journal of Educational Psychology, 33, 229-236.

ANDERSON, A.W. (1959). A preliminary survey of some characteristics of entrant students and performance in first year examinations in the University of Western Australia, 1956-57-58. University of Western Australia, Faculty of Education reported in Punch, K.F. (1966).

ANDERSON, A.W. (1961). Schools of entry and first year academic performance in the University of Western Australia. Australian Journal of Higher Education 11, 20-23.

ANDERSON, D.S. (1961). Non-Intellectual Correlates of Academic Performance. Vestes, 4, 2, 42-46.

ANDERSON, D.S. (1963). Predicting First Year Performance, University of Melbourne. Educational Research Office (Mimeo).

ANDERSON, D.S. and PRIESTLEY, R.R. (1960). Notes on the Study of Failure in Australian Universities. University of Melbourne (Mimeo).

ANSTEY, E. (1966). Psychological Tests. London: Nelson.

ASTIN, A.W. (1964). Personal and environmental factors associated with college drop-outs among high aptitude students. Journal of Educational Psychology, 28, 1.

AUSTRALIAN COUNCIL FOR EDUCATIONAL RESEARCH, (1964). Matriculation and After. Melbourne: A.C.E.R.

AUSTWICK, K. (1960). G.C.E. to B.A. Universities Quarterly, 15, 67-71.

BAGG, D.G. (1968). The correlation of G.C.E. 'A' level grades with university examinations in chemical engineering. British Journal of Educational Psychology, 38, 194-197.

BAGG, D.G. (1970). 'A' levels and University Performance. Nature, 225, 1105-1108.

BANDURA, A. (1956). Psychotherapists' anxiety level, self-insight and psychotherapeutic competence. Journal of Abnormal and Social Psychology, 52, 333-337.

BANKS, C., KARDAK, V.S. JONES, E.M., and LUCAS, C.J., (1970). The relationship between mental health, academic performance and cognitive test scores among chemistry students. British Journal of Educational Psychology, 40, 1, 74-79.

BANNISTER, D., SLATER, P. and RADZAN, M. (1962). The use of cognitive tests in nursing candidate selection. Journal of Occupational Psychology, 36, 1 and 2, 75-81.

BARNETT, V.D. and LEWIS, T.A. (1963). A study of the factors affecting the selection between G.C.E. and degree results. Journal of the Royal Statistical Society, 126, 187-226.

BEARD, R.M., LEVY, P.M. and MADDOX, H. (1964). Academic performance at university. Educational Review, 16, 163-174.

BENDIG, A.W. (1960). Extraversion, neuroticism and student achievement in introductory psychology. Journal of Educational Research, 52, 263-267.

BENDIG, A.W. and SPRAGUE, J.L. (1954). The Guilford-Zimmermann Temperament Survey as a predictor of achievement level and achievement fluctuation. Journal of Applied Psychology, 38, 409-413.

BENNETT, J.H. (1958). Failure rates in the University of Adelaide Varsity, (Adelaide University Magazine), 59-64.

BERNSTEIN, B. (1958). Some sociological determinants of perception: an enquiry into sub-cultural differences. British Journal of Sociology, 9, 159-174.

BOUSFIELD, W.A. and SAMBORSKI, G. (1955). The relationship between strength of values and the meaningfulness of value words. Journal of Personality, 23, 375-380.

BRILL, K. (1962). Children Not Cases. National Children's Home.

BROADBENT, D.E. (1958). Perception and Communication. London: Pergamon Press.

BROOKOVER, W.B. (1940). Person to person interaction between teachers and pupils and teaching effectiveness. Journal of Educational Research, 34, 272-287.

BROOKOVER, W.B. (1945). The relation of social factors to teaching ability. Journal of Experimental Education, 13, 191-205.

BROOME, E. (1929). The predictive value of three specific factors for success in practice and teaching. Educational Administration and Supervision, 15, 25-29.

BROTEMARKLE, R.A. (1933). What the Bernreuter Personality Inventory does not measure. Journal of Applied Psychology, 17.

BROWN, D.R. and ADAMS, J. (1954). Word frequency and the measurement of value areas. Journal of Abnormal and Social Psychology, 49, 427-430.

BROWN, E.M. and M'COMISKY, J.G. (1955). Ex-national service and "schoolboy" undergraduates: a comparative study of academic performance.

BURGESS, E. (1956). Personality factors in over-and under-achievement in engineering. Journal of Educational Psychology, 47.

CARLILE, A.B. (1954). Predicting performance in the teaching profession. Journal of Educational Research, 47, 641-668.

CATTELL, R.B. (1957a). Personality and Motivation Structure and Measurement. London : Harrap.

CATTELL, R.B. (1960a). Predicting success in the academic aspects of military training schools. Illinois : Institute of Personality and Ability Testing. Information Bulletin, 4.

CATTELL, R.B. (1960b). Predicting success in the academic aspects of medical school. Illinois Institute of Personality and Ability Testing. Information Bulletin, 4.

CATTELL, R.B., BELOFF, H. and COAN, R.W. (1958). Handbook for the I.P.A.T. High School Personality Questionnaire. Illinois: Institute of Personality and Ability Testing.

CATTELL, R.B. and EBER, H.W. (1957). Handbook for the Sixteen Personality Factor Questionnaire. Illinois: Institute of Personality and Ability Testing.

CATTELL, R.B. and STICE, G.L. (1954). Four formulae for selecting leaders on the basis of personality. Human Relations, 7, 493-507.

CHILD, D. (1970). The Essentials of Factor Analysis. London : Holt, Rinehart and Winston.

CHRISTENSEN, C.M.A. (1963). A note on dogmatism and learning. Journal of Abnormal and Social Psychology, 66, 75-76.

CHRISTOPHERSON, D.G. (1962). Selection of students for engineering degree courses. Mimeograph report cited by Himmelweit (1963).

COCHRANE, D. (1962). Matriculation and First Year University Examination Results - Some Implications for University Policy (Mimeo) Melbourne: Monash University.

COHEN, L. and CHILD, D. (1969). Some sociological and psychological factors in university failure. Durham Research Review, 6, 22, 365-372.

CONNOLLY, (1968). Manual for Interests and Occupations. Cambridge: Careers Research and Advisory Centre.

COOK, W.W. (1942). Predicting success of graduate students in a college of education. School and Society 56, 192-195.

CORTIS, G.A. (1968). Predicting performance in colleges of education. British Journal of Educational Psychology, 38, 115-121.

COSTIN, F. (1965). Dogmatism and learning: a follow-up of contradictory findings. Journal of Educational Research, 59, 186-188.

COX, R. (1967). Examinations and higher education. Universities Quarterly, 21, 292-340.

CRAIG, G.Y. and DUFF, P. (1961). Academic success among pure science students. University of Edinburgh Gazette, May.

CRAWFORD, A.B. (1929). Incentives to Study. Yale University Press.

CROOKS, T.G. and FRENCH, J.G. (1961). Intelligence and wastage of student mental nurses. Journal of Occupational Psychology, 35, 149-154.

DAINTON REPORT (1968). Enquiry into the flow of candidates in science and technology into higher education. Comnd. 2893, London: H.M.S.O.

DALE, B. (1935). The use of mental tests with university women students. British Journal of Educational Psychology, 5, 59-75.

DALE, R.R. (1954). From School to University. London: Routledge and Kegan Paul.

DALE, R.R. (1958). University standards. Universities Quarterly, 13, 186-195.

DALE, R.R. (1963). Reflections on the influence of social class on student performance. In Halmos (ed.) The Sociological Review Monograph 7, 131-140. University of Keele.

DAVIS, J. (1956). Differential college achievement of public versus private school graduation. Journal of Counselling Psychology, 3, 72-73.

DAVIS, J. and FREDERIKSEN, N. (1955). Public and private school graduates in college. Journal of Teacher Education, 6, 18-22.

DICKINSON, W. (1963). The Relationship between Personality and Attainment in a Training College for Technical Teachers. M.Ed. thesis, University of Manchester.

DODD, M.R. (1933). A study of teaching aptitude. Journal of Educational Research, 26, 517-521.

DOUGLAS, J.W.B. (1964). The Home and the School. London: MacGibbon and Kee.

DOWNIE, M.M. (1952). The M.T.A.I. as an aid in the selection of teachers. Journal of Educational Research, 46, 699-704.

DREVER, J. (1963). Prediction, placement and choice in university selection. Annex A., appendix 2 (B) Report of the Robbins' Committee.

DROUGHT, N.E. (1938). An analysis of eight measures of personality and adjustment in selection to relative school achievement. Journal of Applied Psychology, 22, 597-606.

DUNN, S., BLISS, J and SIIPOLA, E. (1958). Effects of impulsivity, introversion.

EHRLICH, H.J. (1961). Dogmatism and learning. Journal of Abnormal and Social Psychology, 62, 148-149.

ENTWISTLE, N.J. and ENTWISTLE, D. (1970). The relationship between personality, study methods and academic performance. British Journal of Educational Psychology, 4, 2, 132-143.

ENTWISTLE, N.J. and WILSON, J.D. (1970). Personality study methods and academic performance. Universities Quarterly, 24, 147-165.

EVANS, H.G. (1961). An enumeration of the Causes of Premature and Early Leaving in Selected Grammer Schools in South Wales. M.A. thesis, University of Wales.

EVANS, K.M. (1957). Is the concept of "interest" of significance to success in a teacher training course? Educational Review, 9, 205-211.

EVANS, K.M. (1958). An examination of the M.T.A.I. British Journal of Educational Psychology, 28, 253-257.

EVANS, K.M. (1961). An annotated bibliography of British research in teaching and teaching ability. Educational Research, 4, 67-80.

EVANS, T.R.W. (1959). The Physiognomy of Cambridge. Times Educational Supplement, October 16th.

EYSENCK, H.J. (1947). Student selection by means of psychological tests; a critical survey: British Journal of Educational Psychology, 4, 2, 132-143.

FERGUSON, G.A. (1966). Statistical Analysis in Psychology and Education. New York: McGraw-Hill.

FLECKER, R. (1959). Characteristics of passing and failing students in first year university mathematics. The Educand 3, 3.

FLEMING, E.G. (1928). The predictive value of certain tests of emotional stability as applied to college freshmen. Archives of Psychology, 96.

FORSTER, M. (1959). An Audit of Academic Performance - A Study of the Predictions of Success in the Queen's University, Belfast. Belfast: Queen's University.

FRANKS REPORT (1966). Report of Commission of Inquiry. London: Oxford University Press.

FRICK, J.W. and KEENER, H.E. (1956). A validation study of college achievement. Journal of Applied Psychology, 40, 251-252.

FRISBY, C.B. (1962). The use of cognitive tests in nursing candidate selection. A comment. Journal of Occupational Psychology, 36, 78-81.

FURNEAUX, W.D. (1956). Report to the Imperial College of Science and Technology. Quoted by Lynn (1959).

FURNEAUX, W.D. (1961). The Chosen Few. London: Oxford University Press.

FURNEAUX, W.D. (1962). The psychologist and the university. Universities Quarterly, 17, 33-47.

FURNEAUX, W.D. (1963). Manual of Nufferno Speed Tests. Slough: National Foundation for Educational Research.

FURNEAUX, W.D. (1963). Manual of Nufferno Level Tests. Slough: National Foundation for Educational Research.

FURNEAUX, W.D. (1963). The too few chosen and the many that could be called. In P.Halmos (ed.) The Sociological Review, Mongraph 7, 59-78. University of Keele.

GALTON, F. (1874). English Men of Science. London: Macmillan.

GAIER, E.L. (1952). Personality and students' thinking. School Review, 60, 404-411.

GARRETT, H.F. (1948). A review and interpretation of investigations of factors related to scholastic success in colleges of art and science and teaching colleges. Journal of Experimental Education, 18, 91-138.

GERRITZ, H.G.J. (1956). The relationship of certain personal and socio-economic data to the success of resident freshmen enrolled in the College of Science, Literature and the Arts of the University of Minnesota. Dissertation Abstracts, 16, 2366.

GHAREIB, R.M. (1947). Scholastic Achievement Viewed against I.Q. Sociometric Status and Temperament and Personality Traits. B.Ed. Thesis. University of Edinburgh.

GIBBONS, K.C. and SAVAGE, R.D. (1965). Intelligence, study habits and personality factors in academic success - a preliminary report. Durham Research Review, 5, 16, 8-12.

GOEDINGHAUS, C.H. (1954). Studies of the Relationship between Temperament and Academic Achievement. M.A. Thesis. University of Southern California.

GOTHAM, R.E. (1945). Personality and teaching efficiency. Journal of Experimental Psychology, 14, 157-165.

GOUGH, H.G. (1946). The relationship of socio-economic status to a personality inventory and achievement. Journal of Educational Psychology, 37, 527-540.

GOULD, E.M. and M'COMISKY, J.G. (1958). Attainment level in leaving certificate and academic performance at university. British Journal of Educational Psychology, 28, 2, 129-134.

GRACE, H.A. (1957). Personality factors and college attrition. Peabody Journal of Education, 35, 1.

GRAY, G.A. and SHORT, L.N. (1961). Student Progress in the University 1958-60 (Mimeo). University of New South Wales.

GREEN, J.E. and STATON, J.F. (1939). The predictive value of various tests of emotionality and adjustment in the guidance of prospective teachers. Journal of Educational Research, 32, 653-659.

GRIFFITHS, S. (1958). An Inquiry into the Causes of Deterioration in Academic Performance among Pupils in a Secondary Grammar School. M.A. Thesis, University of Wales.

GROOMS, R.R. and ENDLER, N.S. (1960). The effect of anxiety on academic achievement. Journal of Educational Psychology, 51, 5, 299-304.

GROTKE, E.M. (1955). A study of professional distance between the raters of teachers and teachers rated. Journal of Experimental Education, 24, 1-11.

GUNN, J. (1963). Some factors related to performance in the first year university English examination. Australian Journal of Higher Education, 1, 3, 75-79.

HAHN, H. and SINGER, E. (1949). An investigation of some factors related to success or failure of school of commerce students. Journal of Educational Psychology, 40.

HALL, A.R. (1962). Projecting university populations. Vestes, 5, 3, 66-73.

HALLIWELL, K. (1965). The Validity of Methods of Student Selection for Teacher Training. Ph.D. thesis, University of Sheffield.

HAMILTON, V. (1968). Scholastic and non-scholastic correlates of university students' academic performance. Paper presented at the Fourth Annual Conference of the Society for Research into Higher Education.

HAMMOND, S. (1962). The student and the university. In Melbourne Studies in Education, 1960-61 (ed. French, E.L.) Melbourne University Press.

HAMMOND, S. (1964). Draft report of a first year student survey 1955-56, Melbourne University.

HARRIS, D. (1931). The relation of college grades to some factors other than intelligence. Archives of Psychology, 20, 131.

HARRIS, D. (1940). Factors affecting college grades. A review of the literature, 1930-37. Psychology Bulletin, 37, 125-166.

HARTOG, P. and RHODES, E.C. (1935). An Examination of Examinations. London: Macmillan.

HAWARD, L.R.C. (1965). Manual for the Reading Comprehension Test for Personnel Selection. London University Press.

HEIM, A.W. (1956). Manual for the Group Test of General Intelligence, A.H.4. Slough: National Foundation for Educational Research.

HERBERT, N. and TURNBULL, G.H. (1963). Personality factors and effective progress in teaching. Educational Review, 16, 24-31.

HEYWOOD, P. (1964). An Introduction to Teaching Casework Skills. London: Routledge and Kegan Paul.

HIMMELWEIT, H.T. (1946). Speed and accuracy as related to temperament. British Journal of Psychology, 36, 132-144.

HIMMELWEIT, H.T. (1963). Student selection-implications derived from two student selection enquiries. Sociological Review Monograph 7, 79-98.

HIMMELWEIT, H.T. and SUMMERFIELD, A. (1951). Student Selection: an experimental investigation. British Journal of Sociology, 1, 328-343, and 2, 59-75, 340-353.

HIMMELWEIT, H.T. et al. (1958). Television and the Child. Oxford University Press.

HOGBEN, D. (1961). The academic progress of science students in the University of Western Australia. Australian Journal of Higher Education, 1, 1, 24-28.

HOGBEN, D. (1964). School of entry and first year performance of medical students in the University of Western Australia. Australian Journal of Higher Education.

HOHNE, H.H. (1951). The prediction of academic success. Report No.1 on the Faculty of Arts in the University of Melbourne. Melbourne: Australian Council for Educational Research.

HOLBRAAD, C. (1962). The Accommodation of Third Year University Students and their Performance at Final Examinations. (Mimeo). London School of Economics.

HOLDER, R.L. (1970). Sex, social class and student performance. Universities Quarterly, 24, 166-172.

HOLLAND, J.L. (1959). The prediction of college grades from the California Psychological Inventory and the Scholastic Aptitude Test. Journal of Educational Psychology, 50, 135-142.

HOLLAND, J.L. (1960). The prediction of college grades from personality and aptitude variables. Journal of Educational Psychology, 51, 245-254.

HOLMES, F.J. (1960). Predicting academic success in a general college curriculum. Illinois: Institute of Personality and Ability Testing Information Bulletin, 4.

HOPKINS, J. MALLESON, N.B. and SARNOFF, I. (1958). Some non-intellectual correlates of success and failure among university students. British Journal of Educational Psychology, 28, 1, 25-36.

HOUNTRAS, P.T. and BRANDT, K.R. (1970). Relations of student residence to academic performance in college. Journal of Educational Research 63, 8, 351-354.

HOWELL, D.A. (1962). A study of the 1955 entry to British universities. Evidence to the Robbins' Committee on Higher Education.

HOWELL, T.H. (1933). An experimental study of persistence. Journal of Abnormal and Social Psychology. 28, 14-29.

HUGHES, P.W. (1960a). Academic Achievement at the University. University of Tasmania.

HUGHES, P.W. (1960b). Statistics of Academic Progress 1950-59. University of Tasmania.

IFFERT, R.E. (1962). Drop-outs: nature and causes; effects on students, family and society. In N.Sanford (ed.), The American College, New York and London: Wiley.

ISAAC, J. (1969). Social origins of trainee teachers. Higher Education Journal, 17, 3, 20-24.

JAMESON REPORT (1956). Report of the Inquiry into Health Visiting. London: H.M.S.O.

JASPER, H.H. (1930). The measurement of depression - elation and its relation to a measure of introversion-extraversion. Journal of Abnormal and Social Psychology, 40.

JOHNSON, E.C. and MORRIS, E.H. (1937). Consideration concerning the selection of prospective teachers. School and Society, 46, 222-224.

JONES, C.V. (1962). An inquiry into the causes of gross discrepancy between the performance of pupils in the 11+ examination and their performance at the end of the first year in a Welsh grammer school. M.A. thesis, University of Wales.

KARRAS, E.J. (1960). The prediction of musical aptitude. Illinois: Personality and Ability Testing Information Bulletin, 4.

KELSALL, R.K. (1963). University selection in relation to subsequent performance. A critical appraisal of the British evidence. In P.Halmos (ed.). The Sociological Review, Monograph 7, 99-115, University of Keele.

KELVIN, R.R., LUCAS, C.J. and OJHA, A.B. (1965). Personality, mental health and academic performance. British Journal of Social and Clinical Psychology, 4, 244-253.

KEMP, L.C.D. (1947). The prediction of teaching success. The Forum of Education. Sydney Teachers' College, 6, 14.

KLINE, P. (1966). Extraversion, neuroticism and academic attainment among Ghanaian university students. British Journal of Educational Psychology, 36, 251-253.

KLINE, P. and GALE, T. (1971). Extraversion, neuroticism and performance in a psychology examination. Bulletin of the British Psychological Society, 24, 83, 151.

KNUPFER, G., JACKSON, D.D., and KRIEGER, G. (1959). Differences between effective and ineffective social work therapists. Journal of Nervous and Mental Diseases, 129, 375-384.

LA DUKE, C.V. (1945). The measurement of teaching ability. Study No.3, Journal of Experimental Education, 14, 75-100.

LAMKE, T.A. (1951). Personality and teaching success. Journal of Experimental Education, 14, 75-100.

LANGLEY, D. (1965). Student performance and student residence. The Australian University, 3, 2.

LAVIN, D.E. (1965). The Prediction of Academic Performance. Russell Sage Foundation, and New York: Wiley.

LEE, T. (1959). The selection of student nurses. A revised procedure. Journal of Occupational Psychology, 33, 209-216.

LEEDS, C.H. (1950). A scale for measuring pupil-teacher attitudes and pupil-teacher rapport. Psychological Monograph, General and Applied, 312.

LEWIS, D.G. (1958). The effect of national service on academic performance. British Journal of Educational Psychology, 28, 138-140.

LOCKE, E.A. (1963). The development of criteria of student achievement. Educational and Psychological Measurement, 23, 2, 299-307.

LOCKE, M. (1958). The relationship between the academic performance of university students and various cognitive and personality variables. Unpublished report cited by Rushton (1969).

LOVELL, K. (1950). An investigation into factors underlying teaching ability in primary and secondary modern schools with a view to improving the methods of selecting potential teachers. M.A. thesis, University of London.

LUCAS, C.J., KELVIN, R.P. and OJHA, A.B. (1966). Mental health and student wastage. British Journal of Psychiatry, 112, 277-284.

LYNN, R. (1959). Two personality characteristics related to academic achievement. British Journal of Educational Psychology, 29, 213-216.

LYNN, R. and GORDON, J.E. (1961). The relation of neuroticism and extraversion to intelligence and attainment. British Journal of Educational Psychology, 31, 194-203.

MacARTHUR, C. (1954). Personalities of public and private school boys. Harvard Educational Review, 24, 4.

McANDLESS, B.R. (1949). The Rorschach as a predictor of academic success. Journal of Applied Psychology, 33, 43-50.

MACLAY, I. (1968). A random sample of university undergraduates. Universities Quarterly, 23, 80-94.

McCLELLAND, D.C. et al. (1953). The Achievement Motive. New York: Appleton-Century Crofts.

McGINNIES, E. (1950). Personal values as determinants of word association. Journal of Abnormal and Social Psychology, 45, 28-36.

McGINNIES, E. and BOWLES, W. (1949). Personal values as determinants of perceptual fixation. Journal of personality, 18, 224-235.

McQUARY, J.P. (1953). Some relationships between non-intellectual characteristics and academic achievement. Journal of Educational Research, 4, 44, 215-228.

McCULLOCH, J.W., FOREN, R.J.W. and HITCH, P.J. (1969). Motivation and academic performance as factors in the selection of social work students. Journal of Educational Research, 2, 207-211.

MALLESON, K. (1963). Must Students be Wasted? New Society, May 2nd.

MALLESON, N.B. (1958). Student performance at University College, London, 1948-51, Universities Quarterly, 12, 288-319.

MALLESON, N.B. and HOPKINS, J. (1959). University Student, 1953, I: Profile. Universities Quarterly, 13, 3, 287-298.

MANN, J.F. (1961). Differences between Successful and Failing Students in a London Training College for Teachers. Ph.D. thesis in Arts, University of London.

MARRIS, P. (1964). The Experience of High Education. London: Routledge and Kegan Paul.

MARSHALL, M.V. and SIMPSON, E.W. (1943). Vocational choice and college grades. Journal of Educational Research, 37, 303-305.

MARTIN, P.G. (1959). Failure in a first year university subject. Australian Journal of Education, 3, 3, 144-146.

MAYZNER, M.S. and TRESSELT, M.Z. (1955). Concept span as a composite function of personal values, anxiety and rigidity. Journal of Personality, 24, 20-33.

MEAD, M. (1956). The cross-cultural approach to child development problems, in Discussions in child development (eds. J.M. Tanner and B. Inhelder) London: Tavistock.

MEDDLETON, I.G. (1960). Prediction of results of first year university students in the University of Queensland. The Educand, 4, 1, 96-104.

MILLER, G.W. (1970). Success, Failure and Wastage in Higher Education. London, Harrap.

MILLER, G.W. (1971). Educational Opportunities and the Home. London: Longman.

MITCHELL, F. (1965). Social Work Today. In Hancock, A. and Willmott, P. The Social Workers. London: B.B.C.

MONTALTO, F.D. (1946). An application of the Group Rorschach Technique to the problem of achievement in college. Journal of Clinical Psychology, 2, 254-280.

MONTROSS, H.W. (1954). Temperament and teaching success. Journal of Experimental Education, 23, 73-97.

MOOS, S. et al. (1954). A survey of newspaper reading by university students. University of Durham Department of Social Studies.

MOREA, P.C. (1969). Interests in relation to student success. Journal of Occupational Psychology, 43, 145-150.

MORRIS, S. (1969). Teaching practice: objectives and conflicts. Education Review, 21, 2. University of Birmingham.

MORRIS, S. (1970). The assessment and evaluation of teaching practice in Towards Evaluation (ed. E. Stones). Educational Review Occasional Publications, 4. University of Birmingham

MOUNTFORD, J. (1956). How They Fared. A Survey of a Three Year Student Entry. Liverpool University Press.

MUNROE, R.L. (1942). An experiment in large scale testing by a modification of the Rorschach Method. Journal of Psychology, 13, 229-263.

MUNROE, R.L. (1945). Prediction of the adjustment and academic performance of college students. Applied Psychology Monograph, 7.

NANDI, T.K. (1941). An investigation into the assessment of teaching ability. Ed.B. thesis, University of Edinburgh.

NEMZEK, C.L. (1938). The value of the Bernreuter Personality Inventory for direct and differential prediction of academic success as measured by teachers' marks. Journal of Applied Psychology, 22, 576-586.

NEWFIELD, J.G.H. (1963). Some factors related to the academic performance of British university students. In. P. Halmos (ed.) The Sociological Review, Monograph 7, 117-130. University of Keele.

NICHOLSON, R.J. and GALAMBOS, P. (1960). Prediction in G.C.E. advanced level examination and university examination. University of Hull.

NISBET, J. (1961). Family environment and intelligence. In Halsey, A.H., Floud, J. and Anderson, C.A. (eds.), Education, Economy and Society. New York: The Free Press.

NISBET, J. and BUCHAN, J. (1959). The long term follow-up of assessments at age eleven. British Journal of Educational Psychology, 29, 1, 1-8.

NISBET, J. and WELSH, (1966). Predicting student performance. Universities Quarterly, 20, 468-480.

ODENWELLER, A.L. (1936). Predicting the quality of teaching. Contributions to Education. New York Teachers' College. Columbia University.

OLSEN, F.J. (1955). An Investigation into the Causes of Failure in University Examinations in an Australian University. Ph.D. thesis, University of Queensland, reported in Schonell, F.J. et al. (1962).

OSBORNE, R.T. and SANDERS, W.B. (1949). Multiple choice Rorschach responses of college achievers and non-achievers. Education and Psychological Measurement, 9, 685-691.

OWENS, W.G. and JOHNSON, W.C. (1949). Some measured personality traits of collegiate under-achievers. Journal of Educational Psychology, 40, 41-46.

PANTON, E.H. (1932). The Assessment of Teaching Ability with Special Reference to Men Students in Training. M.A. thesis, University of London.

PARKYN, G.W. (1959). Success and Failure at the University Volume I. Academic Performance and the Entrance Standard. Wellington, New Zealand Council for Educational Research.

PETCH, J.A. (1959). Before Admission. Liverpool University Press.

PETCH, J.A. (1961). G.C.E. and Degree Pt.1. Northern Universities Joint Matriculation Board.

PETRIE, A. (1948). The selection of medical students. Lancet, 255.

PETRIE, A. and POWELL, M.P. (1951). Personality and nursing. Journal of Applied Psychology, 35, 281-286.

PETTY, W.H. (1971). Entry standards and student quality. Times Educational Supplement, March 26th.

PHILLIPS, A.S. (1953). An Examination of Methods of Selection of Training College Students. M.A. thesis, University of London.

PHILP, H. and CULLEN, A. (1955). A further study of age and academic success. The Forum of Education, 14, 2, 72-78.

PILKINGTON, G.W. and HARRISON, G.J. (1967). The relative value of two high level intelligence tests, advanced level and first year university examination marks for predicting degree classification. British Journal of Educational Psychology, 37, 3, 382-389.

PILLINER, A.E.G. (1960). Prediction of success in the Arts Faculty of the University of Edinburgh by marks obtained at the Scottish Leaving Certificate Examination. Edinburgh University Department of Education.

PINSENT, A. (1933). Pre-college teaching experience and other factors in teaching success of university students. British Journal of Educational Psychology, 3, 109-126, 201-221.

POSTMAN, L., BRUNER, J.S. and McGINNIES, E. (1948). Personal values as selective factors in perception. Journal of Abnormal and Social Psychology, 43, 142-154.

POSTMAN, L., and SCHNEIDER, B.H. (1951). Personal values, visual recognition and recall. Psychological Review, 58, 271-284.

PRIESTLEY, R.R. (1958). The mental health of university students in Melbourne Studies in Education, 1957-58. (Ed. French, E.L.) 31-46. Melbourne University Press.

PUNCH, K.F. (1966). Some factors associated with the output of graduates from Australian universities. A survey and analysis of recent research. University of Western Australia Faculty of Education.

PYLE, W.H. (1928). The relation between intelligence and teaching success. Educational Administration and Supervision, 14, 257-267.

RAVEN, J.C. (1960). Guide to the Progressive Matrices, London: Lewis.

RAVEN, J.C. (1965). Guide to using the Mill Hill Vocabulary Scale with the Progressive Matrices. London: Lewis.

REMMERS, H.H. (1963). Rating methods in research and teaching. In N.L. Gage, ed. Handbook of Research in Teaching. Chicago: Rand McNally, 1963.

RICHARDS, J.P.G. and WILSON, A.J.C. (1961). 'A' level and pass degree in Physics. Universities Quarterly, 15, 389-391.

RICHARDSON, S. (1965). Manual for the Study of Values. Slough: N.F.E.R.

ROBBINS REPORT (1963). Report of the Committee on Higher Education. Cmnd. 2154. London: H.M.S.O.

RODGER, A. (1965). Capacity and inclination for university courses. Journal of Occupational Psychology, 39, 1, 38-43.

ROE, A. (1953). The Making of a Scientist. New York, Dodd, Mead.

ROKEACH, M. (1960). The Open and Closed Mind. New York: Basic Books.

ROWE, A.P. (1960). If the Gown Fits. Melbourne University Press.

RUSHTON, J. (1969). A Longitudinal Study of the Relationship between some Personality Variables and some Measures of Academic Attainment. Ph.D. thesis, University of Manchester.

RUST, R.M. and RYAN, F.J. (1953). The relationship of some Rorschach variables to academic behaviour. Journal of Educational Psychology, 29, 573-580.

RYANS, D.G. (1938). A study of the observed relationship between persistence, test results, intelligence, indices and academic success. Journal of Educational Psychology, 28, 573-580.

RYLE, A. and LUNGHI, M. (1968). A psychometric study of academic difficulty and psychiatric illness in students. British Journal of Psychiatry, 114, (506), 57-63.

SAER, H. (1941). A further investigation of pre-college teaching experience and other factors in teaching success of university students. British Journal of Educational Psychology, 2, 183-196.

SANDERS, C. (1948). Student selection and academic success in Australian universities. Sydney, Commonwealth Office of Education.

SANDERS, C. (1950). Objective tests at the tertiary level. The Educand, 1, 1.

SANDERS, C. (1951). Aspects of scholastic intelligence. Australian and New Zealand Association for the advancement of science. Section J. Brisbane, Queensland.

SANDERS, C. (1957). Australian selection: its theory, history and psychology. Australian Journal of Education, 1, 3, 145-167.

SANDERS, C. (1958). Academic wastage and failure among university students in Australia and other countries: 1928-1958. University of Western Australia, Faculty of Education (mimeo).

SANDERS, C. (1958). Factors and research problems in the success and failure of university students. The Educand 3, 2, 212-219.

SANDERS, C. (1961). Psychological and educational bases of academic performance. Melbourne, A.C.E.R.

SANDERS, C. (1963). Australian universities and their educational problems - a review of literature and research. The Australian University, 1, 2, 196-234.

SAVAGE, R.D. (1962). Personality factors and academic performance. British Journal of Educational Psychology, 32, 251-253.

SCHOFIELD, W. (1953). A study of medical students with the M.M.P.I. Personality and academic success. Journal of Applied Psychology, 37, 47-52.

SCHONELL, F.J., ROE, E. and MEDDLETON, I.G. (1962). Promise and Performance. Brisbane, University of Queensland Press and University of London Press.

SCHONELL, F.J. (1963). Student adaptation and its bearing on academic achievement. The Australian University, 1, 1.

SCHOONOVER, S.M. (1969). The relationship of intelligence and achievement to birth order, sex of sibling and age interval. Journal of Educational Psychology, 50, 143-146.

SCHRAMM, W. et al. (1961). Television in the lives of our children. Stanford University Press.

SCHWARTZ, A.N. (1950). A study of the discriminating efficiency of certain tests of the primary source traits of teachers. Journal of Experimental Education, 19, 63-94.

SCHWARTZMAN, A.E., HUNTER, R.C.A. and PRINCE, R.H. (1961). Intellectual factors and academic performance in Medical Undergraduates. Journal of Medical Education, 36, 353.

SCOTT, P. (1959). Some geographical aspects of the selection and examination performance of full-time university students in Tasmania. Australian Journal of Education, 3, 3, 129-143.

SCOTTISH COUNCIL FOR RESEARCH IN EDUCATION (1936). The Prognostic Value of the University Entrance Examination. University of London Press.

SEAGOE, M.Y. (1946). Prediction of in-service success in teaching. Journal of Educational Research, 39, 658-663.

SEEBOHM, K. (1968). Report of the Committee on Local Authority and Allied Personal Social Services. London: H.M.S.O.

SHERWIN, E. and CHILD, D. (1970). Predicting the performance of undergraduate chemistry students. Education in Chemistry, 7 (4), 156-158.

SHIPMAN, M.D. (1966). The assessment of teaching practice. Education for Teaching, 70.

SINHA, D. (1966). A psychological analysis of some factors associated with success and failure in university education. Indian Educational Review, 1, 1, reported in Miller, G.W. (1970).

SMALL, J.J. (1966). Achievement and Adjustment in the First Year at University. Educational Research Series, No.45. Wellington: New Zealand Council for Education.

SMITHERS, A.G. and BATCOCK, A. (1970). Success and failure among social scientists and health scientists at a technological university. British Journal of Educational Psychology, 40, 144-153.

SPIELBERGER, C.D. (1962). The effects of manifest anxiety on the academic achievement of college students. Journal of Mental Hygiene, 46, 420-426.

START, K.B. (1966) The relation of teaching ability to measures of personality. British Journal of Educational Psychology, 36, 158-165.

STONE, D.R. and GANLING, G.R. (1956). A study of scholastic achievement related to personality as measured by the M.M.P.I. Journal of Educational Research, 50, 155-156.

STRODTBECK, F.L. (1958). Family interaction, values and achievement. In McClelland, D.C. et al. Talent and Society. Princeton: Van Nostrand.

STRONG, E.K. (1938). Vocational Interest Blank for Men. Stanford University Press.

STRUPP, H.H., WALLACH, M.S. and WOGAN, M. (1964). Psychotherapy, experience in retrospect. Questionnaire survey of former patients and their therapists. Psychological Monograph, 78.

SUDDARTH, B.M. (1957). Factors influencing the successful graduation of freshmen who enrol at Purdue University (mimeo), Purdue University.

SUMMERSKILL, J. (1962). Drop-outs from college in The American College, Ed. H. Sanford. New York: Wiley.

SUPER, D.E. (1942). The Bernreuter Personality Inventory. Psychological Bulletin, 39, 94-125.

TARPEY, M.S. (1965). Personality factors in teacher trainee selection. British Journal of Educational Psychology, 35, 140-149.

THEOBALD, M.J. (1961). A study of some first-year students at the University of Melbourne, N.U.A.U.S. Research Department.

THOMAS, W., BEEBY, C.E. and ORAM, M.H. (1939). Entrance to University. Wellington, New Zealand Council for Educational Research.

TOBAN, E. (1970). Perceived skill of professional and non-professional community health workers. Journal of Consulting and Clinical Psychology, 34, 308-313.

TOSI, D.J. (1970). Dogmatism within the counsellor-client dyad. Journal of Counselling Psychology, 17, 3, 284-287.

TRUAX, C.B. and CARKHUFF, R.R. (1965). Experimental manipulation of therapeutic conditions. Journal of Consulting Psychology, 29, 119-124.

TRUAX, C.B. et al. (1966). Therapist empathy, genuineness and warmth and patients' therapeutic outcome. Journal of Consulting Psychology, 30, 395-401.

TURNBULL, G.H. (1934). The influence of previous teaching experience on results obtained by students in a University Department of Education. British Journal of Educational Psychology, 7, 1-22.

UNIVERSITY OF SUSSEX ADMISSIONS OFFICE (1970). Report on Early Leaver and Unqualified Students, 1964-70.

VALENTINE, C.W. (1961). The use of a new reasoning test for the selection of university and training college students. British Journal of Educational Psychology, 31, 1, 227-231.

VANDERPLAS, J.M., and BLAKE, R.R. (1949). Selective sensitization in auditory perception. Journal of Personality, 18, 252-266.

VENABLES, E. (1963). Some differences among day release students in relation to their recruitment and examination success. British Journal of Social and Clinical Psychology, 2, 138-142.

VERNON, P.E. (1939). Educational abilities of training college students. British Journal of Educational Psychology, 233.

VERNON, P.E. (1963). The Pool of Ability. Sociological Review Monograph No. 7, 45-58. University of Keele.

VERNON, P.E. and ALLPORT, G.W. (1931). A test for personal values. Journal of Abnormal and Social Psychology, 26, 231-248.

VON HADEN, H.I. (1946). An evaluation of certain types of personal data employed in the prediction of teaching efficiency. Journal of Experimental Education, 15, 61-84.

WALTERS, A.D. (1957). Qualifications of Training College Students. Unpublished M.A. thesis, University of Liverpool.

WANKOWSKI, J. (1968). Some aspects of motivation in success and failure at university. Paper presented at the Fourth Annual Conference of the Society for Research into Higher Education.

WARBURTON, F.W. (1952). The Selection of University Students. Manchester University Press.

WARBURTON, F.W. (1956). Predictors of university success at secondary level. British Journal of Educational Psychology, 47, 146-147.

WARBURTON, F.W. (1963). Analytic methods of factor rotation. British Journal of Statistical Psychology.

WARBURTON, F.W., BUTCHER, H.J. and FORREST, G.M. (1963). Predicting student performance in a university department of education. British Journal of Educational Psychology, 33, 68-79.

WARD, L.B. and KIRK, S.A. (1942). Studies in the selection of students for a teachers' training college. Journal of Educational Research, 35, 665-672.

WATSON, G. (1963). Happy College Years. A report on the specialized counselling programme, Brooklyn College of City University of New York. Report in Miller, G.W. (1970).

WEISS, R.J., SEGAL, B.E. and SOKOL, R. (1965). Epidemiology of emotional disturbance in a men's college. Journal of Nervous and Mental Diseases, 141, 2.

WHITE, B.J. and ALTER, R.D. (1967). Dogmatism and examination performance. Journal of Educational Psychology, 58, 285-289.

WHITE, H.D.J. (1931). An application of mental tests to university students. British Journal of Educational Psychology, 1, 291-295.

WHITEHORN, J.C. and BETZ, B.J. (1960). Further studies of the doctor as a crucial variable in the outcome of treatment of schizophrenic patients. American Journal of Psychiatry, 117, 215-223.

WILLIAMS, E.M. (1950). An investigation of the value of higher school certificate results in predicting performance in first-year examinations. British Journal of Educational Psychology, 20, 83-98.

WISEMAN, S. (1966). The Manchester Survey. In Children and their Primary Schools, 2. Appendix 9.

WITHERSPOON, P. and MELBERG, M.E. (1959). The relationship between grade point averages and sectional scores on the Guilford-Zimmerman Temperamental Survey. Educational and Psychological measurement, 19, 673-674.

WORSWICK, G.D.N. (1957). Report in Times Educational Supplement, May 3rd. The Anatomy of Oxbridge. T.E.S. May 3, 1957.

YOUNGHUSBAND, E. (1959). Report of the Working Party on Social Workers in the Local Authority Health and Welfare Services. London: H.M.S.O.

APPENDICES

CONTENTS

TABLES

APPENDIX 1

KEY TO PREDICTOR AND CRITERION VARIABLES

TABLE 1

PREDICTOR VARIABLES

VARIABLE NO.	
1	A.H.4. Pt.I Verbal/Numerical Intelligence
2	A.H.4. Pt.II Non-Verbal Intelligence
3	A.H.4. Both parts
4	Raven's Matrices Non-Verbal Intelligence Test
5	Mill Hill Vocabulary Scale
6	Stressed Speed Test
7	Unstressed Speed Test
8	Accuracy Test
9	Level (Persistence) Test
10	Reading Comprehension Test
11	Connolly Occupational Interests : E
12	Connolly Occupational Interests : F
13	Connolly Occupational Interests : G
14	Connolly Occupational Interests : H
15	Connolly Occupational Interests : J
16	Connolly Occupational Interests : K
17	Connolly Occupational Interests : L
18	Values : Theoretical
19	Values : Economic
20	Values : Aesthetic
21	Values : Social
22	Values : Political
23	Values : Religious
24	16 P.F. Personality Test : A
25	16 P.F. Personality Test : B
26	16 P.F. Personality Test : C
27	16 P.F. Personality Test : E
28	16 P.F. Personality Test : F
29	16 P.F. Personality Test : G
30	16 P.F. Personality Test : H
31	16 P.F. Personality Test : I
32	16 P.F. Personality Test : L
33	16 P.F. Personality Test : M
34	16 P.F. Personality Test : N
35	16 P.F. Personality Test : O

VARIABLE NO.	
36	16 P.F. Personality Test : Q_1
37	16 P.F. Personality Test : Q_2
38	16 P.F. Personality Test : Q_3
39	16 P.F. Personality Test : Q_4
40	16 P.F. Anxiety
41	16 P.F. Extraversion
42	11+ success
43	Status of school
44	Co-educational v single sex
45	Boarding or day pupil
46	School qualifications
47	Effort at school
48	Leaving age
49	Additional courses
50	Age
51	Travelling time to college
52	Travelling time to placement
53	Marital status
54	Residence
55	Racial origin
56	Experience
57	Grant
58	Status of father's school
59	Status of mother's school
60	Father's school leaving age
61	Mother's school leaving age
62	Father's job
63	Mother at home (pre-school)
64	Mother at home (primary school)
65	Mother at home (secondary school)
66	Mother at work (number of stages)
67	Family birth order
68	Family size
69	Parents' social class
70	Own social class
71	Future social class aspirations
72	Difference between own and future social class aspirations
73	Rating of education qualifications in class structure
74	Rating of occupation in class structure

VARIABLE NO.

75	Rating of importance of own job
76	Rating of society's view of importance of job
77	Difference between own and society's rating
78	Own daily newspaper
79	Parents' daily newspaper
80	Own Sunday newspaper
81	Parents' Sunday newspaper
82	Televiewing time
83	Religion
84	Religious attendance
85	Desire for future qualifications
86	Whether future qualifications in same field
87	Whether university attendance preferred
88	Opinion of pay
89	Opinion of prospects
90	Reason for entering field
91	Alternative job
92	Choice of college (social work students only)
93	Sex of student (social work students only)
94	Social Work or Child Care option (social work students only)
	CRITERION VARIABLES
	Health Visitors
92	Examination paper 1 : Development of the Individual
93	Examination paper 2 : The Individual in Groups and Social Policy
94	Examination paper 3 : Social Aspects of Disease
95	Family case studies
96	Individual project
97	Main Theoretical Criterion : mean standardised score (92-96)
98	Work with the public
99	Work with colleagues
100	Administrative work
101	Weighted criterion (composed of 98-100)
102	Overall practical work grading
103	Fitness for promotion grading
104	Main Practical Criterion (mean of 101 and 102)
	Social Workers
95	Examination paper 1 : Social Policy
96	Examination paper 2 : Social Influence

Social Workers

VARIABLE NO.	
97	Examination paper 3 : Human Growth and Behaviour
98	Examination paper 4 : Social Work
99	Examination paper 5 : Law
100	Main First Year Theoretical Criterion : mean standardised score (95-99)
101	Main Second Year Theoretical Criterion
102	Work with clients
103	Professional development
104	Work within the agency
105	Weighted criterion (composed of 102-104)
106	Overall practical work grading
107	Desirability of student as a colleague grading
108	Main Practical Criterion (mean of 105 and 106)

APPENDIX 2

HEALTH VISITORS 1968 INTAKE

TABLE B(i) RAW DATA

SUBJECT NO.

VARIABLE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
1	57	50	45	42	52	46	41	46	40	41	44	39	48	43	38	41	37	42	35	34	35	44	37	36	35	43	40	41	37	40	34	35	39	35	32	33	35	33	35	35	32	35	37	29	26
2	62	59	58	57	46	43	47	42	46	45	41	45	35	39	44	40	44	37	44	44	42	42	40	39	40	32	35	34	38	34	40	38	33	37	40	39	34	34	32	28	31	26	22	25	27
3	119	109	103	99	98	89	88	88	86	86	85	84	83	82	82	81	81	79	79	78	77	86	77	75	75	75	75	75	75	74	74	73	72	72	72	72	69	67	67	63	63	61	57	54	53
4	54	52	56	55	51	47	58	57	52	54	47	55	47	55	49	50	49	57	51	56	51	56	54	47	46	46	55	47	54	40	52	50	53	52	46	53	46	41	54	41	54	48	39	44	47
5	74	77	67	65	82	63	52	67	59	66	68	56	57	62	69	55	65	70	57	50	56	73	60	62	68	62	55	56	60	72	57	45	56	74	66	55	58	54	60	54	58	63	72	57	57
6	214	210	225	212	219	217	228	210	220	222	200	202	206	224	219	213	210	199	223	222	221	222	217	221	203	199	204	193	213	197	193	211	206	213	217	211	100	230	216	210	211	205	195	216	213
7	242	223	221	214	245	218	221	221	237	223	201	196	209	225	206	204	210	214	227	218	211	218	218	223	215	204	205	215	216	198	205	198	202	224	214	209	100	208	221	219	206	206	100	232	186
8	16	18	15	18	16	14	16	17	17	18	14	13	17	17	17	14	16	17	18	18	18	18	17	15	13	14	15	16	17	14	17	12	17	18	13	17	12	13	15	12	14	13	2	11	17
9	402	429	443	376	259	344	428	400	414	428	383	330	330	414	286	301	373	271	400	472	386	433	414	360	287	257	444	309	436	400	373	359	436	414	322	352	143	256	335	306	265	316	173	244	351
10	19	21	21	24	23	21	25	21	21	22	13	21	21	21	14	22	16	23	22	18	10	23	16	19	17	20	17	22	20	18	20	19	11	24	17	23	1	15	21	21	18	21	15	13	13
11	13	12	12	16	14	7	18	15	20	20	11	14	14	17	15	15	21	13	13	16	16	10	10	12	16	11	9	12	18	14	17	12	12	15	15	12	10	13	14	17	12	13	7	12	18
12	14	16	20	22	19	12	12	19	13	17	14	20	18	17	9	16	19	17	11	22	18	16	20	18	22	19	23	24	15	20	13	24	20	16	21	21	22	20	21	17	13	19	21	18	20
13	6	20	11	8	9	10	13	6	10	9	14	8	14	8	12	8	4	13	7	8	5	13	17	9	6	14	10	13	13	10	9	14	11	8	5	9	11	7	7	12	19	13	17	10	8
14	10	13	16	14	11	15	11	7	5	13	12	12	14	16	16	9	14	17	18	5	9	19	16	17	15	19	14	15	16	16	14	9	20	16	11	11	10	17	13	17	10	11	19	7	8
15	20	7	15	14	20	19	18	13	3	13	13	18	17	14	19	13	12	18	21	10	16	18	7	19	13	14	14	11	13	2	14	10	14	17	21	16	18	18	18	13	14	15	15	18	8
16	12	12	1	3	3	2	1	9	18	1	11	4	2	2	4	6	5	3	2	12	6	3	9	2	2	1	5	6	1	18	5	7	4	2	2	7	3	3	2	6	7	0	2	3	8
17	9	4	9	7	8	19	11	15	15	11	9	8	5	10	9	17	9	3	12	11	14	5	5	7	10	6	9	3	8	4	12	8	3	8	9	8	10	6	9	2	9	13	3	6	14
18	29	28	38	34	30	29	40	28	42	22	41	29	37	33	32	31	40	24	39	30	35	38	32	29	31	23	25	32	32	31	37	84	30	28	30	83	29	38	28	30	25	33	39	19	37
19	32	36	25	29	29	31	35	30	40	18	18	31	31	26	37	43	33	26	31	31	42	36	35	28	27	22	17	20	28	34	31	41	33	27	25	30	27	26	40	32	32	25	26	24	32
20	26	16	31	23	35	22	26	18	10	31	20	20	27	16	24	22	23	33	37	11	20	19	15	24	20	22	24	21	22	17	36	18	15	29	30	43	31	31	21	18	24	25	31	18	14
21	50	44	48	46	49	34	45	47	41	49	47	43	41	44	36	43	46	42	52	42	46	45	46	45	41	48	52	43	50	60	43	35	45	48	48	48	52	46	38	41	45	47	41	45	39
22	13	30	27	31	18	22	16	16	24	7	25	20	24	21	42	17	17	28	15	19	22	23	25	9	10	28	24	20	25	25	25	33	27	18	19	13	23	22	11	23	12	30	27	19	18
23	30	26	11	17	19	42	18	41	23	53	29	37	20	40	9	24	21	17	6	47	15	19	27	45	51	37	38	44	13	33	8	19	30	30	28	13	18	17	42	36	42	20	11	55	40
24	9	14	12	9	14	11	14	7	9	8	12	10	14	15	6	12	12	12	9	7	14	11	12	12	10	13	16	10	18	11	8	12	10	10	10	13	6	12	9	9	10	9	11	15	9

SUBJECT NO.

AGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
25	8	7	11	6	9	9	10	12	6	8	9	9	8	7	6	7	10	9	6	6	7	10	11	6	7	9	10	7	8	7	8	8	11	9	5	7	6	8	7	9	8	6	7	7	8
26	11	16	15	11	20	19	11	14	18	14	19	16	18	10	16	11	12	15	11	13	11	9	12	11	14	10	14	20	14	9	14	16	16	8	9	11	14	13	18	14	15	16	16	10	15
27	11	9	6	10	12	6	12	7	10	0	9	15	16	13	14	2	14	24	9	8	13	12	9	6	16	13	7	9	18	7	12	12	8	6	10	5	12	9	12	6	6	8	10	7	14
28	3	13	15	18	11	14	19	4	2	9	17	13	13	19	11	2	10	20	8	9	14	15	14	15	16	16	10	13	17	5	9	15	20	14	19	19	11	16	10	17	3	21	20	15	6
29	6	16	12	10	11	13	8	15	11	14	7	11	15	16	7	14	16	6	13	11	8	16	11	9	15	15	12	14	9	10	2	16	13	14	15	13	15	12	10	10	16	15	10	14	14
30	3	16	6	9	13	9	7	3	9	3	15	16	11	13	6	2	11	20	3	10	13	9	7	15	19	11	12	7	10	4	11	5	18	10	11	12	7	20	9	2	3	13	12	6	6
31	15	13	9	10	16	8	17	17	3	12	9	8	8	10	13	12	12	13	12	8	14	14	17	16	10	16	13	12	14	11	11	12	11	13	16	14	15	8	9	14	15	10	14	14	10
32	7	6	8	8	8	7	13	6	10	8	7	10	6	10	5	8	9	6	10	6	14	14	13	10	7	8	9	10	8	9	9	10	5	8	5	18	6	5	11	12	4	6	4	6	10
33	14	11	12	15	14	9	13	13	12	18	10	12	8	16	13	10	14	20	10	13	15	8	17	18	17	15	11	10	13	9	15	15	14	14	17	13	20	13	11	20	11	14	21	10	16
34	10	9	14	11	10	13	7	11	16	12	11	9	12	6	15	8	12	11	12	9	8	15	11	6	7	11	6	8	11	13	8	13	10	15	14	12	11	8	13	14	9	14	5	12	12
35	13	11	8	13	13	10	17	14	13	11	9	12	9	16	7	16	15	13	15	10	15	15	15	18	10	17	14	10	16	14	20	11	8	11	18	10	14	6	12	11	12	7	11	20	16
36	10	6	13	12	12	8	11	10	9	10	16	6	9	11	12	8	13	10	8	14	8	13	8	5	10	10	9	5	10	9	10	10	10	10	9	10	12	10	5	6	4	13	14	10	6
37	15	14	15	7	15	12	9	16	17	12	18	11	7	7	14	5	12	17	18	13	14	9	13	11	10	13	11	8	11	13	12	7	10	15	8	9	10	11	13	12	11	11	18	5	14
38	8	15	8	9	8	15	9	7	13	10	15	8	13	9	12	8	14	10	9	12	7	12	12	11	10	12	12	16	10	10	2	8	12	9	7	11	13	9	8	12	17	15	14	12	11
39	19	11	14	19	18	10	17	16	16	13	10	13	9	9	8	14	14	8	18	12	17	17	13	16	18	18	11	11	18	6	19	10	7	9	11	10	8	16	17	18	16	10	16	20	17
40	7·97	4·32	6·27	7·82	6·38	4·09	8·78	7·61	6·49	8·92	3·45	6·08	4·20	6·63	4·43	7·87	6·39	4·89	8·27	5·44	8·17	8·09	7·70	7·49	5·89	7·64	5·93	5·02	7·19	6·24	8·97	6·00	3·50	6·19	7·11	6·19	5·50	5·12	6·98	7·45	5·35	3·43	5·24	8·88	7·04
41	1·33	5·71	2·79	5·22	5·15	3·43	5·42	0·50	1·96	0·82	4·56	6·68	6·36	8·61	3·19	0·33	4·41	8·59	1·66	3·22	1·96	4·74	3·61	4·55	7·57	5·91	4·09	3·93	6·29	1·18	3·91	4·42	7·07	3·91	5·71	5·22	3·18	6·58	3·43	2·23	0·99	5·94	5·32	4·26	2·71

SUBJECT NO.

VARIABLE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
42	3	2	3	3	1	3	3	1	3	3	2	3	0	2	3	0	2	3	0	3	3	3	3	3	0	1	3	0	0	1	0	3	3	2	0	2	1	0	0	3	2	0	1	0	1
43	4	4	4	4	6	4	4	4	4	4	8	4	7	5	4	7	6	4	7	4	4	4	4	4	7	5	5	7	1	2	7	5	4	6	2	4	4	7	7	6	6	2	8	7	4
44	2	2	2	2	2	2	1	1	1	2	2	2	2	2	1	2	1	2	1	2	2	1	2	2	2	1	2	2	2	2	2	2	2	i	2	1	2	2	2	2	1	2	2	2	1
45	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
46	0	5	9	4	0	0	5	6	8	6	0	2	3·5	5	8	4·5	1	10	2	6	3	7	6	8	6·5	6	4	6	7	0	4	5	8	1·5	10	2	6·5	1	0	3	3	3	0·5	3	0
47	3	3	4	3	3	3	4	3	5	3	5	4	3	4	1	3	5	1	3	3	3	1	5	3	3	1	4	3	4	3	3	4	3	3	4	3	3	4	3	5	3	3	3	3	3
48	2	3	5	4	2	2	4	2	4	4	1	4	4	4	5	3	4	5	4	3	3	3	4	4	4	3	5	4	3	3	3	4	5	4	4	5	4	3	2	2	2	4	1	2	2
49	2	1	1	2	2	2	2	2	2	2	1	2	1	1	2	2	1	2	2	2	2	2	1	2	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1	2	2	1	1	1	2
50	37	31	25	22	47	33	25	33	25	23	40	27	27	22	30	26	38	24	26	25	30	35	24	27	23	23	22	23	25	42	25	23	24	39	38	25	39	26	29	25	31	22	48	34	38
51	3	7	3	5	5	2	2	3	3	1	2	4	7	2	6	2	4	2	3	2	4	7	3	3	3	6	5	2	3	6	2	2	3	2	6	7	3	3	4	2	6	1	2	2	2
52	2	7	5	5	2	1	2	1	2	2	3	4	1	4	6	1	1	3	2	2	3	6	2	5	2	2	5	2	6	2	4	3	4	1	2	2	3	2	1	2	3	1	2	2	2
53	0	0	1	1	0	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	0	0	1	0	1	1	1	1	1	0	1	1	1	0	0	1	0	1	0	1	1	1	0	1	1
54	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	0
55	1	0	1	0	1	1	1	0	0	1	1	0	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	1	0	0	0	1	1	0	1	1	0	6	0	1	0	1	1	0
56	2	2	0	1	0	0	0	0	2	0	0	2	0	0	1	0	0	0	2	1	0	1	0	1	0	0	0	0	0	3	0	0	1	3	0	2	0	0	1	2	1	0	1	2	0
57	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
58	8	0	8	0	4	8	0	6	0	8	8	0	4	8	2	4	8	4	8	8	0	8	0	8	8	8	8	8	4	8	8	6	8	8	9	8	0	8	8	8	8	4	8	8	0
59	8	0	8	2	8	8	4	6	0	0	8	8	6	8	0	8	8	8	8	8	0	8	0	8	8	8	8	8	4	8	8	6	8	8	4	8	0	8	8	8	8	2	8	8	8
60	0	7	1	7	3	2	7	2	7	1	1	5	2	2	5	3	1	3	1	1	5	1	7	1	2	1	1	1	4	1	1	3	1	0	1	1	7	1	1	1	1	2	1	1	6
61	1	7	1	5	1	1	3	1	7	7	1	2	4	2	5	2	1	1	1	1	5	1	7	1	2	1	1	1	5	1	1	3	1	0	3	1	4	1	1	1	1	2	1	1	1
62	1	1	3	3	1	2	1	1	1	1	3	1	3	1	3	1	3	1	4	3	1	3	3	1	1	3	3	1	1	3	5	1	1	3	1	3	1	2	3	3	4	2	2	3	3
63	1	1	1	2	2	2	2	2	2	2	2	2	2	1	8	2	2	1	2	2	1	1	2	2	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	1	2	2
64	1	1	1	2	1	2	2	1	2	1	2	2	2	1	1	2	1	1	2	2	2	2	1	2	2	2	2	1	2	2	2	1	2	2	1	2	2	2	2	2	2	1	2	1	2
65	1	1	1	2	1	2	2	1	1	2	2	2	1	1	1	2	1	2	2	2	2	1	1	2	1	2	2	1	2	2	1	2	2	1	2	2	1	2	2	2	2	2	1	2	2

SUBJECT NO.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
66	3	3	3	0	2	0	0	2	1	1	0	0	1	3	3	0	2	2	0	0	1	2	2	0	1	0	0	2	0	0	3	0	0	3	0	0	1	0	0	0	1	0	3	0	0
67	3	3	2	2.5	2	1	2	5	1	5	2	3	2	2	2	3	1	2	1	3	2	3	1	5	2	2	1	2	5	5	3	2	5	1	3	3	2	1	2	4	2.5	1	2	4	5
68	2	4	1	2	1	0	1	2	0	2	1	4	1	1	2	2	0	1	0	2	3	3	0	1	1	1	0	1	1	6	2	3	2	0	2	2	1	0	1	9	2	0	1	6	1
69	2	3	1	3	2	2	3	1	2	2	1	2	2	2	2	1	1	2	1	2	3	1	2	2	2	1	2	3	2	2	1	3	2	1	2	2	4	2	2	1	1	3	2	1	2
70	2	3	2	3	2	2	3	1	2	2	1	2	2	2	2	1	1	2	2	2	2	1	2	2	2	2	2	3	3	2	2	2	2	2	2	2	4	2	2	1	2	3	2	1	2
71	2	4	3	2	2	2	2	1	2	2	1	2	3	3	2	2	1	3	2	2	2	2	2	3	2	2	2	3	3	2	2	3	2	2	2	3	4	2	2	1	2	3	2	2	2
72	1	2	2	0	1	1	0	1	1	1	1	1	2	2	1	2	1	2	1	1	1	2	1	2	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	2	1
73	4	1	4	3	3	2	2	6	1	1	1	7	3	2	3	3	1	2	2	3	3	4	6	2	1	1	4	5	4	2	4	4	3	3	4	2	3	7	2	1	4	4	1	2	5
74	2	3	3	1	4	3	1	1	3	4	3	1	1	1	2	2	5	4	3	2	2	2	2	4	3	2	3	1	2	1	3	2	2	2	1	3	2	3	1	2	3	2	2	3	2
75	4	1	5	3	2	4.5	3	4	6	6	3	3	2	5	3	4	3	1	4	1	4	2	4	5	4	3	4	5	3	4	1	3	5	4	5	2	1	3	2	2	3	3	6	6	8
76	2	5	5	3	2	5	4	3	1	7	5	5	2	4	3	2	4	5	4	5	5	3	5	6	1	3	3	6	6	2	4	3	5	2	4	5	5	5	2	3	4	3	7	5	5
77	4	10	6	6	6	6.5	7	5	1	7	8	8	6	5	6	4	7	10	6	10	7	7	7	7	3	6	5	7	9	4	9	6	6	4	5	9	10	8	6	7	7	6	7	5	3
78	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1	1	1	0	0	0	1	0	0	0	1	1	1	0	0	1	0	0	0	0	0
79	0	1	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0
80	0	1	1	1	1	0	1	0	0	0	1	1	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	0	1	0	1
81	0	1	0	1	0	0	1	1	1	1	0	0	0	1	1	1	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
82	5	2	2	4	3	0	1	8	1	2	8	4	2	2	5	1	7	1	5	0	4	8	2	3	0	2	2	1	2	7	2	3	0	3	7	0	1	5	1	2	8	2	0	1	5
83	3	4	1	2	3	3	2	3	2	2	3	3	2	2	3	4	3	3	1	3	4	1	3	3	4	2	3	2	2	4	1	3	3	2	2	2	2	2	4	4	4	2	1	3	3
84	3	6	2	3	3	6	3	3	3	6	3	6	3	3	1	6	2	5	1	6	1	2	3	4	6	4	6	6	3	6	1	3	5	3	1	3	4	3	6	6	6	2	2	6	6
85	1	2	2	2	2	1	0	0	2	0	2	1	2	1	2	0	1	2	1	0	2	2	2	2	1	2	2	0	0	0	2	2	2	0	2	1	2	0	2	1	1	1	0	2	0
86	0	1	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0
87	1	1	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	1	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	1	0	1	1	0	1
88	3	2	3	4	3	2	4	3	3	4	3	2	2	3	2	3	3	3	3	4	3	1	3	3	4	3	3	3	3	3	2	3	3	3	2	3	3	1	4	3	3	2	3	3	3
89	2	2	2	2	3	2	3	2	3	3	4	2	2	6	2	3	2	3	1	4	3	1	2	1	3	3	4	3	6	2	2	3	3	3	1	3	2	1	3	3	1	3	1	3	2
90	0	1	2	1	2	1	0	1	1	0	1	1	1	0	2	0	1	1	0	1	1	1	1	1	2	1	1	2	0	2	0	2	2	1	2	1	2	2	0	1	2	1	2	1	0
91	1	1	1	1	1	0	0	1	1	1	0	0	1	0	0	1	0	0	0	1	1	0	1	1	1	0	1	1	0	0	0	0	1	0	1	1	1	0	0	1	1	0	1	1	1

SUBJECT NO.

TABLE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
92	70	73	81	79	74	56	75	72	75	80	66	72	81	75	65	69	62	82	75	67	65	73	86	73	81	73	76	78	77	71	62	76	84	84	89	78	54	60	75	77	66	84	70	67	63
93	61	61	64	52	53	45	50	54	56	47	46	48	60	63	56	52	44	59	60	50	49	56	64	57	54	61	56	51	62	59	58	57	60	56	63	56	32	49	47	55	51	51	49	54	43
94	85	85	80	78	80	67	72	85	77	67	65	71	80	80	74	65	68	76	70	73	70	72	81	72	78	71	80	79	77	81	67	76	81	74	81	74	60	72	69	73	71	65	75	72	59
95	63	67	60	77	53	67	53	53	79	65	57	61	66	68	66	57	58	65	62	53	64	67	64	56	58	72	66	77	66	68	60	55	69	74	65	71	37	70	59	67	63	77	62	56	67
96	62	62	65	70	58	70	55	60	80	62	65	70	70	70	65	55	55	75	75	50	62	75	70	56	60	60	70	65	62	65	64	60	70	80	70	64	50	70	75	70	65	70	55	70	60
97	54·0	55·7	56·1	57·0	47·3	43·1	43·3	49·2	60·1	47·0	41·4	47·8	57·8	57·7	49·3	41·2	40·0	57·6	50·4	40·2	44·5	53·6	60·1	46·0	50·6	52·0	55·3	55·3	54·2	54·4	45·1	48·8	59·6	60·2	60·8	53·5	23·4	47·4	48·5	53·3	46·3	53·8	44·9	47·4	36·4
98	45	38	39	32	41	46	46	39	49	44	40	34	50	40	43	27	80	45	43	26	40	29	44	31	42	35	50	48	39	37	31	39	45	28	49	48	23	40	46	42	33	38	39	49	33
99	10	13	14	12	9	15	15	15	15	15	15	12	15	15	15	10	8	15	14	7	15	11	15	9	13	13	15	15	15	15	11	15	14	12	15	15	6	13	15	15	10	14	14	15	13
100	13	9	15	11	9	15	15	15	13	15	9	10	15	11	13	12	9	10	14	9	11	15	15	14	13	11	15	15	10	12	10	10	12	12	15	15	5	13	14	15	13	13	9	15	12
101	50·7	45·1	53·6	42·5	42·7	59·1	59·1	54·7	58·8	57·9	48·7	42·6	61·6	50·9	55·0	38·3	34·6	52·9	54·5	30·9	50·9	43·9	57·9	41·4	52·1	45·4	61·6	60·4	49·1	50·1	39·6	49·1	54·1	41·1	61·0	60·4	23·5	50·8	57·5	56·4	43·1	50·8	46·9	61·0	45·3
102	4	4	4	2	3	4	3	4	4	3	3	3	5	3	3	2	2	3	4	1	3	2	4	3	4	3	5	5	3	3	3	3	3	3	3	5	1	3	3	4	3	3	4	5	3
103	4	2	2	2	3	3	2	2	4	2	2	1	5	2	2	1	2	2	2	1	2	1	2	2	2	1	4	5	3	2	2	2	2	2	2	3	1	2	2	3	2	2	4	4	2
104	54·1	51·3	55·6	39·4	44·8	58·3	53·0	56·1	58·8	52·4	47·8	44·8	64·9	48·9	51·0	37·3	35·4	49·9	56·0	28·3	48·9	40·1	57·7	44·2	54·8	46·2	64·9	64·2	48·0	48·5	43·3	48·0	50·5	44·0	54·0	64·2	22·6	48·9	52·2	57·1	45·0	48·8	53·2	64·5	46·1

TABLE B(ii)

HEALTH VISITORS 1969 INTAKE RAW DATA

SUBJECT NO.

VARIABLE	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
1	46	48	49	55	48	44	43	42	47	45	38	45	40	41	39	38	43	37	42	41	40	39	33	43	30	41	38	40	36	39	37	39	32	36	37	33	31	37	29	29	35	22	38
2	59	52	48	41	47	51	47	47	41	42	47	39	44	42	42	42	35	40	34	34	36	35	41	30	38	30	32	25	32	29	30	28	34	29	40	31	33	27	34	31	22	16	30
3	105	100	97	96	95	95	90	89	88	87	85	84	84	83	81	80	78	77	76	75	76	74	74	73	68	71	70	65	68	68	67	67	66	65	77	64	64	64	63	60	57	38	68
4	58	55	50	54	52	55	49	51	53	53	52	56	55	39	47	56	54	47	53	50	51	51	48	47	52	49	50	45	56	54	49	44	54	47	42	43	48	47	49	44	46	31	47
5	57	52	63	62	67	63	54	58	60	68	63	58	70	71	57	70	42	62	54	67	62	60	72	54	61	64	52	60	49	62	60	66	64	61	58	60	56	60	62	62	58	60	68
6	229	225	222	212	217	222	208	221	226	212	229	206	201	216	224	219	219	224	204	197	221	220	208	210	213	216	210	224	199	203	198	194	194	208	204	214	204	178	207	189	206	100	223
7	239	242	214	208	236	227	230	226	230	221	212	209	221	235	229	221	225	238	224	199	236	219	213	202	209	220	220	202	217	211	196	208	194	199	187	174	211	194	201	209	100	100	232
8	17	13	17	18	18	18	18	17	18	16	17	17	15	16	15	18	18	12	15	12	16	15	12	15	16	10	13	13	18	17	12	13	16	12	10	11	17	9	11	17	4	8	18
9	414	274	373	428	415	442	371	387	443	316	403	443	408	316	316	471	472	300	372	332	387	286	290	286	415	215	330	285	350	360	301	400	444	215	276	344	376	186	285	383	187	210	271
10	18	17	20	23	20	17	14	19	20	16	21	22	22	19	21	21	11	10	22	12	12	20	23	20	25	18	17	14	13	18	17	11	4	19	13	9	19	20	16	10	14	3	22
11	16	17	12	13	11	17	17	12	6	9	15	11	16	11	13	18	11	12	17	16	15	10	14	11	19	12	14	12	9	10	13	12	14	14	18	6	16	9	15	17	13	15	17
12	16	16	16	19	19	18	21	18	19	18	20	20	13	15	17	18	22	12	16	16	17	14	20	21	20	20	21	17	19	21	20	17	16	16	11	17	21	20	21	15	22	17	14
13	8	9	7	7	9	10	6	13	12	8	5	11	8	14	11	6	16	6	10	9	6	14	12	6	6	9	8	4	19	12	9	12	14	7	9	14	5	12	10	2	16	10	12
14	12	15	9	18	7	17	10	14	14	16	15	13	13	17	21	16	10	10	16	18	17	21	12	15	15	10	12	16	11	15	15	22	14	15	14	9	10	14	14	12	15	17	14
15	20	10	11	17	12	12	11	17	20	20	18	20	17	20	15	15	16	22	16	16	17	18	11	18	16	16	14	20	15	10	16	13	15	18	15	20	8	16	15	20	11	13	14
16	2	8	15	7	13	1	5	4	5	4	4	2	4	2	6	3	3	14	3	1	2	1	6	5	3	4	4	4	1	4	2	4	4	1	3	9	10	4	3	7	4	5	2
17	10	9	14	3	13	9	14	6	8	9	7	7	13	5	1	8	6	8	6	8	10	6	9	8	5	13	11	11	10	12	9	4	7	13	14	9	14	9	6	11	3	7	11
18	34	29	37	42	27	32	29·5	30	26	29	47	28	30	15	25	34	21	32	45	33	35	25	31	40	33	25	32	31	35	25	33	23	23	26	39	28	33	25	31	38	32	33	20
19	31	29	19	32	37	35	31	26	33	19	29	22	31	38	26	24	30	36	23	35	31	33	40	29	31	26	27	29	29·5	26	35	30·5	24	37	30	22	43	24	25	24·5	34	17	34
20	35	18	27	19	21	16	13	27	28	34	25	20	19	16	29	30	22	25	22	31	29	37·5	14	27	25	14	16	27	16	13	24	26	32	32	15	18	22	16	12	40	30·5	18	33
21	37	35	47	47	51	49	48	43	45	48	44	48	48	46	39	48	46	44	37	46	51	43·5	37	49	46	41	53	49	54	47	46	47·5	47	44	32	40	40	44	50	49	39	40	23
22	33	18	19	26	15	21	15·5	28	17	14	22	17	23	21	18	15	29	26	24	20	12	22	34	17	21	26	21	29	29	25	15	24·5	26	24	33	26	17	27	22	12·5	25·5	32	44

SUBJECT NO.

	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
23	10	51	31	14	29	27	43	26	31	36	13	45	29	44	43	29	32	20	29	15	22	19	24	18	24	48	31	15	16·5	44	27	28·5	28	17	31	46	25	44	40	16	19	40	26
24	8	11	8	12	9	10	17	9	14	12	11	16	6	12	13	10	16	13	12	9	12	8	14	9	11	7	11	8	12	15	9	10	18	7	6	14	8	14	11	9	15	12	9
25	10	9	9	7	10	10	9	8	8	9	8	11	11	6	10	12	11	11	7	10	9	8	10	8	11	9	10	9	10	11	10	11	10	9	9	11	12	11	9	10	9	7	9
26	18	11	14	17	14	13	11	18	15	18	15	10	17	15	15	17	15	13	15	10	9	16	13	20	12	14	19	10	14	21	13	19	16	10	10	14	14	14	18	18	15	20	14
27	17	5	4	11	4	16	8	13	7	13	10	14	5	12	10	10	11	16	14	12	10	12	10	12	6	7	5	10	9	9	6	10	9	13	16	10	18	13	11	13	5	12	13
28	15	3	10	17	10	19	6	18	14	10	13	9	4	18	11	16	18	5	17	11	16	21	17	23	11	9	7	8	17	11	15	11	14	22	10	15	15	12	7	10	19	6	12
29	5	12	13	13	18	14	17	12	16	18	18	19	11	10	17	10	14	11	15	10	9	8	14	10	18	18	14	6	16	19	7	13	13	14	8	11	10	16	16	20	15	12	13
30	11	3	7	10	4	15	7	15	10	11	8	13	8	13	14	17	11	9	11	9	12	11	14	14	3	7	8	2	12	12	8	7	8	19	8	13	6	17	13	12	15	7	6
31	14	6	8	14	12	12	12	12	16	14	7	16	11	15	15	16	10	18	17	14	12	14	10	12	12	14	10	16	13	14	16	11	14	12	10	16	5	11	16	15	10	10	11
32	9	11	7	12	6	16	10	6	3	2	5	8	9	8	7	4	12	7	5	9	8	8	12	2	6	11	11	6	7	6	4	7	8	6	14	7	11	6	9	3	10	4	8
33	21	19	8	11	10	9	12	9	17	17	15	16	15	16	10	16	15	17	11	7	14	19	18	8	8	16	9	18	8	13	12	14	17	9	14	8	15	11	21	9	8	16	8
34	10	14	12	12	12	6	7	12	7	15	14	7	15	7	14	10	8	10	11	13	9	6	12	11	13	11	9	4	12	6	9	8	10	13	6	9	14	11	14	14	14	18	15
35	17	10	13	13	13	11	14	9	10	5	11	20	8	9	7	14	13	12	6	14	14	20	7	11	13	15	11	21	15	8	9	11	11	18	12	12	15	9	5	11	12	8	9
36	12	8	12	11	10	12	9	9	6	10	16	9	14	7	7	15	10	8	9	8	9	8	10	9	8	8	7	11	9	8	9	10	10	9	12	5	11	12	14	8	9	7	6
37	16	13	7	13	12	9	10	6	14	14	17	8	9	10	12	12	2	12	16	14	8	12	6	7	12	11	13	11	7	14	11	12	8	12	12	12	14	10	8	13	9	17	17
38	7	14	11	10	10	10	11	9	16	9	10	3	6	6	12	10	10	11	13	12	9	9	11	14	9	13	13	7	9	8	10	9	11	10	6	9	9	12	12	15	12	11	12
39	15	17	13	17	14	15	17	9	16	6	7	19	16	20	12	10	9	12	16	14	15	20	14	4	15	10	12	18	17	7	10	9	12	16	20	14	12	12	7	3	8	12	14
40	7·15	7·06	6·46	6·91	6·83	6·80	7·40	4·63	4·84	3·35	4·68	9·16	6·50	6·72	4·49	4·48	5·95	5·71	4·73	6·84	7·07	7·05	6·19	2·62	7·21	6·37	5·44	9·04	7·20	4·06	4·75	5·26	5·62	6·15	8·48	6·05	7·75	5·00	3·44	2·39	5·09	4·56	6·05
41	5·40	0·83	2·11	5·31	1·15	7·18	2·89	7·00	4·42	4·25	3·77	7·36	1·60	6·36	4·81	5·94	7·19	3·61	5·32	3·68	5·30	5·96	7·18	7·74	2·06	2·28	2·20	2·15	5·46	4·34	3·42	3·20	5·09	7·97	3·75	5·39	4·60	6·28	4·47	4·27	6·03	2·39	3·37

SUBJECT NO.

	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
42	3	1	3	3	1	3	1	2	3	1	0	3	1	1	0	2	3	3	1	3	3	3	3	3	2	1	3	3	0	3	0	3	1	3	2	3	3	3	1	3	1	2	3
43	4	2	4	4	2	4	4	4	4	1	7	4	4	7	7	5	4	7	6	4	4	4	4	4	7	2	4	4	4	4	7	4	1	4	4	4	4	4	4	3	2	2	2
44	2	2	2	2	2	1	1	1	2	2	1	2	2	2	1	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1
45	2	2	2	2	1	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	
46	1	2	9	10	11	7	0	7	5	6	1·5	6	8	0	4·5	7	0	0	3	9	6	1	0	2	6	5	4	5	0	6	4	9	6	5	0	1·5	4	6	0	7	3	4	7
47	5	4	3	3	1	2	3	3	3	1	2	3	3	1	3	3	4	3	3	3	3	5	3	5	2	3	3	5	5	4	3	3	3	3	2	5	4	3	3	2	1	3	2
48	3	4	5	5	5	3	5	6	4	4	2	3	3	4	2	4	4	2	4	5	4	3	3	3	4	5	3	3	3	5	4	5	3	3	2	3	3	4	2	3	5	6	3
49	2	2	2	2	2	1	1	2	2	2	1	2	2	2	2	1	2	2	2	2	1	1	2	2	1	2	2	2	2	1	2	2	2	1	1	1	2	2	2	1	2	2	2
50	32	26	29	24	39	29	33	26	22	44	30	30	36	23	23	24	31	36	36	28	27	27	35	27	26	48	26	41	26	32	22	28	37	42	34	31	25	25	40	47	38	60	29
51	4	2	6	5	4	3	5	2	2	2	6	4	4	3	3	3	4	4	3	3	2	3	4	3	6	5	2	4	4	4	1	6	9	2	3	2	7	2	9	5	4	2	3
52	3	2	3	4	2	3	3	3	2	3	2	3	3	3	4	2	2	3	1	2	1	1	2	2	5	5	1	1	4	3	3	1	6	2	3	1	1	1	6	3	4	2	2
53	1	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	0	1	1	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	0
54	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1
55	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	1	1	1	0	1	1	1	0	1	1	0	0	1	1	0	1	1	0	1	0	1	1	0	0	0
56	0	0	0	0	2	0	0	0	0	1	1	1	0	0	0	1	0	0	1	2	0	0	2	0	0	0	2	0	0	0	0	0	3	1	1	0	1	0	1	0	0	0	1
57	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
58	4	0	6	5	0	2	8	8	0	0	8	8	5	8	8	4	8	8	8	8	8	8	8	7	8	6	8	8	8	0	8	8	8	8	8	8	8	8	0	2	2	8	6
59	8	8	3	8	0	3	8	8	4	1	8	8	5	8	8	4	8	8	2	8	8	2	8	8	8	6	8	8	6	3	7	7	8	8	8	8	8	8	0	8	2	8	6
60	3	1	2	3	7	3	1	1	7	5	2	2	2	3	1	3	2	1	1	2	0	1	1	2	1	3	1	1	2	3	1	2	1	1	1	1	1	1	4	2	4	1	3
61	1	2	5	2	7	3	1	1	4	4	2	1	2	2	1	3	2	1	1	2	0	6	1	2	1	2	1	1	2	2	2	2	1	1	1	1	1	2	4	1	4	1	3
62	3	1	1	1	1	1	1	4	1	1	4	3	3	1	3	3	3	3	3	3	3	3	1	4	3	3	4	3	3	1	4	4	3	4	2	3	3	3	1	2	1	3	1
63	2	2	1	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2	2	2	2
64	2	2	1	2	2	1	2	2	2	2	1	1	2	2	2	1	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	1
65	1	2	1	2	2	1	1	1	1	2	1	1	2	2	1	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	1	1	2	1	1	1	2	2	2	1
66	1	0	3	0	0	2	1	1	1	0	3	3	0	0	1	1	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	3	3	0	2	1	1	0	0	0	2

SUBJECT NO.

	46	47	48	49	50	51	52	53	54	56	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
67	2	1	5	2	5	2	2	5	2	1	5	5	2	2	3	1	4	4	2	2	1	5	2	3	2	4	5	1	2	2	5	2	2	5	1	3	3	2	3	2	3	2	1
68	2	0	1	2	3	1	2	1	3	0	1	1	2	4	3	0	8	4	1	3	0	1	1	3	3	6	1	0	2	1	2	1	2	1	0	4	3	1	2	1	3	3	0
69	2	3	2	2	1	2	2	1	3	4	1	1	1	2	1	2	1	2	1	1	2	1	1	1	2	2	1	1	2	2	2	1	2	1	1	1	2	2	3	3	2	2	3
70	2	3	2	3	2	2	2	2	3	4	2	2	1	3	2	2	2	3	2	2	2	2	2	2	2	3	1	2	2	2	2	1	2	2	2	2	2	2	2	3	2	2	3
71	2	3	3	3	2	3	3	2	3	3	2	2	1	3	2	3	3	4	2	3	2	2	3	2	2	3	1	2	3	2	2	1	3	2	3	2	3	3	3	3	2	3	3
72	1	1	2	1	1	2	2	1	1	0	1	1	1	1	1	2	2	2	1	2	1	1	2	1	1	1	1	1	2	1	1	1	2	1	2	1	2	2	2	1	1	2	1
73	4	2	5	5	1	3	3	1	6	2	4	3	2	1	4	6	2	7	4	1	1	1	4	3	5	2	4	6	2	3	2	5	3	4	3	3	1	2	3	2	1	2	4
74	5	3	3	1	2	4	1	2	5	3	2	2	1	4	2	8	3	5	2	2	3	2	1	2	3	3	1	2	3	1	1	2	2	1	2	4	2	1	2	3	3	3	2
75	2	2	4	2	2	1	1	5	1	4	5	5	4	2	2	4	3.5	4	3	3	4	4	4	4	2	2	6	4	4	1	4	3	3	2	2	3	3	3	3	3	4	2	4
76	3	2	5	6	3	6	5	8	2	4	5	7	4	2	5	4	3	5	5	3	5	4	5	6	6	3	7	5	7	7	4	3	6	2	4	5	7	2	4	5	5	3	5
77	7	6	7	10	7	11	10	9	7	6	6	8	6	6	9	6	5.5	7	8	6	7	6	7	8	10	7	7	7	9	12	6	6	9	6	8	8	10	5	7	8	7	7	7
78	0	1	1	0	1	0	0	1	0	1	0	0	0	1	0	1	0	0	1	0	0	0	1	0	1	1	0	0	0	1	1	0	0	0	1	0	0	1	1	1	0	1	1
79	1	1	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	1
80	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	0	0	1	1	1	1	1	0	0	1	0	1	1	0	1	0	0	1	1	1	0	1	1
81	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
82	0	5	3	0	8	5	6	3	3	2	3	1	5	3	3	3	3	5	5	5	0	4	0	0	3	3	4	4	5	3	3	4	3	7	3	2	8	0	4	5	3	1	3
83	1	4	2	1	2	2	4	2	2	2	2	3	4	4	3	2	4	2	2	1	3	4	2	2	3	4	3	1	3	3	2	3	2	2	2	4	4	4	2	1	4	4	2
84	1	6	4	2	6	3	6	5	6	6	3	5	6	6	6	6	6	3	4	2	4	2	3	5	3	6	3	1	3	6	4	6	3	3	4	6	3	6	5	2	6	6	3
85	2	2	1	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	1	2	2	2	1	2	2	0	1	2	2	1	1	2	0	2	2	2	1	2	2	2	0	0
86	1	1	0	0	1	1	1	0	0	1	1	1	1	0	1	1	1	1	1	0	1	1	1	0	1	0	0	0	1	1	0	0	1	0	1	1	0	0	1	1	1	0	0
87	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	1	0	1	1	0	0	0	1	0	1	1	0	0	1	1	1	1	0
88	2	2	3	3	3	3	3	3	3	2	3	2	2	3	4	3	2	2	3	2	3	3	3	3	3	3	4	2	3	4	3	3	3	3	2	3	2	3	3	3	4	3	4
89	2	3	2	2	2	3	4	3	3	2	3	3	1	3	4	3	2	3	2	3	3	3	4	3	4	3	4	3	3	4	6	6	2	2	4	3	2	4	2	4	4	4	3
90	2	0	1	1	2	2	1	1	1	2	2	2	1	2	2	1	2	2	2	0	0	2	2	2	1	2	2	0	0	2	0	0	0	2	2	0	1	1	2	2	2	0	1
91	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1	0	0	1	1	1	0	0	1	1	1	1	0	1

SUBJECT NO.

	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
92	64	61	56	75	72	78	57	69	66	63	70	83	70	68	71	73	51	64	66	69	69	58	61	53	66	54	52	57	54	42	65	74	63	73	61	67	64	67	57	59	67	41	75
93	46	53	56	60	56	62	52	58	48	60	59	75	55	56	60	53	44	52	54	55	61	55	52	45	64	44	53	54	53	55	47	69	58	69	59	45	48	59	51	47	54	53	58
94	67	69	75	79	75	78	66	78	76	77	77	81	71	63	83	63	66	69	81	69	71	71	71	55	66	63	72	64	71	64	68	84	72	85	65	73	76	75	82	64	77	56	69
95	59	52	67	73	71	70	60	60	60	65	71	61	65	68	63	75	67	60	68	69	60	59	65	65	64	56	65	62	61	66	60	65	65	65	67	67	62	70	67	59	65	57	64
96	61	55	70	75	70	74	71	60	62	69	77	72	64	69	69	67	64	65	72	70	74	66	62	60	70	61	50	60	67	57	58	72	58	72	75	70	65	66	65	65	66	56	70
97	42.2	39.3	51.9	62.6	57.2	61.9	45.9	50.1	46.6	54.1	60.5	62.4	50.9	51.4	50.7	54.4	42.8	46.3	56.4	53.8	53.6	46.3	47.3	38.3	52.8	37.1	42.0	41.2	46.0	40.8	42.5	62.1	48.5	62.2	52.8	50.6	47.9	55.3	51.0	44.9	52.2	33.6	53.8
98	35	46	42	45	41	38	41	48	31	50	37	48	46	43	33	45	44	37	36	45	39	34	40	60	46	50	32	42	33	46	37	46	40	49	50	47	49	41	28	32	48	43	41
99	15	15	15	14	15	15	13	15	10	14	15	15	15	14	15	15	15	15	9	15	13	12	15	15	15	15	10	14	15	15	15	15	15	15	15	15	15	15	10	9	15	15	13
100	14	15	13	14	12	11	9	15	9	15	13	15	14	12	15	14	13	15	10	14	15	11	11	14	15	15	8	14	9	14	7	13	11	15	15	14	15	14	8	9	14	15	15
101	47.7	57.1	51.8	53.5	50.0	46.6	43.4	58.6	31.3	58.5	48.1	58.6	55.9	49.8	47.4	55.1	53.3	50.4	34.8	55.1	48.8	39.0	48.0	58.9	57.1	60.1	31.0	51.3	40.5	55.9	41.2	54.8	48.0	59.3	60.1	56.6	59.3	52.2	28.0	36.6	57.4	54.8	50.3
102	4	4	3	3	3	3	3	4	2	5	3	5	4	3	3	4	4	3	4	4	4	3	3	4	4	4	3	3	3	4	3	4	4	5	4	3	4	3	2	3	4	3	3
103	2	4	3	2	2	2	1	2	1	5	1	4	2	2	2	2	3	3	2	2	2	2	1	4	2	4	2	3	2	3	1	3	1	4	2	2	2	4	1	2	4	2	2
104	52.3	57.0	47.3	48.1	44.4	44.7	43.1	57.8	29.9	64.9	45.4	64.9	56.4	46.3	45.1	56.0	55.1	46.6	45.9	56.0	52.9	40.9	45.4	57.9	57.0	58.5	36.9	47.0	41.6	56.4	42.0	55.9	52.5	65.3	58.5	49.7	58.1	47.5	28.3	36.7	57.2	48.8	46.9

TABLE C(i)

SOCIAL WORKERS 1968 INTAKE

RAW DATA

VARIABLE	SUBJECT NO. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	56	52	50	48	46	47	42	64	46	36	43	42	41	41	38	40	36	34	38	31	34	44	40	31	35	34	40	41	33	32	34	34	32	32	26	29	18	28	16	44
2	54	53	46	47	49	47	48	36	41	51	40	41	38	37	40	37	42	41	36	41	38	27	31	40	36	36	30	28	34	34	30	29	30	29	32	26	32	18	13	32
3	110	105	96	95	95	94	90	89	87	86	83	83	79	78	78	77	77	75	73	72	72	71	71	71	71	70	70	69	67	66	64	63	62	61	58	55	50	46	29	76
4	57	55	59	56	60	55	57	56	57	53	52	55	54	54	58	57	53	51	56	54	51	43	50	58	52	52	48	44	52	58	51	50	53	38	47	47	54	39	36	53
5	57	72	57	69	64	66	59	59	57	53	72	57	62	55	67	68	53	58	60	45	66	63	65	66	61	61	62	66	58	78	43	54	65	66	58	53	72	66	55	56
6	219	223	232	241	206	210	203	216	214	208	204	213	216	208	214	198	216	217	199	202	198	223	205	213	213	201	200	202	198	201	195	191	211	207	190	198	195	192	197	197
7	238	239	250	204	195	210	229	223	211	193	185	222	223	206	216	206	232	207	201	215	217	213	222	220	214	222	203	224	176	211	204	188	197	202	197	191	189	208	204	185
8	16	17	18	16	14	18	14	17	15	13	13	17	14	14	18	14	13	14	14	14	8	13	17	16	13	15	9	10	10	18	14	6	15	7	15	10	14	12	12	10
9	442	414	486	600	442	443	400	414	383	326	372	443	450	265	330	380	371	330	428	357	357	320	428	427	371	357	328	300	400	441	243	357	330	286	371	275	245	223	256	408
10	21	22	20	23	18	23	21	23	19	18	17	21	16	13	11	20	13	7	11	17	13	20	22	22	10	10	16	18	17	10	10	14	10	18	13	8	8	15	8	13
11	12	17	4	10	12	15	3	8	7	14	13	8	10	16	11	9	15	14	7	14	12	8	9	5	16	5	10	9	14	12	5	18	13	12	11	7	9	13	14	18
12	24	17	20	18	22	18	22	22	22	15	17	21	22	15	23	18	16	21	22	20	21	20	20	16	22	17	18	18	19	22	21	23	18	22	15	19	19	23	19	18
13	14	5	14	10	9	12	12	18	19	10	6	14	15	10	12	13	17	10	10	9	11	8	13	13	17	13	8	10	10	9	11	4	11	12	13	7	15	10	5	6
14	13	18	20	17	13	8	12	15	12	11	19	9	11	15	13	17	5	7	14	15	17	14	17	16	9	11	12	23	16	14	14	10	16	16	16	14	15	14	16	11
15	12	16	10	15	17	14	12	12	15	17	19	9	12	19	15	17	10	15	12	11	11	16	15	19	9	16	21	13	14	19	17	10	17	17	18	19	13	16	14	17
16	1	1	11	1	4	8	9	1	1	1	2	10	6	1	4	8	5	3	4	6	4	5	7	1	6	11	4	4	5	2	7	5	2	0	3	5	4	3	6	7
17	8	10	5	13	7	9	14	8	8	16	8	13	8	8	6	2	16	14	15	9	8	13	3	14	5	11	11	7	6	6	9	14	7	5	8	13	9	5	8	7
18	38	43	24	26	24	31	24	27	24	28	31	27	30	34	19	27	23.6	30	31	37	41	29	33	32	31	32	41	37	28	31	26	40	31	35	32	29	25	41	29	40
19	34	31	31	31	31	25	25	22	36	31	19	27	24	23	32	24	44	25	31	34	31	30	31	37	34	35	35	26	37	22	26	41	31	31	34	28	30	38	31	12
20	24	21	19	24	16	11	21	23	15	32	41	7	11	34	26	23	14	11	22	23	29	36	25	29	17	29	31	28	23	34	38	22	24	29	31	36	16	19	24	29
21	42	49	56	47	42	47	50	55	48	53	45	41	44	47	43	42	35	47	37	41	46	47	50	47	58	44	49	43	54	50	44	47	44	50	42	38	37	46	40	40
22	36	15	14	17	22	26	25	28	24	12	21	31	26	27	19	24	35.6	20	25	20	31	30	20	27	31	30	20	21	19	25	21	20	28	22	26	34	28	20	11	15

SUBJECT NO.

AGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
23	6	21	36	33	45	40	35	25	24	24	23	47	45	15	41	40	28	47	34	25	2	8	21	8	9	10	4	25	19	18	25	10	22	13	15	15	44	16	45	44
24	14	9	12	6	12	10	13	14	16	7	16	11	13	8	8	13	8	13	9	10	10	8	14	7	15	14	14	12	7	10	9	10	8	10	12	9	11	12	13	6
25	10	10	10	12	11	12	10	9	8	13	7	8	10	13	11	11	8	9	10	7	9	10	8	9	8	11	6	9	8	9	8	9	10	6	8	11	13	8	8	8
26	17	16	11	15	15	11	14	16	15	18	14	16	12	9	16	12	15	15	17	20	17	16	17	16	18	9	18	17	12	16	15	14	9	18	12	12	11	12	16	20
27	18	8	9	9	8	9	14	15	17	12	11	19	12	20	11	17	12	13	12	18	17	9	10	18	16	14	9	15	10	5	10	10	8	7	17	14	9	12	9	16
28	19	9	22	6	6	11	12	17	23	22	11	12	6	22	12	19	4	13	9	13	19	14	11	16	13	11	14	16	16	11	13	17	15	12	18	18	5	15	14	14
29	8	13	11	7	13	9	13	9	8	9	9	14	14	4	18	11	11	12	13	14	0	9	10	7	18	15	7	17	11	17	7	16	12	5	8	10	12	10	14	13
30	20	10	12	8	14	7	16	24	23	13	10	17	4	14	10	16	22	9	13	16	25	20	14	13	21	10	9	6	9	9	13	11	14	12	10	18	10	15	11	10
31	10	10	14	16	10	9	13	11	10	13	15	6	14	11	13	10	10	13	8	9	14	17	13	11	10	11	11	15	13	9	18	8	13	12	12	15	15	12	18	12
32	10	8	10	9	2	7	10	8	9	8	6	13	3	11	9	8	7	7	8	10	11	9	7	10	5	11	3	11	6	5	9	12	5	6	12	8	7	9	7	8
33	17	11	16	15	15	15	9	15	14	16	15	10	19	14	15	16	12	17	11	13	19	15	12	14	9	6	12	11	13	16	16	14	13	22	19	18	7	14	16	13
34	12	10	8	9	16	10	13	10	8	12	4	12	8	6	12	8	13	12	12	17	4	10	12	12	12	9	9	15	8	7	7	9	9	12	9	4	7	12	10	7
35	6	10	13	11	8	11	10	3	4	6	9	8	11	12	8	8	13	10	6	3	8	10	13	4	4	12	11	10	9	6	7	11	12	8	13	12	10	7	9	6
36	12	10	10	12	10	10	11	13	9	9	11	11	11	8	7	15	9	7	12	13	14	13	10	13	13	8	15	9	10	13	15	11	8	12	13	11	7	10	7	9
37	4	10	5	12	15	15	10	11	6	14	15	8	12	13	11	8	9	9	15	8	12	11	9	14	11	9	10	12	11	12	12	8	12	15	15	10	10	11	14	11
38	11	10	7	11	12	9	10	9	10	9	9	15	9	6	13	10	9	10	13	11	8	9	12	11	14	9	15	12	11	14	13	9	11	13	8	12	6	11	11	5
39	8	14	15	14	13	16	14	4	7	13	12	11	15	14	19	14	10	15	19	4	11	11	13	17	5	16	3	12	13	10	5	7	14	8	19	15	17	9	15	10
40	3·66	6·03	7·28	5·99	4·60	7·12	5·86	1·97	2·83	4·76	5·54	4·29	6·33	7·18	6·09	5·58	5·41	6·38	5·30	2·45	4·40	4·95	5·59	5·01	1·60	6·39	2·54	5·99	5·87	3·56	3·88	5·26	5·82	4·20	8·03	6·14	7·14	4·66	5·34	4·61
41	8·80	3·41	6·85	1·86	3·33	3·04	5·47	8·38	10·59	4·24	4·84	6·60	2·24	8·17	4·48	8·30	4·69	4·34	3·59	5·95	8·62	5·51	5·30	5·31	7·25	5·48	4·59	5·01	4·32	3·02	3·93	5·14	4·55	4·08	6·55	6·84	2·12	5·54	4·90	5·21

SUBJECT NO.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
42	3	3	3	3	0	3	3	3	3	3	3	3	0	0	3	1	0	1	0	0	1	3	3	3	0	2	3	1	2	3	2	1	3	0	1	1	1	0	2	0
43	5	4	2	4	2	4	3	4	4	4	4	5	7	7	4	7	2	8	4	4	1	4	4	4	6	6	4	4	4	4	2	8	4	7	7	2	9	5	6	2
44	1	1	2	2	1	2	2	2	1	2	1	2	2	2	2	2	1	2	2	1	2	2	2	1	2	1	2	2	1	2	2	1	1	2	2	1	2	1	1	2
45	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	1	1	2	2	2
46	6	7	8	5	12	8	6	6	3	6	5	5	5	11	0	0	2	0	0	0	7	10	7	7	0	0	6	0	7	0	5	1	5	3	0	2	4	6	3	5
47	4	3	3	4	1	3	4	3	4	4	3	3	4	1	3	5	4	3	4	4	4	1	3	3	3	3	3	3	3	3	3	2	3	3	3	4	3	3	3	3
48	4	1	5	3	5	3	4	4	3	3	3	5	3	5	2	2	5	1	3	3	5	5	3	4	2	2	3	3	4	3	4	1	5	3	3	4	3	3	5	4
49	1	2	2	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	2	1	1	1	1	1	2	1	2	1	1	2	1	1	1	1	1	1	1	1	2	1
50	22	38	23	29	24	23	26	22	24	20	33	24	23	21	33	41	27	38	45	25	23	27	19	23	33	48	38	36	24	40	30	44	21	24	23	27	27	24	39	28
51	4	2	3	3	2	3	2	2	3	4	2	1	3	2	1	7	3	7	4	2	7	4	2	2	4	3	3	5	5	2	2	3	3	1	1	2	5	3	2	2
52	4	3	4	2	3	2	5	3	3	4	3	4	6	2	3	6	5	7	2	2	7	4	7	2	4	7	3	5	4	2	2	3	4	5	3	3	5	6	3	4
53	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0	1	1	1	0	0	0	0	1	0	1	0	1	1	1	0	0	1	1	1
54	1	1	0	1	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	0	0	1	0	0
55	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	0	1	1	1	0	0	0	0	1	1	0	1	1	1	0	0	1	1	0	0	1	1	0	1
56	2	3	1	3	2	3	2	2	4	2	0	2	2	2	0	1	3	0	2	2	2	2	2	3	3	4	2	0	2	3	2	3	2	0	0	2	2	0	0	2
57	1	1	0	1	1	1	1	1	0	1	0	1	1	1	0	1	1	0	1	1	1	0	0	1	1	1	1	0	0	0	1	1	1	0	0	1	0	0	0	1
58	4	8	4	8	0	8	8	8	8	8	4	4	8	8	8	8	8	8	8	9	0	0	8	0	0	8	6	6	4	2	0	8	8	4	6	4	6	8	8	4
59	8	4	4	8	0	8	8	8	8	8	0	2	8	9	8	8	4	8	8	8	4	2	7	4	4	8	8	6	8	7	2	8	8	7	4	4	8	8	8	8
60	2	1	3	0	7	1	1	2	2	1	5	3	1	1	0	1	1	1	1	1	7	7	2	1	7	1	3	2	3	3	7	1	2	3	2	3	1	1	1	4
61	2	1	3	1	7	1	1	1	2	1	7	3	1	3	1	1	5	1	1	1	3	3	2	4	3	1	1	2	1	1	3	1	0	1	3	3	1	1	1	2
62	3	2	1	4	3	1	2	1	1	1	1	1	3	4	3	3	1	1	5	1	1	1	3	1	1	3	1	1	1	3	1	4	3	3	3	1	3	4	3	1
63	2	1	2	2	1	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	1	2	2

ITEM NO.

SUBJECT NO.

VARIABLE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
64	1	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1	2	2	2	2	1	2	2	1	2	2	2
65	1	1	2	2	2	2	1	1	2	2	1	2	2	2	2	1	1	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	2	1	1	2	1	2	2	2
66	2	3	0	0	2	0	2	1	0	1	1	0	0	0	0	1	1	0	0	1	0	0	1	3	0	0	0	0	2	0	1	0	0	2	1	0	3	0	0	0
67	2	2	4	4	5	5	5	2	5	1	2	5	5	3	5	1	1	5	4	1	5	5	4	3	5	2	5	2	5	2	2	3	1	2	5	4	2	1	5	1
68	1	1	3	5	2	1	2	1	2	0	1	3	1	3	2	0	0	6	5	0	1	2	3	2	2	2	1	3	1	1	2	4	0	2	1	3	1	0	6	0
69	1	2	2	1	2	2	1	2	3	2	2	3	1	2	1	2	3	2	1	3	3	3	1	2	2	1	1	3	2	2	3	1	3	1	2	1	1	1	1	1
70	2	2	2	2	2	2	2	2	3	2	2	3	1	2	1	2	3	2	2	2	3	2	1	2	2	1	1	2	2	2	3	2	3	2	2	1	2	1	1	1
71	2	2	3	3	2	2	3	3	3	2	2	3	2	2	1	2	4	3	2	3	3	2	2	3	3	2	1	3	3	3	3	2	3	2	2	1	3	1	1	1
72	1	1	2	2	1	1	2	2	1	1	1	1	2	1	1	1	2	2	1	2	1	1	2	2	2	2	1	2	2	2	1	1	1	1	1	1	2	1	1	1
73	2	3	5	4	3	4	4	3	3	1	1	4	3	4	2	6	3	6	1	1	2	2	3	2	2	1	1	3	3	3	2	2	2	3	4	4	3	2	4	2
74	1	4	1	1	2	1	1	2	2	2	2	1	4	5	3	1	4	5	2	2	1	4	1	7	1	3	3	2	1	1	5	3	3	2	2	2	2	1	1	3
75	1	4	4	1	3	3	2	3	3	2	4	2	1	1	5	1	2	4	5	2	1	1	3	3	2	2	3	3	2	5	1	4	1	3	2	1	3	2	4	2
76	3	5	5	1	2	3	2	2	5	3	3	2	6	2	5	7	6	7	2	7	2	2	3	6	5	4	3	4	3	6	4	4	1	3	2	2	7	3	4	5
77	8	7	7	6	5	6	6	5	8	7	5	6	11	7	6	12	10	9	3	11	7	7	6	9	9	8	6	7	7	7	9	6	6	6	6	7	10	7	6	9
78	1	1	1	0	0	0	1	0	0	0	0	1	1	0	1	1	1	0	1	1	1	1	0	0	1	1	1	0	0	1	1	1	1	1	0	1	1	0	0	1
79	0	1	0	0	1	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
80	1	0	1	1	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0
81	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0
82	2	4	0	5	4	0	3	1	8	3	1	3	3	1	3	2	8	3	4	3	3	2	3	8	5	4	2	7	4	3	3	5	2	1	0	1	3	1	1	0
83	1	1	2	3	2	3	2	2	2	4	2	3	3	1	4	4	4	2	3	2	1	1	3	1	2	2	1	2	2	2	2	2	2	1	1	1	4	2	4	3
84	2	2	4	3	6	6	6	3	4	6	3	6	6	2	6	6	6	5	6	2	1	1	3	2	2	3	2	4	3	3	5	3	3	1	1	1	5	3	5	4
85	2	2	1	2	1	0	2	2	2	1	1	2	2	2	1	2	1	2	2	2	2	1	1	2	2	2	2	2	2	2	2	0	2	2	0	1	1	0	1	2

SUBJECT NO.

VARIABLE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
86	1	1	0	1	0	0	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	1	0	0	0	0	0	1
87	1	1	1	1	0	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	1	0	1	1	0	1	1	1	1
88	2	3	4	2	3	3	2	3	3	2	3	3	2	3	3	3	3	2	3	3	2	2	4	2	3	3	3	3	3	3	2	2	3	3	4	3	2	2	2	3
89	3	3	3	2	2	2	3	3	4	4	3	4	4	4	3	4	4	4	2	4	4	3	3	2	4	2	4	3	3	3	3	3	3	3	3	3	3	3	2	3
90	2	0	2	0	0	0	0	2	2	2	1	2	2	1	2	2	1	2	2	0	1	2	1	2	2	2	2	1	2	2	2	1	2	2	0	1	0	2	2	2
91	1	1	1	1	1	1	1	0	0	0	0	1	1	1	0	0	0	0	1	0	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	0
92	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	0
93	1	2	2	1	2	2	1	1	1	1	2	1	1	2	2	2	1	1	1	1	1	1	2	1	1	2	2	2	2	2	1	1	2	2	2	1	1	2	2	2
94	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	0	1	0	1	0	1	0	1	1	0	1	1	0	1	0	0	0	1	0	0	1	1	0	0	0

SUBJECT NO.

VARIABLE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	2	29	30	31	32	33	34	35	36	37	38	39	40
95	53	59	52	60	57	58	54	56	43	36	47	49	49	52	42	53	32	36	49	45	50	46	47	58	42	46	51	39	60	48	53	46	49	53	44	49	60	45	39	47
96	67	54	50	68	56	58	58	53	48	49	48	53	54	52	50	53	42	46	48	54	57	58	50	50	46	49	54	46	59	53	45	59	53	58	49	45	61	53	46	54
97	61	56	55	63	62	59	59	56	44	45	57	48	48	51	45	52	45	43	44	51	49	52	58	58	45	51	57	48	56	55	46	49	50	54	40	46	63	59	44	57
98	54	54	57	60	55	59	51	49	41	35	55	50	45	45	46	48	46	41	51	43	48	54	50	52	45	50	51	51	53	45	51	40	54	50	34	50	55	51	42	52
99	58	54	48	56	54	54	51	55	47	40	48	56	50	42	46	51	38	39	51	39	43	56	46	51	47	58	45	43	51	45	47	46	49	47	35	49	61	51	30	48
100	63·9	58·2	53·6	68·3	60·6	62·0	57·2	55·3	41·7	35·7	51·5	51·7	48·2	47·2	43·3	51·9	34·9	35·7	47·4	44·4	49·1	55·2	50·2	55·5	41·8	50·9	52·5	42·7	58·7	48·6	46·9	43·3	51·6	53·8	34·5	46·1	62·1	52·9	34·5	52·6
101	7	4	6	7	6	6	7	5			4	4	3		3	6			3	4	1	4	7	6	4	4	3	1	4	4	2	2	4			1	6		1	6
102	20	14	20	16	12	19	18	19			18	17	16		19	19			14	17	11	12	15	20	14	17	16	15	14	13	18	17	17			7	19		14	20
103	50	40	47	41	35	48	40	47			44	39	35		46	48			30	36	19	35	44	42	35	40	38	36	39	38	44	38	48			24	40		27	47
104	40	30	36	34	24	38	35	39			32	30	27		36	39			31	34	17	26	35	38	30	31	31	30	30	28	36	33	38			18	37		26	38
105	63·5	46·4	60·2	51·5	38·5	60·3	54·2	60·4			54·3	49·9	45·3		58·5	60·9			42·8	50·7	30·0	39·6	51·9	59·2	44·3	50·8	48·7	46·0	46·0	43·2	56·4	50·9	57·7			24·4	56·5		38·9	61·3
106	5	2	5	4	3	4	4	5			3	3	4		3	4			3	3	1	3	4	5	3	3	3	3	3·5	3	3	4	4			1	4		2	4·5
107	5	3	5	5	4	5	5	5			4	5	5		5	5			5	5	1	3	5	5	4	4	5	5	4	4	5	5	5			1	5		2	5
108	44·6	41·3	62·9	53·6	42·3	58·1	55·0	63·1			50·1	42·9	50·6		52·2	58·3			44·4	48·3	28·2	42·8	53·9	62·4	45·2	48·4	47·3	46·0	48·1	44·6	51·2	53·4	56·8			25·4	56·2		37·5	61·0

TABLE C(ii)

SOCIAL WORKERS 1969 INTAKE RAW DATA

VARIABLE NO	SUBJECT NO. 41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
1	59	51	48	52	44	52	56	41	55	48	44	39	49	44	44	44	38	43	45	37	41	39	41	41	49	39	35	34	45	42	33	40	38	33	40	35	37	33	29	44	40
2	56	57	58	52	55	46	42	56	42	48	50	54	44	48	46	47	51	41	38	44	40	42	37	37	28	38	42	42	31	35	42	34	35	38	32	32	28	26	26	39	53
3	115	108	106	104	99	98	98	97	97	96	94	93	93	92	90	91	89	84	83	81	81	81	78	78	77	77	77	76	76	72	75	74	73	71	72	67	65	59	55	83	93
4	59	47	56	49	58	57	55	54	54	55	57	57	55	56	58	48	49	33	56	56	50	55	49	41	55	54	53	51	46	51	40	56	56	49	48	54	52	52	52	58	51
5	63	64	64	52	65	60	64	61	80	69	77	73	60	54	60	67	59	54	62	58	59	65	68	56	77	55	49	53	63	64	51	63	59	49	61	55	69	61	57	70	55
6	235	219	221	214	203	209	219	195	224	241	224	207	226	208	202	213	231	188	205	212	220	208	201	207	214	200	195	199	199	207	206	192	214	198	202	197	191	209	197	210	218
7	230	207	227	233	190	229	226	212	221	215	218	214	225	222	217	220	220	206	217	214	210	200	193	225	217	201	196	197	189	205	217	198	209	198	209	212	192	192	196	199	218
8	18	15	18	16	15	17	14	17	18	17	17	16	18	17	17	17	17	11	18	17	15	12	10	14	14	18	14	18	16	16	14	15	17	16	16	15	14	13	13	18	16
9	500	346	416	385	435	407	400	401	483	471	443	360	438	440	405	440	333	310	329	483	426	327	302	244	843	359	265	336	286	271	359	383	440	436	346	235	389	270	380	457	344
10	23	22	23	20	11	19	15	14	23	19	25	22	19	21	20	19	15	13	24	11	21	12	18	14	19	13	11	16	13	18	18	11	22	4	23	14	15	18	10	18	16
11	8	9	8	17	13	10	13	9	10	14	12	10	11	11	8	22	11	6	14	11	16	15	13	12	13	16	11	13	8	6	13	13	12	17	10	11	14	14	13	5	17
12	21	16	13	21	22	23	17	23	14	23	16	17	22	16	22	16	19	14	22	20	18	22	22	24	19	21	22	23	18	20	22	20	21	20	13	19	22	14	19	20	20
13	12	15	12	4	11	15	2	12	4	6	4	13	11	7	13	7	10	18	17	8	8	9	13	9	8	7	8	12	15	17	10	12	8	9	9	18	16	11	14	14	14
14	14	16	18	16	18	17	9	13	15	12	11	18	15	11	16	13	16	21	7	15	12	2	17	11	21	9	16	12	14	10	16	14	20	10	20	17	12	20	19	13	12
15	11	16	22	13	12	13	19	18	16	14	19	17	13	17	17	9	19	15	13	19	15	14	11	12	11	18	19	12	15	8	14	14	14	14	23	7	9	15	15	12	18
16	6	1	2	6	3	0	9	4	6	4	5	2	2	8	0	7	2	7	2	1	2	6	3	4	9	2	3	5	2	2	4	3	4	4	0	5	2	1	3	13	4
17	12	11	9	7	5	6	15	5	19	11	17	7	10	14	8	10	7	3	9	10	13	16	5	12	3	11	5	7	11	11	5	8	5	10	9	7	9	9	11	7	9
18	30·5	39	26	40	31	29	21	31	32	40	35	41	40	33	24	30	26	27	32	25	30	41	31·5	34	24	38	34	28	16	29	41	30	34	37	21	30	37	36	36	22	28
19	37·5	29	33·5	35	36	34	29	19	17	39	37	24	41	35	37	24	33	37	31	25	21	43	19·5	23	20	39	35	33	27	35	35	27·5	38	28	27	32	35	33	28	19	29
20	24	30	39	35	21	20	20	24	28	30	31	31	23	15	28	14	25	34	19	19	15	24	22·5	16	42	25	27	31	28	32	23	28	27	24	32	27	13	34	40	16	22
21	47·5	42	53	49	45	48	43	53	40	47	43	36	47	54	46	44	51	43	45	46	46	37	44	46	40	36	44	47	52	50	45	51·5	43	49	28	42·5	41	38	48	46	40
22	31	22	12·5	10	27	26	26	25	15	18	28	38	20	22	38	15	17	30	27	20	14	24	18·5	21	24	27	21	28	28	25	17	31·5	30	22	47	27	32	34	22	23	28

SUBJECT NO.

	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
23	9·5	18	16	11	20	23	41	28	48	6	6	10	9	21	7	53	28	9	26	45	54	11	44	40	30	15	19	13	29	9	19	11·5	8	20	25	21·5	22	5	6	54	34
24	10	14	13	11	13	13	6	2	9	9	11	6	8	12	8	10	13	14	13	10	12	4	18	13	12	14	12	12	15	12	8	12	11	15	9	12	13	7	8	13	9
25	12	9	10	9	7	10	9	4	11	7	9	11	8	10	10	8	11	4	8	8	8	11	3	6	11	10	5	7	11	11	8	10	10	7	9	9	12	8	9	10	9
26	17	16	20	10	17	15	10	4	16	14	16	15	14	10	15	17	17	11	18	18	8	16	16	15	6	10	16	14	11	15	15	12	11	17	12	18	15	10	13	17	6
27	14	21	13	3	10	12	10	4	7	5	10	19	9	6	18	13	11	18	11	10	12	7	19	14	9	9	7	16	10	16	9	17	15	11	18	17	23	16	11	7	12
28	9	19	20	9	17	13	8	8	13	4	4	20	13	16	16	8	20	21	19	20	11	11	12	15	20	20	7	6	16	20	8	23	16	20	17	21	13	15	11	21	18
29	16	6	7	15	11	17	9	8	9	14	10	7	12	11	8	15	7	7	14	17	6	14	14	14	9	11	19	12	6	8	10	7	9	10	4	13	14	10	10	13	11
30	8	22	20	3	13	16	4	4	8	4	8	16	5	12	14	5	16	17	12	10	6	12	19	20	7	11	20	10	12	19	11	9	15	13	11	16	17	15	11	9	7
31	13	11	11	14	13	7	10	8	11	10	14	14	12	13	10	17	13	17	11	12	11	6	15	12	18	12	10	10	12	11	12	5	14	11	12	7	12	13	18	13	9
32	11	10	8	2	5	7	9	5	8	8	5	13	11	4	10	10	8	9	5	11	9	6	6	4	8	10	7	10	2	8	7	11	6	9	4	7	8	5	5	5	12
33	17	16	12	14	15	13	12	11	16	11	16	15	16	11	10	11	13	19	6	14	11	9	11	9	16	16	15	14	14	13	13	15	15	13	20	6	8	7	18	13	17
34	11	7	11	11	11	15	10	5	8	10	11	6	8	10	16	15	9	6	12	7	6	10	13	15	4	13	8	12	11	9	12	4	7	9	4	11	8	11	8	10	11
35	10	9	4	12	9	9	15	6	12	9	6	12	14	12	15	8	10	11	14	7	17	7	7	8	15	17	7	8	9	10	11	13	12	10	14	11	8	12	11	12	14
36	15	13	6	8	11	4	7	6	10	10	11	13	12	10	11	8	6	7	9	8	8	9	12	18	13	14	10	14	7	7	14	11	12	12	16	9	9	13	12	6	12
37	11	10	11	16	11	8	17	5	13	18	16	11	14	14	6	9	10	14	9	11	10	14	6	10	16	12	11	8	9	7	17	11	10	8	13	6	3	13	15	18	11
38	14	7	7	16	11	16	7	1	11	12	9	9	9	11	9	16	7	5	9	13	5	17	12	13	8	9	15	12	15	9	12	8	6	11	5	8	8	11	12	8	10
39	9	19	10	15	7	12	13	10	20	16	10	15	8	11	20	13	8	9	9	11	18	8	8	7	7	22	3	14	8	15	15	14	19	14	15	3	7	13	13	18	10
40	4·84	6·01	3·60	5·52	3·82	4·18	7·69	6·39	6·76	7·21	4·35	7·10	5·87	5·42	7·78	5·28	4·85	5·88	5·12	4·85	8·97	3·10	3·19	2·80	6·93	9·22	2·03	5·24	3·76	5·89	5·64	7·06	7·19	5·66	6·72	3·60	4·14	5·12	5·63	6·40	7·19
41	3·93	9·30	8·23	0·67	5·15	5·30	0·91	0·54	3·45	-0·31	1·97	7·65	3·28	4·16	6·76	3·77	7·42	7·77	5·72	5·96	3·69	2·50	7·08	6·84	4·52	6·14	5·57	3·85	5·65	8·59	3·26	6·89	6·61	7·27	6·13	7·92	8·07	5·70	3·96	4·68	4·75

SUBJECT NO.

VARIABLE NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
42	3	3	3	2	3	3	3	0	3	3	3	0	2	3	3	0	0	3	3	0	0	1	1	0	3	3	3	1	1	2	3	0	3	0	3	0	2	1	0	3	0
43	1	2	4	4	8	4	4	7	1	4	4	5	4	4	4	4	7	4	4	7	7	8	7	5	4	4	4	7	1	2	4	7	4	7	4	7	6	6	7	4	2
44	2	1	1	1	2	2	2	1	2	1	1	1	2	2	2	1	2	2	2	2	1	2	2	1	2	1	2	1	2	1	2	2	1	2	1	1	1	2	2	2	2
45	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2
46	8	7	5	11	0	3	4	2	15	6	7	6·5	6	13	5	10	8	9	9	4	6	3	1	2	9	0	6	0	12	8	5	2·5	6	3	5	6	4·5	4	7	10	9
47	3	5	4	2	3	3	3	4	3	3	4	3	3	3	3	2	3	3	2	3	3	3	3	4	1	3	3	3	3	3	3	3	3	3	3	4	3	3	3	2	3
48	3	6	4	6	1	3	3	2	4	3	3	3	3	5	4	3	3	6	5	4	2	1	2	2	3	4	6	2	4	3	5	2	5	2	3	2	2	2	1	5	6
49	1	2	1	2	1	1	1	1	1	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	2	1	1	1	1	2	1
50	30	22	22	22	45	32	27	26	23	31	33	22	27	20	23	39	20	31	24	27	21	48	29	30	28	23	35	31	28	25	38	26	21	26	22	23	37	41	37	22	22
51	3	3	4	2	3	3	2	4	1	2	2	2	2	3	3	3	4	1	3	2	3	2	5	5	2	1	4	3	6	3	3	2	3	2	2	3	4	2	3	1	3
52	2	4	4	2	2	2	3	8	2	3	3	3	2	2	2	7	5	1	3	5	3	3	2	4	2	2	6	9	5	3	3	2	8	3	3	2	6	4	1	1	5
53	0	0	1	1	0	0	1	1	1	0	0	1	1	1	0	1	1	0	1	1	1	0	1	0	1	1	0	0	0	1	0	1	1	1	1	1	0	1	1	1	1
54	1	1	0	1	1	1	1	0	0	0	1	0	1	1	1	0	1	1	1	0	0	1	1	1	0	0	1	1	1	1	1	1	0	0	0	1	1	1	1	0	0
55	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	0	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	1	1	0	0	1	1	1	1	1
56	2	2	3	2	0	3	0	3	2	0	1	3	2	2	2	0	2	3	2	3	2	3	2	3	0	0	0	4	3	2	0	1	0	1	0	3	1	0	0	3	1
57	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	0	1	1	1	0	0	1	1	1	0	0	0	1	1	1	0	1	0	0	0	0	1	0	0	1	0
58	8	0	0	0	8	8	4	0	0	8	8	4	8	8	8	8	0	8	0	8	8	8	8	8	8	8	4	8	1	1	8	8	8	8	8	4	8	8	0	4	0
59	4	4	0	8	8	8	0	4	0	8	8	4	8	8	8	8	4	8	0	8	8	8	8	8	8	8	6	8	4	2	8	8	8	8	4	8	8	8	8	8	0
60	1	2	2	3	1	1	3	5	7	2	1	2	1	2	1	1	7	2	7	2	1	1	1	1	1	3	5	1	4	3	1	1	1	1	1	1	1	1	7	2	7
61	2	4	2	2	1	1	7	4	7	2	1	2	1	2	1	1	5	1	5	2	1	1	1	1	1	3	3	1	4	3	1	1	1	1	3	1	1	1	1	1	7
62	2	1	1	1	2	4	1	1	1	1	5	1	3	2	1	4	1	1	1	3	3	3	4	1	4	3	1	1	1	1	3	4	1	3	1	4	3	3	1	1	1
63	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2

SUBJECT NO.

VARIABLE NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
64	2	2	1	2	2	1	2	2	2	2	2	2	1	1	2	2	2	2	1	2	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	1	1	2	2	1
65	1	2	1	1	2	1	2	1	2	2	1	2	1	1	1	1	1	2	2	1	2	2	2	2	2	1	2	1	2	2	1	1	1	1	2	2	1	1	2	1	1
66	1	0	2	1	0	2	0	2	0	0	1	0	2	2	1	1	1	0	1	1	0	0	0	0	0	3	0	2	0	0	1	1	1	2	0	0	2	3	0	1	2
67	3	2	5	2	2	5	2	2	2	2	2	5	1	5	4	1	3	1	2	2	5	2	3	5	2	1	2	5	3	1	5	5	5	3	3	4	2	3	2	2	2
68	2	1	1	2	1	1	4	2	1	1	2	1	0	1	5	0	2	0	1	3	2	2	2	1	2	0	1	4	3	0	1	1	1	2	2	7	2	5	1	1	1
69	2	2	2	1	1	1	3	3	3	2	1	2	1	1	1	1	2	2	3	1	1	1	1	1	1	1	2	1	3	3	1	1	2	1	2	1	1	4	2	2	3
70	2	2	2	1	1	1	2	3	3	2	1	2	1	2	1	2	2	2	3	1	1	2	2	2	1	3	3	2	2	3	1	1	2	1	2	1	2	4	2	2	3
71	3	2	2	2	1	3	3	3	3	2	1	2	1	2	3	2	2	2	3	2	1	3	3	3	1	2	3	2	3	3	1	1	2	1	2	1	3	4	3	2	3
72	2	1	1	2	1	3	2	1	1	1	1	1	1	1	3	1	1	1	1	2	1	2	2	2	1	0	1	1	2	1	1	1	1	1	1	1	2	1	2	1	1
73	1	8	7	2	2	3	7	7	1	2	4·5	2	4	5	2	1	7	5	2	2	5	3	1	1	2	8	3	4	3	3	4·5	5·5	3	3	2	2	3	4·5	2	5	2
74	3	1	3	4	1	1	6	4	1	3	4·5	3	2	2	2	5	1	1	3	1	3	1	2	2	7	2	4	1	2	4	4·5	1·5	2	7	3	3	1	4·5	4	2	4
75	4	2	1	4	2	1	3	3	4·5	4·5	4·5	6	4·5	2	3	2	3	4	1	5	2	1	1	3	3	3	2	3	4	2	4·5	5	6	6	3	4	1	4·5	2	3	1
76	6	5	3	7	2	4	5	4	4·5	4·5	4·5	5	4·5	4	4·5	4	5	5	1	5	2	7	5	4	4	4	4	3	5	3	4·5	4	5	7	4·5	4	4	4·5	7	4	4
77	8	9	8	9	6	9	8	7	6	6	6	5	6	8	7·5	8	8	7	6	6	6	12	10	7	7	7	8	6	7	7	6	5	5	7	7·5	6	9	6	11	7	9
78	1	0	1	0	0	1	0	1	1	1	0	1	1	0	0	1	0	0	0	1	0	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1	0
79	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1
80	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	0	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
81	0	1	1	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1
82	8	1	6	4	7	5	0	2	1	5	0	2	3	4	2	1	5	1	4	2	6	2	4	3	0	3	4	4	2	2	0	0	3	4	1	1	5	2	4	1	2
83	1	3	2	2	2	2	4	3	2	1	1	1	1	2	1	4	2	1	3	4	2	2	3	3	4	1	3	1	4	1	2	1	2	1	1	2	2	1	1	3	2
84	1	3	3	4	3	4	6	5	6	1	2	1	1	3	2	6	5	1	4	6	6	3	5	2	6	2	3	2	6	3	4	3	3	2	1	6	4	2	2	6	3
85	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	0	2	2	2	2	0	0	2	2	2	2	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2

SUBJECT NO.

VARIABLE NO.	41	42	43	44	45	46	47	4	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
86	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	0	1	0	0	1	1	1	1	0	0	1	1	1	1	1
87	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	0	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	0
88	3	2	3	2	3	2	2	2	4	3	5	2	3	3	2	4	4	1	2	3	3	3	4	4	3	3	3	2	3	2	4	2	3	4	5	3	2	3	3	4	3
89	4	4	3	3	3	3	4	4	4	6	3	2	4	3	4	6	3	3	4	4	3	4	4	5	6	2	4	4	3	2	4	3	3	4	6	4	4	6	4	3	6
90	2	1	1	0	1	2	2	2	2	1	0	2	2	1	2	2	2	0	0	2	2	2	2	2	2	2	1	2	2	2	2	0	2	2	0	0	1	1	2	2	2
91	0	1	0	1	1	1	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	1	1	0	1	1	1	0	1	1	0	0	1	0	0	1	0	1	1	0
92	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0
93	1	1	2	2	1	1	1	1	2	1	1	1	2	2	1	2	2	1	1	2	2	1	1	1	2	2	2	1	1	1	2	1	2	2	2	1	1	2	2	2	2
94	1	1	1	1	0	1	0	0	1	0	0	1	1	1	0	0	1	1	1	1	1	0	1	1	0	0	0	0	1	1	0	0	1	1	1	0	0	0	0	1	1

SUBJECT NO.

VARIABLE NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
95	59	50	54	53	46	57	58	53	59	57	50	57	62	54	49	58	50	49	51	51	54	49	54	44	56	39	51	51	55	51	54	46	52	50	49	41	44	46	49	60	43
96	65	55	54	44	54	57	59	59	65	57	74	66	63	55	57	56	68	53	66	57	61	51	60	56	71	53	55	49	67	46	60	56	58	60	57	46	51	56	59	57	47
97	62	54	62	55	51	58	54	59	58	58	60	64	60	62	48	59	55	60	59	56	59	46	56	51	64	47	53	58	62	57	55	51	55	62	59	42	44	48	51	62	46
98	56	59	63	54	50	56	52	52	59	54	51	61	60	66	45	56	53	58	52	52	54	47	55	51	66	42	52	59	56	57	47	50	55	61	56	38	39	48	43	64	47
99	52	56	54	40	32	68	44	48	42	48	50	44	50	56	56	50	48	32	64	42	40	56	44	40	42	24	0	64	60	42	42	44	48	48	40	36	36	40	48	56	36
100	57·7	51·1	59·0	45·8	42·9	57·0	49·3	51·6	56·5	53·2	55·0	57·7	58·9	59·8	44·8	52·4	52·9	49·4	55·9	49·1	53·7	42·0	50·8	43·8	60·9	34·4	40·7	50·9	59·0	47·3	49·7	44·7	50·9	57·1	50·7	29·6	36·0	42·2	45·8	62·9	38·5
101	6	4	5	4	1	6	7	5	6	3	6	6	5	6	3	5	4	4	7	4	5	2	5	3	7	2	3	2	5	4	4	4	5	6	5	1	1	1	5	5	2
102	16	13	16	12	20	15	16	19	12	14	18	15	23	18	19	14	18	19	18	16	18	14	20	12	16	12	14	20	15	13	18	12	10	20	16	6	16	13	18	18	13
103	44	35	44	33	46	37	41	44	30	35	45	39	47	46	42	35	43	47	39	44	44	42	45	34	39	27	36	47	35	35	35	35	30	48	38	16	37	33	44	48	28
104	38	29	39	24	36	21	36	38	25	36	30	30	36	37	34	26	36	34	34	32	35	35	40	24	25	26	27	40	26	34	24	24	25	39	33	11	33	27	37	37	24
105	56·2	43·1	56·7	38·3	60·7	42·0	53·5	59·6	37·1	47·9	54·8	48·0	64·7	59·1	56·4	42·5	56·8	59·2	53·6	53·0	56·9	51·3	62·4	38·8	46·4	36·0	43·7	63·5	43·6	45·8	46·0	39·3	34·9	63·4	50·2	15·5	51·9	41·0	58·0	60·2	36·6
106	4	3	3	3	4	3	4	4	2	4	5	3	3	4	3	3	4	3	3	3	4	3	4	3	3	2	3	4	3·5	3	3	3	2	5	3	1	3	2	4	5	2
107	5	4	3	5	5	4	5	5	4	5	5	4	4	5	5	5	5	4	5	5	5	2	5	4	4	3	4	5	5	4	3	4	3	5	4	1	4	3	5	5	3
108	59·3	44·5	51·3	42·1	61·5	43·9	57·9	61·0	33·2	55·1	66·8	46·9	55·3	60·7	51·1	44·2	59·6	52·5	49·7	49·4	59·6	48·6	62·4	42·3	46·1	32·7	44·8	62·9	48·8	45·8	45·9	42·6	32·1	71·1	48·0	11·7	48·9	35·2	60·2	69·5	33·0

APPENDIX 3

TABLE D

TEST DIFFERENCES BETWEEN HEALTH VISITOR AND SOCIAL WORKER STUDENTS

1968 INTAKE

	N=45		N=40			
	HEALTH VISITORS		SOCIAL WORKERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	38.98	6.04	37.90	8.69	0.657	N.S.
2	39.56	8.59	36.70	8.85	1.508	N.S.
3	78.53	13.19	74.60	15.85	1.234	N.S.
4	50.40	4.86	52.12	5.68	-1.491	N.S.
5	61.80	7.90	61.60	7.98	0.116	N.S.
6	209.60	19.15	206.40	9.75	0.986	N.S.
7	208.07	25.58	209.80	16.14	-0.377	N.S.
8	15.24	2.86	13.68	3.05	2.424	.02
9	351.00	74.62	367.48	69.79	-1.052	N.S.
10	18.76	4.53	15.72	4.95	2.941	.01
11	13.84	3.18	10.97	3.90	3.690	.001
12	18.00	3.58	19.62	2.50	-2.439	.02
13	10.40	3.68	11.12	3.55	-0.917	N.S.
14	13.27	3.83	13.87	3.60	-0.744	N.S.
15	14.51	4.37	14.80	3.16	-0.353	N.S.
16	5.04	4.27	4.45	2.93	0.749	N.S.
17	8.71	3.88	9.15	3.61	-0.541	N.S.
18	31.87	5.34	31.04	5.82	0.682	N.S.
19	30.27	6.24	30.00	6.11	0.201	N.S.
20	23.53	7.17	24.18	8.03	-0.392	N.S.
21	44.69	4.26	45.67	5.30	-0.932	N.S.
22	21.40	6.90	23.94	6.28	-1.777	N.S.
23	28.02	13.20	25.18	13.63	0.973	N.S.
24	10.80	2.46	10.82	2.77	-0.035	N.S.
25	7.98	1.64	9.37	1.79	-3.717	.001
26	13.76	3.16	14.78	2.89	-1.554	N.S.
27	10.09	4.26	12.47	3.85	-2.706	.01
28	12.89	5.28	13.75	4.80	0.787	N.S.
29	12.00	3.32	10.95	3.89	1.333	N.S.
30	9.71	4.90	13.40	5.00	-3.428	.001
31	11.96	3.27	12.10	2.75	-0.214	N.S.
32	8.42	2.93	8.10	2.53	0.540	N.S.
33	13.64	3.30	14.10	3.30	-0.641	N.S.
34	10.76	2.76	9.90	3.03	1.362	N.S.
35	12.80	3.42	8.80	2.91	5.825	.001
36	9.64	2.68	10.78	2.29	-2.114	.05
37	11.80	3.36	10.97	2.78	1.245	N.S.
38	10.76	2.95	10.43	2.36	0.572	N.S.
39	13.71	3.96	12.03	4.28	1.871	N.S.
40	6.40	1.53	5.14	1.49	3.843	.001
41	4.19	2.10	5.31	1.97	-2.536	.02

TABLE E

TEST DIFFERENCES BETWEEN HEALTH VISITOR AND SOCIAL WORK STUDENTS

1969 INTAKE

	N = 43		N = 41			
	HEALTH VISITORS		SOCIAL WORKERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	39.19	6.20	42.46	6.78	-2.304	.05
2	36.91	8.65	42.24	8.92	-2.778	.01
3	76.09	13.29	84.71	13.39	-2.960	.01
4	49.60	5.16	57.24	5.36	-2.298	.05
5	60.67	6.02	61.71	7.25	-0.713	N.S.
6	208.74	20.49	208.54	11.08	0.056	N.S.
7	210.70	28.49	210.63	12.35	0.015	N.S.
8	14.60	3.31	15.71	2.02	-1.865	N.S.
9	343.07	73.41	376.17	69.21	-2.054	.05
10	16.79	5.04	17.12	4.70	-0.311	N.S.
11	13.37	3.17	11.68	3.39	2.357	.05
12	17.81	2.72	19.41	3.07	-2.524	.02
13	9.60	3.59	10.54	4.13	-1.111	N.S.
14	14.19	3.30	14.34	4.04	-0.186	N.S.
15	15.67	3.38	14.93	3.48	0.988	N.S.
16	4.60	3.34	3.85	2.75	1.126	N.S.
17	8.74	3.27	9.22	3.66	-0.633	N.S.
18	30.73	6.46	31.44	6.25	-0.512	N.S.
19	29.48	5.81	30.73	6.76	-0.907	N.S.
20	23.58	7.37	25.82	7.14	-1.415	N.S.
21	44.30	5.96	44.79	5.30	-0.399	N.S.
22	22.93	6.64	24.67	7.37	-1.135	N.S.
23	28.98	10.93	22.55	14.64	2.273	.05
24	11.09	2.99	10.88	3.16	0.313	N.S.
25	9.49	1.39	8.76	2.15	1.838	N.S.
26	14.74	3.09	13.73	3.69	1.357	N.S.
27	10.49	3.61	12.17	4.78	-1.811	N.S.
28	12.84	4.95	14.59	5.35	-1.554	N.S.
29	13.37	3.79	10.88	3.62	3.080	.01
30	10.23	3.96	11.88	5.15	-1.641	N.S.
31	12.74	3.00	11.80	2.91	1.458	N.S.
32	7.67	3.14	7.51	2.69	0.251	N.S.
33	13.12	4.08	13.44	3.23	-0.400	N.S.
34	10.79	3.19	9.63	3.06	1.701	N.S.
35	11.77	3.80	10.66	3.10	1.470	N.S.
36	9.56	2.40	10.32	3.12	-1.247	N.S.
37	11.21	3.30	11.27	3.68	-0.079	N.S.
38	10.23	2.56	10.07	3.54	0.236	N.S.
39	12.91	4.29	12.10	4.64	0.830	N.S.
40	5.90	1.55	5.56	1.64	0.976	N.S.
41	4.54	1.90	5.15	2.36	-1.301	N.S.

APPENDIX 4

TABLE F

HEALTH VISITORS N=88

CORRELATION MATRIX

(Decimal Points Omitted)

VARIABLE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1																																																		
2	591																																																	
3	848	928																																															
4	414	554	554																																														
5	257	226	267	-078																																													
6	327	425	429	415	-002																																												
7	352	503	492	473	-003	717																																											
8	337	536	507	606	005	372	661																																									
9	285	517	470	592	-034	420	520	735																																								
10	378	369	417	416	170	507	470	329	235																																							
11	188	211	052	125	-034	105	180	232	214	146																																						
12	120	-213	-020	004	-211	-162	-230	-126	-063	-009	-187																																					
13	049	-159	-081	001	-024	-118	-200	-164	-104	-038	-458	-032																																				
14	063	-161	-077	-171	209	-046	-103	-105	-071	059	-127	-103	137																																			
15	081	016	044	023	080	091	068	-035	-151	-032	-284	-248	-216	175																																		
16	133	205	196	-067	055	031	082	100	190	-066	-002	-056	-072	-468	-517																																	
17	-019	145	087	140	-095	073	162	151	049	-005	204	-254	-405	-570	-056	108																															
18	008	154	105	045	-116	042	-135	029	168	075	289	-072	-275	-004	-077	134	100																														
19	028	166	122	126	-006	250	162	142	067	169	177	-151	-005	-137	-164	179	139	035																													
20	014	023	021	034	167	022	-090	049	-097	042	-048	-186	-150	257	494	-297	-099	035	-141																												
21	109	058	088	223	076	-092	002	191	241	-093	-172	219	-109	019	183	-114	-033	025	-292	134																											
22	-038	-117	-094	-172	014	-148	-205	-180	-180	-148	-112	-119	408	118	-110	-040	-150	-005	088	-153	-436																										
23	-048	-130	-108	-111	-079	-038	152	-101	-070	-028	-078	204	036	-163	-187	103	041	-536	-353	-574	-138	-330																									
24	066	-068	-014	036	-133	062	021	-017	102	-093	-279	250	291	028	-002	-045	-296	-151	-139	-102	103	-015	179																								
25	079	-031	016	253	012	086	140	038	224	-060	-072	038	-001	068	-021	-006	025	-120	-028	-047	089	020	055	159																							
26	062	-116	-048	-059	019	-209	-132	-036	-060	-070	-175	063	203	019	-041	042	-083	043	-188	-007	-068	149	022	-035	075																						
27	-034	-004	-018	-008	019	-119	-029	075	-109	-101	138	-123	-036	150	200	-175	-134	129	168	060	-232	281	-261	-038	023	082																					
28	-022	-137	-099	-008	-060	106	-067	-037	-028	103	-222	213	262	356	221	-469	-370	050	-014	232	039	192	-288	141	-067	000	257																			
29	-052	-124	-106	029	-067	-063	020	040	000	041	-117	361	048	-097	-107	-048	-011	-119	-209	-192	137	-158	317	302	129	053	-213	-100																			
30	-024	-059	-050	000	080	-004	-058	-061	-108	-019	-177	183	110	248	176	-253	-260	007	-120	075	063	066	-052	259	028	171	397	574	009																	
31	094	-048	012	084	220	-010	-002	050	-001	-028	-191	-095	111	201	382	-185	-199	-178	-065	249	200	-036	-099	075	154	-119	088	063	-003	006																
32	021	192	136	198	-202	201	159	109	191	153	239	027	032	-069	-251	026	071	074	329	-223	-119	025	-030	101	052	-302	017	020	-124	-115	-100														
33	-122	040	-030	-004	076	-010	-094	-131	-123	-143	059	079	-031	-092	095	-139	-103	-148	-048	044	008	015	059	-053	-094	-032	167	022	-225	004	200	023													
34	-181	-022	-098	-078	173	-154	-049	-008	-071	075	207	-090	-082	-064	-111	152	-009	143	027	068	-219	142	-111	-234	-020	119	-049	-134	198	-195	-243	-083	-185											
35	008	-002	002	140	-129	108	055	112	087	021	089	-079	-155	-143	080	-043	183	-045	153	110	185	-158	-120	-044	-022	-494	100	-001	-226	-176	115	218	086	-309										
36	142	233	219	180	224	006	-110	004	138	031	140	034	-159	001	011	-070	064	371	-154	050	230	159	-324	-145	110	-017	099	160	-094	126	-169	-036	188	084	-082									
37	060	069	073	-061	357	-060	-082	001	-012	024	091	-280	-119	137	-043	184	064	206	000	150	-159	057	-154	-240	-023	190	143	-231	-213	-101	085	-176	106	179	-117	019								
38	-024	-210	-149	-173	-018	-124	-117	-160	-204	-114	-169	058	283	016	-219	170	-163	052	-142	-083	-083	005	129	074	-139	254	-178	047	295	023	-087	-187	-181	196	-343	-119	094							
39	101	191	172	058	006	211	188	034	-003	189	152	-256	-011	-044	096	-127	125	-032	167	-094	-018	-092	037	-055	-112	-382	035	-100	-278	-194	047	298	109	-278	438	-130	068	-342						
40	066	226	179	192	-079	225	194	152	168	183	269	-142	-154	-155	-015	-048	220	-069	240	-064	055	-138	000	-073	-014	-648	-052	-181	-265	-425	044	529	142	-222	705	-070	-096	-557	752					
41	010	-099	-060	043	-058	035	-034	-015	-061	062	-175	210	226	308	238	-419	-383	-020	-070	106	006	187	-135	312	026	068	554	782	-028	825	036	-042	052	-225	-021	135	-317	-035	-134	-270				
42	171	148	176	184	-001	114	107	142	256	-013	-070	-118	-024	023	011	158	037	-060	149	-048	-077	183	-071	005	312	000	106	102	-176	049	085	176	037	-107	062	-020	076	031	-074	041	074			
43	-048	-006	-026	-132	-047	112	062	-056	-098	202	-017	-009	-033	102	154	-074	-185	200	055	039	016	-200	-023	070	-090	015	-007	016	-110	058	-064	-071	-066	-251	-020	037	049	-015	208	029	023	-269		
44	104	-128	-036	-090	-098	-146	-149	-256	-098	-140	-272	229	053	007	066	-011	-103	-149	-170	-083	086	032	147	057	-031	187	-075	138	-215	116	-084	-192	233	-251	024	007	-139	-170	-009	-046	092	-020	048	
45	079	141	129	205	007	139	187	212	227	133	018	176	011	152	074	-025	-089	142	031	003	202	-137	-099	-063	077	-034	082	072	-293	142	-059	081	015	-281	059	125	-016	020	163	064	127	133	416	-013	
46	138	068	108	238	139	-060	084	223	207	079	071	-001	-051	130	-065	-019	-035	-077	-034	087	157	003	-065	-193	072	-007	-019	052	138	000	100	-141	-095	126	052	058	-013	-024	142	-002	-008	200	-326	-021	-154
47	-055	-007	-030	064	-373	074	098	-015	135	-079	007	088	009	-153	-147	122	095	261	-083	-113	075	003	-031	028	096	077	-058	061	-246	-034	-086	085	129	-173	224	-047	-062	-006	099	110	021	160	079	210	231	-254	
48	076	023	050	113	-101	-180	-034	137	105	-025	004	197	-002	153	-090	-099	-080	-074	-085	062	103	081	-043	084	-029	023	-076	127	130	080	-040	008	-089	091	-121	-080	-155	-021	-280	-164	096	170	-345	005	-317	518	-132	
49	086	057	077	164	-060	072	091	080	095	123	001	-128	-018	-130	045	181	064	-148	172	-006	-084	044	-005	-087	000	-002	-106	-235	-179	-226	137	085	065	204	-025	-147	-042	-151	-001	131	-232	174	-305	-039	-150	082	-068	134	
50	-112	-214	-192	-349	383	-308	-390	-362	-312	-381	-058	-078	134	-133	121	133	099	046	-160	078	012	055	-018	-052	029	080	033	-240	152	-082	145	-185	099	207	003	130	207	062	-152	-153	-182	-088	-215	-018	-359	-217	-136	-226	006

VARIABLE

TABLE F (cont.)

HEALTH VISITORS N = 88

CORRELATION MATRIX

(Decimal Points Omitted)

VARIABLE	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
51																																								
52	412																																							
53	-154	-028																																						
54	234	-072	-351																																					
55	053	-049	-362	-173																																				
56	222	050	-291	173	-025																																			
57	063	010	-245	143	-074	339																																		
58	-053	-216	-060	177	119	058	-159																																	
59	-088	-188	088	-005	164	029	-145	665																																
60	049	247	038	-133	-118	-028	156	-870	-676																															
61	096	195	057	-028	-169	-033	199	-610	-868	705																														
62	062	-131	113	061	035	099	-293	456	363	-392	-363																													
63	-069	-181	189	-005	-229	-145	-232	-102	-039	096	046	-073																												
64	110	023	219	-029	-105	-077	-315	-086	021	078	-027	-014	598																											
65	-057	-022	186	-121	-216	-009	-228	012	033	-040	-046	020	509	593																										
66	005	064	-235	065	216	086	306	065	-009	-048	014	023	-813	-868	-848																									
67	019	107	-057	-048	-019	118	140	149	018	-066	087	114	-045	-207	036	003																								
68	146	177	074	079	-257	187	032	086	086	016	-014	079	098	286	245	-255	418																							
69	023	228	075	-145	-119	-147	019	-574	-431	494	356	-545	111	120	001	-088	-276	-131																						
70	-045	216	079	-032	004	-129	018	-407	-307	415	282	-346	077	099	046	-087	-182	-119	729																					
71	142	304	091	-032	-001	-046	011	-186	-133	181	175	-344	-069	043	-057	032	-144	023	528	683																				
72	240	150	029	-005	-005	089	-007	230	182	-245	-098	-050	-182	-059	-130	144	022	168	-152	-264	524																		
73	069	039	076	010	-056	-124	167	-077	057	064	-096	007	046	-127	-056	058	-040	-136	034	057	042	-011																	
74	-090	032	154	033	064	-154	-110	-037	-018	028	022	004	060	-146	052	015	-179	-004	055	073	195	172	022																
75	-221	-183	-002	-204	-005	103	-018	181	043	-109	004	059	-021	-131	025	049	261	-165	-147	-211	-259	-096	000	-075															
76	005	195	-066	-098	148	-091	-103	108	-002	-118	-074	042	-059	-115	047	047	203	-098	-020	023	074	071	070	-016	228														
77	173	304	-054	073	128	-155	-074	-047	-035	-017	-065	-010	-034	003	070	002	-028	043	095	181	260	133	059	043	-570	669													
78	133	216	-018	145	-050	-009	098	-133	-230	068	138	-124	020	113	065	-080	-043	018	234	247	250	042	-165	078	-206	-062	104												
79	101	201	-073	-145	055	079	134	-495	-480	435	391	-406	048	143	009	-078	-081	-081	420	348	153	-204	-082	-154	-078	-031	034	393											
80	114	350	037	-007	-078	-036	-023	-234	035	216	011	-118	051	060	-046	-022	-085	097	223	190	198	039	196	032	-095	-018	058	279	127										
81	-051	072	053	006	-091	-066	073	-497	-471	463	458	-452	-006	-107	028	033	-159	-148	381	249	096	-163	-029	-023	020	-053	-060	296	449	064									
82	276	031	-347	245	011	103	191	001	-065	-058	-006	119	-029	-035	002	024	161	087	-210	-239	-214	-004	113	-048	-064	-076	-015	-080	-096	-113	-052								
83	-004	-105	-034	012	-384	-077	000	019	028	-024	009	-070	125	137	167	-171	140	378	-010	-199	-147	038	-275	-031	-081	-178	-088	-040	-125	-056	000	063							
84	-136	-057	149	-091	-191	-015	036	-075	043	071	-003	-127	296	181	217	-271	165	302	052	017	022	009	-151	071	-055	-082	-027	114	-115	052	009	-185	581						
85	354	333	-074	005	115	-106	-213	-196	-214	127	143	023	-058	177	-020	-042	-142	060	041	066	198	185	-092	201	-237	070	240	190	200	008	070	024	007	-076					
86	263	301	-218	-001	-007	048	-137	-275	-315	184	190	-074	-035	056	-032	004	-060	013	061	087	154	102	-077	166	-081	106	151	122	261	095	195	-011	057	009	696				
87	076	256	-210	026	-123	-118	-132	-229	-222	223	146	-118	-032	055	-088	027	-068	078	179	225	128	-094	-032	253	-098	-094	-005	078	032	249	075	121	-003	-122	312	374			
88	-192	-092	018	049	-023	002	006	-035	-094	080	091	-104	243	-060	044	-081	138	-052	070	003	-177	-237	-206	-087	087	092	011	008	-024	-078	130	-230	175	244	-203	-050	-218		
89	-242	-042	201	-090	135	-221	-164	111	125	-108	-039	009	127	107	070	-118	013	-061	-005	-012	043	072	-085	-109	-073	011	065	103	-053	026	018	-280	144	203	-092	-090	-223	359	
90	169	096	-194	139	054	020	-070	-053	-144	065	039	-122	002	-083	-181	110	117	117	031	139	081	-055	069	021	-046	048	076	145	143	190	030	071	-006	018	202	266	243	-045	-215
91	085	046	-076	145	059	016	046	-157	-175	135	217	-176	137	-068	-156	046	173	032	106	145	176	063	091	097	116	130	021	146	104	075	144	-064	-064	094	106	247	075	197	-096	309

TABLE G

SOCIAL WORKERS N=81

CORRELATION MATRIX

(Decimal Points Omitted)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1																						VARIABLE																														
2	583																																																		
3	573	905																																																	
4	375	461	472																																																
5	238	004	126	151																																															
6	584	509	611	315	251																																														
7	494	421	511	182	040	631																																													
8	406	403	508	507	122	458	445																																											
9	522	517	584	573	214	440	340	477																																										
10	621	408	569	238	324	498	444	339	410																																									
11	-093	-052	-080	-107	-052	-067	-212	-173	-006	-156																																								
12	-002	-034	-022	106	-130	-101	044	-016	015	-188	004																																							
13	009	057	039	077	-088	-052	097	144	-129	062	-446	140																																						
14	009	-104	-058	-149	160	-057	013	-049	-050	189	-237	-263	-042																																					
15	-084	040	-020	-072	081	-019	-167	054	-115	000	-169	-423	-324	116																																				
16	060	-054	-001	046	-031	018	184	001	171	-040	-173	-010	-089	-191	-340																																			
17	104	136	136	136	028	268	078	033	159	072	007	-250	-314	-524	071	007																																		
18	-071	-012	-044	-190	-011	-114	-005	-270	-038	026	439	124	-311	-023	-083	-173	020																																	
19	-125	077	-019	-021	-235	026	095	-032	-044	000	028	132	102	-151	-084	-150	117	213																																
20	-051	-153	-118	-164	097	-155	-192	-148	-279	-023	-128	-325	-258	478	462	-199	-107	112	-040																															
21	189	181	208	066	-052	167	159	107	204	086	-068	198	114	-006	-057	-005	-149	-054	003	-032																														
22	-025	-083	-063	163	057	-139	-033	044	-079	006	-268	-005	427	-038	-016	-151	-009	-179	159	010	-377																													
23	055	024	044	076	051	125	018	148	148	-034	024	-010	-024	-158	-149	323	056	-476	-602	-560	-153	-344																												
24	068	-103	-026	-158	-056	-069	016	022	-082	-018	-114	135	315	068	-194	050	-263	-107	-046	-144	184	-027	088																											
25	130	075	113	404	258	267	088	260	133	132	-114	-190	021	-085	030	025	279	-198	025	-012	-078	128	047	-181																										
26	019	073	054	039	024	073	047	-088	096	077	040	123	068	-082	-150	-129	120	155	070	-048	085	-181	-016	162	-092																								
27	-051	-077	-076	-035	-154	-154	-045	-128	-176	092	-127	-163	466	134	-171	-181	-082	-003	-034	002	-234	481	-129	224	041	168																							
28	008	-099	-055	-041	-168	-082	-069	-035	-191	-028	-192	-179	287	228	105	-128	-211	-079	-083	203	122	141	-152	241	134	011	389																						
29	-049	-014	-034	172	-056	-004	086	093	092	-214	186	408	-081	-238	-373	271	-032	059	099	-346	-024	-230	236	079	-073	213	-229	-348																					
30	-086	-074	-089	-082	-155	-083	-008	-190	-304	-009	-233	084	465	051	-110	-218	-106	-017	152	018	023	329	-239	324	-055	357	519	370	-180																			
31	-147	-246	-225	-349	139	034	-086	-174	-153	-024	-060	-235	-215	429	060	117	-127	-099	-175	321	-057	-183	059	076	001	-066	-094	-012	-157	-079																		
32	007	116	073	059	-099	064	203	047	084	037	-141	-042	010	037	-109	036	108	088	066	015	-116	099	-081	-124	137	054	438	283	-082	094	-108																
33	001	-046	-027	-180	-015	095	-107	-138	050	022	-064	-162	-160	328	321	-193	-129	-022	-061	348	-010	086	-155	-075	-021	-117	-015	169	-397	-029	312	038														
34	069	156	129	005	-140	128	259	113	013	164	090	259	095	-232	-294	001	119	-008	286	-360	-067	-147	113	119	-072	385	002	-249	410	078	-181	-066	-310												
35	092	-090	-006	-056	019	076	079	118	008	063	051	-218	-149	061	060	129	054	-060	033	027	-255	140	023	-065	186	-523	-137	099	-188	-391	139	073	053	-205											
36	-046	-116	-094	-054	-023	-065	-018	-134	-001	152	-032	110	-081	116	-037	-068	004	280	011	200	-175	276	-300	013	-155	089	224	005	-169	172	064	078	296	-031	-024										
37	-009	-043	-030	-114	189	083	-102	-059	080	034	098	-275	-456	083	289	134	144	074	-020	280	-113	-206	-032	-258	066	-097	-428	-208	-077	-395	246	-209	313	-102	150	073								
38	-015	-059	-043	-031	-053	011	033	-038	-010	-107	099	320	-125	-154	-179	013	097	114	204	-077	081	-164	-050	101	-071	348	-232	-286	496	007	-066	-172	-055	471	-276	156	089							
39	-051	078	021	108	185	084	000	301	261	082	-063	-240	-173	054	201	027	174	-087	-088	-001	-222	-020	170	-170	365	-274	-023	-048	-134	-303	084	154	112	-055	423	-116	237	-212						
40	020	056	044	054	126	072	039	231	183	072	002	-279	-201	088	185	109	083	-100	-106	032	-238	039	144	-247	304	-586	-082	041	-257	-518	141	289	138	-272	755	-146	215	-487	788					
41	-038	-121	-092	-083	-191	-109	-019	-092	-246	000	-220	-072	510	192	-057	-207	-253	-049	005	060	015	342	-185	476	017	231	731	742	-266	786	-068	321	047	-089	-145	135	-506	-178	-172	-243				
42	408	197	332	215	246	259	221	337	276	448	-295	-090	-018	137	156	064	052	-119	190	147	100	025	-164	102	126	048	-165	021	-033	026	120	-040	052	-021	086	015	140	021	133	040	-043			
43	-420	-166	-319	-080	-045	-268	-272	-150	-173	-354	308	153	005	-075	-103	-121	-158	135	007	-170	011	-012	032	079	-145	-093	055	-003	143	-129	-131	-013	-175	-057	-027	-111	-121	-101	-061	013	-029	-385		
44	084	-063	006	069	057	033	000	-032	068	-132	-190	060	116	024	-056	159	-078	-194	-232	-040	187	-049	163	-015	076	106	-122	078	036	-084	067	026	136	-013	095	031	195	160	-092	-047	-070	049	050	
45	073	037	060	048	005	145	230	134	231	179	206	052	025	-073	-110	019	-102	010	119	-119	165	-019	-085	-045	-128	-009	072	090	172	-219	-118	094	-147	207	071	-031	-023	-089	-022	087	-030	027	364	-045
46	428	203	346	024	193	343	187	226	164	463	-088	-300	-089	117	084	114	118	-069	-121	083	162	-137	045	-060	257	-122	-199	086	-300	-081	230	-171	073	-120	220	-170	232	-061	028	116	-072	210	-461	059	-262
47	-072	215	091	045	-185	-041	098	-012	041	014	-250	-040	232	-030	015	-113	143	041	076	-095	-042	076	-022	040	-096	177	259	-007	-119	268	-194	060	034	-013	-301	155	-268	-082	-002	-164	186	-031	-047	-144	-065	-398
48	127	109	132	-125	-173	134	179	089	015	203	-277	-149	099	127	151	124	-083	-139	034	071	-061	012	023	018	005	-075	-052	137	-162	198	172	026	174	-036	114	-068	195	-055	113	076	128	285	-578	024	-314	522	-135	
49	056	074	074	064	017	138	105	155	133	094	098	-154	-256	024	158	046	088	158	095	098	073	-134	-125	057	103	-013	-192	041	020	-119	020	-245	048	-067	044	079	283	-024	242	101	-121	259	-127	-115	094	107	-022	205
50	-194	-191	-216	-088	110	-253	-203	-273	-098	-370	173	133	-221	-076	-134	111	074	215	146	025	-158	-081	-073	-031	-115	118	-113	-324	455	-139	-023	-077	-158	085	-188	058	034	373	-150	-244	-214	-054	286	078	099	-456	-001	-485	-009	

TABLE G (cont.)

SOCIAL WORKERS N = 81

CORRELATION MATRIX

(Decimal Points Omitted)

VARIABLE	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
51																																												
52	454																																											
53	-305	-081																																										
54	389	-023	-376																																									
55	090	105	041	-010																																								
56	077	-042	-177	108	027																																						
57	089	-107	-064	233	099	642																																					
58	-103	005	-149	-024	122	-141	-134																																				
59	050	-007	-125	033	139	-026	-098	699																																			
60	083	042	112	013	-200	-002	038	-814	-648																																		
61	-088	017	087	-044	-238	-046	031	-621	-840	659																																	
62	-108	-103	026	-011	149	-123	-155	471	458	-457	396																																
63	084	038	-210	-006	-007	-055	-082	099	112	-075	-107	053																															
64	065	-103	-202	-009	-135	-059	-009	044	064	-001	-043	-106	307																														
65	068	-140	-134	008	-081	059	008	-090	-077	154	033	-092	137	499																													
66	-095	108	237	002	107	015	029	-007	-028	-054	040	078	-563	-819	-803																												
67	133	055	-065	-110	-145	138	-009	023	-007	-046	-102	-023	219	-048	075	-094																											
68	070	-028	-135	092	-177	-009	-176	061	056	-145	-039	209	076	096	188	-169	369																										
69	116	060	126	008	005	024	039	-449	-585	483	498	-545	-249	118	156	-049	-149	-079																									
70	125	129	052	-031	-045	047	115	-326	-426	407	395	-358	-320	113	002	163	-185	-124	765																								
71	272	133	-158	159	027	213	191	-230	-278	244	256	-354	-205	-094	-024	127	-101	045	608	728																							
72	232	029	-290	265	095	245	128	079	136	-161	-128	-058	108	008	-038	-022	088	220	-089	-211	516																						
73	005	091	107	-107	114	-074	-026	-066	-064	-048	108	-044	-060	-134	-249	214	089	073	069	101	-058	-209																					
74	-105	-079	194	-040	-020	-229	-209	-080	-120	-012	110	026	-207	006	-046	094	-154	085	155	031	-046	-104	-057																				
75	-275	-120	-031	-139	052	-138	-302	174	135	-207	-089	066	-006	094	-142	034	098	220	-103	-209	-263	-113	001	106																			
76	085	-015	-083	109	094	-022	-101	036	168	-137	-083	-101	-133	092	-147	082	-226	-042	-026	-113	135	334	046	233	337																	
77	302	084	-050	214	044	093	-155	-109	043	044	-003	-146	-117	007	-019	047	-287	-219	060	068	358	397	041	126	-509	639																
78	087	142	-083	-094	-027	229	262	-028	-031	005	-132	051	-015	035	-014	-004	-025	-178	-061	075	039	-038	-162	-110	-016	046	055															
79	041	166	183	-015	-072	004	044	-340	-476	354	394	-319	-324	-156	-120	248	-027	-082	414	366	105	-307	156	-033	-088	-092	-011	-091														
80	063	117	-127	190	020	-124	-127	-144	005	039	-070	023	122	-055	-092	031	036	250	-051	-016	-013	001	126	085	171	-054	-189	066	-026													
81	-046	067	244	-134	-009	004	-015	-331	-356	311	220	-295	031	-021	058	-031	-126	-199	306	281	105	-201	-056	-042	-078	-101	-028	-001	450	096											
82	244	029	-298	242	-149	275	131	-003	-019	-038	-014	-125	-109	-223	-053	169	087	-002	076	151	315	260	-146	003	-125	104	197	-029	-002	066	-059										
83	221	218	053	-113	170	010	-038	077	031	-106	064	082	013	220	165	-193	-122	067	-022	-037	078	158	011	-048	-090	102	167	015	-046	-160	-075	-059									
84	139	111	205	-181	066	046	022	-007	-015	-035	118	132	-037	175	102	-121	009	182	010	-024	039	085	091	005	-018	052	062	015	032	-181	-102	-034	781								
85	044	-072	036	110	199	113	188	-131	036	095	-027	-139	-041	-198	-180	200	-010	053	095	068	127	096	115	072	060	106	047	095	093	107	047	066	-172	-112							
86	096	106	-006	145	318	192	197	146	267	-053	-249	067	023	-202	-238	210	004	-033	031	052	200	220	-012	013	-040	041	070	-031	-118	-020	-118	175	-100	-090	678						
87	-128	020	-220	025	215	-041	-032	259	180	-191	-158	082	035	053	-161	048	-102	035	-067	-033	133	231	-153	081	231	237	028	125	-138	-015	-204	-070	-004	-095	142	305					
88	-137	-075	107	-241	-071	-214	-307	137	009	-023	035	132	167	105	-081	-064	000	-071	-061	-074	-154	-128	-073	060	184	060	-095	051	040	-153	002	-129	-004	-001	-046	-027	-014				
89	084	161	-031	-044	009	-268	-223	111	015	014	053	-082	074	055	-031	-035	-159	-026	178	173	146	-007	-153	285	-060	215	245	046	255	-110	107	-092	082	-031	095	047	183	255			
90	146	188	064	-088	130	-007	-056	-064	053	095	-041	-085	159	133	022	-128	-017	-043	004	001	050	070	-078	099	012	137	116	150	-008	268	141	034	129	122	073	129	110	033	075		
91	064	-064	-120	067	-060	047	118	-066	168	089	-186	115	042	-109	045	012	194	-018	-230	-004	025	040	-018	-195	-219	-207	-011	145	-033	081	-091	054	-176	-127	026	034	-019	-091	-258	018	
92	112	059	-055	300	318	-023	223	111	098	-206	-084	176	-027	-041	-167	116	-032	076	-156	-102	-014	108	103	-074	102	048	-039	-091	-235	201	-235	-073	126	028	017	023	035	-030	-193	-032	042
93	-222	026	400	-337	018	-360	-387	018	056	076	016	102	070	-122	-161	116	-082	-166	-080	-127	-310	-283	073	068	176	009	-136	-161	094	-009	036	-205	014	039	-085	-112	-148	468	006	085	039	-005	
94	029	073	105	-064	011	4	13	443	-101	-196	010	184	-151	051	-210	-085	124	093	-198	024	035	079	069	-115	-116	-073	-209	-132	-035	071	-110	189	152	019	037	119	054	-232	013	-196	-091	022	127	014

APPENDIX 5

TABLE H(i)

HEALTH VISITORS

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS (THEORETICAL CRITERION)

1968 INTAKE

	N=15 HIGH ACHIEVERS		N=15 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	40.73	4.68	38.07	6.32	1.266	N.S.
2	41.47	9.15	39.00	7.33	0.788	N.S.
3	82.20	12.01	77.07	12.12	1.125	N.S.
4	51.67	4.67	49.87	4.72	1.014	N.S.
5	63.07	7.69	61.40	8.31	0.552	N.S.
6	210.40	9.58	205.67	30.98	0.546	N.S.
7	215.33	9.95	196.07	40.21	1.740	N.S.
8	16.40	1.50	14.73	3.95	1.479	N.S.
9	388.13	53.87	336.00	92.50	1.822	N.S.
10	19.80	3.47	17.07	6.11	1.454	N.S.
11	13.93	2.99	14.27	4.35	-0.241	N.S.
12	18.93	3.03	17.07	3.56	1.489	N.S.
13	11.40	3.79	10.20	4.07	0.807	N.S.
14	14.60	3.33	11.80	3.63	2.127	.05
15	12.47	5.49	14.80	3.51	-1.338	N.S.
16	5.87	5.79	4.93	3.45	0.522	N.S.
17	6.80	3.38	10.93	3.97	-2.964	.01
18	31.73	4.77	32.93	5.91	-0.591	N.S.
19	29.47	6.37	30.40	6.94	-0.369	N.S.
20	21.93	6.99	24.67	7.17	-1.024	N.S.
21	45.20	3.53	44.73	4.32	0.315	N.S.
22	24.53	3.81	18.47	5.84	3.252	.01
23	26.47	9.81	28.80	14.65	-0.494	N.S.
24	11.47	2.39	10.67	2.58	0.851	N.S.
25	8.13	1.96	7.87	1.36	0.408	N.S.
26	13.67	3.70	14.33	3.06	-0.514	N.S.
27	10.80	5.02	9.07	4.32	0.977	N.S.
28	14.13	5.29	11.27	5.32	1.426	N.S.
29	12.27	2.84	11.20	3.93	0.826	N.S.
30	10.87	4.44	9.13	4.31	1.052	N.S.
31	11.53	3.40	12.60	2.97	-0.887	N.S.
32	8.07	2.22	8.20	2.83	-0.135	N.S.
33	13.27	3.33	14.47	3.66	-0.907	N.S.
34	11.13	3.02	9.40	2.41	1.675	N.S.
35	12.60	3.04	13.80	3.28	-1.004	N.S.
36	9.33	2.02	10.07	3.53	-0.681	N.S.
37	11.40	3.52	12.40	3.29	-0.777	N.S.
38	11.00	2.56	11.07	3.88	-0.056	N.S.
39	11.47	3.87	14.47	3.27	-2.216	.05
40	5.97	1.31	6.61	1.75	-1.095	N.S.
41	5.00	2.22	3.33	1.67	2.249	.05
42	1.87	1.30	1.87	1.13	0.000	N.S.
43	4.20	1.70	5.33	1.59	-1.816	N.S.

TABLE H(i) CONTD

	N=15 HIGH ACHIEVERS		N=15 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF OF DIFF.
44	1.87	0.35	1.73	0.46	0.906	N.S.
45	1.93	0.26	2.00	0.00	-1.007	N.S.
46	5.80	2.95	3.17	2.78	2.428	.05
47	3.47	0.99	3.33	0.72	0.428	N.S.
48	4.07	0.70	2.80	1.08	3.692	.001
49	1.60	0.51	1.73	0.46	-0.708	N.S.
50	27.53	6.72	33.00	8.22	-1.928	N.S.
51	3.93	1.87	2.80	1.37	1.824	N.S.
52	3.40	1.89	2.40	1.12	1.703	N.S.
53	0.73	0.46	0.53	0.52	1.078	N.S.
54	0.67	0.49	0.80	0.41	-0.761	N.S.
55	0.53	0.52	0.67	0.49	-0.733	N.S.
56	0.80	1.15	0.27	0.46	1.601	N.S.
57	0.13	0.35	0.00	0.00	1.390	N.S.
58	5.13	3.60	5.33	3.60	-0.147	N.S.
59	5.33	3.35	6.13	3.34	-0.633	N.S.
60	3.00	2.67	2.73	2.34	0.285	N.S.
61	3.07	2.55	2.07	1.87	1.183	N.S.
62	1.93	1.03	2.13	1.30	-0.451	N.S.
63	1.67	0.49	1.80	0.41	-0.761	N.S.
64	1.53	0.52	1.60	0.51	-0.360	N.S.
65	1.47	0.52	1.67	0.49	-1.047	N.S.
66	1.33	1.29	0.93	1.10	0.883	N.S.
67	2.50	1.45	2.70	1.33	-0.380	N.S.
68	1.47	1.64	1.33	0.82	0.286	N.S.
69	2.07	0.59	1.93	0.88	0.494	N.S.
70	2.27	0.46	2.00	0.76	1.137	N.S.
71	2.53	0.64	2.07	0.70	1.815	N.S.
72	1.27	0.59	1.07	0.46	1.000	N.S.
73	3.13	1.41	2.53	1.25	1.191	N.S.
74	2.00	1.00	2.80	1.08	-2.034	N.S.
75	3.80	1.52	3.63	2.04	0.250	N.S.
76	3.87	1.60	4.67	1.45	-1.386	N.S.
77	6.07	2.37	7.03	1.88	-1.187	N.S.
78	0.20	0.41	0.27	0.46	-0.425	N.S.
79	0.27	0.46	0.20	0.41	0.425	N.S.
80	0.67	0.49	0.67	0.49	0.000	N.S.
81	0.53	0.52	0.33	0.49	1.407	N.S.
82	2.53	2.03	3.00	2.83	-0.505	N.S.
83	2.47	0.83	2.73	0.96	-0.767	N.S.
84	3.87	1.64	3.93	1.94	-0.088	N.S.
85	1.40	0.91	1.00	0.93	1.150	N.S.
86	0.40	0.51	0.27	0.46	0.708	N.S.
87	0.87	0.35	0.67	0.49	1.243	N.S.
88	2.87	0.52	3.07	0.59	-0.952	N.S.
89	2.93	1.44	2.40	0.99	1.135	N.S.
90	1.20	0.68	0.93	0.80	0.962	N.S.
91	0.67	0.49	0.67	0.49	0.000	N.S.

TABLE H (ii)

HEALTH VISITORS

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS (PRACTICAL CRITERION)

1968 INTAKE

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D	MEAN	S.D	t	SIGNIF OF DIFF
1	39.93	7.41	38.27	6.28	0.639	N.S
2	40.73	9.71	39.93	7.30	0.246	N.S
3	80.67	15.61	78.20	11.98	0.470	N.S
4	50.00	4.87	50.87	3.73	-0.530	N.S
5	61.00	6.08	62.80	8.54	-0.642	N.S
6	212.40	8.44	203.33	29.92	1.092	N.S
7	218.13	8.69	201.60	29.93	1.985	N.S
8	15.20	2.14	15.60	2.03	-0.507	N.S
9	356.73	61.35	339.40	83.20	0.627	N.S
10	19.47	2.83	18.33	5.96	0.647	N.S
11	13.13	3.25	14.13	3.18	-0.823	N.S
12	18.20	4.06	18.07	3.08	0.095	N.S
13	9.73	3.39	10.00	3.64	-0.203	N.S
14	12.73	4.01	12.67	4.03	0.039	N.S
15	14.73	5.09	14.80	3.45	-0.043	N.S
16	5.73	4.73	5.00	3.27	0.475	N.S
17	9.07	4.70	9.33	3.13	-0.172	N.S
18	31.60	5.79	32.07	5.46	-0.221	N.S
19	28.67	5.81	29.94	5.71	-0.583	N.S
20	24.00	8.63	23.53	6.93	0.159	N.S
21	45.13	4.96	45.40	3.20	-0.171	N.S
22	19.60	5.17	20.20	5.78	-0.289	N.S
23	31.00	14.64	28.87	11.93	0.422	N.S
24	11.07	2.55	10.33	2.26	0.813	N.S
25	8.20	2.08	8.00	1.46	0.294	N.S
26	14.00	3.44	13.20	3.45	0.614	N.S
27	8.93	3.37	10.07	3.77	-0.844	N.S
28	12.13	5.55	11.27	4.88	0.435	N.S
29	12.60	2.44	12.07	3.95	0.427	N.S
30	8.00	4.58	9.87	4.12	-1.136	N.S
31	11.47	4.39	12.33	2.92	-0.610	N.S
32	8.93	3.43	8.33	2.29	0.544	N.S
33	12.87	3.50	13.67	3.15	-0.636	N.S
34	11.47	2.77	10.47	2.47	1.008	N.S
35	12.67	3.42	14.07	3.06	-1.141	N.S
36	8.93	1.87	10.07	3.58	-1.056	N.S
37	11.73	3.92	11.60	3.16	0.097	N.S
38	11.00	2.78	10.73	3.61	0.222	N.S
39	14.27	3.79	14.67	3.62	-0.286	N.S
40	6.58	1.39	6.65	1.40	-0.133	N.S
41	3.64	1.98	3.96	1.70	-0.459	N.S
42	1.60	1.45	1.80	1.08	-0.414	N.S
43	5.07	1.62	5.27	1.39	-0.351	N.S
44	1.73	0.46	1.60	0.51	0.708	N.S
45	1.93	0.26	2.00	0.00	-1.007	N.S
46	4.60	3.07	3.57	2.74	0.937	N.S
47	3.60	0.81	3.07	1.10	1.452	N.S
48	3.53	1.19	3.07	0.96	1.126	N.S
49	1.60	0.51	1.73	0.46	-0.708	N.S
50	27.93	5.44	32.13	7.72	-1.664	N.S

TABLE H (ii) cont

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D	MEAN	S.D	t	SIGNIF. OF DIFF.
51	3.60	1.76	3.67	1.76	-0.105	N.S
52	2.20	1.21	2.93	1.58	-1.372	N.S
53	0.80	0.41	0.53	0.52	1.526	N.S
54	0.73	0.46	0.93	0.26	-1.416	N.S
55	0.60	0.51	0.53	0.52	0.260	N.S
56	0.80	1.01	0.67	0.90	0.360	N.S
57	0.13	0.35	0.13	0.35	0.000	N.S
58	6.60	2.92	5.33	3.60	1.025	N.S
59	6.40	2.85	7.07	2.49	-0.662	N.S
60	2.00	2.10	2.60	2.44	-0.697	N.S
61	2.20	2.14	1.53	1.30	1.001	N.S
62	2.20	1.08	2.53	1.25	-0.747	N.S
63	1.87	0.35	1.80	0.41	0.436	N.S
64	1.67	0.49	1.67	0.49	0.000	N.S
65	1.47	0.52	1.60	0.51	-0.688	N.S
66	1.00	1.13	0.93	1.16	0.162	N.S
67	2.33	1.29	2.67	1.16	-0.733	N.S
68	1.80	2.51	1.53	1.06	0.371	N.S
69	1.73	0.59	1.67	0.90	0.209	N.S
70	1.87	0.52	1.93	0.80	-0.235	N.S
71	2.13	0.64	2.07	0.70	0.237	N.S
72	1.27	0.46	1.13	0.53	0.755	N.S
73	3.13	1.73	3.13	1.60	0.000	N.S
74	2.27	0.88	3.53	1.13	-0.679	N.S
75	4.10	1.28	3.07	1.79	1.751	N.S
76	3.60	1.59	3.87	1.30	-0.492	N.S
77	5.50	1.90	6.80	2.08	-1.727	N.S
78	0.33	0.49	0.27	0.46	0.334	N.S
79	0.13	0.35	0.07	0.26	0.300	N.S
80	0.40	0.51	0.80	0.41	-2.287	.05
81	0.40	0.51	0.20	0.41	1.144	N.S
82	2.53	2.53	3.93	2.71	-1.413	N.S
83	2.53	0.92	2.60	0.91	-0.202	N.S
84	3.87	1.92	3.93	1.71	-0.087	N.S
85	1.33	0.72	1.27	0.88	0.179	N.S
86	0.27	0.64	0.40	0.51	-0.708	N.S
87	0.60	0.51	0.73	0.46	-0.708	N.S
88	2.87	0.52	2.87	0.74	0.000	N.S
89	2.40	0.83	2.33	0.89	0.204	N.S
90	1.13	0.64	1.00	0.65	0.533	N.S
91	0.87	0.35	0.53	0.52	2.030	N.S

TABLE H (iii)

HEALTH VISITORS 1969 INTAKE THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	41.79	5.22	38.86	6.71	1.234	N.S.
2	38.07	7.78	34.50	11.13	0.948	N.S.
3	79.86	11.20	73.36	16.69	1.166	N.S.
4	50.93	3.91	49.43	6.72	0.696	N.S.
5	63.14	4.77	56.29	6.11	3.186	.01
6	210.36	13.90	203.57	31.96	0.702	N.S.
7	215.64	13.34	209.43	34.24	0.609	N.S.
8	15.43	2.90	14.57	3.18	0.720	N.S.
9	356.43	91.25	324.07	73.39	0.996	N.S.
10	19.07	3.75	15.00	4.64	2.460	,05
11	13.71	3.05	13.14	2.85	0.492	N.S.
12	17.71	1.82	18.57	2.65	-0.965	N.S.
13	9.21	2.33	9.43	4.60	-0.154	N.S.
14	15.86	3.61	13.64	3.20	1.659	N.S.
15	15.86	2.60	15.50	3.55	0.295	N.S.
16	3.93	3.17	3.93	2.06	0.000	N.S.
17	7.71	3.47	9.79	2.46	-1.763	N.S.
18	31.14	8.31	30.75	5.39	0.142	N.S.
19	29.11	6.08	28.36	4.31	0.363	N.S.
20	25.29	6.32	22.89	9.22	0.774	N.S.
21	43.96	7.14	45.54	5.62	-0.627	N.S.
22	22.25	7.58	23.14	6.78	-0.316	N.S.
23	28.25	10.93	29.32	13.88	0.218	N.S.
24	11.00	2.35	10.86	3.21	0.127	N.S.
25	9.57	1.50	9.36	1.15	0.401	N.S.
26	14.36	2.90	15.71	3.69	-1.037	N.S.
27	11.64	2.87	9.71	3.41	1.561	N.S.
28	13.57	3.94	12.07	6.13	0.742	N.S.
29	15.00	2.94	12.71	4.97	1.430	N.S.
30	11.50	4.52	8.93	3.54	1.614	N.S.
31	13.36	2.71	12.57	2.79	0.732	N.S.
32	7.21	3.47	7.43	3.34	-0.165	N.S.
33	11.71	3.27	13.93	4.43	-1.454	N.S.
34	11.50	2.88	9.93	3.77	1.193	N.S.
35	11.50	4.27	13.07	4.16	-0.950	N.S.
36	10.29	2.79	8.79	1.42	1.728	N.S.
37	12.71	2.73	11.21	3.89	1.138	N.S.
38	10.14	2.41	10.79	2.67	-0.652	N.S.
39	12.93	3.81	12.21	5.34	0.396	N.S.
40	5.77	1.48	5.79	1.92	-0.030	N.S.
41	4.97	1.89	4.04	2.08	1.193	N.S.
42	2.07	1.21	2.07	1.21	0.000	N.S.
43	4.14	1.75	3.71	1.27	0.717	N.S.

Continued

TABLE H (iii) (Continued)

HEALTH VISITORS 1969 INTAKE THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
44	1.64	0.50	1.86	0.36	-1.287	N.S.
45	1.79	0.43	1.79	0.43	0.000	N.S.
46	6.57	2.63	2.93	2.37	3.707	.001
47	2.50	0.76	3.86	1.03	-3.831	.001
48	3.71	1.07	3.86	1.03	-0.364	N.S.
49	1.71	0.47	1.71	0.47	0.000	N.S.
50	30.93	7.13	33.43	9.27	-0.771	N.S.
51	3.50	1.34	3.43	1.28	0.136	N.S.
52	2.29	0.99	2.50	1.16	-0.496	N.S.
53	0.43	0.51	0.64	0.50	-1.060	N.S.
54	1.00	0.00	0.79	0.43	1.761	N.S.
55	0.79	0.43	0.57	0.51	1.189	N.S.
56	0.79	0.70	0.14	0.53	2.669	.02
57	0.14	0.36	0.00	0.00	1.402	N.S.
58	5.79	3.09	5.93	3.10	-0.115	N.S.
59	5.64	3.00	6.86	1.99	-1.222	N.S.
60	2.57	1.70	1.71	0.83	1.639	N.S.
61	2.43	1.60	1.86	1.29	1.000	N.S.
62	2.50	1.22	2.71	1.07	-0.467	N.S.
63	1.79	0.43	2.00	0.00	-1.761	N.S.
64	1.57	0.51	1.93	0.27	-2.249	.05
65	1.50	0.52	1.79	0.43	-1.550	N.S.
66	1.14	1.23	0.29	0.61	2.232	.05
67	2.71	1.59	2.86	1.46	-0.251	N.S.
68	1.29	1.07	2.29	2.23	-1.458	N.S.
69	1.64	0.93	1.79	0.70	-0.465	N.S.
70	2.21	0.70	2.14	0.53	0.287	N.S.
71	2.43	0.65	2.43	0.65	0.000	N.S.
72	1.21	0.58	1.29	0.47	-0.386	N.S.
73	3.43	1.50	2.71	1.27	1.321	N.S.
74	2.43	1.79	2.36	1.15	0.119	N.S.
75	3.07	1.21	3.04	1.42	0.058	N.S.
76	4.29	1.54	4.57	1.70	-0.440	N.S.
77	7.21	1.76	7.54	1.78	-0.475	N.S.
78	0.43	0.51	0.43	0.51	0.000	N.S.
79	0.29	0.47	0.29	0.47	0.000	N.S.
80	0.64	0.50	0.71	0.47	-0.368	N.S.
81	0.21	0.43	0.21	0.43	0.000	N.S.
82	3.50	2.38	3.29	1.86	0.251	N.S.
83	2.21	0.80	2.86	1.23	-1.597	N.S.
84	4.36	1.65	4.07	2.02	0.401	N.S.
85	1.50	0.76	1.50	0.76	0.000	N.S.
86	0.57	0.51	0.57	0.51	0.000	N.S.

Continued

TABLE H (iii) (Continued)

HEALTH VISITORS 1969 INTAKE THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
87	0.57	0.51	0.71	0.47	-0.728	N.S.
88	2.93	0.62	2.86	0.66	0.279	N.S.
89	3.14	1.35	3.43	1.02	-0.618	N.S.
90	1.43	0.76	1.21	0.97	0.644	N.S.
91	0.93	0.27	0.79	0.43	0.994	N.S.

TABLE H (iv)

HEALTH VISITORS 1969 INTAKE PRACTICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF
1	39.29	5.24	38.15	5.47	0.531	N.S.
2	36.93	8.34	38.23	7.01	-0.423	N.S.
3	76.21	11.76	76.38	10.97	-0.037	N.S.
4	50.79	4.35	49.85	4.54	0.528	N.S.
5	60.71	5.62	60.15	6.76	0.224	N.S.
6	210.57	7.39	210.46	11.74	0.028	N.S.
7	205.64	33.16	217.92	11.60	-1.255	N.S.
8	14.07	3.91	15.38	2.60	-0.993	N.S.
9	330.64	90.85	351.69	56.11	-0.703	N.S.
10	18.79	3.21	17.62	3.75	0.835	N.S.
11	14.00	3.31	13.46	3.53	0.394	N.S.
12	18.21	3.24	18.38	2.53	-0.147	N.S.
13	8.93	3.12	10.08	4.39	-0.749	N.S.
14	14.00	1.92	14.31	3.01	-0.304	N.S.
15	15.07	3.85	15.85	3.26	-0.548	N.S.
16	4.21	2.29	3.38	1.98	0.971	N.S.
17	9.57	3.61	8.54	2.57	0.827	N.S.
18	30.93	4.63	32.27	8.27	-0.494	N.S.
19	29.07	6.17	31.00	5.28	-0.842	N.S.
20	23.32	7.00	21.50	9.12	0.556	N.S.
21	43.43	5.36	46.27	5.19	-1.346	N.S.
22	21.68	5.57	21.23	5.76	0.198	N.S.
23	31.57	11.44	27.73	10.18	0.888	N.S.
24	10.14	3.37	11.54	2.44	-1.196	N.S.
25	9.86	1.41	8.85	1.34	1.836	N.S.
26	14.79	3.81	15.00	2.31	-0.168	N.S.
27	10.43	4.35	10.23	3.22	0.131	N.S.
28	12.86	6.16	13.92	4.97	-0.475	N.S.
29	13.86	3.92	14.38	3.84	-0.335	N.S.
30	10.79	5.06	10.92	2.56	-0.082	N.S.
31	11.71	3.24	13.31	2.98	-1.286	N.S.
32	7.57	3.61	7.77	3.85	-0.134	N.S.
33	13.07	3.87	13.54	4.37	-0.284	N.S.
34	11.50	3.18	9.85	3.13	1.307	N.S.
35	12.14	4.09	10.69	3.99	0.897	N.S.
36	9.93	2.27	9.54	2.88	0.374	N.S.
37	10.93	2.67	11.23	3.35	-0.246	N.S.
38	9.43	3.16	11.15	2.67	-1.474	N.S.
39	12.07	5.09	13.38	5.27	-0.631	N.S.
40	5.92	1.95	5.51	1.55	0.584	N.S.
41	4.70	2.39	4.84	1.57	-0.174	N.S.
42	2.00	0.88	1.69	1.32	0.685	N.S.
43	3.64	1.50	4.77	1.42	-1.935	N.S.
44	1.93	0.27	1.62	0.51	1.877	N.S.

Continued

TABLE H (iv) (Continued)

HEALTH VISITORS 1969 INTAKE PRACTICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
45	1.79	0.43	1.92	0.28	-0.902	N.S.
46	4.79	2.29	2.50	2.68	2.288	.05
47	2.93	1.14	2.92	1.12	0.022	N.S.
48	3.86	1.10	3.31	0.85	1.405	N.S.
49	1.64	0.50	1.62	0.51	0.099	N.S.
50	32.86	8.08	30.46	7.50	0.770	N.S.
51	3.64	1.55	3.85	2.08	-0.284	N.S.
52	2.93	1.14	2.62	1.39	0.607	N.S.
53	0.50	0.52	0.46	0.52	0.192	N.S.
54	0.86	0.36	0.85	0.38	0.067	N.S.
55	0.64	0.50	0.77	0.44	-0.691	N.S.
56	0.43	0.51	0.54	0.78	-0.414	N.S.
57	0.00	0.00	0.00	0.00	0.000	N.S.
58	5.14	3.32	5.87	3.41	-0.527	N.S.
59	6.07	2.59	5.54	2.93	0.478	N.S.
60	2.14	1.29	2.23	1.74	-0.146	N.S.
61	1.93	1.07	2.31	1.55	-0.708	N.S.
62	2.57	1.16	2.23	1.30	0.688	N.S.
63	1.71	0.47	1.92	0.28	-1.369	N.S.
64	1.71	0.47	1.77	0.44	-0.330	N.S.
65	1.64	0.50	1.54	0.52	0.489	N.S.
66	0.93	1.27	0.77	1.01	0.350	N.S.
67	2.71	1.54	3.00	1.41	-0.492	N.S.
68	1.71	1.73	1.69	0.95	0.036	N.S.
69	1.79	0.89	1.85	0.80	-0.177	N.S.
70	2.21	0.70	2.15	0.55	0.239	N.S.
71	2.36	0.63	2.54	0.66	-0.696	N.S.
72	1.14	0.53	1.38	0.51	-1.154	N.S.
73	2.71	1.49	3.00	1.41	-0.500	N.S.
74	2.57	1.74	2.38	1.33	0.308	N.S.
75	3.14	1.29	3.15	1.57	-0.017	N.S.
76	4.93	1.94	4.69	1.55	0.343	N.S.
77	7.79	1.89	7.54	1.61	0.357	N.S.
78	0.57	0.51	0.46	0.52	0.533	N.S.
79	0.21	0.43	0.23	0.44	-0.115	N.S.
80	0.71	0.47	0.69	0.48	0.105	N.S.
81	0.36	0.50	0.15	0.38	1.188	N.S.
82	3.50	2.14	3.85	1.52	-0.474	N.S.
83	2.93	0.92	2.54	0.97	1.029	N.S.
84	5.00	1.24	3.85	1.46	2.114	.05
85	1.79	0.58	1.62	0.77	0.620	N.S.
86	0.64	0.50	0.69	0.48	-0.255	N.S.
87	0.71	0.47	0.77	0.44	-0.330	N.S.

Continued

TABLE H (iv) (Continued)

HEALTH VISITORS 1969 INTAKE PRACTICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 14 HIGH ACHIEVERS		N = 14 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
88	2.71	0.73	3.08	0.28	-1.697	N.S.
89	2.93	0.92	3.38	1.04	-1.142	N.S.
90	1.50	0.65	1.54	0.78	-0.139	N.S.
91	0.79	0.43	0.85	0.38	-0.370	N.S.

TABLE I (i)

SOCIAL WORKERS 1968 INTAKE FIRST THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 13 HIGH ACHIEVERS		N = 13 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	42.54	11.03	33.38	7.24	2.405	.05
2	41.62	9.24	34.62	9.67	1.813	N.S.
3	84.15	18.20	68.00	15.20	2.359	.05
4	53.85	6.36	50.23	5.79	1.458	N.S.
5	65.23	7.58	55.62	6.92	3.243	.01
6	212.00	10.57	204.39	9.78	1.831	N.S.
7	214.46	21.46	207.39	13.08	0.975	N.S.
8	14.62	3.20	12.85	2.94	1.411	N.S.
9	401.46	74.88	328.46	46.78	2.864	.01
10	19.69	4.05	12.77	4.19	4.114	.001
11	9.92	4.29	11.92	3.95	-1.188	N.S.
12	19.92	2.36	19.54	2.85	0.356	N.S.
13	11.69	3.35	11.08	4.55	0.374	N.S.
14	14.85	3.00	12.69	4.59	1.365	N.S.
15	14.35	2.57	14.23	3.32	0.124	N.S.
16	3.92	3.57	4.31	1.89	-0.334	N.S.
17	9.31	3.28	10.23	3.83	-0.632	N.S.
18	29.69	5.95	29.65	5.94	0.016	N.S.
19	30.38	4.39	32.46	5.70	-1.001	N.S.
20	22.46	6.49	24.38	8.54	-0.620	N.S.
21	47.92	5.44	44.54	6.11	1.431	N.S.
22	23.92	6.22	23.35	7.98	0.195	N.S.
23	25.62	14.15	25.62	12.34	0.000	N.S.
24	10.23	2.71	10.92	2.81	-0.612	N.S.
25	10.00	1.83	9.00	1.68	1.394	N.S.
26	14.62	2.47	15.62	2.29	-1.028	N.S.
27	11.00	3.85	13.38	3.01	-1.687	N.S.
28	12.69	5.28	15.08	4.86	-1.154	N.S.
29	9.77	2.62	12.46	3.97	-1.959	N.S.
30	13.46	5.19	13.92	5.22	-0.216	N.S.
31	12.38	2.53	12.62	3.23	-o.203	N.S.
32	7.85	2.30	8.77	2.09	-1.025	N.S.
33	14.15	3.72	14.62	2.84	-0.348	N.S.
34	10.54	2.44	10.77	3.44	-0.189	N.S.
35	8.69	2.87	8.46	3.45	0.178	N.S.
36	11.00	1.73	10.23	2.65	0.843	N.S.
37	11.00	3.49	10.69	2.69	0.244	N.S.
38	9.92	1.93	10.85	1.86	-1.202	N.S.
39	12.62	3.88	11.23	5.28	0.735	N.S.
40	5.36	1.52	4.94	1.79	0.620	N.S.
41	4.81	2.20	5.68	1.82	-1.056	N.S.
42	2.31	1.18	1.38	1.12	1.980	N.S.
43	4.31	1.89	4.69	2.14	-0.461	N.S.

Continued

TABLE I (i) (Continued)

SOCIAL WORKERS 1968 INTAKE FIRST THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 13 HIGH ACHIEVERS		N = 13 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
44	1.62	0.51	1.54	0.52	0.380	N.S.
45	1.85	0.38	1.85	0.38	0.000	N.S.
46	6.85	2.38	1.69	2.06	5.679	.001
47	2.92	0.95	3.31	0.63	-1.185	N.S.
48	3.69	1.11	3.00	1.29	1.405	N.S.
49	1.15	0.38	1.23	0.44	-0.477	N.S.
50	25.54	4.31	30.69	7.17	-2.133	.05
51	2.92	1.26	3.00	1.68	-0.132	N.S.
52	3.54	1.13	3.62	1.39	-0.155	N.S.
53	0.85	0.38	0.46	0.52	2.098	.05
54	0.46	0.52	0.62	0.51	-0.761	N.S.
55	0.77	0.44	0.46	0.52	1.576	N.S.
56	2.08	0.86	1.62	1.45	0.945	N.S.
57	0.62	0.51	0.54	0.52	0.380	N.S.
58	4.77	3.22	6.23	3.06	-1.139	N.S.
59	5.92	2.78	6.15	2.23	-0.224	N.S.
60	2.46	2.22	2.23	2.24	0.253	N.S.
61	2.08	1.80	2.08	1.26	0.000	N.S.
62	2.00	1.08	1.69	1.11	0.693	N.S.
63	1.69	0.48	1.77	0.44	-0.426	N.S.
64	1.38	0.51	2.00	0.00	-4.211	.001
65	1.38	0.51	1.85	0.38	-2.560	.02
66	1.54	1.20	0.38	0.51	3.082	.01
67	3.54	1.39	3.38	1.76	0.247	N.S.
68	1.85	1.14	2.38	2.02	-0.792	N.S.
69	1.69	0.63	2.08	0.86	-1.267	N.S.
70	2.00	0.00	2.00	0.71	0.000	N.S.
71	2.54	0.52	2.38	0.96	0.508	N.S.
72	1.54	0.52	1.38	0.51	0.761	N.S.
73	3.15	0.90	2.85	1.41	0.621	N.S.
74	2.23	1.79	2.62	1.33	-0.606	N.S.
75	2.54	1.05	2.69	1.25	-0.318	N.S.
76	3.38	1.80	4.46	1.61	-1.549	N.S.
77	6.85	1.46	7.77	1.69	-1.427	N.S.
78	0.54	0.52	0.54	0.52	0.000	N.S.
79	0.31	0.48	0.15	0.38	0.905	N.S.
80	0.62	0.51	0.46	0.52	0.761	N.S.
81	0.23	0.44	0.15	0.38	0.477	N.S.
82	2.85	2.23	3.85	2.61	-1.009	N.S.
83	1.92	0.95	2.46	1.13	-1.267	N.S.
84	3.38	1.85	3.85	1.86	-0.621	N.S.
85	1.54	0.66	1.31	0.75	0.798	N.S.
86	0.62	0.51	0.54	0.52	0.380	N.S.

Continued

TABLE I (i) (Continued)

SOCIAL WORKERS 1968 INTAKE FIRST THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 13		N = 13			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF OF DIFF.
87	0.77	0.44	0.69	0.48	0.426	N.S.
88	2.62	0.65	2.69	0.63	-0.268	N.S.
89	2.69	0.48	3.38	0.65	-2.958	.01
90	1.08	1.04	1.38	0.77	-0.803	N.S.
91	0.85	0.38	0.38	0.51	2.560	.02
92	0.85	0.38	0.85	0.38	0.000	N.S.
93	1.46	0.52	1.31	0.48	0.734	N.S.
94	0.77	0.44	1.23	0.44	2.954	.01

TABLE I (ii)

SOCIAL WORKERS 1968 INTAKE SECOND THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 11 HIGH ACHIEVERS		N = 11 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	42.00	10.23	34.55	7.16	1.887	N.S.
2	42.09	8.03	31.18	7.64	3.113	.01
3	84.09	16.75	65.73	13.96	2.663	.02
4	56.00	2.86	49.73	6.05	2.963	.01
5	63.55	5.47	59.00	7.20	1.591	N.S.
6	208.09	10.78	202.09	8.36	1.390	N.S.
7	213.46	20.50	207.73	12.07	0.762	N.S.
8	15.18	2.32	11.64	3.41	2.714	.02
9	418.27	67.16	335.91	66.13	2.763	.02
10	19.18	4.67	12.27	3.38	3.790	.001
11	9.64	4.57	10.82	3.93	-0.616	N.S.
12	19.55	2.34	20.73	1.90	-1.238	N.S.
13	11.91	2.63	10.00	3.92	1.280	N.S.
14	14.45	3.42	13.91	3.86	0.331	N.S.
15	14.64	2.73	14.09	3.83	0.370	N.S.
16	5.55	3.53	5.00	1.10	0.470	N.S.
17	8.27	4.13	9.45	3.33	-0.703	N.S.
18	29.45	5.77	32.18	6.93	-0.957	N.S.
19	28.27	6.68	30.82	4.83	-0.978	N.S.
20	21.55	5.63	25.82	7.90	-1.392	N.S.
21	45.45	5.45	44.45	5.79	0.398	N.S.
22	23.27	6.28	23.55	6.67	-0.097	N.S.
23	32.00	14.09	23.18	16.28	1.295	N.S.
24	10.73	3.07	11.09	2.39	-0.293	N.S.
25	10.36	1.63	9.00	1.48	1.953	N.S.
26	14.64	3.01	15.64	2.16	-0.854	N.S.
27	12.45	4.13	12.27	2.83	0.114	N.S.
28	12.82	5.78	13.73	3.85	-o.414	N.S.
29	10.36	2.34	12.18	5.65	-0.941	N.S.
30	12.73	3.85	12.82	6.29	-0.039	N.S.
31	12.09	2.30	13.09	3.51	-0.754	N.S.
32	8.00	2.37	7.82	3.09	0.146	N.S.
33	13.55	3.11	14.55	3.45	-0.681	N.S.
34	10.36	2.87	9.27	3.44	0.769	N.S.
35	9.09	2.95	8.82	2.48	0.222	N.S.
36	10.82	2.14	11.36	2.84	-0.480	N.S.
37	10.27	3.69	11.55	1.92	-0.973	N.S.
38	9.45	2.42	11.73	2.24	-2.186	.05
39	13.73	2.76	11.45	5.72	1.135	N.S.
40	5.68	1.17	4.81	1.55	1.417	N.S.
41	5.05	2.32	5.14	1.81	-0.097	N.S.
42	2.09	1.30	1.27	1.10	1.523	N.S.
43	4.18	2.18	4.36	2.20	-0.184	N.S.

Continued

TABLE I (ii) (Continued)

SOCIAL WORKERS 1968 INTAKE SECOND THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 11 HIGH ACHIEVERS		N = 11 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
44	1.73	0.47	1.73	0.47	0.000	N.S.
45	1.82	0.40	1.73	0.47	0.461	N.S.
46	6.18	2.96	2.64	2.69	2.799	.01
47	3.27	1.00	3.27	0.65	0.000	N.S.
48	3.64	0.92	3.18	1.25	0.937	N.S.
49	1.09	0.30	1.36	0.50	-1.464	N.S.
50	25.91	5.79	33.73	7.58	-2.593	.02
51	3.18	1.60	3.27	1.68	-0.123	N.S.
52	4.00	1.67	3.73	1.62	0.367	N.S.
53	0.82	0.40	0.36	0.50	2.272	.05
54	0.45	0.52	0.64	0.50	-0.833	N.S.
55	0.73	0.47	0.45	0.52	1.263	N.S.
56	2.09	0.70	1.64	1.12	1.077	N.S.
57	0.73	0.47	0.73	0.47	0.000	N.S.
58	5.27	3.12	5.09	3.51	0.121	N.S.
59	6.45	2.66	6.18	2.27	0.244	N.S.
60	2.09	1.97	3.00	2.72	-0.857	N.S.
61	2.27	1.85	1.82	0.98	0.680	N.S.
62	2.27	1.10	2.18	1.47	0.155	N.S.
63	1.73	0.47	1.91	0.30	-1.021	N.S.
64	1.45	0.52	2.00	0.00	-3.345	.01
65	1.55	0.52	2.00	0.00	-2.737	.02
66	1.27	1.19	0.09	0.30	3.041	.01
67	3.27	1.56	4.09	1.22	-1.309	N.S.
68	1.82	1.47	2.73	1.68	-1.289	N.S.
69	1.45	0.52	1.64	0.92	-0.569	N.S.
70	1.82	0.40	1.73	0.79	0.321	N.S.
71	2.36	0.67	2.00	0.89	1.022	N.S.
72	1.55	0.52	1.27	0.47	1.263	N.S.
73	3.45	1.29	2.46	1.03	2.088	.05
74	1.91	1.81	2.45	1.29	-0.768	N.S.
75	2.36	1.03	2.73	1.62	-0.609	N.S.
76	4.00	2.10	3.73	1.35	0.342	N.S.
77	7.64	2.16	7.00	2.10	0.672	N.S.
78	0.55	0.52	0.82	0.40	-1.301	N.S.
79	0.18	0.40	0.09	0.30	0.569	N.S.
80	0.45	0.52	0.73	0.47	-1.263	N.S.
81	0.00	0.00	0.09	0.30	-0.949	N.S.
82	2.73	2.41	3.36	1.80	-0.662	N.S.
83	2.55	1.04	2.27	1.00	0.614	N.S.
84	4.27	1.62	3.73	2.00	0.663	N.S.
85	1.45	0.69	1.55	0.69	-0.324	N.S.
86	0.64	0.50	0.55	0.52	0.395	N.S.

Continued

TABLE I (ii) (Continued)

SOCIAL WORKERS 1968 INTAKE SECOND THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N = 11 HIGH ACHIEVERS		N = 11 LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
87	0.73	0.47	0.64	0.50	0.415	N.S.
88	2.73	0.79	2.55	0.52	0.602	N.S.
89	2.73	0.65	3.80	0.75	-1.434	N.S.
90	1.00	1.00	1.64	0.50	-1.810	N.S.
91	0.64	0.50	0.73	0.47	-0.415	N.S.
92	0.82	0.40	0.91	0.30	-0.569	N.S.
93	1.55	0.52	1.36	0.50	0.833	N.S.
94	0.73	0.47	0.45	0.52	1.263	N.S.

TABLE I (iii)

SOCIAL WORKERS 1968 INTAKE PRACTICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N=11		N=11			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	41.27	11.10	37.00	9.61	0.920	N.S.
2	39.27	8.26	33.55	11.00	1.315	N.S.
3	80.55	17.15	70.55	19.45	1.219	N.S.
4	55.36	2.66	50.00	7.24	2.198	.05
5	62.73	5.33	65.45	9.15	-0.812	N.S.
6	209.00	11.01	205.46	9.79	0.760	N.S.
7	215.36	20.23	210.18	13.65	0.671	N.S.
8	15.36	2.34	12.55	3.17	2.255	.05
9	400.27	64.89	357.46	67.19	1.449	N.S.
10	18.45	5.43	14.00	5.00	1.906	N.S.
11	9.55	4.66	11.27	3.44	-0.939	N.S.
12	19.55	2.34	20.00	1.90	-0.472	N.S.
13	12.82	2.93	9.00	3.29	2.742	.02
14	14.55	3.33	14.91	3.62	-0.231	N.S.
15	14.36	2.84	15.36	3.72	-0.676	N.S.
16	5.36	3.67	4.09	1.51	1.012	N.S.
17	7.82	3.82	9.36	3.26	-0.970	N.S.
18	30.18	5.42	33.27	6.20	-1.187	N.S.
19	27.45	6.86	30.00	3.61	-1.040	N.S.
20	22.18	5.33	26.73	7.23	-1.602	N.S.
21	46.36	6.05	45.36	6.17	0.366	N.S.
22	24.64	6.31	24.09	7.18	0.182	N.S.
23	29.18	13.70	20.55	15.31	1.328	N.S.
24	11.09	2.95	11.00	2.32	0.076	N.S.
25	10.00	1.55	9.18	1.47	1.214	N.S.
26	14.18	3.49	16.18	1.66	-1.637	N.S.
27	13.00	4.02	11.09	3.91	1.077	N.S.
28	14.64	4.76	13.00	3.97	0.837	N.S.
29	10.45	2.02	11.91	5.24	-0.822	N.S.
30	14.18	4.79	14.18	6.01	0.000	N.S.
31	11.91	1.87	12.45	3.45	-0.435	N.S.
32	8.18	1.66	7.00	2.97	1.097	N.S.
33	13.36	3.07	13.91	3.27	-0.388	N.S.
34	9.82	2.18	9.91	3.88	-0.064	N.S.
35	8.73	3.55	8.55	2.42	0.132	N.S.
36	10.73	2.37	11.55	2.33	-0.772	N.S.
37	9.91	3.36	12.00	1.90	-1.712	N.S.
38	9.18	2.27	11.82	2.18	-2.653	.02
39	12.91	4.04	11.54	4.54	0.661	N.S.
40	5.42	1.60	4.59	1.47	1.208	N.S.

TABLE I (iii)

VARIABLE	HIGH ACHIEVERS N=11 MEAN	S D	LOW ACHIEVERS N=11 MEAN	S D	t	SIGNIF OF DIFF
41	5.76	2.16	5.10	1.82	0.739	N.S.
42	2.36	1.12	1.55	1.29	1.499	N.S.
43	4.36	2.06	3.73	1.56	0.771	N.S.
44	1.73	0.47	1.64	0.50	0.415	N.S.
45	1.91	0.30	1.73	0.47	1.021	N.S.
46	5.64	2.25	4.27	4.36	0.883	N.S.
47	3.36	0.67	2.91	1.04	1.150	N.S.
48	3.73	0.90	3.55	1.37	0.347	N.S.
49	1.09	0.30	1.55	0.52	-2.423	.05
50	25.00	5.93	33.64	7.32	-2.900	.01
51	3.08	1.60	3.36	1.63	-0.249	N.S.
52	4.18	1.54	3.55	1.44	0.945	N.S.
53	0.91	0.30	0.35	0.50	2.983	.01
54	0.36	0.50	0.64	0.50	-1.252	N.S.
55	0.73	0.47	0.55	0.52	0.812	N.S.
56	2.00	0.63	1.91	1.04	0.234	N.S.
57	0.73	0.47	0.64	0.50	0.415	N.S.
58	6.00	2.68	3.82	3.52	1.558	N.S.
59	7.18	1.60	5.00	2.65	2.227	.05
60	1.82	0.98	3.82	2.63	-2.246	.05
61	1.64	1.12	2.36	1.80	-1.074	N.S.
62	2.00	1.00	2.00	1.34	0.000	N.S.
63	1.82	0.40	1.82	0.40	0.000	N.S.
64	1.55	0.52	1.82	0.40	-1.301	N.S.
65	1.45	0.52	1.91	0.30	-2.423	.05
66	1.18	1.17	0.45	1.04	1.475	N.S.
67	2.73	1.56	4.00	1.34	-1.953	N.S.
68	1.27	1.10	2.45	1.69	-1.851	N.S.
69	1.64	0.67	1.91	0.83	-0.800	N.S.
70	1.91	0.54	1.82	0.60	0.353	N.S.
71	2.45	0.69	2.09	0.83	1.052	N.S.
72	1.55	0.52	1.27	0.47	1.263	N.S.
73	3.27	1.35	2.55	1.04	1.336	N.S.
74	2.09	1.81	2.09	1.14	0.000	N.S.
75	2.36	1.03	2.91	1.51	-0.952	N.S.
76	4.00	2.10	3.36	1.50	0.784	N.S.
77	7.64	2.16	6.45	1.51	1.428	N.S.
78	0.64	0.50	0.73	0.47	0.030	N.S.
79	0.09	0.30	0.27	0.47	-1.021	N.S.
80	0.55	0.52	0.73	0.47	-0.812	N.S.
81	0.09	0.30	0.09	0.30	0.000	N.S.
82	2.18	2.27	3.27	1.79	-1.192	N.S.
83	2.45	1.04	1.82	0.98	1.394	N.S.
84	4.00	1.55	3.00	1.95	1.269	N.S.
85	1.55	0.69	1.64	0.50	-0.334	N.S.
86	0.73	0.47	0.55	0.52	0.812	N.S.
87	0.73	0.47	0.55	0.52	0.812	N.S.
88	2.82	0.75	2.73	0.47	0.322	N.S.

TABLE I (iii)

	N=11		N=11			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF OF DIFF
89	2.91	0.54	3.00	0.77	-0.303	N.S.
90	1.36	0.92	1.36	0.81	0.000	N.S.
91	0.55	0.52	0.82	0.40	-1.301	N.S.
92	0.82	0.40	0.82	0.40	0.000	N.S.
93	1.55	0.52	1.55	0.52	0.000	N.S.
94	0.74	0.47	0.55	0.52	0.812	N.S.

TABLE I (iv)

SOCIAL WORKERS 1969 INTAKE FIRST THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	High Achievers N=14		Low Achievers N=14			
VARIABLE	Mean	S.D.	Mean	S.D.	t	Signif of Diff
1	46.21	6.59	39.29	5.58	2.889	.01
2	43.71	8.93	39.00	9.77	1.283	N.S.
3	89.93	12.21	78.29	14.39	2.224	.05
4	56.64	3.73	52.57	2.24	2.599	.02
5	65.07	9.13	59.00	5.74	2.029	N.S.
6	214.29	10.94	202.86	8.08	3.030	.01
7	215.43	12.44	205.36	13.47	1.980	N.S.
8	16.86	1.29	14.86	1.66	3.430	.01
9	411.71	60.94	335.14	66.14	3.070	.01
10	19.57	5.43	14.50	3.44	2.844	.01
11	10.93	3.29	12.14	3.28	-0.939	N.S.
12	18.50	3.06	20.57	2.34	-1.937	N.S.
13	10.64	4.09	10.93	4.43	-0.173	N.S.
14	14.00	3.72	13.71	4.79	0.172	N.S.
15	14.86	3.13	14.36	3.56	0.380	N.S.
16	4.50	3.59	3.14	1.75	1.228	N.S.
17	10.50	4.31	9.14	2.93	0.941	N.S.
18	30.54	6.91	33.36	5.02	-1.190	N.S.
19	28.93	7.77	33.39	5.17	-1.723	N.S.
20	25.36	8.42	26.57	7.32	-0.391	N.S.
21	46.18	5.17	43.86	4.95	1.169	N.S.
22	23.61	6.94	26.25	6.84	-0.977	N.S.
23	25.39	16.31	16.57	10.41	1.644	N.S.
24	11.57	2.56	10.57	2.90	0.932	N.S.
25	9.71	1.49	9.00	1.96	1.040	N.S.
26	14.29	4.05	13.43	3.39	0.587	N.S.
27	10.71	3.34	12.86	5.39	-1.223	N.S.
28	15.36	5.09	15.43	4.78	-0.036	N.S.
29	10.50	3.55	11.93	3.41	-1.047	N.S.
30	10.86	4.35	13.36	4.99	-1.362	N.S.
31	12.21	2.42	10.86	3.42	1.162	N.S.
32	7.50	3.06	7.14	2.88	0.309	N.S.
33	13.50	2.93	13.00	3.86	0.372	N.S.
34	9.43	2.85	10.43	3.06	-0.862	N.S.
35	11.14	3.48	11.00	3.06	0.109	N.S.
36	9.71	3.20	11.00	2.80	-1.094	N.S.
37	12.00	3.21	10.43	3.74	1.149	N.S.
38	10.14	3.11	11.14	3.06	-0.826	N.S.
39	12.07	4.23	11.21	5.79	0.432	N.S.
40	5.64	1.50	5.21	2.09	0.603	N.S.
41	4.96	1.80	5.68	2.20	-0.91	N.S.
42	2.14	1.29	1.43	1.28	1.409	N.S.
43	3.86	1.88	5.29	2.02	-1.868	N.S.

TABLE I (iv) cont

VARIABLE	High Achievers N=14 Mean	S.D.	Low Achievers N=14 Mean	S.D.	t	Signif of Dif
44	1.71	0.47	1.57	0.51	0.728	N.S.
45	1.86	0.36	1.93	0.27	-0.561	N.S.
46	8.04	3.58	4.86	3.25	2.371	.05
47	2.86	0.77	3.07	0.47	-0.839	N.S.
48	3.50	1.02	3.00	1.88	0.843	N.S.
49	1.21	0.43	1.14	0.36	0.450	N.S.
50	25.57	4.20	31.21	9.15	-2.020	N.S.
51	2.65	1.28	2.86	1.03	0.498	N.S.
52	2.64	1.00	3.14	1.61	-0.951	N.S.
53	0.71	0.47	0.57	0.51	0.728	N.S.
54	0.50	0.52	0.86	0.36	-2.052	N.S.
55	0.86	0.36	0.64	0.50	1.287	N.S.
56	2.07	0.92	1.29	1.20	1.860	N.S.
57	0.71	0.47	0.50	0.52	1.080	N.S.
58	5.21	3.56	5.21	3.56	0.000	N.S.
59	5.43	3.37	6.86	2.57	-1.217	N.S.
60	2.36	2.13	2.57	2.24	-0.245	N.S.
61	2.21	1.85	1.93	1.69	0.403	N.S.
62	2.29	1.38	2.07	1.21	0.432	N.S.
63	2.00	0.00	1.86	0.36	1.402	N.S.
64	1.57	0.51	1.71	0.47	-0.728	N.S.
65	1.43	0.51	1.50	0.52	-0.347	N.S.
66	1.00	0.88	0.93	1.14	0.175	N.S.
67	3.21	1.48	2.64	1.34	1.029	N.S.
68	1.43	0.76	2.07	2.09	-1.038	N.S.
69	1.71	0.83	1.64	1.01	0.193	N.S.
70	1.71	0.73	2.07	1.00	-1.048	N.S.
71	2.00	0.88	2.50	0.94	-1.400	N.S.
72	1.29	0.61	1.43	0.76	-0.518	N.S.
73	3.39	1.76	3.07	1.83	0.454	N.S.
74	3.11	1.88	2.71	1.34	0.625	N.S.
75	3.32	1.74	2.68	1.32	1.057	N.S.
76	4.18	1.50	4.50	1.49	-0.546	N.S.
77	6.86	1.10	7.82	2.00	-1.516	N.S.
78	0.57	0.51	0.50	0.52	0.347	N.S.
79	0.14	0.36	0.14	0.36	0.000	N.S.
80	0.64	0.50	0.79	0.43	-0.820	N.S.
81	0.29	0.47	0.21	0.43	0.453	N.S.
82	3.29	2.43	2.93	1.77	0.432	N.S.
83	2.07	1.07	1.71	0.73	1.002	N.S.
84	3.64	2.06	3.00	1.11	0.986	N.S.
85	1.71	0.61	1.71	0.61	0.000	N.S.
86	0.64	0.50	0.57	0.51	0.353	N.S.
87	0.79	0.43	0.64	0.50	0.820	N.S.
88	3.14	0.86	2.71	0.61	1.470	N.S.
89	3.50	0.94	3.86	1.23	-0.838	N.S.
90	1.57	0.76	1.29	0.83	0.897	N.S.

TABLE I (iv) continued

	High Achievers N = 14		Low Achievers N = 14			
VARIABLE	Mean	S.D.	Mean	S.D.	t	Signif. of Diff.
91	0.29	0.47	0.64	0.50	-1.839	N.S.
92	0.93	0.27	0.93	0.27	0.000	N.S.
93	1.57	0.51	1.43	0.51	0.700	N.S.
94	0.86	0.36	0.29	0.47	3.471	.01

TABLE I(v)

SOCIAL WORKERS 1969 INTAKE SECOND THEORETICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N=14		N=14			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	46.43	7.22	38.29	3.83	3.591	.01
2	45.71	8.74	39.43	8.41	1.867	N.S.
3	92.14	11,75	77.71	10.74	3.268	.01
4	54.43	3.39	51.86	5.36	1.461	N.S.
5	65.64	8.85	59.00	5.68	2.277	.05
6	212.36	11.28	202.43	7.41	2.653	.02
7	217.43	10.79	204.29	11.42	3.015	.01
8	16.21	2.22	15.07	1.77	1.448	N.S.
9	407.14	57.06	330.14	63.60	3.249	.01
10	19.21	5.47	14.79	2.99	2.556	.02
11	12.14	3.78	11.86	2.98	0.210	N.S.
12	18.50	3.37	20.93	2.40	-2.118	.05
13	9.64	4.48	11.93	3.36	-1.474	N.S.
14	13.86	4.02	13.21	4.56	0.386	N.S.
15	15.00	3.84	14.21	3.60	0.541	N.S.
16	4.79	2.83	3.14	1.66	1.813	N.S.
17	10.07	4.81	8.71	3.07	0.859	N.S.
18	30.93	5.09	32.86	5.26	-0.951	N.S.
19	27.75	7.16	33.75	4.93	-2.489	.02
20	25.25	8.23	25.07	5.86	0.064	N.S.
21	45.68	5.37	43.50	4.67	1.104	N.S.
22	23.57	6.84	27.18	5.56	-1.477	N.S.
23	26.82	14.86	17.64	9.88	1.855	N.S.
24	10.71	4.07	10.64	2.92	0.050	N.S.
25	8.79	2.64	8.79	2.04	0.000	N.S.
26	4.07	4.71	13.86	3.25	0.132	N.S.
27	11.29	4.30	13.64	4.75	-1.322	N.S.
28	13.57	5.61	15.00	5.39	-0.663	N.S.
29	11.14	3.39	11.71	3.29	-0.435	N.S.
30	10.86	5.39	13.86	4.15	-1.590	N.S.
31	12.36	3.13	10.14	2.57	1.976	N.S.
32	7.71	2.58	7.86	2.45	-0.152	N.S.
33	12.86	2.96	12.64	3.59	0.170	N.S.
34	10.00	3.37	10.79	3.02	-0.629	N.S.
35	10.00	3.51	10.71	3.15	-0.543	N.S.
36	9.71	3.20	11.57	2.85	-1.565	N.S.
37	11.00	3.78	10.00	3.68	0.683	N,S.
38	11.07	3.93	10.86	2.74	-0.595	N.S.
39	11.50	3.37	11.29	5.82	0.113	N.S.
40	5.47	1.37	5.19	2.09	0.404	N.S.
41	4.61	2.44	5.86	1.83	-1.478	N.S.
42	2.00	1.41	1.57	1.28	0.814	N.S.

TABLE I(v) CONTD.

	N=14		N=14			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
43	4.29	1.86	5.29	2.02	-1.313	N.S.
44	1.64	0.50	1.57	0.51	0.353	N.S.
45	1.93	0.27	1.93	0.27	0.000	N.S.
46	6.82	4.15	3.93	2.86	2.067	5.05
47	2.93	0.83	3.14	0.36	-0.837	N.S.
48	3.21	0.97	3.00	1.71	0.385	N.S.
49	1.14	0.36	1.07	0.27	0.561	N.S.
50	27.21	5.15	31.93	8.81	-1.668	N.S.
51	2.79	1.05	2.93	1.00	-0.348	N.S.
52	3.29	1.90	3.79	2.08	-0.640	N.S.
53	0.79	0.43	0.43	0.51	1.946	N.S.
54	0.50	0.52	0.86	0.36	-2.052	N.S.
55	0.86	0.36	0.71	0.47	0.914	N.S.
56	1.71	1.14	1.43	1.40	0.559	N.S.
57	0.64	0.50	0.50	0.52	0.700	N.S.
58	5.14	3.36	6.36	2.87	-0.995	N.S.
59	4.86	3.57	6.86	2.57	-1.639	N.S.
60	2.50	2.21	2.00	1.88	0.621	N.S.
61	2.64	2.21	1.86	1.70	1.009	N.S.
62	2.43	1.50	2.21	1.19	0.414	N.S.
63	1.93	0.27	1.86	0.36	0.561	N.S.
64	1.64	0.50	1.64	0.50	0.000	N.S.
65	1.43	0.51	1.43	0.51	0.000	N.S.
66	1.00	0.88	1.07	1.14	-0.175	N.S.
67	3.00	1.41	3.07	1.54	-0.121	N.S.
68	1.57	0.94	2.07	2.09	-0.787	N.S.
69	1.79	0.89	1.57	1.02	0.586	N.S.
70	1.93	0.73	2.07	1.00	-0.408	N.S.
71	2.29	0.83	2.36	1.01	-0.193	N.S.
72	1.36	0.63	1.29	0.73	0.262	N.S.
73	3.32	2.35	3.39	1.81	-0.085	N.S.
74	3.68	2.00	2.44	1.41	1.680	N.S.
75	3.00	1.79	2.79	1.35	0.338	N.S.
76	4.36	1.38	4.04	1.10	0.654	N.S.
77	7.36	1.34	7.25	1.81	0.176	N.S.
78	0.57	0.51	0.64	0.50	-0.353	N.S.
79	0.21	0.43	0.21	0.43	0.000	N.S.
80	0.71	0.47	0.79	0.43	-0.453	N.S.
81	0.29	0.47	0.21	0.43	0.453	N.S.
82	2.93	2.46	2.64	1.91	0.336	N.S.
83	2.36	1.15	1.71	0.73	0.721	N.S.

TABLE I(v) CONTD.

	N=14		N=14			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
84	3.86	1.88	3.00	1.11	1.420	N.S.
85	1.79	0.58	1.71	0.61	0.343	N.S.
86	0.64	0.50	0.64	0.50	0.000	N.S.
87	0.79	0.43	0.71	0.47	0.543	N.S.
88	3.07	1.00	2.79	0.70	0.827	N.S.
89	3.86	1.10	3.39	1.21	-0.154	N.S.
90	1.57	0.76	1.43	0.76	0.470	N.S.
91	0.29	0.47	0.64	0.50	-1.839	N,S.
92	1.00	0.00	0.93	0.27	0.935	N.S.
93	1.43	0.51	1.36	0.50	0.353	N.S
94	0.64	0.50	0.21	0.43	2.351	.05

TABLE I (vi)

SOCIAL WORKERS 1969 INTAKE PRACTICAL CRITERION

DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS

	N=14		N=14			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
1	42.64	8.21	42.64	7.13	0.000	N.S.
2	44.57	8.61	41.14	8.93	0.997	N.S.
3	87.21	14.67	83.79	14.65	0.593	N.S.
4	53.71	3.67	51.64	4.31	1.318	N.S.
5	61.36	7.31	60.00	7.69	0.462	N.S.
6	211.86	13.71	208.43	9.55	0.740	N.S.
7	209.71	13.90	211.86	12.82	-0.410	N.S.
8	15.93	2.34	15.79	1.53	0.181	N.S.
9	409.07	54.62	348.00	80.31	3.267	.05
10	16.43	5.38	17.14	4.04	-0.372	N.S.
11	11.79	3.07	12.14	4.17	-0.244	N.S.
12	19.86	2.45	19.36	3.18	0.449	N.S.
13	9.21	3.72	10.64	4.62	-0.869	N.S.
14	13.57	3.06	14.71	3.41	-0.897	N.S.
15	14.79	3.09	14.43	3.50	0.278	N.S.
16	4.93	3.17	3.43	2.10	1.422	N.S.
17	9.86	3.98	9.29	3.63	0.382	N.S.
18	30.86	5.39	33.00	4.10	-1.139	N.S.
19	29.71	7.58	30.75	6.22	-0.382	N.S.
20	23.68	6.84	26.07	6.23	-0.931	N.S.
21	47.39	3.41	43.86	4.61	2.220	.05
22	23.11	4.74	23.75	6.89	-0.277	N.S.
23	25.25	16.98	22.57	15.34	0.422	N.S.
24	10.93	3.97	11.36	2.02	-0.348	N.S.
25	8.14	2.48	8.93	1.73	-0.942	N.S.
26	13.97	4.11	13.36	3.50	0.140	N.S.
27	10.71	3.87	12.79	4.87	-1.206	N.S.
28	12.57	5.47	19.50	5.03	-1.422	N.S.
29	10.64	2.71	11.71	3.89	-0.814	N.S.
30	9.86	4.49	13.23	6.11	-1.602	N.S.
31	12.43	2.44	10.93	3.20	1.344	N.S.
32	7.29	2.52	7.64	2.82	-0.334	N.S.
33	13.64	2.41	13.79	3.19	-0.135	N.S.
34	9.50	2.21	10.36	3.39	-0.766	N.S.
35	10.50	3.30	11.00	2.72	-0.422	N.S.
36	10.14	3.03	10.64	3.56	-0.392	N.S.
37	11.64	4.11	10.50	2.59	0.846	N.S.
38	9.21	3.42	11.07	3.54	-1.362	N.S.
39	11.50	3.61	13.21	5.92	-0.889	N.S.
40	5.59	1.49	5.56	1.94	0.044	N.S.
41	4.14	2.14	5.82	2.24	-1.955	N.S.
42	1.57	1.40	1.64	1.39	-0.128	N.S.
43	5.57	2.03	4.00	1.84	2.066	.05
44	1.71	0.47	1.43	0.51	1.456	N.S.
45	2.00	0.00	1.79	0.43	1.761	N.S.

TABLE I (vi) continued

	N=14		N=14			
	HIGH ACHIEVERS		LOW ACHIEVERS			
VARIABLE	MEAN	S.D.	MEAN	S.D.	t	SIGNIF. OF DIFF.
46	5.36	3.88	6.39	4.03	-0.664	N.S.
47	3.07	0.47	3.14	0.77	-0.280	N.S.
48	2.64	1.22	3.86	1.66	-2.135	N.S.
49	1.21	4.26	1.29	0.47	-0.067	N.S.
50	28.14	6.97	27.43	6.79	0.263	N.S.
51	2.86	1.03	2.71	1.07	0.364	N.S.
52	3.29	2.43	3.79	2.04	-0.568	N.S.
53	0.71	0.47	0.71	0.47	0.000	N.S.
54	0.71	0.47	0.64	0.50	0.368	N.S.
55	0.79	0.43	0.64	0.50	0.820	N.S.
56	1.71	1.20	1.36	1.22	0.373	N.S.
57	0.57	1.51	0.50	0.52	0.347	N.S.
58	5.71	3.41	6.64	3.71	9.766	N.S.
59	6.57	2.53	6.00	3.14	0.510	N.S.
60	2.43	2.24	2.64	2.21	-0.241	N.S.
61	2.07	1.90	2.57	2.14	-0.630	N.S.
62	2.14	1.29	2.14	1.41	0.000	N.S.
63	1.92	0.27	1.86	0.36	0.561	N.S.
64	1.71	0.47	1.71	0.47	0.000	N.S.
65	1.36	0.50	1.43	0.51	-0.353	N.S.
66	1.00	0.88	1.00	1.11	0.000	N.S.
67	2.86	1.29	2.86	1.61	0.000	N.S.
68	1.71	0.91	1.58	1.99	0.214	N.S.
69	1.57	0.76	1.86	1.03	-0.817	N.S.
70	1.71	0.61	2.21	0.97	-1.573	N.S.
71	2.00	0.88	2.43	0.89	-1.267	N.S.
72	1.29	0.47	1.21	0.70	0.342	N.S.
73	4.11	2.10	3.36	2.39	0.858	N.S.
74	3.04	1.87	2.79	1.44	0.382	N.S.
75	3.07	1.31	3.14	1.55	-0.124	N.S.
76	4.50	1.54	4.36	0.91	0.282	N.S.
77	7.53	1.55	7.21	1.49	0.370	N.S.
78	0.53	0.51	0.64	0.50	-0.060	N.S.
79	0.21	0.43	0.29	0.47	-0.453	N.S.
80	0.71	0.47	0.79	0.43	-0.453	N.S.
81	0.07	0.27	0.36	0.50	-1.840	N.S.
82	3.71	2.40	2.29	1.44	1.829	N.S.
83	1.93	1.00	2.07	0.92	-0.371	N.S.
84	3.50	1.91	3.57	1.45	-0.105	N.S.
85	1.79	0.58	1.71	0.61	0.343	N.S.
86	0.79	0.43	0.43	0.51	1.946	N.S.
87	0.71	0.47	0.57	0.51	0.728	N.S.
88	3.21	0.89	2.86	0.77	1.072	N.S.
89	3.58	0.51	3.39	1.38	-0.858	N.S.
90	1.71	0.61	1.36	0.84	1.216	N.S.
91	0.57	0.51	0.50	0.52	0.347	N.S.
92	0.83	0.27	0.93	0.27	0.000	N.S.
93	1.50	0.52	1.57	0.51	-0.347	N.S.
94	0.57	0.51	0.57	0.51	0.000	N.S.

APPENDIX 6

TABLE J

HEALTH VISITORS (N=88)

PRINCIPAL COMPONENTS ANALYSIS

(Decimal Points Omitted)

	Comp. No. 1	Comp. No. 2	Comp. No. 3	Comp. No. 4	Comp. No. 5	Comp. No. 6	Comp. No. 7	Comp. No. 8	Comp. No. 9	Comp. No.10
Variance	7.698	7.252	5.930	4.861	3.994	3.718	3.213	3.164	3.010	2.897
Variable No										
1	207	004	026	087	086	083	032	118	042	182
2	295	-006	-013	051	026	-004	-006	025	-057	142
3	289	-002	003	074	056	036	011	071	-018	177
4	239	-018	005	189	-018	014	-116	-006	-032	-031
5	104	037	048	-199	141	085	063	123	152	112
6	176	-124	-010	156	023	016	-021	004	056	156
7	186	-095	-058	201	031	024	-062	-019	076	157
8	240	-022	-021	151	-015	034	-129	-057	006	003
9	205	-070	-024	181	040	017	-168	-109	-039	000
10	157	-073	-011	113	014	163	086	007	166	075
11	103	-065	-092	-073	-112	005	029	-141	-052	-143
12	-102	076	008	137	095	062	-034	105	-135	-170
13	-059	106	057	094	112	-053	184	-076	045	091
14	-050	-010	230	017	-006	052	047	-023	217	044
15	-013	-048	187	-028	-088	-084	-162	229	173	125
16	063	022	-211	-058	125	027	-012	-134	-137	106
17	074	-062	-179	-088	-140	018	-049	022	-133	-101
18	076	-058	092	-135	-127	068	-109	-197	-213	-016
19	113	-040	-079	-022	-036	-150	143	-187	061	037
20	027	-033	172	-105	-130	052	-165	132	193	013
21	035	-017	053	078	-001	013	-261	190	-086	-142
22	-016	091	109	-102	027	-105	153	-256	064	026
23	-116	023	-194	160	152	064	106	175	-043	034
24	-056	047	070	196	158	-077	007	047	-070	012
25	013	-049	045	090	146	-013	-142	-060	-072	-011
26	-072	142	032	013	-010	184	-071	-098	-108	221
27	031	024	204	-060	-081	-105	133	-094	-008	020
28	-038	034	263	135	-057	-002	085	-033	110	-057
29	-034	114	-043	055	234	135	-157	085	-045	-135
30	-044	084	246	106	034	041	102	-004	-025	042
31	032	053	082	-022	-013	-114	-126	247	149	031
32	084	-075	-050	087	022	-208	126	-141	-003	-125
33	008	062	041	-049	-129	-162	101	171	-068	051
34	003	054	-076	-165	057	118	-102	-244	156	-003
35	059	-151	-029	020	-088	-244	024	141	-002	-183
36	088	-020	143	-106	-002	050	-069	-063	-164	-044
37	053	-009	-008	-224	-063	116	017	-026	006	165
38	-090	123	-022	-013	050	194	-037	-116	-093	109
39	072	-160	-052	011	-079	-221	155	149	018	046
40	118	-185	-108	026	-069	-269	105	123	048	-172
41	-040	051	294	157	010	-013	128	-023	037	-027
42	085	-005	033	072	007	-010	014	-101	005	-022
43	-048	-164	083	058	-006	071	066	061	-143	192
44	-076	060	019	094	-039	-074	087	145	-065	059
45	044	-144	100	115	-079	023	045	090	-179	126
46	109	091	015	052	-014	122	-069	-017	193	-250

APPENDIX 6 Cont.

Variable No	Comp. No. 1	Comp. No. 2	Comp. No. 3	Comp. No. 4	Comp. No. 5	Comp. No. 6	Comp. No. 7	Comp. No. 8	Comp. No. 9	Comp. No.10
47	-036	-093	-033	104	-149	-059	-023	-066	-220	077
48	018	130	010	115	-045	075	-048	-074	203	-208
49	028	-005	-142	013	-027	-071	-102	-064	250	038
50	-070	059	-025	-306	135	-080	-115	105	-045	022
51	064	060	028	-041	226	-150	-163	-138	024	-044
52	089	139	084	036	112	-149	-043	-088	034	-061
53	-051	006	012	206	-211	098	023	-155	032	079
54	007	-013	-013	-109	154	-053	-041	079	053	010
55	065	-068	136	-013	-002	101	-143	062	-054	-053
56	044	-046	-084	-093	180	-004	026	-103	127	-025
57	137	006	-116	-085	147	108	066	082	096	-018
58	-146	-244	088	012	122	022	-020	026	094	-039
59	-139	-228	074	036	064	-005	-012	-013	023	062
60	147	228	-086	005	-119	-043	069	-027	-044	020
61	155	196	-098	024	-064	011	080	-013	006	-048
62	-106	-186	074	-035	018	-014	-142	-166	027	037
63	-138	092	-138	132	-105	-007	-202	005	041	148
64	-141	091	-088	107	-108	-174	-186	-129	100	106
65	-135	038	-101	114	-134	-121	-191	-039	184	080
66	164	-085	128	-139	138	124	228	067	-134	-129
67	-019	-053	-092	062	136	-029	-048	057	037	-108
68	-085	015	-109	074	177	-217	014	-061	088	084
69	048	264	-018	-016	-151	022	046	082	-057	-016
70	049	236	049	-014	-144	-009	018	117	067	016
71	023	193	093	018	019	-096	059	008	-021	-094
72	-027	-023	066	041	196	-117	057	-127	-106	-143
73	054	-028	034	-002	-032	011	-121	034	-061	046
74	032	023	076	022	-029	-045	-070	096	-074	203
75	-030	-099	-065	-002	-039	136	000	059	-049	-084
76	-027	011	111	088	019	003	-150	-155	-156	-211
77	001	085	143	076	046	-101	-126	-055	-094	-113
78	-020	167	-020	-063	019	-039	016	043	111	-077
79	112	203	-055	-047	-088	-024	008	-068	045	-020
80	013	119	050	-029	026	-058	008	-059	-054	069
81	129	161	-092	-013	-104	067	058	064	-040	-101
82	063	-071	-092	-151	146	-087	193	-029	015	023
83	-114	023	-187	101	139	-092	184	012	-048	098
84	-137	098	-165	184	150	087	092	083	-006	103
85	085	106	117	073	116	-190	-124	-069	-071	068
86	084	120	055	030	134	-193	-068	-057	-132	041
87	050	112	090	-100	033	-185	005	052	-065	160
88	-046	031	-098	098	-034	168	050	088	-034	-112
89	-101	016	004	136	-053	102	076	-062	-028	-134
90	-005	117	106	-064	197	040	-019	066	-057	104
91	049	086	-028	067	090	006	-059	188	-113	-018
97	136	-040	103	089	172	123	101	-051	220	-058
104	-008	-052	018	075	058	065	083	-025	151	-017

TABLE K

SOCIAL WORKERS (N=73)

PRINCIPAL COMPONENTS ANALYSIS

(Decimal points omitted)

	COMP. NO.1	COMP. NO.2	COMP. NO.3	COMP. NO.4	COMP. NO.5	COMP. NO.6	COMP. NO.7	COMP. NO.8	COMP. NO.9	COMP. NO.10
VARIANCE	9.182	7.459	7.095	5.270	4.731	4.123	3.651	3.252	3.033	2.697
VARIABLE NO										
1	187	068	150	027	064	124	113	083	092	004
2	155	062	192	074	089	-036	-012	007	101	-128
3	191	072	194	058	087	043	052	048	108	-075
4	084	108	160	020	033	-093	-041	134	003	040
5	097	064	-012	-013	016	058	050	173	-092	-029
6	199	090	094	029	076	072	075	025	153	080
7	122	069	154	041	026	067	081	015	154	160
8	167	125	124	046	-021	-065	-022	000	108	111
9	135	195	138	065	032	035	056	048	012	-044
10	196	037	133	095	005	073	050	051	087	031
11	-086	124	-087	035	117	-077	001	-104	175	-151
12	-134	034	123	-072	082	015	-063	-038	072	098
13	-030	-124	209	-055	-108	-017	-005	011	-024	121
14	032	-065	-075	124	-128	023	188	-110	-102	145
15	132	-063	-135	085	039	-056	-020	-018	-105	-163
16	013	099	-026	-176	-043	053	063	022	-015	046
17	055	029	-002	012	164	074	-180	244	011	-085
18	-085	-009	-007	202	174	-001	008	-041	115	-181
19	-072	-016	059	219	156	052	-182	-063	-010	161
20	028	-140	-167	172	059	053	133	018	-123	-009
21	027	015	158	-029	066	069	054	-245	-108	105
22	-021	-135	049	126	-119	-043	-023	267	-055	124
23	054	140	-018	-318	-141	-055	000	000	085	-054
24	-051	-034	080	-037	-127	154	049	-257	076	-030
25	085	050	045	-008	-069	-053	-181	161	-099	097
26	-073	-042	119	-012	100	167	087	-030	164	-098
27	-080	-165	112	082	-209	-018	063	149	130	008
28	026	-149	004	077	-244	044	066	-079	113	063
29	-141	148	054	-129	148	-024	-003	-042	125	129
30	-063	-248	123	010	-084	101	021	-065	084	-021
31	033	-015	-149	-002	-052	077	156	-131	-193	077
32	005	-032	056	087	-101	-024	-051	191	155	098
33	093	-063	-123	122	-037	044	155	026	-057	-023
34	-053	063	164	-052	138	009	-062	-095	155	194
35	095	071	-139	078	-132	043	-124	023	-015	187
36	-045	-087	-011	148	050	024	154	114	086	-019
37	093	010	-168	037	137	085	057	007	-147	-005
38	-101	038	051	-071	248	130	031	-049	051	139
39	113	105	-073	065	-119	-018	-208	072	-053	038
40	142	115	-131	084	-169	-081	-176	099	-055	085
41	-048	-216	094	058	-236	073	067	-071	172	012
42	122	027	031	120	045	175	018	-015	-089	151
43	-184	101	006	019	-077	-172	-046	-032	-023	-080
44	-002	028	041	-032	-017	152	191	031	-144	185
45	-048	159	063	141	-052	-441	104	-015	103	097
46	229	-016	-010	-053	049	110	024	-100	-051	037

TABLE K (cont.)

VARIABLE NO	COMP. NO.1	COMP. NO.2	COMP. NO.3	COMP. NO.4	COMP. NO.5	COMP. NO.6	COMP. NO.7	COMP. NO.8	COMP. NO.9	COMP. NO.10
47	-055	-072	100	063	-103	-043	009	113	028	-198
48	159	-106	-025	-049	-028	117	-012	-161	-004	113
49	037	071	-062	107	067	109	-012	-089	059	-042
50	-204	068	-061	008	157	-008	049	109	-053	-001
51	-085	-123	086	-101	-028	-035	031	-075	-091	-054
52	-033	-053	035	-078	-065	-159	-035	-050	073	-011
53	145	044	-029	-046	-133	-158	033	-124	148	033
54	-112	-103	093	103	150	064	043	-030	-128	054
55	-002	089	135	-018	055	-138	118	064	-067	019
56	-011	-051	202	-061	001	050	-121	051	-128	-192
57	006	-095	217	-037	009	055	-053	080	-096	-214
58	-138	207	013	133	-127	026	011	078	040	027
59	-196	177	013	112	-109	023	045	-064	-072	-030
60	112	-197	-064	-159	158	-030	033	-102	-001	-001
61	192	-133	-050	-126	112	-053	-056	018	071	026
62	-124	188	004	038	-070	006	-081	042	011	000
63	-020	038	016	-030	-094	294	139	032	072	011
64	-042	-002	-123	-111	-015	193	177	207	019	-072
65	-051	-074	-112	-174	032	217	020	166	005	-038
66	053	026	109	151	023	-301	-139	-191	-036	049
67	-017	000	048	-017	-078	176	-161	-057	009	051
68	-078	021	-050	-040	-034	093	-156	097	-011	248
69	134	-198	-034	-087	091	-137	070	078	-001	146
70	087	-185	007	-066	108	-189	-047	057	038	097
71	022	-137	126	-116	130	-152	016	090	-118	233
72	-076	039	165	-079	045	023	080	054	-211	203
73	094	009	001	052	-135	-114	-124	-095	-030	-065
74	047	045	-122	051	099	-138	093	020	-022	068
75	016	129	-097	145	-023	037	022	019	047	063
76	-051	073	-027	036	058	-174	175	019	-038	-019
77	-058	-042	056	-097	070	-184	136	000	-072	-069
78	-070	-037	060	-066	-009	-010	-007	136	140	-123
79	133	-113	-043	-006	082	-177	-027	-008	099	-083
80	-041	-047	-036	122	073	060	-044	-064	-040	156
81	129	-126	-048	005	042	-029	-019	051	106	-025
82	-057	-009	136	048	159	-029	-101	-105	-057	055
83	-018	116	-020	-314	-102	-037	045	-017	-018	021
84	029	134	-008	-316	-120	-041	-055	-022	023	036
85	012	-081	087	126	-071	-103	173	-054	-056	048
86	-065	-009	144	081	-093	-141	188	-044	-117	054
87	-073	082	046	041	052	-098	187	180	-128	022
88	035	109	-062	-016	015	032	177	-069	212	-064
89	-012	-006	-060	-007	060	-147	226	090	216	098
90	-018	008	002	-071	-006	-037	126	012	053	098
91	-072	-008	066	-031	086	096	-136	-166	-101	-012
92	-060	028	097	037	-045	027	-034	-101	-065	059
93	086	116	-160	008	-029	-046	078	-268	079	012
94	134	-042	119	-002	-089	114	-080	-085	-092	-130
100	184	084	132	-004	-021	047	058	-007	-232	-157
101	177	123	122	-037	-059	-001	125	004	-142	-077
108	031	132	127	000	-011	-063	155	-040	-187	-137

K. A. HACK
Ph. D. 1971

HEALTH VISITORS
FOLLOW-UP REPORT

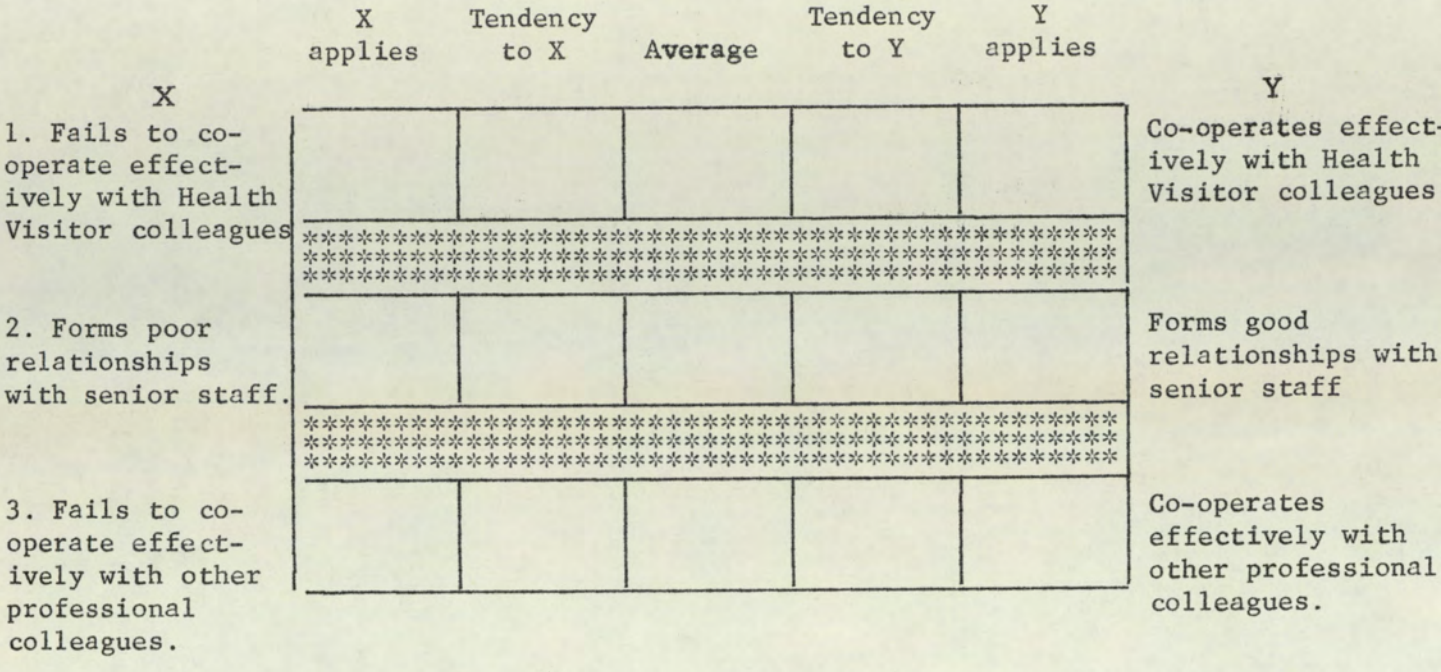
ASSESSMENT OF PERFORMANCE

A WORK WITH PUBLIC

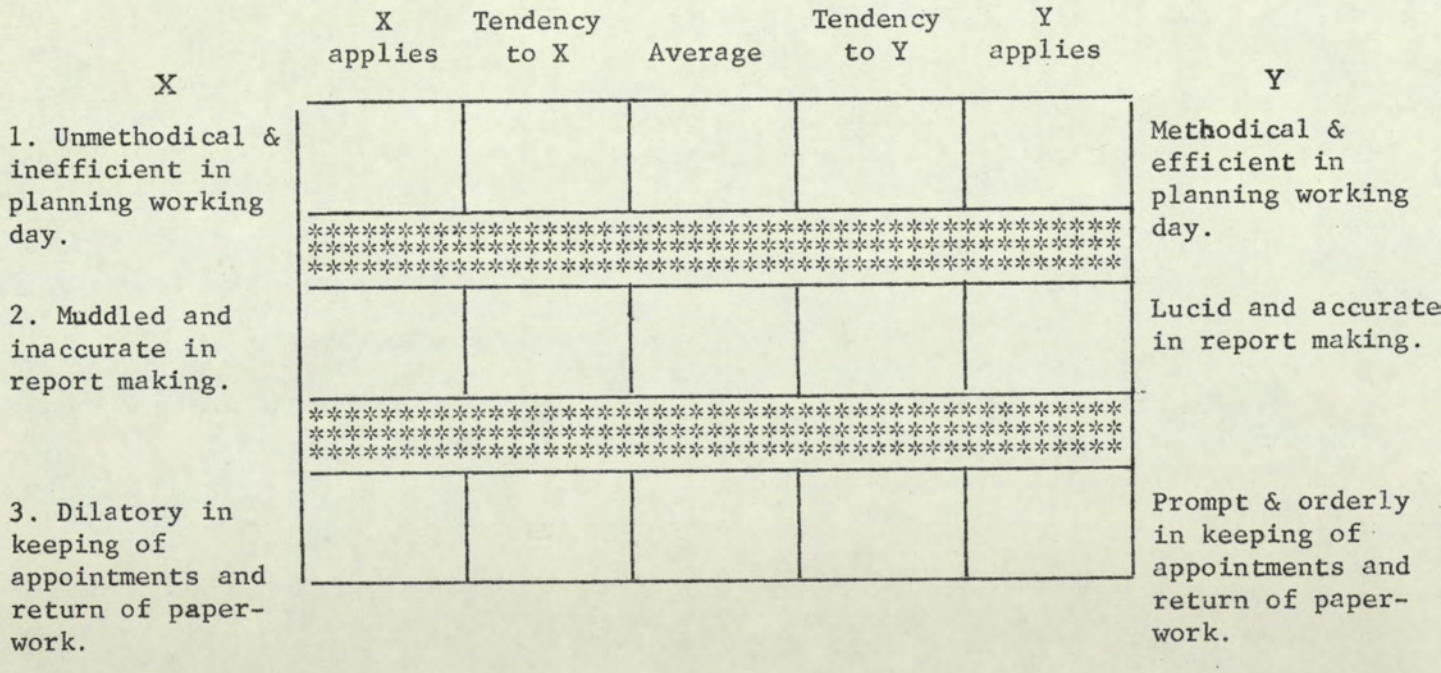
Please tick the appropriate box.

X	X applies	Tendency to X	Average	Tendency to Y	Y applies	Y
1. Insecure, unable to provide support.						Forms excellent relationship, provides good support
2. Clashes, clumsy, tactless.						Sympathetic, sensitive, purposeful.
3. Overidentifies with, or unable to relate to client.						Makes good use of relationship
4. Assessment of complex medico-social situation reveals lack of insight, realism and judgment.						Assessment of complex medico-social situation reveals insight, realism & sound judgment.
5. Sees only the obvious in her work.						Shows keen observation in her work
6. Resistant to change						Adaptable, flexible.
7. Anxious, needs support during stressful working period.						Self-reliant, rises to the occasion.
8. Prefers not to teach in group health education						Always seeking opportunities to teach
9. A poor, uninspiring teacher						An excellent, stimulating teacher.
10. Frequent absence reduces her effectiveness.						Never or hardly ever absent.

B RELATIONSHIPS WITH COLLEAGUES



C ADMINISTRATIVE ABILITY



D OVERALL GRADING OF PERFORMANCE

Please ring the appropriate number.

1.	Outstanding :	Stands out as exceptionally competent; a cut above all others.
2.	Good:	Markedly better than most others without being positively outstanding.
3.	Average:	The normal, competent Health Visitor.
4.	Just Satisfactory:	Definite weaknesses make her less efficient than most but nevertheless good enough to get by.
5.	Not Satisfactory:	May have good points, but is definitely not up to standard.

E FITNESS FOR PROMOTION

Please ring the appropriate number

Her ability indicates that she is

1. Unlikely to qualify for promotion
2. Likely to qualify in time for promotion
3. Qualified for promotion
4. Well qualified for promotion
5. Highly qualified for promotion.

SIGNED _____ DATE _____

POSITION _____

SOCIAL WORK STUDENTS

ASSESSMENT OF PRACTICAL WORK

K. A. HACK

Ph. D. 1971

NAME OF STUDENT .....

Please tick the appropriate box

A. WORK WITH CLIENTS

X	X applies	Tendency to X	Average	Tendency to Y	Y applies	Y
1. Insecure, unable to provide support.						Forms excellent relationship, provides good support.
2. Clashes, clumsy, tactless						Sympathetic, sensitive, purposeful
3. Overidentifies with, or unable to relate to, client						Makes good use of relationship
4. Plans and goals are unrealistic, lacks insight, judgment poor.						Plans and goals are realistic, possesses insight and excellent judgment.

8. PROFESSIONAL DEVELOPMENT

X	X applies	Tendency to X	Average	Tendency to Y	Y applies	Y
1. Unable to select priorities						Able to select priorities
2. Disorganised in own work and appointments						Organises own work and appointments efficiently, methodically and flexibly
3. Fails to apply theoretical knowledge						Makes good practical use of theoretical knowledge
4. Unable to generalise knowledge acquired from specific cases						Able to generalise knowledge acquired from specific cases
5. Does not understand community norms and pressures						Fully understands community norms and pressures
6. Unable to mobilise informal community resources						Able to mobilise informal community resources
7. Very anxious, needs constant support						Self-reliant, able to make constructive decisions
8. Rigid in attitudes, unimaginative						Adaptable, flexible, imaginative
9. Satisfies own emotional needs at expense of client						Is aware of self and own limitations
10. Behaves unprofessionally						Identifies with ethical values of social work

C. WORK WITHIN THE AGENCY

X	X applies	Tendency to X	Average	Tendency to Y	Y applies	Y
1. Has little knowledge of workings of agency and fails to utilise it						Has sound knowledge of workings of agency and utilises it to benefit of client
2. Unable to work within agency limits						Able to work within agency limits
3. Unable to criticise agency policies constructively						Able to criticise agency policies constructively
4. Fails to co-operate with colleagues						Co-operates effectively with colleagues
5. Forms poor relations with senior staff						Forms good relations with senior staff
6. Insensitive to agency tensions						Sensitive to agency tensions
7. Makes little attempt to establish relationship with other agencies						Develops effective relationship with other agencies
8. Unable to record effectively and selectively						Able to record effectively and selectively

D. OVERALL GRADING OF PERFORMANCE
(Please ring the appropriate number)

1.	Outstanding:	Stands out as exceptionally competent with first class potential.
2.	Good:	Markedly better than most otherswithout being positively outstanding.
3.	Average:	The normal competent Social Worker
4.	Just Satisfactory:	Definite weaknesses make him/her less efficient than most, but nevertheless good enough to get by.
5.	Not Satisfactory:	May have good points, but is definitely not up to standard.

E. WOULD YOU ACCEPT THIS STUDENT AS A COLLEAGUE?
(Please ring the appropriate number)

1. Definitely
2. Probably
3. Don't know
4. Probably not
5. Definitely not

Signed ..... Date .....

Position .....

K.A.HACK

Ph.D. 1971

QUESTIONNAIRE

for Social Work Courses and Health Visitors

Wherever appropriate, please ring the number which corresponds to your answer.

1. Name

Sex Male 1
Female 2

2. Course Social Work 1
Health Visitors 2

3. Age
under 21 1
21 - 25 2
26 - 30 3
31 - 35 4
36 - 40 5
over 40 6

4. (a) Have you had previous experience as a social worker/health visitor?

Yes 1
No 2

4. (b) If yes, how long was this experience?

Under 1 year 1
1 - 2 years 2
2 - 5 years 3
5 - 10 years 4
over 10 years 5

5. What is your marital status?

Single 1
Engaged 2
Married with no children 3
Married with children 4
Widow with no children 5
Widow with children 6
Separated/Divorced with no children 7
Separated/Divorced with children 8

6. (a) What is your country of origin?

United Kingdom 1
Other (write in) 2

6. (b) What is the ethnic origin of your parents?

	Father	Mother
West Indian	1	1
English	2	2
African	3	3
Welsh	4	4
Jewish	5	5
Irish	6	6
Scottish	7	7
Other (write in)	8	8

7. (a) Did you pass the 11+ examination?

Yes	1
No	2
Didn't take it	3

7. (b) Did you pass the 13+ examination?

Yes	1
No	2
Didn't take it	3

8. (a) What type of secondary school did you attend for most of the time after the age of 11?

Public school (e.g. Rugby)	1
Other private independent school (e.g. Greenmore College, Birmingham)	2
Direct grant school (e.g. King Edward's School, Birmingham)	3
Grammar School	4
Comprehensive/Bilateral school	5
Secondary technical/commercial school	6
Secondary modern school	7
Elementary school	8
Other (write in)	9

8. (b) Was the school co-educational?

Yes	1
No	2

8. (c) Did you board?

Yes	1
No	2

9. (a) Did you obtain 'A' level or Higher School Certificate?

Yes	1
No	2

If yes, state subjects and grades.

9. (b) Did you obtain 'O' level or School Certificate?

Yes	1
No	2

If yes, state subjects and grades.

9. (c) Did you obtain any other kind of educational qualification at school?

Yes	1
No	2

If yes, state qualifications with subjects and grades.

10. At what age did you finish full-time school education?

At 14	1
At 15	2
At 16	3
At 17	4
At 18	5
At 19	6

11. (a) Other than this course, have you taken any other full-time course since leaving school?

Yes	1
No	2

If yes, state the course(s) and any qualifications obtained.

11. (b) Other than this course have you taken any other part-time course(s) since leaving school?

Yes	1
No	2

If yes, state the course(s) and any qualifications obtained.

12. Looking back on your school career, how much effort do you consider you put into your work?

Considerable	1
Definitely above average	2
Average	3
Definitely below average	4
Hardly any	5

13. (a) Using the appropriate number from question 8(a), what type of secondary school did your father go to?

What type did your mother go to?

13. (b) Did your father and mother go to a university, college of education (Teachers' training college) or other type of full-time college after the age of eighteen?

	Father	Mother
Yes	1	1
No	2	2

13. (c) What is/was your father's occupation? Please state clearly.

13. (d) What is/was your mother's occupation? Please state clearly.

13. (e) At what age did your parents finish their full-time education?

	Father	Mother
14	1	1
15	2	2
16	3	3
17	4	4
18	5	5
19	6	6
20 or over	7	7

13. (f) Did your mother go to work

	Yes	No
(i) before you went to school?	1	2
(ii) while you were in primary school?	1	2
(iii) while you were in secondary school?	1	2

13. (g) Did she work full-time or part-time?

Full-time	1
Part-time	2

14. (a) Are you

an only child	1
the oldest child	2
the second oldest child but not the youngest	3
the third or subsequent child but not the youngest	4
the youngest child in your family?	5

14. (b) How many brothers and sisters have you?

brothers	0	1	2	3	4	5 or more
sisters	0	1	2	3	4	5 or more

15. (a) What religious denomination do you belong to?

None	1
Atheist/Agnostic	2
Church of England	3
Non-Conformist	4
Roman Catholic	5
Other (write in)	6

15. (b) How often did you attend services before this course?

Never	1
Weddings/Funerals	2
Once or twice a year	3
monthly	4
fortnightly	5
once a week or more	6

16. (a) What class do you consider your parents belonged to?

Working	1
Lower Middle	2
Upper Middle	3
Upper	4

16. (b) What class do you consider you belong to?

1 2 3 4

16. (c) To which class would you hope to belong at the peak of your career?

1 2 3 4

16. (d) Rank in order of importance from 1 (most important) to 8 (least important) the part you consider the following factors to play in determining the differences between social classes in Britain to-day:

Type of house
Educational qualifications
Style of life
Accent
Occupation
Area of house
Family background and upbringing
Income

16. (e) Rank in order of social status from 1 (highest) to 8 (lowest) how <u>you</u> (first column) and <u>society</u> (second column) regard the following occupations:

	My order	Society's order
Youth Employment Officer		
Factory Foreman		
Dispensing Chemist		
The occupation you are training for		
Primary School Teacher		
Private Secretary		
Draughtsman		
Qualified Librarian		

15. (b) How often did you attend services before this course?

Never	1
Weddings/Funerals	2
Once or twice a year	3
monthly	4
fortnightly	5
once a week or more	6

16. (a) What class do you consider your parents belonged to?

Working	1
Lower Middle	2
Upper Middle	3
Upper	4

16. (b) What class do you consider you belong to?

1 2 3 4

16. (c) To which class would you hope to belong at the peak of your career?

1 2 3 4

16. (d) Rank in order of importance from 1 (most important) to 8 (least important) the part you consider the following factors to play in determining the differences between social classes in Britain to-day:

Type of house
Educational qualifications
Style of life
Accent
Occupation
Area of house
Family background and upbringing
Income

16. (e) Rank in order of social status from 1 (highest) to 8 (lowest) how <u>you</u> (first column) and <u>society</u> (second column) regard the following occupations:

	My order	Society's order
Youth Employment Officer		
Factory Foreman		
Dispensing Chemist		
The occupation you are training for		
Primary School Teacher		
Private Secretary		
Draughtsman		
Qualified Librarian		

17. Have you been seconded to this course or are you on an L.E.A. or other type of grant?

Seconded	1
L.E.A. Grant	2
Other (write in)	3

18. How long do you spend each day on average travelling (a) to and from College; (b) to and from placement?

	to and from College	to and from placement
under ½ hour	1	1
between ½ and 1 hr	2	2
between 1 and 1½ hrs	3	3
between 1½ and 2 hrs	4	4
between 2 and 2½ hrs	5	5
between 2½ and 3 hrs	6	6
between 3 and 3½ hrs	7	7
between 3½ and 4 hrs	8	8
over 4 hrs.	9	9

19. What (a) daily papers, (b) Sunday papers do you read regularly? If more than one, record what you consider to be your main paper. What is your parents' main paper?

Daily	Own	Parents	Sunday	Own	Parents
None	0	0	None	0	0
Daily Sketch	1	1	Sunday Express	1	1
The Times	2	2	The Observer	2	2
The Sun	3	3	Sunday Telegraph	3	3
The Guardian	4	4	News of the World	4	4
Daily Mail	5	5	Sunday Mirror	5	5
Morning Star	6	6	The People	6	6
Financial Times	7	7	Sunday Times	7	7
Daily Express	8	8	Other (write in)	8	8
Daily Telegraph	9	9			
Daily Mirror	10	10			
Other (write in)	11	11			

20. How long did you spend watching T.V. each week on average before the course?

Not at all	0
under 2 hrs	1
from 2-4 hrs	2
from 4-6 hrs	3
from 6-8 hrs	4
from 8-10 hrs	5
from 10-12 hrs	6
from 12-14 hrs	7
above 14 hrs	8

21. (a) If it were possible some time in the future, would you like to take an additional qualification after completing this course?

Yes	1
No	2
Undecided	3

21. (b) If yes, would you prefer the qualification to be in a similar field or in a different field?

similar field	1
different field	2

21. (c) If you had your time over again, would you have preferred to go to a university?

Yes	1
No	2

21. (d) If you had to choose another job, and assuming you had the necessary qualifications, what would it be?

21. (e) Do you consider the basic pay in your field of work

very poor?	1
poor?	2
adequate?	3
good?	4
excellent?	5

21. (f) Do you consider the promotion prospects for social workers/ health visitors

very poor?	1
poor?	2
average?	3
good?	4
excellent?	5
don't know ?	6

21. (g) What main reason prompted you to enter this field of work?

Offers a secure job	1
Wanted a change	2
Social workers are urgently needed	3
A strong desire to help people	4
Pay/career prospects	5
A chance to acquire a useful skill	6
Dissatisfaction with my previous job/ position	7
Satisfaction that comes from social work	8
Offers a higher social standing	9
Other (write in)	10

22. (a) Is this your first choice college?

Yes	1
No	2

22. (b) Where do you live while on this course?

With parents/family	1
House or flat shared with other students	2
House or flat shared with non-students	3
Private lodgings	4
Hostel	5
Other (write in)	6