DOCUMENT RESUME

ED 228 609 CS 007 056

AUTHOR Gottfredson, Linda S.; And Others
TITLE The Adult Occupational Success of Dyslexic Boys: A Large Scale, Long-Term Follow Up.
INSTITUTION Johns Hopkins Univ., Baltimore, Md. Center for Social Organization of Schools.
SPONS AGENCY National Inst. of Child Health and Human Development (NIH), Bethesda, Md.; National Inst. of Education (ED), Washington, DC.
REPORT NO CSOS-R-334
PUB DATE Mar 83
GRANT NICHD-00486; NIE-G-80-0013
NOTE 108p.; Also supported by a grant from Gow School, South Wales, New York.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Adults; Demography; *Dyslexia; *Employment Patterns; *Males; *Occupational Surveys; *Outcomes of Education; Reading Difficulties; Reading Research; Success
IDENTIFIERS Gow School NY

ABSTRACT

Several hundred men who were dyslexic as high school students, and for whom considerable early test data were available, were surveyed as adults. Subjects included alumni from 1940 through 1977 of the Gow School, a private secondary school for dyslexic boys. Their occupations were compared to those of a control group, the fathers of both groups, and to some extent, to the jobs of men in the general United States population. Data on social background, educational performance, degree level, and intelligence, as well as on severity of reading disability itself, allowed an assessment of the degree to which dyslexia affects a man's occupational success. Among the findings were: (1) the Gow men were quite successful on the average, more successful than the average man--over 80% had white collar jobs and over 60% were professionals or managers; (2) their jobs were not as high level on the average, however, as those of their fathers or of the control men; (3) when Gow men are professionals, they are rarely lawyers or physicians, the two professional jobs that are most common among both their fathers and the control men; (4) when Gow men are managers, they are more often vice presidents, or chief executive officers than are the control men; (5) Gow men obtain considerably less education than do the control men; (6) these differences in education are associated with much of the difference in occupations between the Gow and the control men; (7) dyslexia appears to influence educational level by affecting reading comprehension and grades obtained in school; and (8) much of the variation in educational performance and degree level among the Gow men themselves is not explained by dyslexia. (HOD)

THE ADULT OCCUPATIONAL SUCCESS OF DYSLEXIC BOYS: A LARGE SCALE, LONG-TERM FOLLOW UP

Linda S. Gottfredson
Center for Social Organization of Schools
Johns Hopkins University

Joan M. Finucci
Department of Pediatrics
School of Medicine

Barton Childs
Department of Pediatrics
School of Medicine

Report No. 334
March 1983

Published by the Center for Social Organization of Schools, supported in part as a research and development center by funds from the United States National Institute of Education, Department of Education. The opinions expressed in this publication do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the Institute should be inferred.

Center for Social Organization of Schools
The Johns Hopkins University
3505 North Charles Street
Baltimore, MD 21218

Printed and assembled by the Centers for the Handicapped
Silver Spring, MD

STAFF

Edward L. McDill, Co-Director
James M. McPartland, Co-Director

Karl L. Alexander
Henry J. Becker
Jomills H. Braddock, II
Shirley Brown
Ruth H. Carter
Michael Cook
Robert L. Crain
Doris R. Entwisle
Joyce L. Epstein
James Fennessey
Samuel A. Gordon
Denise C. Gottfredson
Gary D. Gottfredson
Linda S. Gottfredson
Edward J. Harsch
John H. Hollifield
Barbara J. Hucksoll
Lois G. Hybl
Richard Joffe
Debbie Kalmus
Helene M. Kapinos
Nancy L. Karweit
Hazel G. Kennedy
Marshall B. Leavey
Nancy A. Madden
Kirk Nabors
Deborah K. Ogawa
Donald C. Rickert, Jr.
Laura Hersh Salganik
Robert E. Slavin
Jane St. John
Valerie Sunderland
Gail E. Thomas
William T. Trent
James Trone

The Center

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three research programs to achieve its objectives. The School Organization Program investigates how school and classroom organization affects student learning and other outcomes. Current studies focus on parental involvement, microcomputers, use of time in schools, cooperative learning, and other organizational factors. The Education and Work Program examines the relationship between schooling and students' later-life occupational and educational success. Current projects include studies of the competencies required in the workplace, the sources of training and experience that lead to employment, college students' major field choices, and employment of urban minority youth. The Schools and Delinquency Program researches the problem of crime, violence, vandalism, and disorder in schools and the role that schools play in delinquency. Ongoing studies address the need to develop a strong theory of delinquent behavior while examining school effects on delinquency and evaluating delinquency prevention programs in and outside of schools.

The Center also supports a Fellowships in Education Research program that provides opportunities for talented young researchers to conduct and publish significant research and encourages the participation of women and minorities in research on education.

This report, prepared by the Education and Work Program, analyzes the occupational attainment of several hundred men who were dyslexic as high school students.

Acknowledgments

We thank the following people for their assistance: Mr. Redmond C.S. Finney, Mr. David Gow, Sarah D. Isaacs, Kimberly S. Penner, Dr. Ann E. Pulver, and Dr. Catherine Gw Whitehouse. This paper is based upon work supported by Grant NIE-G-80-0013, Grant NICHD 00486, and by a grant from the Gow School. Any opinions, findings, and conclusions or recommendations expressed are those of the authors and do not necessarily reflect the views of NIE, NICHD, or the Gow School.

Abstract

The alumni from 1940 through 1977 of the Gow School, a private secondary school for dyslexic boys, were surveyed in adulthood. Hypotheses were that the Gow alumni, especially the most severely reading disabled ones, would be relatively successful because of their high socioeconomic status and IQ levels, but that they would be employed more often in management and sales and less often in professional work than a control group. This was expected because sales and management tend to require less education for comparable rewards than does professional work and because reading is probably less important and non-academic skills more important in the former. Extensive test data available from the Gow School indicated that the Gow men were very handicapped on the average in high school, being about four years below expectation in spelling, three below in oral reading, and two below in reading comprehension. The adult occupations of about 400 respondents were compared to those of the alumni of a control school, the fathers of both groups, and men in the general U. S. population. The Gow men were found to be more successful than the average man because they were much more often in professional, managerial, or sales work instead of blue collar work. However, Gow men were much less often in professional work than were the fathers or control men, and they were rarely lawyers or physicians, the most common professional jobs among the fathers and controls. The differences in professional employment were reduced substantially by controlling for social background (father's type of work) and educational level, primarily because the Gow men much less often obtained BAs (56% vs. 94%) or advanced degrees (8% vs. 58%) than did the control men. Gow men assessed as severely disabled were less often in professional work and more often in blue collar work than were mildly disabled Gow men. A path analy-

sis for the Gow sample indicated that severity of dyslexia affects educational attainment primarily via its effect on reading comprehension and grades. To the extent that being in professional work (which is primarily lower-level professional work among the Gow men) versus managerial work could be predicted, obtaining a professional job was associated with higher educational levels and having a professional father. Data on job requirements collected from the control men showed that reading, writing, and educational credentials are cited as critical to good job performance by twice as many professionals as managers or salesmen, but that non-academic competencies such as taking initiative or responsibility or being persuasive or competitive are more critical in management or sales work. Implications for vocational counseling and for identifying youngsters most disadvantaged compared to their social and intellectual peers are discussed.

Table of Contents

The Adult Occupational Success of Dyslexic Boys: A Large-Scale, Long-Term Follow-Up

How do youngsters who are dyslexic (specifically reading disabled) fare socially, economically, and emotionally as adults? It has sometimes been assumed that dyslexic youngsters face bleak futures regardless of their other attributes, but we really do not know what happens to them. Dyslexia is a reading disorder that affects an estimated 1% to 7% of the population (Yule, Rutter, Berger, & Thompson, 1974) and which has become of increasing concern to researchers, educators, and parents during the last two decades (Benton & Pearl, 1977; Malatesha & Aaron, 1982). However, research on dyslexia has focused on the identification, etiology, and remediation of the disorder. The few studies that have followed dyslexic youngsters into adulthood have generally been small, the types of learning disability, social background, or other important characteristics not specified, or the length of follow-up very short. Perhaps because of such limitations, these previous studies have led to quite different conclusions, some very encouraging but others not (e.g., see Schonhaut & Satz, in press).

This paper examines one type of adult outcome, occupational success, among several hundred men who attended a school for dyslexic boys. Although occupation is not the only outcome of interest, it is one of the most important because the occupational role is a central one for men. A man's occupation to a great extent represents who he is in society (Gottfredson, 1981); it influences the expectations others have of him as well as the income and life style he provides his family.

Education, Literacy, and Job Demands

There is ample reason to expect that a reading disability constitutes a handicap to an otherwise normal person in the pursuit of a good education and a good job, and that it is a handicap that has grown more disadvantageous over the decades. Our population has become increasingly highly educated. From 1910 to 1970, the median years of school completed by white men aged 25-29 increased from 8.3 to 12.7 (U. S. Bureau of the Census, 1975, p. 381), and the percentage of the entire white male civilian labor force having completed 16 years of education (presumably a BA degree) increased from 11.2 to 20.6 between 1959 and 1979 alone (U. S. Department of Labor, 1980, Table B-9, p. 291).

Table 1 shows that the types of jobs in our economy have also changed radically during this century, and it is likely that they will continue to do so. The percentage of males in white collar jobs has more than doubled since 1900, from 17.6% in that year to 39.5% in 1970. The largest growth in white collar jobs was due to the four-fold increase in professional and technical work. Manual and service work has increased from about 41% to 56% of all jobs held by males, but the work within that category has become increasingly skilled. The percentage of men in farm work dropped from 41.7 in 1900 to only 4.5 by 1970. The large growth in white collar work, particularly in professional and technical work, suggests that literacy skills and higher education have become increasingly important in the competition for jobs. With more advanced technology, greater literacy skills than before are probably also required for many blue collar jobs. For example, Muller (1976) estimated that the increasing sophistication of the Navy's aircraft has led to an increase in the pages of documentation needed to

maintain that equipment from 2,000 in 1950 to 260,000 in 1975.

Insert Table 1 About Here

Other evidence suggests more directly that a reading handicap may be a barrier to good jobs. For instance, studies of the characteristics of occupations and studies of the career processes of individuals all point to the importance of education in obtaining high-prestige or high-paying jobs (most of them white collar) and to the higher than average demands for reading, writing, and other language skills in those jobs. When different occupations and their incumbents in 1970 are examined, the median educational level of male workers is highly correlated with two important measures of the attractiveness of their jobs, .78 with income and .60 with occupational prestige (calculated from data in U. S. Bureau of the Census, 1973, Table 1, and Gottfredson & Brown, 1978).

When the abilities and activities required to perform jobs are examined, the most important dimension separating jobs appears to be that of academic or general intellectual ability: for example, abilities in language, math, and reasoning, and activities such as writing, using written materials, and analyzing information (Gottfredson, Note 1). This academic ability dimension is in turn correlated .8 to .9 with the educational level (the "level of knowledge typically acquired through formal education") required to perform the job. In particular, the use of written materials as sources of job information and the importance of writing letters, reports, and the like are correlated .74 and .86 with this academic factor and about .7 and .8 with the educational level required by the job. Assuming that dyslexic youngsters can somehow obtain the educational credentials necessary to

enter many jobs, they still would face frequent on-the-job demands for reading and writing skills, often at a high level. Dyslexic adults might be uncomfortable or less competitive in jobs with high demands for literacy skills and so more frequently turn, or be forced to turn, to lower-level jobs or to jobs where non-academic talents that they might possess are more important than literacy skills.

Studies of occupational achievement at the individual level, specifically the many sociological regression studies of what determines the career success of individuals, also converge in suggesting that educational level is the most important determinant of later occupational status and income (though the latter is not as well predicted as the former). IQ and parental socioeconomic status follow in importance as predictors of success, primarily having their influence on the level of education obtained (e.g., Sewell & Hauser, 1975).

Although it is generally true that education is the major route to good jobs, some studies show significant variations in the importance of education that may reveal good opportunities for dyslexic adults. Specifically, management and sales jobs provide jobs of above average status and they often provide good income with less education than do other fields of work with a similar or higher status (Gottfredson, Note 2). Table 2 illustrates this for two age groups of white men in 1970. Incomes were higher for increasingly highly educated men in all fields of work as would be expected. However, at all except the very highest level of education (17 years or more), men in sales and management had higher incomes than similarly educated men in other fields of work, fields which may even be accorded higher social status. In fact, managers and salesmen with 16

years of education (presumably a BA degree) earned more than the more highly educated men in all other fields except science and medicine. More strikingly, men in sales and management who had only 12 years of education (presumably a high school diploma) had about the same income as men with 17 or more years of education in social service and education jobs.

Insert Table 2 About Here

Good performance in this entrepreneurial work probably depends more on non-academic skills and personality traits such as persuasiveness, competitiveness, and interpersonal skills and less on strictly academic talents such as reading and writing than is the case for many other jobs. Whereas a traditional formal education is the route for entering fields such as science, medicine, education, and social service, it is less likely to be so for entrepreneurial work. Because management and sales may be a road to success, at least financial success, with less investment in education, it is likely to attract a larger proportion of dyslexic men than is the case in other populations.

Hypotheses

Three general hypotheses about the occupations of dyslexic men are tested in this study. These hypotheses are based on previous research on career development in non-dyslexic populations, the particularly relevant findings being stated below as four premises underlying the hypotheses.

Premise 1. Jobs require a variety of skills besides those of reading and writing. In some jobs, interpersonal or psychomotor skills may be just as, or more, important than reading, writing, and other academic skills

(e.g., Gottfredson, Note 1).

Premise 2. The reading and writing skills necessary to learn or enter a job (e.g., through education and training) may differ from, often being higher than, those required to actually perform the work (e.g., Sticht, 1975).

Premise 3. The education and occupation one obtains is influenced by a variety of personal and social factors, IQ and social class being among the most important of those which have been documented (e.g., Sewell & Hauser, 1976). There is considerable debate about why such factors are important (e.g., Bielby, 1981), but there is no doubt that they cannot be ignored in explaining the occupational outcomes of any population under study.

Premise 4. In the general population, the level of men's occupational aspirations is correlated with their intelligence and social class, probably reflecting the men's recognition of the social standards generally applied to people like themselves. Dyslexic men will share this recognition, with its resulting drive to live up to the expectations common in their social group, and so will seek ways to cope with or circumvent their handicap.

Hypothesis 1. Dyslexic men will enter jobs requiring less education than will non-disabled men. Therefore, they will be found relatively more often (a) in lower- versus higher-level jobs and (b) in management and sales jobs versus professional jobs. This will be true even for dyslexic men characterized by social backgrounds and educational attainments comparable to those of non-dyslexic men.

Because the sample of reading disabled men studied here is considerably above average in both general ability and socioeconomic status (as will be demonstrated below), it is expected that this group's occupational achievements will be at least as high as those of men in general but not as high as those of their fathers or non-disabled peers. Most high-SES and high-IQ men are employed in professional or managerial work, so it is expected that the dyslexic men will also pursue these two broad types of work. However, they will be underrepresented in professional and overrepresented in managerial work compared to their fathers and peers. In short, they will be at least as successful as the average man but will fall short of the attainments which would have otherwise been expected of them and they will find success more often in entrepreneurial work than in the more education-intensive professional jobs.

Hypothesis 2. The foregoing trends will be stronger for men who are severely reading disabled than for those who are mildly disabled.

Hypothesis 3. The reading and writing skills required on the job will be higher in the jobs in which dyslexic men are underrepresented than in the jobs in which they are overrepresented.

Study Design

The following pages describe the samples, measures, and methods of analysis used. Important methodological issues which are discussed include the definition and measurement of dyslexia, the length of follow-up necessary to study occupational success, secular changes in career patterns, selecting a control group and control variables, classifying occupations and measuring success, and measuring job requirements. The strengths and

limitations of this study are also reviewed.

Sample of Reading Disabled Men

The sample consists of men who attended the Gow School in South Wales, New York. The Gow School was founded in 1926 as a college preparatory boarding school with grades 7-12 for dyslexic boys, and it draws students from all over the United States. The follow-up of these boys was initiated at the suggestion of the Gow School itself.

Of the 1,012 alumni with school records, only the 965 men leaving Gow in 1940 through 1977 were targets of the follow-up because school record data for the pre-1940 alumni were less adequate than for later alumni. Of these 965 men, 293 had either died, could not be located, or were known not to have received the follow-up questionnaire. Of the remaining 672 who received questionnaires, 579 (86.2%) responded either by mail or telephone. Thus, there is follow-up information for 60% of all Gow alumni from 1940-1977. No substantial differences were observed in any decade among respondents, non-respondents, and men who could not be located (Childs, Finucci, Pulver, & Tielsch, Note 3). There are, however, some significant differences over the years in the types of men attending Gow and these will be examined in a later section.

The Gow School maintains extensive school records on its students, records that are consistent since at least 1940 because of the school's stability in the staff administering tests, the tests they administered, and the coursework and other relevant data entered into the students' school records. Prospective students are extensively evaluated with a battery of tests, many of which are then repeated each spring.

The modal grade of entry in the sample was 9 and the modal age of entry was 15, meaning that the boys were most often one year behind grade level at entry. Over two-thirds of the boys attended Gow for at least two years, many of them returning to regular high schools after leaving Gow. The respondents had an average IQ of 118 on the Stanford-Binet, and only 3.3% had scores of 100 or below.

When characterized according to the measure of reading disability used in this report (discussed further below), three-quarters were considered severely disabled upon entry, with almost all the others being classified as mildly disabled (rather than non-disabled). By the time the men left Gow, over half were still severely disabled. When scores on the subtests of the Wechsler are examined, the profile of the Gow men conforms to that of other dyslexics, for example, showing poorest performance on Information, Arithmetic, and Digit Span on the Verbal Scale and poorest on Coding on the Performance Scale (e.g., Huelsman, 1970). Thus, the Gow alumni are clearly a population with specific reading disabilities.

The follow-up questionnaire (see Appendix A), which was sent early in the spring of 1979, contained four sets of questions: education, occupation, family characteristics, and adult reading habits and attitudes. Of most relevance to this particular report, the respondents were asked about degrees obtained, their father's occupation and education, a more detailed description of their own occupation, and their current spelling ability. The extensive data collected on educational careers have been reported elsewhere (Childs et al., Note 3).

Two Comparison Groups

It was considered important to compare the Gow men's occupational outcomes not only to a control group as similar as possible to them but also to the general population of male workers. Therefore, two groups are used for comparison with the Gow men: (a) the alumni of a private college preparatory school that draws students from a similar socioeconomic stratum as the Gow men and (b) men in general as profiled in U. S. census data. The two groups will be referred to as the "control men" and "men in general."

Control men. The alumni of the Gilman School, a highly regarded private college preparatory school for boys in Baltimore, were selected as a control group because that school maintained records on alumni graduating between 1940 and 1979, it seemed to draw students from similarly high social class and IQ levels as did the Gow school, and it too was interested in following up its alumni and investigating their reading habits.

The Gilman school differs from the Gow School in several ways. It is not a boarding school and it draws students primarily from the local area. A high proportion of students reportedly are children of men associated with the Johns Hopkins Medical Institutions, which probably explains the unusually large number of physicians among the fathers. In addition, considerably less school record information was available for the control than for the Gow men. For example, there were no IQ test scores for these men. However, SAT scores were available for most control men and SAT verbal scores were used to estimate IQ scores, as will be explained below.

The questionnaires for the control men (see Appendix B), which were sent in the spring of 1980, were essentially the same as those sent to the Gow

men, except that one major question was added. That question asked the control men to rate how important different skills and personality traits are on their job.

The Gilman alumni were randomly selected from each year from 1940 on, stratifying first by year of leaving Gilman so as to match the proportion of Gow men leaving the Gow School in those same years. Of the 753 men to whom questionnaires were sent, 612 (81.3%) responded by mail or telephone. As was true for the Gow men, there were no substantial differences between respondents and non-respondents, though respondents did differ among themselves across the decades.

The adequacy of this sample as a control group is examined in a later section.

Men in general. Data collected by the Census Bureau were used to describe the general population of male workers in the United States. Most often the data used here are restricted to white men. The results presented were obtained by reanalyzing data published by the Census Bureau or results reported by investigators using data collected by the Census Bureau. Although the data for men in general consist largely of distributions of men by education and occupation, they provide a valuable perspective on who the Gow and control men are and how successful they are relative to other men in our society.

Subsamples Selected for Analysis

Most analyses are restricted to men meeting the following criteria: (a) they were not students at the time of survey, (b) they reported an occupational title for their current or last job, (c) they were between the ages

of 26 and 55, and (d) they had relevant test scores available (the SAT-V for the control men and the Stanford-Binet IQ, Gray Oral Reading, Morrison-McCall Spelling, and the Paragraph Meaning Subtest of the Stanford Achievement Test for the Gow men). A few analyses include men in the 16-60 age range, although the men in this wider age group who met the three other criteria actually ranged in age only from 18-59 for Gow men and 21-55 for control men.

Restricting the subsamples to non-students aged 26 or older ensures that most of the men have already embarked on their careers and are not merely holding temporary jobs while they pursue education or training. Previous research has shown that by their mid-twenties most men have completed their education, and the gross changes in job field and level that characterize younger men have disappeared, the one significant trend which continues into the later years being the movement of men into higher level sales and management work (Gottfredson & Brown, 1981). Job shifts also decrease markedly by the late twenties (Byrne, 1975). The upper age limit of 55 was used in most analyses primarily because no control men over age 55 met the other criteria.

The four criteria narrowed the samples to 339 and 406, respectively, for Gow men aged 26-55 and 16-60, and to 387 and 416 for Gilman men aged 26-55 and 16-60. The N's in the tables are sometimes a bit lower because of missing data for other variables in the analyses.

Defining Severity of Reading Disability

As already described, the Gow men represent a population of poor readers who are specifically reading disabled. That is, they were youngsters of

normal intelligence without major emotional or behavioral problems and who had ample opportunity to learn to read, but who still did not read at a level commensurate with their potential. Their handicap was related specifically to reading and related skills and did not reflect the more generalized set of intellectual deficits that characterize "backward" readers (e.g., Yule & Rutter, 1976). Dyslexia is a heterogeneous disorder with differing causes and associated symptoms (Rutter, 1977). However, since we do not have test results to create subgroups, the Gow men are treated in this report as a single group.

The Gow men are distinguished here according to a measure of severity of disability analogous to Myklebust's (1967) "Learning Quotient." These quotients are ratios of tested or actual performance to expected performance. Actual reading performance is measured here using the Gray Oral Reading Paragraphs Test (Gray, 1956) and the Morrison-McCall Spelling Scale (Morrison & McCall, 1923). Grade equivalents on these tests were transformed to achievement ages. These two particular tests were chosen because they were available for most of the men and because they represent the sorts of problems with the mechanics of reading and writing that typify dyslexia. A single reading quotient was also created by averaging the quotients from the Gray Oral and Morrison-McCall tests, and a quotient for reading comprehension based on the Paragraph Meaning Subtest of the Stanford Achievement Test (Kelly, Madden, Gardner, & Rudman, 1964) was also created.

Expected achievement age, the denominator of the quotients, was calculated as the average of chronological age, age for grade placement, and mental age on the Stanford-Binet, form LM. These three ages were used because they all affect either the opportunity or readiness of youngsters

to develop reading skills. A quotient of 1.00 would be expected on the average for youngsters who are reading up to their potential. Scores below 1.00 indicate that achievements are below expectations. The derivation and empirical validation of these quotients has been detailed elsewhere (Finucci, Isaacs, Whitehouse, & Childs, 1982).

Quotients were calculated for all men initially tested in the fall and for all their later spring retestings. The quotients used in this study are the latest quotients available for each man, whether they were from the initial, 1-year, 2-year, or 3-year tests. (A small proportion of men had 4th-year or later tests; but data were gathered only for the first three years of tests.) Thus, the reading quotients used here are essentially measures of disability after treatment. The latest available measure is the most appropriate one here because it is closest in time to the men's entry into college and the labor force. Initial average reading quotients are correlated .83 with last average reading quotients in the subsample of men aged 26-55, but the last quotient is somewhat more strongly related to the men's later educational degree level (r = .18 vs. .11) and occupational prestige (r = .15 vs. .07). Both initial and last quotients are uncorrelated with IQ (r's = .01 and -.02).

For some of the analyses, the Gow men were divided into three severity groups: high disability (reading quotients less than or equal to .80), mild disability (quotients .81 to 1.00), and no disability (quotients greater than 1.01). Approximately 55%, 43%, and 2% of the men with test scores fell into the three respective severity groups; three-quarters of the mild disability group fell within the .81 - .90 range. As noted before, three-quarters of the men were classified as highly disabled at

initial testing, a difference from the 55% figure at last testing that is consistent with a mean rise in reading quotients from .73 to .79 between initial and last tests.

Because some investigators have used age or grade level alone to measure the reading performance that would be expected of a normal child, age and grade level are among the alternative definitions of expected performance that are used in one table to characterize the reading handicaps of the Gow men. As noted earlier, most analyses reported here are based on expectations calculated from the average of chronological age, age for grade level, and mental age.

The Gow men were not retested as adults, but they were asked in the questionnaire to rate their own spelling abilities. The relation of these self-ratings to the reading quotients and the adequacy of the latter for characterizing the Gow men as adults are explored below.

It was assumed that men in the control sample are no more likely to suffer a specific reading disability than men in the general population. The control men were, however, asked to rate their spelling abilities and this provides some basis of comparison with the Gow men.

Measuring Occupational Outcomes and Requirements

Respondents were asked essentially the same set of questions that the U. S. Census Bureau has asked since 1970 to determine the occupation and industry of respondents (see questions B2-B6 in Appendices A and B). A single question was used to obtain father's occupation.

Outcomes. Two of the most commonly used measures of occupational suc-

cess are income and occupational prestige. Occupational prestige or socioeconomic status scales are based on ratings by the general public of the general desirability of jobs (e.g., see Duncan, 1961). There is remarkable consensus on prestige rankings among all groups in society (see Gottfredson, 1981, for a review) and these scales are highly correlated with the incomes and educational levels of workers in those jobs, as was discussed above. A third common way of characterizing jobs is to classify them according to the widely-recognized major categories in the Census Bureau's 1970 occupational classification (professional, technical, and kindred workers; managerial workers; sales workers; etc.), which are themselves often combined into the even broader categories of white collar, blue collar, and farm. All three methods are used here, not only because investigators may be familiar with one but not the others, but also because they provide somewhat different perspectives on occupational success as was evident in Table 2.

The first step was to classify the occupations reported by the Gow and control men according to their codes in the Census Bureau's 1970 detailed 440-category occupational classification (U. S. Bureau of the Census, 1971a, 1971b). Temme's (1975) estimates of occupational prestige, which are available according to 1970 census code, were then assigned to the men's occupations. (These codes are also available in Gottfredson & Brown, 1978). Respondent's were not asked their incomes, so the usual income in their occupation was assigned from census data on the median 1969 earnings of the male experienced civilian labor force in these specific occupations (U. S. Bureau of the Census, 1973, Table 24). This income measure should be considered only a very rough estimate of the men's incomes because incomes may vary considerably by job tenure, by specific job title, firm,

or location in the country, and by the performance level of the particular employee. Finally, the men were also characterized according to the major census group to which their occupations belong. Although the census groups can be criticized because some are fairly heterogeneous mixtures of different job levels and fields of work (e.g., lawyers, technicians, religious workers, and athletes are all classified as professionals), most data for the general population are available in this form and these categories are still widely used in studies of occupational mobility. These census occupational categories are more often used here than are the prestige or income measures because the former are more informative in the context of this study.

Many of the tables include only three groups of occupations: professional, manager/farmer, and salesman. Other groups were usually excluded because so few respondents held jobs classified in these other groups. Although studies of occupations and careers seldom group farmers with managers, they were so grouped here because it appeared that these men would more appropriately be considered proprietors of (farm) businesses than occupants of the lower-level "other" jobs. In any case, only a small proportion of any of the groups of managers consisted of farmers or farm managers. When the category "white collar or farmer" is used, it refers to all major census groups typically classified as white collar (professional, managerial, clerical, and sales) plus the farmers we have grouped together with managers.

Both respondents and their fathers were classified in the same manner. Because respondents were asked for more detailed descriptions of their own jobs than for their fathers', finer distinctions for the former are some-

times made in the tables.

The occupations listed refer to the respondent's current job or to his last job if not currently employed. In the samples of men aged 26-55, 96% of the Gow men were employed (94% fulltime) and 98% of the control men were employed (95% fulltime).

Occupational requirements. It was hypothesized that Gow men would be found in jobs with job demands different from those of the control men. In order to measure job competencies required on the job, the control men were asked the following question: "Imagine that you are giving advice to someone who is thinking of entering a job like yours. How important is it for this person to have each of the following abilities and personality traits in order to be good at the job?" They were then asked to rate each of 37 items on a 4-category scale ranging from "makes no difference" to "is critical for doing a good job." In other studies that have compared the requirements of jobs, jobs have generally been characterized according to the frequency of use or the level of skill typically employed (e.g., McCormick, Jeanneret, & Mecham, 1972; U. S. Department of Labor, 1977), but in this study criticalness of the skill was considered most important. The reading activities most important to adults are not necessarily those they carry out most often (Murphy, 1973, as described in Kirsch & Guthrie, 1977-78). This is an important distinction because a reading disability may not constitute a serious handicap if a high-level or frequently-used reading skill is not particularly crucial to good job performance. Conversely, it is not clear that reading demands have to be frequent to be a serious barrier to dyslexics.

The 37 items were designed to tap the major domains of job demands that have been documented or proposed in the job analysis, human abilities, and sociological literatures (e.g., see Dunnette, 1976). Intellectual, interpersonal, and psychomotor skills, as well as some social attributes or resources, are represented. The items focus primarily on interpersonal and intellectual traits, however, because most men were expected to report professional or managerial jobs. The items are shown in Table 12. In the interest of minimizing the reading demands of their questionnaire, Gow men were not asked this question.

General educational development (GED) level is presented in one table because this measure is often used by vocational and employment counselors as a rough representation of the educational level required by jobs. GED is an estimate made by job analysts of the level of knowledge typically provided by formal educational curricula (U. S. Department of Labor, 1977).

Controlling for Social Class, Education, and IQ

As noted earlier, IQ and social class background are both related to the types of careers men pursue as adults. Therefore, they must be taken into account when assessing how other factors such as dyslexia might affect educational and career development. And as specified in Hypothesis 1, the careers of dyslexic men may differ from those of non-disabled men even when they have managed to attain the same level of education. Thus, some analyses are performed separately for men of different educational levels. Social class, IQ, and education are measured as indicated below.

Social class. Social class or socioeconomic status is most often

assessed by measuring income, occupation, education, or some combination of these variables. Three measures are used here to characterize the current social status of both the respondents and their fathers: the income typical of their occupations, the prestige or status of their occupations, and the major census group to which their occupations are classified. One or more of these social status measures is used depending on the purpose of the analysis being done.

The social class background from which one originates is usually measured by examining the social status of one's parents, usually the father. Therefore, the measures of father's own social status used here are also used to indicate the social class background of the respondents. Although father's education is a frequently used indicator of social status, it was not used because dyslexia is familial (DeFries & Decker, 1982; Finucci, Guthrie, Childs, Abbey, & Childs, 1976), meaning that more Gow than control fathers would themselves be reading disabled. It was assumed that any such reading disabilities would have been a greater handicap to the educational attainment than to the career advancement of fathers, meaning that a father's education would underestimate his own social class as determined by his occupation and, therefore, also the social class background of his son.

Education. The men were asked to report what degrees they had obtained and the responses were categorized as follows: GED or no degree, high school diploma, technical school diploma, AA degree, 3-year degree, BA or BS degree, Master's degree, law degree, or doctorate. For most of the analyses, men were grouped into 4 categories: less than high school diploma, high school diploma only, BA only, and more than BA. Many of the men cate-

gorized as having a "high school diploma only" actually have some college but no degree (Childs et al., Note 3).

IQ. Stanford-Binet scores were used to measure the IQs of the Gow men. This test is orally and individually administered and so presumably represents fairly well the general intellectual ability of people who have reading problems. The mean IQ of the two Gow age subsamples is 118, with a standard deviation of about 9.4. Although about one standard deviation above the average for high school students, this high mean is not surprising considering the socioeconomic status of the families of the Gow men and the fact that SES is correlated with IQ in the general population.

IQ scores had to be estimated for the control men from their scores on the Verbal subtest of the SAT. The transformation was based on estimates of the distribution of 12th graders on these two tests. The mean and standard deviation used for the Stanford-Binet were 105 and 15 and those for the SAT-V were 390 and 132 (Jensen, 1970). The mean and standard deviation of the control men on the SAT-V were, respectively, 585 and 88. The mean estimated IQ score was 127 with a standard deviation of about 10.2. This very high average, which is one and a half standard deviations above average, is not unreasonable. Rawson (1968) found, for example, that her population of private school boys from similarly high social class backgrounds averaged 131 on the Stanford-Binet. Furthermore, the mean IQ of PhDs is about 130 (Cronbach, 1960 p. 174) versus 115 to 120 for college undergraduates (Cronbach, 1960 p. 174; Plant & Richardson, 1958), and over half of the control men did obtain some sort of graduate degree. Because of their usefulness but uncertain validity, the IQ estimates for the control men are used in some of the following analyses but they are not central to any.

Analyses

The general plan of analysis is as follows. The first analysis looks at just how disabled the Gow men are according to different measures. It also deals with the question of whether adolescent scores can be used to characterize the men as disabled in adulthood. The second analysis examines how well the Gilman alumni function as a control for the Gow men. In addition, it explores to what extent the types of men attending the two schools may have changed over the decades. If there has been substantial change, age cohorts might have to be analyzed separately or extra care be taken in interpreting results. This second analysis also provides a glimpse of how successful the Gow men are according to several criteria when they are compared to their fathers and to the control men. The third set of analyses tests the first hypothesis by comparing the occupational distributions of Gow men to those of the control men and to men in general. Overall distributions are examined first and then men from different social backgrounds and with different levels of education are considered separately. The fourth set of analyses tests the second hypothesis by examining the effects of different degrees of disability on the occupations held by the Gow men. Occupational distributions are examined separately for mildly- and highly-disabled Gow men, controlling for social background and education. Then a path analysis is performed which assesses the importance of dyslexia relative to other predictors (such as IQ, social background, and high school grades) in determining whether men enter professional rather than managerial work. Finally, the last analysis tests the third hypothesis by examining how critical reading, writing, and other job skills are in different kinds of work.

Strengths and Limitations

This study overcomes some of the major defects that have plagued previous follow-ups of the reading disabled. Even the smaller subsamples of reading disabled men used here are large; with about 400 cases, they are almost ten times as large as most previous studies (e.g., see Schonhaut and Satz's review, in press). The sample also represents a particular type of reading handicap, a specific reading disability, whereas follow-up studies sometimes have failed to make clear whether their subjects, or what proportion of them, are poor readers because of generalized intellectual deficits (backward readers), emotional problems, or specifically linguistic deficits (e.g., Preston & Yarington, 1967), groups which may require very different treatment and have different prognoses (e.g., Yule, 1973). In addition, this study distinguishes between highly- and mildly-disabled men, men whose prognoses may also be quite different.

Another strength of this study is its use of a control group. Although this control group is not as comparable to the Gow sample as one might wish, it is large and represents approximately the same segment of society as that from which the Gow men were drawn. Comparing both these groups to the general population provides a good idea of just how different or similar the two groups are in various ways and puts their differences in social background and occupational achievement into broader perspective.

Adult achievements of poor readers have varied widely from study to study but, as Schonhaut and Satz (in press; see also Herjanic & Penick, 1972) have noted, this may be to a large extent the result of who was studied. For example, Rawson (1968) found that reading disabled men were very successful whereas Howden (1967; as described in Herjanic & Penick, 1972)

did not. However, men in the former study were of very high IQ and social class whereas men in the latter were not, which on this basis alone would lead one to predict large differences in outcomes. Although the Gow and control men are both of fairly high IQ and social class, this study still examines variations by social class and, as best possible, IQ.

This study focuses on only one adult outcome, occupation, but that outcome is examined with several indices. In addition to characterizing occupational outcomes according to the success they represent, information about the skills actually required by jobs in which the reading disabled are over- or underrepresented provides some clues about how one can compensate for a reading disability.

Men need to be followed up at least until their late twenties, and preferably into middle age, in order to get a good idea of what careers they will be following, but few follow-up studies have done so (Schonhaut & Satz, in press). In contrast, this study follows many of the men in both the Gow and control groups into their middle to preretirement years.

One limitation of the study is that very little information is available about what happened to the men between the high school period for which they have extensive school records and the year in which they responded to the questionnaire. Job histories, family events and resources, and strategies for coping with their disability were not examined. This information would be useful for better explaining the outcomes the men report. In addition, the men were not retested as adults, so the extent of their reading handicap at the time of follow-up cannot be measured. For the study of careers, however, this is less a limitation than it might seem, because career trajectories are often set early in life and so the severity of han-

dicap at the start of one's educational and occupational careers is probably more important than degree of handicap later in life.

Results

How disabled are the Gow men?

The disability levels of the Gow men are described in several ways in Table 3. The top panel of Table 3 shows actual versus expected mean grade levels for three tests (the first two of which have been averaged to obtain the average reading scores used in later analyses): Gray Oral Reading, Morrison-McCall Spelling, and Paragraph Meaning. The second panel shows how many grades behind the men were in actual performance compared to what would normally have been expected of them according to four different criteria. The bottom panel shows average reading deficits as measured by the reading quotients. The quotients provide a measure which is comparable across age and grade levels, an advantage not shared by the absolute measures of deficit shown in the second panel. However, it is useful to show absolute deficits in grade equivalents so that investigators may compare the Gow men to other populations for whom grade equivalents have been used and also to get an idea of how far behind the average student these men were when they left the Gow School.

Insert Table 3 About Here

The men left Gow in various grades, so their last test scores are available from different grades. The most common grades for last test scores were 10-12, with a few men staying for an extra year (shown here as Grade 13). Results are shown separately by the grade in which the last test

score was obtained because the same absolute deficit levels have a different meaning at different grade levels. Given the same degree of relative handicap (i.e., as measured by the quotients), youngsters tend to fall further and further behind grade level as they grow older, meaning that a 2-year deficit in grade 12 represents a less severe handicap than a 2-year deficit in grade 9.

Looking first at the absolute deficits in the second panel, Table 3 shows that the Gow men were behind grade level on the average, often quite far behind by late high school. Non-dyslexic youngsters of similarly high mean IQ would be above grade level. Expectations based on actual grade placement probably underestimate these men's deficits because they were somewhat retarded in grade placement for their age. But even with this lower-bound measure of expected performance, the men in grades 9-12 were from 1 to 2 grades behind in oral reading and 2 to 4 grades behind in spelling, with men in the upper grades showing the bigger deficits. The men were closer to expected grade level in paragraph meaning.

Basing expectations on mental age alone provides the largest estimate of reading deficits, ranging from 5 to 6 years for reading or 6 to 7 years for spelling in grades 9-12. These are probably overestimates because, even though students might theoretically be expected to reach an achievement level commensurate with their mental age, students above average in intelligence are generally not exposed in school to the opportunity to do so because material is usually geared to the more average student. Using the more moderate estimate based on the average of age for grade, chronological age, and mental age, the men still appear clearly handicapped, with their absolute deficits generally ranging from 3 to 5 years for both spelling and

reading in grades 9-12. The men appeared less handicapped in reading comprehension as measured by the Paragraph Meaning Subtest, but even here deficits ranged from 1 to 3 years for grades 9-12.

It should be noted, however, that the Gow men are literate by most definitions (e.g., see Harman, 1970) and that they can read at what many people would consider acceptable levels. Consider, for example, that the Army has set goals ranging from 5.0 to 7.0 grade equivalents for its remedial reading programs (Sticht, 1975, Chapter 8) and that the average reading level for the total Army population is only 9.0 grade equivalents (Sticht, 1975, Chapter 10). By grade 10 the Gow men have on the average already reached this latter level of proficiency.

The bottom panel shows reading quotients, the relative measures of disability, based on three types of expectations. These three types of quotients are very highly correlated, the first two types (based on chronological age alone and mental age alone) both being correlated .94 or above with the third (based on the average of chronological age, mental age, and age for grade), but they vary in the severity levels they portray. Focusing on the most realistic quotient, the third one, we see that the men averaged .83 on reading, .76 on spelling, and .89 on paragraph meaning. Using Myklebust's (1967) suggested cutoff of .89 for defining a disability, the men are clearly disabled on the average in oral reading and spelling, common indicators of dyslexia. The men appear to be borderline on the comprehension test.

Although clearly disabled as high school students, were the Gow men also disabled as adults? One might argue that the reading disabilities may have disappeared by the time of the follow-up for many men and so the follow-up

data are not very useful for determining the adult consequences of dyslexia. Although retest data are not available, there is ample justification to rely on the early scores, perhaps more so than on scores obtained in adulthood. As already noted, the course of a man's career is typically set during his twenties and depends to a great degree on his earlier educational attainment. Even if a man were to overcome his reading disability in adulthood, it would usually be difficult for him to pursue further education or a different career. Furthermore, data on the persistence of reading disabilities are consistent in showing that they are fairly intractable (Trites & Fiedorowicz, 1976; Spreen, 1982), and even that backward readers make better progress than more intelligent youngsters who are specifically reading retarded (Yule, 1973). Even though many dyslexics improve their skills and become "acceptable" readers, they usually still fall far short of attaining the skills that would otherwise be expected of them. This is reflected by the fact that average improvements among the Gow men during their tenure at the Gow School were quite modest, as mentioned earlier.

But these arguments aside, there are some data supporting the notion that the Gow men are still disabled in adulthood. Self-rated spelling ability in the aged 16-60 subsample correlates .41, .54, and .52, respectively, with high school quotients for oral reading, spelling, and the average of reading and spelling. Table 4 shows that almost half of all Gow men rated themselves as below average spellers, and two-thirds of those who were highly disabled in high school did so. In contrast, 61% of the control men rated themselves above average. In terms of self-perceptions, then, there are striking differences in adult abilities between the initially highly disabled, the initially mildly disabled, and the control men,

presumably few of whom are disabled.

Insert Table 4 About Here

Are the Gow and control men comparable, and are different age cohorts comparable?

Table 5 provides answers to these two questions as well as providing a general description of the personal characteristics, schooling, and occupations of different age cohorts. Men between the ages of 16 and 60 were grouped into four 10-year and one five-year age groups. Age groups were used (rather than groups defined by birth year or year of high school graduation, for example) for purposes of comparison with similarly organized data from other studies of careers.

Insert Table 5 About Here

The table presents means and percentages for selected characteristics for each of the age groups as well as for all men in the age ranges of 26-55 and 16-60. The results for men 26-55 are of more interest than those for men 16-60 because the Gow and control men are more comparable if samples are restricted to this narrower age range. Accordingly, most of the analyses reported below focus on the 26-55 age group. F-tests were done for the Gow men and then for the control men to determine whether or not the age cohorts differ from one another, and the significance levels of differences are shown separately for the age ranges 26-55 and 16-60. Whether or not the Gow men differ significantly from the control men was determined by T-tests. Once again, significance levels of differences are

shown separately for the age ranges of 26-55 and 16-60.

The men in Table 5 were born between the years 1920 and 1961. The oldest group graduated from high school around 1941 and the youngest group around 1975. On the average, the 26-55 year-olds had been out of high school from 15-18 years by the time of survey, though this period ranged from an average of 4 to 38 years for the youngest versus the oldest age cohorts. Average age at follow-up was about 35. The control men were one year older and had been out of high school about three years longer than the Gow men. For men aged 26-55, these results indicate that Gow men were age 20 on the average when they left high school whereas the control men were age 18.

Results are also shown for IQ, though they must be interpreted more cautiously. The control men averaged 9 IQ points higher than the Gow men, 127 versus 118. The tests of significance indicate that there are significant differences not only between the two schools, but across the different age cohorts. For both Gow and control men the 3 youngest cohorts had higher IQ scores than the two older groups.

The Gow men entered Gow at age 15 and in grade 9, and they stayed 2.6 years on the average. (This does not mean that they advanced 2.6 grades while at Gow because some were held back one or more grades.) The apparent trend for earlier and younger entry to Gow over the years did not reach the .05 level of significance. There were no significant differences across the age cohorts in Gray Oral Reading quotients, but the 3 younger cohorts appear to have had somewhat greater deficits in spelling and paragraph comprehension than did the older cohorts.

Table 5 shows that the fathers of different age cohorts differed little, if at all, meaning that the type of father sending children to these schools did not change over the years. However, the Gow and control fathers differed from each other in some respects. The Gow fathers held lower-level jobs as measured according to both occupational prestige and general educational development (GED) level. The income usually associated with their occupations was the same, however. Almost all fathers held white collar jobs or were farmers (very few were farmers), but there were considerably more professionals among the control fathers and more managers among the Gow fathers.

Finally, Table 5 shows some characteristics of the respondent's current or last occupation. The youngest cohort of men, those aged 16-25, clearly had different sorts of jobs than did the older men--less prestigious, lower paying, requiring lower educational skills, and less often white collar work. However, the three cohorts of men between the ages of 26-55 held essentially the same types of jobs. This was true of both the Gow and control men.

Turning to comparisons between Gow and control men, we see that their jobs were quite different. Whereas control men held jobs of approximately the same high level as did their fathers, the Gow men's jobs were less prestigious than those of their fathers (with prestige levels of about 49 versus 58), which were in turn somewhat lower level than those of the control fathers who had an average prestige level of 63. Much the same pattern is found for GED level as for prestige, which is not surprising because GED and prestige are typically correlated over .9. Like their fathers, almost all the control men (about 98%) were white collar workers

but Gow men were less often (88%) found in such work. Following the pattern of differences between the two sets of fathers, the Gow men were more often managers but control men were more often professionals in each of the three cohorts from 26-55. Whereas over half the control men were professionals, only one out of six Gow men were.

To summarize cohort differences, if we restrict our attention to men aged 26-55, there are no significant cohort differences for either Gow or control men in the prestige, inferred income, or category of the respondent's work. Both schools seem to have admitted higher IQ students beginning in the 1950's, but the socioeconomic background from which students came remained the same. The Gow school also appears to have admitted men somewhat more disabled in terms of spelling and comprehension in its more recent cohorts. Because of the stability in socioeconomic backgrounds and occupational attainments within the 26-55 age range, the analyses are restricted to this age range and separate analyses by cohort within this range were deemed unnecessary.

School differences were more striking. The men differed not only in occupations held, but also in IQ and socioeconomic background. The only characteristics on which the Gow and control men did not clearly differ were the percentage of fathers who were white collar workers and the usual income of the father's type of work. This would suggest that both IQ and socioeconomic status must be taken into account when comparing the occupational attainments of Gow men to those of the control men.

Accordingly, for later analyses respondents were divided into groups according to their father's occupation and separate analyses usually performed for each of the groups. The SES groups consisted of fathers who

were professionals, managers or farmers, salesmen, and "other" workers.

Although differences in IQ between the two samples may be sizeable, IQ is excluded from all further tables comparing Gow to control men because it is not clear that the mean IQ difference yielded by the transformation of SAT-V scores to IQs is valid. One analysis is described, however, that implies that any such IQ difference between the groups probably cannot account for much of the difference in outcomes between the Gow and control men. In any case, IQ is independent of reading disability level among the Gow men, so any differences in outcomes within the Gow sample that are associated with disability level cannot be ascribed to differences in IQ among the Gow men. Correlations of IQ with the measures of dyslexia--Gray Oral Reading and Morrison-McCall Spelling--are .01 and -.05. (The Paragraph Meaning quotient, however, is correlated .13 with IQ.)

In addition to the known significant differences between the Gow and control samples, there may be others which were not measured. However, the results do show that the control group is valuable for assessing the long-term effects of dyslexia. The two samples are more similar in social background and general ability level to each other than either one is to the general population, and to some extent the remaining differences between the groups can be controlled.

What jobs do Gow men hold and how do they compare to the jobs of other men?

We begin by examining the overall distribution of the Gow men, control men, and men in general across different occupational categories. The importance of the respondent's education and social background (as measured by his father's occupational category) are then examined to see to what

extent they explain the observed differences in employment for the Gow versus other men.

Overall distribution. Table 6 shows the percentage of Gow and control men (aged 16-60), of their fathers, and of the white civilian males in the labor force who are employed in each of the Census Bureau's 12 major groups. The mean prestige levels of the job titles in those groups are also shown in order to provide an idea of how desirable these groups of jobs tend to be in the eyes of the general public.

This table shows that the Gow men are found in professional occupations to about the same extent (16.7%) as men in general (15.0%); percentages in the farmer category are also similar (2.7% vs. 3.0%). However, Gow men are found four times as often in managerial work (45.6% vs. 11.9%), a category of relatively high prestige. They are found twice as often in sales work (16.0% vs. 7.3%). Gow men are less likely to be in clerical work and much less likely to be in blue collar work. Compared to men in general, then, they hold their own in the very highest level of work, they do very well in management and sales, but they are seldom found in the lower-level groups (those averaging 38 or lower in prestige) which employ two-thirds of white men in general.

Insert Table 6 About Here

Comparing Gow men to the control men and to both sets of fathers, it appears that Gow men are much less likely to be in professional work and much more likely to hold blue collar work such as crafts, transport operative (e.g., truck driving), or service (e.g., bartending) jobs.

The categories of Table 6 are broad, so it is useful to also look at what specific occupations these men held. This more specific information is useful not only for judging the occupational success of Gow men relative to other men, but also to provide an idea of what specific jobs other dyslexic men might profitably pursue. Table 7 focuses on Gow and control men aged 26-55 and on their fathers. The unweighted mean prestige of the occupational titles and the percentages of men in general who are employed in these categories are also shown. (Table 6 included respondents at all ages in order to provide samples most comparable in age to men in general, who are aged 16 and above, but Table 7 focuses on respondents aged 26-55 because this provides a better comparison of Gow and control men. The distributions in Tables 6 and 7 are quite similar, although the former includes somewhat lower-level jobs as would be expected.)

Insert Table 7 About Here

Looking first at professionals, the most striking finding is that the control men and both sets of fathers are most often either lawyers or physicians: 24.8%, 17.6%, and 28.2%, respectively, of all control men, Gow fathers, and control fathers. In contrast, only 1.2% of Gow men are found in these categories, a rate which approximates that for the general white male population.

Engineers are more numerous among the fathers (about 6%) than among their sons (1.2% for Gow respondents and 3.1% for control men) and teaching at either the college or non-college level is a more important source of employment (9.1%) for control men than for the three other groups of men. Gow men are found clearly more often than the other three groups only in

the technician category (the lowest level professional job listed in the table) and in the designer category (which is also a lower prestige job among professionals). Although proportionately fewer Gow than control men are teachers in non-college settings, school teaching (2.1%) rivals technician (2.9%) as a source of professional employment among Gow men. Overall, the striking difference between the Gow and control men is the absence among Gow men of a large overrepresentation compared to the general population in professional jobs requiring advanced degrees--law, medicine, and college teaching.

Turning to the largest major category of work for Gow men--managerial work--we see that Gow men are different from the control men in one major way. Almost one-quarter of the Gow men list themselves as vice-presidents, presidents, or chief executive officers, which is over twice the rate for control men. (Data for this subcategory are not available for the fathers or men in general.) Otherwise, employment in the other managerial titles is much the same or else relatively insignificant in all the groups of men. Gow men are as likely to be employed as bank officers, a relatively high-level managerial job, as are the men in the three other groups (percentages ranging between 5.2 and 5.7), which is 8 to 9 times the rate for the general white male population.

Within the sales group, Gow men are more likely to be sales representatives than are control men, and their greater representation in the farmer category is due to their greater employment as farmers rather than as farm managers. The remaining 8 major groups (listed in Table 9 as "other") employ 62.8% of men in general, 14.2% of the Gow men, but less than 4% of the three other groups, testimony to the unusualness of both the Gow and

control populations.

Some of the differences between the Gow and other men shown in Tables 6 and 7 are impressive, but are they unexpected in light of the other differences already shown between these men? We can say that Gow men are quite successful as a group, though not as successful as the control men or their fathers, but do differences in education or social background rather than in reading disability explain these differences? The next tables address this question.

Controlling for education and social background. Table 8 provides some information about the relation of the respondents' education and social background (i.e., father's occupation) to the types of jobs the respondents hold. In this table respondents have been grouped according to the occupational group of the father, and the distribution of jobs among the Gow and control men have then been shown separately for respondents in each of these father categories. This type of table has been common in intergenerational mobility research to investigate what is often referred to as the tendency of sons to "inherit" their fathers' occupations or ones similar.

The data for men in general in Table 8 are from one of the classic occupational mobility studies (Blau & Duncan, 1967) and consist of a very large and representative sample of the experienced male civilian labor force. Those data are for 1962, so the total distribution of jobs shown at the bottom of the table for men in general resembles the 1960 more than the 1970 labor force distribution (e.g., see Table 1). Comparable data were not available for 1970 or later, but it is unlikely that later data would differ enough to invalidate the conclusions reached here about differences in employment among the three samples of men.

Insert Table 8 About Here

The percentages of men obtaining a BA or higher and of those obtaining more than a BA are also shown in Table 8 for respondents from different social backgrounds.

Table 8 shows for all three samples of men that the jobs they get are related to some extent to the jobs their fathers hold. For example, the sons of professional men are more likely to get professional jobs themselves than are the sons of managers, who are in turn more likely to get professional jobs than are the sons of salesmen. The proportion of sons who are managers increases when fathers are managers and the proportion of sons who are salesmen increases when fathers are salesmen.

There are some notable differences among the Gow men, control men, and men in general, however. Looking at the three social background groups, we see that the Gow men are always less likely to be in professional work and more likely to be in management or sales than are the control men or men in general. No matter what the father's occupational group, Gow men are most likely to become managers; this is not true of the two other samples. If professional jobs are considered the best jobs, Gow men do not do as well as either the control men or men in general when social background is taken into account. However, Gow men are more homogeneous in the jobs they hold than are men in general of comparable social background, so they also less often hold the usually lower level and blue collar "other" jobs.

The last two columns of Table 8 show that the Gow men are not as highly educated as are the control men, which could account for some of the dif-

ferences in employment even when social background is taken into account. But these data also suggest that controlling for education will not erase the differences in employment between the two groups. The Gow men are indeed less likely than control men to get BAs and they seldom get an MA or higher, but the Gow men who are sons of professionals, managers, and salesmen are all equally likely to have BAs even though the types of jobs these sons hold differ. There is a slight trend for control men to obtain higher degrees the higher their father's occupational level, but the relation between father's job and the type of educational degree obtained by the son is not significant ($p=.86$ for Gow men; $p=.08$ for control men).

In more representative samples of men there is a moderate to strong relation between father's occupation and son's education, and the failure to find such a relation in either the Gow or control samples probably results from the homogeneity of these two samples. Both the Gow and control fathers presumably are fairly homogeneous in their ability to provide the environment and resources to enable their sons to pursue the best education they can; all the respondents having attended a private secondary school is testimony to this. The presence of a wide range of reading disability levels among Gow men of all social backgrounds would also be likely to overwhelm any small relation between their education and their social background.

Nevertheless, Table 8 does show large differences in the educational levels of Gow versus control men. These educational differences potentially could be responsible for a substantial portion of the employment differences because educational level is related to the jobs held by respondents. Table 9 controls explicitly for the educational level of the

respondents and shows that, although they are reduced, differences in employment between the Gow and control men remain. This table shows the distribution of respondents' occupations according to both their fathers' occupational groups and their own educational levels. The additional comparisons to be made with this table are limited because the Gow men seldom obtain more than a BA and the control men seldom obtain less than a BA. Thus Gow-control comparisons are limited to the men with "BAs only." The numbers of most highly educated Gow men and of least educated control men are too small to provide reliable results.

Insert Table 9 About Here

Looking first at differences between educational levels, it can be seen that a BA is somewhat helpful to Gow men in obtaining professional and in avoiding "other" work, but the differences are significant only among men with managerial fathers. Looking at the control men, an MA or higher degree seems to just about ensure either a professional or a managerial job, but most likely the former, no matter what the man's social background. When men with "BAs only" are considered, Table 9 reveals that control men are employed more often than Gow men as professionals and less often as managers or "other" workers no matter what the father's occupational group, though the differences are significant only for men with professional fathers. In sum, it appears that if Gow men have a BA they are more likely to enter professional jobs than if they do not have one, but the difference which can be attributed to increased education is considerably smaller than that which is associated with being a control rather than an equally highly educated Gow respondent. For example, the overall

increase in the professional category is from 11.1% to 16.0% for Gow men with a BA rather than high school diploma, but the percentage for control vs. Gow men with BAs is 31.4 vs. 16.0.

Table 9 suggests that social background and education operate in the same, but weaker, manner for Gow as for non-disabled men in influencing the type of work they enter. But the pattern breaks down more for some groups than others. In particular, the results suggest that the sons of professional men may be the most disadvantaged group relative to their non-disabled peers. Expectations among such families are more often for advanced degrees and professional work, both probably being particularly reading-intensive programs as already hypothesized.

Although employment differences remain when education is controlled, the differences in education between the Gow and control men are enormous and account for much of the overall difference in employment. Approximately half the Gow men have BAs, with only 8% having obtained advanced degrees as well. In contrast, 94% of the control men have BAs and over half also have advanced degrees. These educational differences between the Gow and control men would not disappear, and probably would not even be substantially reduced, if we had better data with which to control for IQ. No matter whether the control men have IQs estimated to be near 100 or near 140, that is, no matter whether they have the lowest or highest IQs in their group, over 90% of each IQ group gets BAs. None of the Gow IQ groups, even the highest IQ Gow men, is as likely as any of these control groups to obtain a BA, and only the Gow men with IQs between 130 and 140 even come near the 90% figure.

One final and more detailed analysis was done showing that the Gow-control differences in type of employment remain even when only respondents with fathers in the same specific occupations are considered. There were substantial numbers of fathers in both samples who were engineers, lawyers, physicians, or managers n.e.c., so the education and occupations of their sons were examined separately. The analysis for education showed that differences between Gow and control men were not reduced when only sons of men in each of these four occupations were compared (table not shown). For example, most lawyers' and physicians' sons among the control men get advanced degrees (61.1% and 71.4%) but the Gow sons seldom do (8.3% and 6.3%). In fact, more Gow men fail to complete high school (12.5% and 9.4%) than get advanced degrees.

The occupations of these respondents were also examined (table not shown). The number of cases in each of the educational groups is typically quite small, except for men with "BAs only" whose fathers were managers n.e.c. (63 Gow, 47 control men). About 12% of these Gow respondents were professionals and 60% managers, versus 28% and 47%, respectively, for the control men. The percentages for the other groups, though too small to be reliable, are consistent with the conclusion that no matter what the men's education or social background, Gow men are more often managers and less often professionals than are comparable control men.

Differences in employment were as hypothesized: dyslexic men are employed more often as managers and less often as professionals than are non-dyslexic men. This was true for men from all social backgrounds. Controlling for social background does not reduce the overall employment differences between Gow and control men much, but it reveals that men from

some social backgrounds are more disadvantaged relative to their non-disabled peers. Specifically, Gow-control differences in professional employment are larger among sons of professionals than among other sons, so it appears that dyslexia may represent a more severe disadvantage for the normally more socially advantaged men. Gow-control differences in education are striking, and when education as well as social background is controlled Gow-control employment differences are reduced considerably. Education is unrelated to social background within the two samples, so the pattern of larger differences for sons of professionals remains. It should be noted, however, that the large differences in education limit the employment comparisons that can even be made between the Gow and control men. The Gow men seldom have advanced degrees and control men seldom have less than a BA, so comparisons can only be made between the most educated half of the Gow men and the least educated half of the control men.

The foregoing analyses, together with those of Childs et al. (Note 3), provide evidence that dyslexia is a handicap to educational and occupational attainment, but several limitations of the analyses should be noted. First, although important determinants of occupational attainment such as age, social background, and education were controlled, other factors on which the Gow and control men might differ were not. IQ has already been mentioned as such a variable. Second, the analyses do not reveal <u>how</u> dyslexia operates as a handicap. Some disadvantages associated with dyslexia may not be related much, if at all, with the severity of the reading problem. The trauma of having a handicap, of having had to struggle to keep up with one's peers in a regular school setting, and of coming to expect failure may affect all dyslexic youngsters in much the same way. The Gow boys would have been expected to read above grade level considering

their above average IQs, but they in fact were often retarded in grade placement and still were reading far behind their grade mates, no doubt a distressing situation for high socioeconomic status youngsters whose parents tend to have high expectations for achievement. Other effects of dyslexia would be expected to be directly related to the severity of the reading handicap, and the severely disabled boys would be expected to face more obstacles than the mildly disabled ones in obtaining college degrees and good jobs. Our data cannot say anything about the first issue but the following section examines the second--the relation of attainment to severity of dyslexia.

To what extent are differences in occupation related to degree of specific reading disability?

Two different analyses are presented to assess the importance of severity of dyslexia relative to other advantages and disadvantages the men face. The first examines the occupational distributions of the more- versus the less-disabled Gow men, controlling for education and social background. The second is a path analysis that simultaneously examines the relation of a variety of variables to education and occupation.

Occupational distributions of mildly- versus highly-disabled Gow men. The occupational distributions of mildly- and highly-disabled Gow men and of the control men are shown in Table 10. Results are shown separately for men with BAs and for men who were high school graduates only. These results are also shown separately for men with professional and with managerial fathers. The occupations of the highly-disabled men do not differ significantly from those of the less disabled Gow men no matter which subgroup is considered, but the trend is consistent with earlier results.

Highly-disabled men are employed less often than mildly-disabled ones as professionals and more often in "other" jobs, and the Gow-control differences are largest for men with BAs and whose fathers are professionals. The mildly-disabled groups are midway between the control and the highly-disabled men in the percentages who are professionals.

Insert Table 10 About Here

Path analysis summarizing the effects of severity of dyslexia and other variables on attainment. The previous analyses suggest that, all else equal, dyslexics are disadvantaged relative to non-dyslexics, and one analysis indicated that severely-disabled men are more handicapped than are mildly-disabled men. The following path analysis goes beyond these analyses by (a) estimating how strong an effect different degrees of dyslexia have on educational and occupational attainments compared to other determinants of those outcomes and (b) illustrating the manner in which severity of dyslexia exerts its effect.

The model which was used in the analysis is as follows. It was assumed that reading disability level (the average reading quotient), IQ, age at time of survey, and social background (father's type of work) are important attributes characterizing respondents when they begin the educational and occupational attainment process (i.e., they are the exogenous or predetermined variables in the path model). These variables, or at least some of them, are further assumed to affect the level of reading comprehension (as measured by the Paragraph Meaning quotient) that men develop. In turn, all these previous variables potentially have an effect on the average grade men earn at Gow, all of which in turn potentially exert influence on the

degrees men eventually earn. Finally, type of job is assumed to depend on this earlier process. With these assumptions as a basis of analysis, a series of multiple regression analyses was done to estimate the size of the effects, if any, these variables have on later attainment and the intervening variables through which they may exert their influence. An analogous analysis for the control men was not possible because comparable data were not available for reading ability, comprehension, or grades.

The theoretical model and the results of the analysis are schematized in Figure 1. The arrows indicate all "effects" which have significant regression coefficients, and the standardized regression coefficients (shown along the arrows) provide a rough indication of the relative importance of different prior variables in determining later aspects of attainment. Only men holding professional or managerial jobs (70% of the Gow men) are included in the analysis and the model is used to predict which of them have the professional jobs. (Analyses were repeated for the entire sample to predict professional versus all other employment, and the results were the same. Childs et al., Note 3, found that spelling but not oral reading--both components of the average reading quotient used here--was related to obtaining a BA, but using the spelling quotient rather than the average reading quotient does not change the results either.) Means and standard deviations of the variables in the path model are given in Table 11.

Insert Table 11 and Figure 1 About Here

Figure 1 indicates that both IQ and the average reading quotient (which are themselves uncorrelated) are associated in the Gow sample with reading comprehension (the latter being represented by the Paragraph Meaning quo-

tient), but that age and having a professional father do not affect comprehension. The association with IQ is relatively small; the standardized regression coefficient of .10 means that a one standard deviation increase in IQ (9.6 points in this sample) results in only a .10 standard deviation change in the comprehension quotient, which works out to be an increase of only .01 (e.g., an increase from .86 to .87). The effects of reading quotient level are substantial, however; a change of .10 in the reading quotient is associated with an increase of about half this much in the comprehension quotient.

Turning to the prediction of grades, Figure 1 shows that IQ and comprehension have the largest direct effects, with standardized coefficients of .31 and .29, respectively. The dyslexia measure still has a direct effect of .23, as well as an indirect effect of .14 (i.e., .49 x .29) via its effect on comprehension, resulting in a total effect of .37. The total effect for IQ is .34. To illustrate these effects in a more meaningful way, an advantage of .10 in reading quotient (say .85 versus .75) translates into an advantage of 2 points on the usual 100-point grade scale (e.g., 72 versus 70). Just over a 10-point IQ advantage would have the same effect. Although IQ and reading disability have approximately equal and independent effects on high school grades at Gow, they leave much variation unexplained ($r^2 = .31$). Older men also seem to have earned somewhat higher grades in school. One possible explanation for this unexpected finding is that grading standards may have become more stringent over the years.

The results for educational attainment are interesting because they indicate that dyslexia affects degree level attained primarily via its

effects on reading comprehension and then grades. High school grades probably affect both the inclination of men to apply for admission to college and the likelihood that they will be admitted if they apply. In addition, if grades in high school reflect the capacity and motivation to obtain good grades in college, they are also likely to predict which Gow men will actually complete the BA and to help predict which men will pursue an advanced degree. Predicting educational degree in this sample, however, essentially means predicting a BA versus a high school diploma. IQ has a smaller though significant effect on educational level, but the pattern of effects is the same as for severity of dyslexia. The total effect of the reading quotient via all its pathways to degree level is .23; the total effect for IQ is .17. This means that an advantage of .10 in reading quotient (say .85 versus .75) equals the effect of a 13-point advantage in IQ. Translating this effect size into practical terms is difficult, but it may correspond to an increase of about a year of college.

About 24% of the variance in educational level is explained by the model. Although this is only about half as much variance as is sometimes explained in more representative samples of men (e.g., Sewell & Hauser, 1975), 24% is quite respectable considering how homogeneous the men are in both outcomes and predictors compared to men in general.

Figure 1 shows that predicting professional versus managerial work was not very successful ($r^2 = .09$). Obtaining higher levels of education and having a professional father both slightly increased the likelihood of respondents holding a professional job; the former is somewhat more important with a standardized coefficient of .16 versus .11 for the social background measure. It is important, however, to recall that the professional jobs

Gow men hold are not the professional jobs that come most readily to mind (lawyer and physician) and which employ a quarter of the control men. Instead, they are jobs such as technician and school teacher that seldom require advanced degrees, which is also the case for managerial and sales jobs. In short, we cannot predict which Gow men enter high-level professional jobs such as lawyer and physician because essentially none of them do. Our path model cannot predict which Gow men enter the low-level professional jobs versus the managerial ones, perhaps because their academic requirements do not differ very much.

The path analysis is consistent with the earlier findings that education and social background have a significant effect on category of work among the Gow men but that severity of dyslexia does not have a significant overall additional effect once educational level and social background are controlled. The analysis shows, however, that dyslexia has a substantial effect on high school grades, which in turn are quite important in determining educational level. The fact that degree of dyslexia does not predict category of work is perhaps somewhat misleading, because the lack of advanced degrees among Gow men (presumably due in large part to their dyslexia) means they are essentially excluded from what we usually think of as professional work, law and medicine, work which employs fully one quarter of the control men.

The path analysis also indicates that the earlier tables that compare Gow and control men may overestimate the educational differences due to dyslexia if the mean difference in IQ shown in Table 5 is valid. IQ was not taken into account in those earlier tables but it appears to be almost as important as severity of dyslexia in predicting educational attainment

among Gow men. Those earlier tables suggest, though, that only some segments of the disabled population are disadvantaged compared to their nondisabled peers of comparable education, specifically, the sons of professional men who also have a BA.

The path analysis has some limitations that should be noted. Childs et al. (Note 3) showed that the effects of dyslexia as measured by reading quotients are not linear. The Gow men who had the very lowest scores (quotients <.61) had a considerably lower probability of obtaining a BA than did any of the other groups who were more similar to each other in their chances of obtaining a BA. Path analysis assumes a linear relation between predictors and outcomes and so cannot document the special problems of such men. The scaling of the severity measure could be adjusted to reveal such differences, but this presupposes an understanding of the effects of dyslexia that we do not yet possess. If there had been many such extremely disabled men in the sample (they constituted only 2% of the sample), the coefficients for our model would have indicated a larger average effect for dyslexia. The results shown in Figure 1 primarily reflect the experiences of men with quotients between .70 and .90.

In addition, path analysis estimates a single set of coefficients for the model being used, even though subgroups within the sample might better be characterized by different models. For example, earlier tables suggested that obtaining a BA instead of not obtaining one significantly increased Gow men's chances of obtaining professional work among the sons of managers but not among the sons of professionals (the latter being more likely in both cases to be professionals). Such differences, which may be of great practical importance, are averaged out unless separate models are

estimated for the two groups, something that is not possible given our case size even if it were justified. Neither, of course, can the path analysis say anything about which types of Gow men are most handicapped relative to their non-disabled peers. The earlier tables suggested, in particular, that among men with BAs (the only educational group for which Gow-control comparisons could be made), the sons of professionals were more different from their non-disabled peers than were the sons of managers.

Finally, it must be stressed that this path model is only a first approximation of the process by which severity of dyslexia affects attainment. If the current path model is misspecified (i.e., if important variables have been omitted), the addition of these missing variables would change the size and pattern of estimated effects to some extent. But these caveats aside, the path analysis provides some clues to just how it is that severity of dyslexia affects attainment and how important it may or may not be compared to other factors such as IQ and social background which also affect attainment.

Are requirements for reading and writing skills higher in occupations in which dyslexic men are underrepresented?

Previous tables showed that Gow men tend to enter jobs requiring less education than those of control men. But do the jobs in which they are underrepresented actually require more reading and writing skills on the job? If not, then dyslexic men might be able to satisfactorily perform most any job if they can somehow overcome the educational barriers to entering them. If those jobs do in fact have higher demands for reading skills, however, it may be unrealistic to train for them unless one can compensate for on-the-job demands as well as for educational requirements.

Compensating for on-the-job reading demands may be more difficult than obtaining the necessary education or training. It may often be possible to obtain a BA or advanced degree despite dyslexia if one persists long enough, takes a light course load, studies at a non-selective school, chooses an easy major, enlists special help, or compensates in other ways. The importance of school grades, which are only partly related to dyslexia or IQ, is consistent with this and so are the results of Childs et al. (Note 3) who showed that Gow men take longer to get their degrees and they attend less selective colleges. In addition, colleges are increasingly making efforts to help the dyslexic student (Winslow, 1982). But employers buy services from workers, not the reverse as is the case with education, and they expect workers to perform their jobs in an adequate, timely manner without excessive use of organizational resources. Furthermore, even if a dyslexic man is willing to work extremely hard to obtain a BA or advanced degree, and even if his wife or family is willing to devote the large amount of time it often requires of them too to help him succeed in school, neither the man nor his family may be able to contemplate similar rigors throughout his entire career.

Table 12 suggests that there are indeed substantial differences in on-the-job requirements for reading and writing skills. This table shows the percentages of men who say that each of 37 job-related abilities or traits is critical for doing their jobs well. The data were gathered from control men only and so represent the job demands experienced by non-disabled men. Although some disabled men may be able to compensate on the job for abilities they lack, these data at least indicate which jobs would demand the greatest effort at compensation. Results are shown separately for three major groups of occupations: professionals, managers, and salesmen.

Around 14% of the Gow men are in other sorts of jobs, but data are not available for those other jobs because all but a few control men were in one of the three former groups. Results are also shown for four specific occupations frequently held by the control men: lawyer, physician, high-level managers (vice presidents, presidents, and chief executive officers), and miscellaneous managers (managers n.e.c., excluding vice presidents, presidents, and CEOs). The 37 job-related demands are listed in descending order according to the percentage of professional men who responded that they are critical for good job performance. All abilities or traits which are considered critical by at least 40% of the men in the major occupational groups are underlined; for specific occupations, items marked by at least 50% of the men are underlined.

Insert Table 12 About Here

Getting information and giving information through talking and having integrity are cited as critical by most men in all job categories listed in Table 12, but this is not true of any of the 34 other job demands. Looking first at the three general job categories, the major differences between the groups are as hypothesized. Getting information by reading is the fourth most important job demand made by professional jobs, with 61% of the control men rating it as critical. Reading is rated as critical by only about a third of the managers or salesmen. Reading ties for 13th place in importance among salesmen and 18th place among managers. Among managers, reading is less often critical than are non-academic skills such as taking initiative and responsibility, being persuasive, and representing their companies well to the public. Giving information by writing reports,

memos, etc. is less critical than is reading, but it is characterized by the same pattern. About 42% of the professionals, but only 29% of the managers and 19% of the salesmen say it is critical. Having a higher degree or credential is cited by 45% of the professionals but by only 3% of the managers and none of the salesmen.

As might be expected, the managerial jobs require more managerial skills than do either professional or sales jobs; the former must spot and tackle problems quickly, take initiative and responsibility, and evaluate, discipline, and praise others. Both managers and salesmen, but particularly the latter, must be persuasive and motivating. The distinctive demands of salesmen are to be competitive and represent their companies well to the public. On the average, then, reading, writing, and educational credentials are more critical for good job performance for professionals than for managers or salesmen. On the other hand, non-academic but not necessarily low-level skills such as taking initiative or being competitive or persuasive are more critical in the more entrepreneurial work.

Looking at the four specific occupations, the demands on lawyers and physicians are much the same, but writing is more critical for lawyers, and physicians require more dedication and conscientiousness, planning, spotting and tackling problems quickly, making decisions quickly, and concentrating in distracting and stressful situations. Reading, writing, and educational credentials are clearly more important in these two jobs than they are for the two types of managers. Even fewer of the VP/president/CEO managers than of the other managers cite these attributes as critical. For example, only one quarter of the control men who are in the former type of job say that reading for information is critical. That compares to 77% of

the lawyers and 60% of the physicians. The finding that the VP/president/CEO group is less likely than other managers to find reading, writing, and education critical is interesting because a greater proportion of the Gow than control managers are in this former category. Almost one quarter of the Gow sample held this type of work. The two sets of managerial jobs also tend to differ in their other requirements. It is more important for the VP/president/CEO group to be persuasive and motivating and to evaluate, discipline, and praise others, whereas being analytical, dedicated and conscientious, and coordinating and scheduling activities are more critical for the other managers.

Conclusions

The data used in this report provide a valuable glimpse of the adult status of dyslexic men. Several hundred men who were dyslexic as high school students and for whom considerable early test data are available were surveyed as adults. Their occupations were then compared to those of a control group and to some extent also to the jobs of men in the general U. S. population. Data on social background, educational performance, degree level, and intelligence, as well as on severity of reading disability itself, allowed an assessment of the degree to which dyslexia affects a man's occupational success. The data do not show how dyslexic men deal with their handicap, but the data do provide some clues.

The following pages review the major findings of the study and draw some implications for the vocational counseling of dyslexic youngsters.

Dyslexia and Occupational Success

(1) The Gow men were quite successful on the average, more successful than

the average man. Over 80% had white collar jobs and over 60% were in the two highest of the 12 census categories, that is, 60% were professionals or managers.

(2) Their jobs were not as high level on the average, however, as those of their fathers or of the control men. Both the latter groups were two to three times as likely to be in professional work as were the Gow men.

(3) When Gow men are professionals, they are rarely lawyers or physicians, the two professional jobs which are most common among both their fathers and the control men. Gow professionals are most often school teachers or technicians, jobs which usually do not require advanced degrees.

(4) When Gow men are managers, they are more often vice presidents, presidents, or chief executive officers than are the control men. Many of these men are proprietors of small businesses (e.g., in real estate, construction, retail, and service), but others are officers of larger companies. Other data indicate that two-thirds of these men own, or share ownership in, the businesses they help run; 20% started the business on their own. To some extent, then, it may be more appropriate to say that Gow men achieve their success through a different route than do control men than to say they are less successful because they are less often in professional jobs requiring advanced degrees. As noted earlier, managerial and sales work can pay quite well even though it is not automatically accorded the high prestige of many professional jobs. However, we do not have any data on the earnings of either the Gow or control men so we could not compare their incomes.

(5) Gow men obtain considerably less education than do the control men.

Gow men about equally often have only a high school diploma as they do a BA. Few have advanced degrees. This is in contrast to the control men who almost always have BAs and about half of whom have MAs or higher degrees. Some of this educational difference can be attributed to dyslexia. Some, however, can probably be traced to IQ differences because there are data to suggest that the control men have higher IQs. It is doubtful that the apparent IQ differences could explain all the Gow-control differences in education and occupation, though, because among the Gow men themselves IQ and severity of dyslexia are unrelated, meaning that severity of dyslexia has an independent effect on attainments. Furthermore, the severity measure does not even tap the handicaps such as lowered self esteem which dyslexia may impose regardless of the actual severity of the reading disability.

(6) These differences in education are associated with much of the difference in occupations between the Gow and control men. However, the analyses provide no way to distinguish between alternative explanations for the association. Gow men may fail to get the higher education often required for professional work and so have no option but to enter less education-intensive types of work such as management. On the other hand, many Gow men may for a variety of reasons prefer and plan for managerial careers and therefore not pursue more education than necessary for those careers, which is often not even a college degree. Planning for managerial work would clearly be a way to pursue a good job while avoiding much education. Childs et al. (Note 3) do show that a much higher percentage of the Gow than the control men with BAs majored in business.

(7) Dyslexia appears to influence educational level by affecting reading

comprehension and grades obtained in school.

(8) Much variation in educational performance and degree level among the Gow men themselves is not explained by dyslexia. IQ is almost as important as is reading disability level in determining educational outcomes. Other factors not measured, such as persistence and self confidence, might be presumed important as well.

Implications for Vocational Counseling

The following information should be useful to counselors, teachers, and parents in helping dyslexic youngsters. It should also help dyslexic youngsters themselves maintain or develop the self confidence, goals, and skills to succeed in their careers.

(1) Dsylexic men can be very successful, particularly if they have in their favor factors such as high intelligence and advantaged social backgrounds. An intensive and long-term treatment program such as that provided by the Gow School is no doubt an advantage as well, because the reading quotients of the Gow students did improve somewhat while they were at the school. An important question, however, is what happens to men who do not have all, or perhaps any, of such advantages, because dyslexia is indeed a handicap. It should also be remembered that, although the Gow men were generally reading far below their expected potential, they were still literate by most definitions and read as well as the general population on the average, that is, at about the 9th or 10th grade level when they left Gow.

(2) Some jobs are better bets for dyslexics because they require less education for the rewards they provide. Management and sales jobs can provide

incomes comparable to those of professional ones, but they often have lower educational requirements.

(3) Some jobs are better bets for dyslexics because non-academic skills are relatively more important than are reading and writing on the job. Once again, among the high-level jobs, these tend to be the managerial and sales rather than the professional jobs.

(4) Some Gow men do become lawyers or physicians, occupations quite common among their fathers and non-dyslexic peers, but these occupations appear to pose particular barriers to dyslexic men.

(5) One in six dyslexic men does get a professional job, but these jobs are usually ones not requiring advanced degrees, such as technician and school teacher.

(6) Almost one quarter of the Gow men are vice presidents, presidents, or chief executive officers, a considerably higher proportion than among their non-dyslexic peers. As noted earlier, over two thirds of these men own or share ownership of these businesses, many having started them on their own, indicating that self employment is an important source of success among Gow men. Running one's own business is certainly one way to bypass educational barriers to job entry and to better enable one to structure one's job to best compensate for a reading disability.

(7) Some groups of boys may find it particularly difficult to meet social expectations. Specifically, sons of professionals may experience more anxiety in pursuing their educations and careers than do other dyslexics, all else being equal. In non-disabled populations, the children from the highest status families have the highest occupational aspirations, reflecting

the higher expectations their social group has for them. But professional jobs requiring advanced degrees seem to be very poor bets for dyslexics. In contrast, managerial and sales jobs pose fewer problems, so the dyslexic sons of managers of salesmen can more easily obtain work comparable to that of their fathers. The sons of men in lower level white or blue collar jobs would be expected to experience even less difficulty in meeting family and peer expectations.

(8) Grades are important in determining whether one gets admitted to and then graduates from college or graduate school. There is no doubt that dyslexia is a handicap to getting good grades, but other factors seem to be just as important for dyslexic youngsters. Factors such as perseverance and motivation may be quite important in compensating for dyslexia, but there is really no hard evidence about what those factors actually are.

(9) Reading and writing are not the most important skills needed on many jobs, including many high-level jobs. This is not to say that reading is not important, but that there are often other more important requirements. Reading skills should be fostered, but dyslexic youngsters should also be made aware of the other skills that are critical in some jobs and which they either may already possess or can develop. Skills such as persuasiveness, taking initiative, and thinking of new approaches to problems may depend on self confidence but they are not dependent upon reading ability. Stressing the value of these other skills, many of which are certainly within the reach of dyslexic youngsters, should in itself help promote their confidence, and their family's confidence, in their ability to succeed.

Reference Notes

1. Gottfredson, L. S. A skills map: The general and specific competencies required in different occupations. Unpublished technical report. Baltimore, MD: Johns Hopkins University, Center for Social Organization of Schools, 1981.

2. Gottfredson, L. S. Differential educational payoff models and theories of the diversity of human talents. Paper presented at the annual meeting of the American Educational Research Association, Toronto, April, 1977.

3. Childs, B., Finucci, J. M., Pulver, A. E., & Tielsch, J. The natural history of specific reading disability. I. Educational Outcomes. Unpublished paper. Baltimore, MD: Johns Hopkins University, School of Medicine, Department of Pediatrics, 1982.

References

Bielby, W. T. Models of status attainment. In D. J. Treiman & R. V. Robinson (Eds.), Research in social stratification and mobility (Vol. I). Greenwich, Conn.: JAI Press, 1981.

Benton, A. L., & Pearl, D. Dyslexia: An appraisal of current knowledge. New York: Academic Press, 1977.

Byrne, J. Occupational mobility of workers. Monthly Labor Review, 1975, 98, 53-59.

Cronbach, L. J. Essentials of psychological testing (2nd ed.). New York: Harper, 1960.

DeFries, J. C., & Decker, S. N. Genetic aspects of reading disability: A family study. In R. N. Malatesha and P. G. Aaron (Eds.), Reading disorders: Varieties and treatments. New York: Academic Press, 1982.

Duncan, O. D. A socioeconomic index for all occupations. In A. J. Reiss, Jr. (Ed.), Occupatons and Social Status. New York: Free Press, 1961.

Dunnette, M. D. Aptitudes, abilities, and skills. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally College Publishing Company, 1976.

Finucci, J. M., Guthrie, J., Childs, A. L., Abbey, H., & Childs, B. The genetics of reading disability. Annals of Human Genetics, 1976, 40, 1-23.

Finucci, J. M., Isaacs, S. D., Whitehouse, C. C., & Childs, B. Empirical

validation of reading and spelling quotients. Developmental Medicine and Child Neurology, 1982, 24, 733-744.

Gottfredson, L. S. Construct validity of Holland's occupational typology in terms of prestige, census, Department of Labor and other classification systems. Journal of Applied Psychology, 1980, 65, 697-714.

Gottfredson, L. S. Circumscription and compromise: A developmental theory of occupational aspirations. Journal of Counseling Psychology, 1981, 28, 545-579 (Monograph).

Gottfredson, L. S., & Brown, V. C. Holland codes for the 1960 and 1970 censuses: Detailed occupational titles. JSAS Catalog of Selected Documents in Psychology, 1978, 8, 22. (Ms. No. 1660).

Gottfredson, L. S., & Brown, V. C. Occupational differentiation among white men in the first decade after high school. Journal of Vocational Behavior, 1981, 19, 251-289.

Gray, W. S. Gray Oral Reading Paragraph Tests. Indianapolis: Bobbs-Merrill, 1955.

Harman, D. Illiteracy: An overview. Harvard Educational Review, 1970, 40, 226-243.

Herjanic, B. M., & Penick, E. C. Adult outcomes of disabled child readers. The Journal of Special Education, 1972, 6, 397-410.

Holland, J. L. Making vocational choices: A theory of careers. Englewood Cliffs, New Jersey: Prentice-Hall, 1973.

Howden, M. E. A nineteen-year follow-up study of good, average, and poor

readers in the fifth and sixth grades. (Doctoral Dissertation, University of Oregon, 1967) Dissertation Abstracts International, 1968, 29 (1), 63A.

Huelsman, C. R. The WISC subtest syndrome for disabled readers. Perceptual and Motor Skills, 1970 30, 535-550.

Jensen, A. R. Selection of minority students in higher education. The University of Toledo Law Review, 1970 (Spring-Summer), Nos. 2 & 3, 403-457.

Kelly, T. L., Madden, R., Gardner, E. F.,& Rudman, H. C. Stanford Achievement Test. New York: Harcourt Brace and World, 1964.

Kirsch, I., & Guthrie, J. T. The concept and measurement of functional literacy. Reading Research Quarterly, 1977-1978, 8, 486-507.

Malatesha, R. N., & Aaron, P. G. (Eds.). Reading disorders: Varieties and treatments. New York: Academic Press, 1982.

McCormick, E. J., Jeanneret, P. R., & Mecham, R. C. A study of job characteristics and job dimensions as based on the Position Analysis Questionnaire (PAQ). Journal of Applied Psychology, 1972, 56, 347-368. (Monograph)

Morrison, J. C., & McCall, W. A. Morrison-McCall Spelling Scale. New York: Harcourt Brace and World, 1923.

Muller, W. Review of Navy research on the usability of technical manuals. In T. G. Sticht and D. Zapf (Eds.), Reading and readability research in the Armed Services. Alexandria, VA: Human Resources Research

Organization, 1976. (NTIS No. AD-A034730).

Murphy, R. T. Adult functional reading study. Final Report, Project No. 09004, PR-73-48. Educational Testing Service, December, 1973.

Myklebust, H. R. Learning disabilities: Definition and overview. In H. R. Myklebust (Ed.), Progress in learning disabilities (Vol. I). New York: Grune and Stratton, 1967.

Plant, W. T., & Richardson, H. The IQ of the average college student. Journal of Counseling Psychology, 1958, 5, 229-231.

Preston, R. C., & Yarington, D. J. Status of fifty retarded readers eight years after reading clinic diagnosis. Journal of Reading, 1967, 11, 122-129.

Rawson, M. B. Developmental language disability: Adult accomplishments of dyslexic boys. Baltimore, MD: Johns Hopkins Press, 1968.

Rutter, M. Prevalence and types of dyslexia. In A. L. Benton and D. Pearl (Eds), Dyslexia: An appraisal of current knowledge. New York: Academic Press, 1977.

Schonhaut, S., & Satz, S. Prognosis of the learning disabled child. A review of follow-up studies. In M. Rutter (Ed.), Behavioral syndromes and brain dysfunction in childhood. New York: Guilford Press, in press.

Sewell, W. H., & Hauser, D. L. Education, occupation, and earnings. New York: Academic Press, 1975.

Sewell, W. H., & Hauser, D. L. Causes and consequences of higher

education: Models of status attainment. In W. H. Sewell, R. M. Hauser, & D. L. Featherman (Eds.), Schooling and achievement in American society. New York: Academic Press, 1976.

Spreen, O. Adult outcome of reading disorders. In R. N. Malatesha and P. G. Aaron (Eds.), Reading disorders: Varieties and treatments. New York: Academic Press, 1982.

Sticht, T. (Ed.) Reading for working: A functional literacy anthology. Alexandria, VA: Human Resources Research Organization, 1975.

Temme, L. V. Occupation: Meanings and measures. Washington, D.C.: Bureau of Social Science Research, 1975.

Trites, R. L., & Fiedorowicz, C. Follow-up study of children with specific (or primary) reading disability. In R. M. Knights & D. J. Bakker (Eds.), The neuropsychology of learning disorders. Baltimore: University Park Press, 1976.

U. S. Bureau of the Census. Alphabetical index of industries and occupations. Washington, D.C.: U. S. Government Printing Office, 1971. (a)

U. S. Bureau of the Census. Classified index of industries and occupations. Washington, D.C.: U. S. Government Printing Office, 1971. (b)

U. S. Bureau of the Census. Census of population: 1970 subject reports, Final Report PC(2)-7A Occupational characteristics. Washington, D.C.: U. S. Government Printing Office, 1973.(a)

U. S. Bureau of the Census. Census of population summary characteristics. Washington, D.C.: U. S. Government Printing Office, 1973. (b)

U. S. Bureau of the Census. Historical statistics of the United States, Colonial times to 1970, Bicentennial edition (Part 1). Washington, D.C.: U. S. Government Printing Office, 1975.

U. S. Department of Labor. Dictionary of occupational titles (4th ed.). Washington, D.C.: U. S. Government Printing Office, 1977.

U. S. Department of Labor. Employment and training report of the President. Washington, D.C.: U. S. Government Printing Office, 1980.

Winslow, R. College for the learning disabled. New York Times Magazine, February 21, 1982, pp. 80; 87; 90; 91.

Yule, W. Differential prognosis of reading backwardness and specific reading retardation. British Journal of Educational Psychology, 1973, 43, 244-248.

Yule, W., & Rutter, M. Epidemiology and social implications of specific reading retardation. In R. Knights & D. Bakker (Eds.), The neuropsychology of learning disorders. Baltimore, MD: University Park Press, 1976.

Yule, W., Rutter, M, Berger, M, & Thompson, J. Over- and under-achievement in reading: Distribution in the general population. British Journal of Educational Psychology, 1974, 44, 1-12.

Table 1

Percentage of U.S. Men Employed in Different Major Occupational Groups: 1900-1970

(Column Percentages)

Occupational Group	1900	1910	1920	1930	1940	1950	1960	1970
White collar	17.6	20.2	21.4	25.2	26.6	30.5	35.3	39.5
Professional/technical	3.3	3.5	3.8	4.8	5.8	7.2	10.3	14.0
Managerial	6.8	7.7	7.8	8.9	8.6	10.5	11.0	11.0
Sales	4.6	4.6	4.5	6.1	6.4	6.3	7.0	7.0
Clerical	2.8	4.4	5.3	5.5	5.8	6.5	7.1	7.6
Manual and Service	40.8	45.1	48.2	50.0	51.7	54.5	56.2	56.0
Craftsmen	12.6	14.1	16.0	16.2	15.5	19.0	20.8	21.2
Operatives	10.4	12.5	14.4	15.3	18.0	20.5	20.6	19.7
Laborers	14.7	14.6	14.0	13.6	12.1	8.7	8.0	6.9
Service workers	2.9	3.6	3.6	4.6	5.7	6.0	6.5	8.1
Household	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1
Farm	41.7	34.7	30.4	24.8	21.7	15.0	8.5	4.5
Farmers/farm managers	23.0	19.7	18.4	15.2	13.3	10.0	5.5	2.7
Farm laborers	18.7	15.0	12.1	9.6	8.4	4.9	3.0	1.7

Source: These results calculated from Series 182-232 in U.S. Bureau of the Census (1975, pp. 139-140). The two estimates each for 1950, 1960, and 1970 have been averaged.

Table 2

Mean Income[a] and Occupational Prestige of White Men Employed Full-Time in Civilian, Non-farm Jobs: By Age, Education and Field of Work (1970)

Field of Work[b]	Years of Education Completed							
	12		13-15		16		17+	
	$	Pres	$	Pres	$	Pres	$	Pres
Ages 36-45								
Management/sales	12040	48	13720	49	18850	52	21210	59
Science/medicine	10580	50	11830	59	16190	65	23480	75
Clerical/accounting	9680	45	9830	47	14670	53	15140	58
Manual/technical	9410	36	10760	40	13470	51	14250	55
Social service/education	9080	44	9950	50	10660	59	11560	64
Ages 46-55								
Management/sales	13130	48	15420	50	20150	52	23650	59
Science/medicine	11140	51	13260	57	17840	66	25620	74
Clerical/accounting	9960	45	11730	49	16310	54	16900	52
Manual/technical	9490	36	10040	38	15380	48	16340	55
Social Service/education	9680	43	10990	49	12580	55	13870	64

Source: Gottfredson, Note 2, Table 3 (based in turn on a 1/1000 sample of men in 1970 census of population).

[a] Income in 1970 dollars.

[b] The fields of work listed here are the rough equivalents of five of the six categories in Holland's (1973) typology of work. The sixth category (Artistic) was omitted because it employs so few people. This typology was used in the research from which this table was taken: management and sales = Enterprising; science and medicine = Investigative; clerical and accounting = Conventional; manual and technical = Realistic; social service and education = Social. See Holland (1973) and Gottfredson (1980) for descriptions of Holland's typology and its relation to the census categories used in Table 1 and throughout this paper.

Table 3

Severity of Reading Disability among Gow Men Aged 16-60
Measured in Several Ways with Three Different Tests:
By Grade when Last Test Scores were Available

Means at last testing	Grade when last test scores available						
	≤ 8	9	10	11	12	13	Total
Grade level	8.4	9.8	10.8	11.8	12.8	13.8	11.2
Age	14.0	15.6	16.7	17.9	18.7	19.4	17.1
Stanford Binet IQ	120	121	117	116	115	113	118
(N)	(26)	(72)	(119)	(82)	(96)	(11)	(406)
Grade level expected from:							
Chronological age	9.0	10.5	11.6	12.9	13.6	14.3	12.0
Mental age	11.8	13.9	14.4	15.6	16.5	17.0	15.0
Average of actual grade level, chronological age, & mental age	9.6	11.3	12.2	13.4	14.3	15.0	12.8
Grade equivalent of test scores							
Gray Oral Reading	7.3	8.7	9.6	10.0	10.6	10.2	9.6
Morrison-McCall Spelling	6.6	7.6	8.6	8.8	9.2	10.0	8.5
Paragraph Meaning	8.5	10.1	10.8	10.9	11.4	11.3	10.7
Gap between test scores obtained and scores expected (in grade equivalents) on basis of:							
Actual grade level							
Gray Oral Reading	1.1	1.1	1.2	1.8	2.2	3.6	1.6
Morrison-McCall Spelling	1.8	2.2	2.2	3.0	3.6	3.8	2.7
Paragraph Meaning	-0.1	-0.3	0.0	0.9	1.4	2.5	0.5
Chronological age							
Gray Oral Reading	1.7	1.8	2.0	2.9	3.0	4.1	2.4
Morrison-McCall Spelling	2.4	2.9	3.0	3.1	4.4	4.3	3.5
Paragraph Meaning	0.5	0.4	0.8	2.0	2.4	3.0	1.3
Mental age							
Gray Oral Reading	4.5	5.2	4.8	5.6	5.9	6.8	5.4
Morrison-McCall Spelling	5.2	6.3	5.8	6.8	7.3	7.0	6.5
Paragraph Meaning	3.3	3.8	3.6	4.7	5.1	5.7	4.3
Average of grade level, chronological age, and mental age							
Gray Oral Reading	2.3	2.6	2.6	3.4	3.7	4.8	3.2
Morrison-McCall Spelling	3.0	3.7	3.6	4.6	5.1	5.0	4.3
Paragraph Meaning	1.1	1.2	1.4	2.5	2.9	3.7	2.1
Ratios of test ages to expectations (reading quotients) based on:							
Chronological age							
Gray Oral Reading	.88	.88	.86	.85	.84	.79	.86
Morrison-McCall Spelling	.82	.81	.82	.78	.76	.78	.80
Paragraph Meaning	.96	.97	.96	.90	.86	.84	.93
Mental Age							
Gray Oral Reading	.74	.73	.76	.73	.73	.69	.74
Morrison-McCall Spelling	.69	.67	.70	.67	.67	.69	.68
Paragraph Meaning	.79	.80	.82	.78	.77	.74	.79
Average of age for grade, chronological, and mental age							
Gray Oral Reading	.84	.84	.85	.82	.81	.76	.83
Morrison-McCall Spelling	.78	.77	.79	.75	.74	.75	.76
Paragraph Meaning	.91	.92	.92	.87	.85	.81	.89

Table 4

Self-rated Adult Spelling Ability of Gow and Control Men and of Gow Men with High versus Mild Levels of Reading Disability in High School: Ages 16-60

(Percentages)

Self-rated spelling	Gow			Control
	High Disability	Mild Disability	Total[a]	
Poor or terrible	25.2	5.2	15.6	1.0
Below average	40.8	21.9	31.2	8.7
Average	31.6	51.6	41.4	29.6
Above average	2.4	21.4	11.7	60.7
(N)	(206)	(192)	(403)	(415)

[a]Includes 5 men with reading quotients greater than 1.00.

Table 5

Selected Characteristics of Different Age Cohorts:
Gow versus Control Men
(means and percentages)

Characteristic		Age Cohorts					Totals		Significance Levels: Cohort Differences		School Differences	
		16-25	26-35	36-45	46-55	56-60	16-60	26-55	16-60	26-55	16-60	26-55
(N)[a]	Gow	(58)	(209)	(94)	(36)	(9)	(406)	(339)				
	Cont	(29)	(205)	(128)	(54)	(0)	(416)	(387)				
General Characteristics												
Birth Years[b]	Gow	1954-61	1944-53	1934-43	1924-33	1920-23	1920-61	1924-53				
	Cont	1955-59	1945-54	1935-44	1925-34	--	1925-59	1925-54				
Age at Survey	Gow	23	30	39	49	57	34	35	.000	.000		
	Cont	24	31	40	50	--	35	36	.000	.000	.001	.006
Year HS Grad.	Gow	75	68	60	50	41	65	64	.000	.000		
	Cont	74	68	59	49	--	63	62	.000	.000	.001	.001
Years out of HS (if graduated)	Gow	4	11	19	29	38	14	15	.000	.000		
	Cont	6	12	21	31	--	17	18	.000	.000	.000	.000
IQ	Gow	119	120	116	106	100	118	118	.000	.000		
	Cont	126	129	129	119	--	127	127	.000	.000	.000	.000
Data on attendance and tests at Gow												
Age at Entry		14.8	15.2	15.2	15.8	15.9	15.2	15.2	.055	.119	--	--
Grade at Entry		9.0	9.3	9.2	9.8	10.0	9.3	9.3	.068	.086	--	--
Years at Gow		2.3	2.6	2.8	2.5	2.6	2.6	2.6	.415	.457	--	--
Gray Oral Quotient		.83	.82	.83	.85	.86	.83	.83	.391	.206	--	--
Morrison-McCall Quotient		.76	.76	.75	.83	.80	.76	.76	.010	.002	--	--
Paragraph Meaning Quotient		.86	.90	.87	.93	.93	.89	.89	.002	.006	--	--

Table 5 cont.

Characteristic		Age Cohorts 16-25	26-35	36-45	46-55	56-60	Totals 16-60	26-55	Significance Levels: Cohort Differences 16-60	26-55	School Differences 16-60	26-55
Fathers' Occupational Characteristics												
Prestige level of job	Gow	59	58	58	59	58	58	58	.997	.958	.000	.000
	Cont	59	62	63	63	--	62	63	.732	.891		
GED level of job	Gow	5.1	5.1	5.1	5.4	5.2	5.1	5.1	.161	.044	.009	.008
	Cont	5.1	5.3	5.3	5.3	--	5.3	5.3	.768	.979		
Usual (1969) income of job	Gow	11994	12013	12016	12157	12032	12025	12030	.994	.902	.559	.511
	Cont	11810	12128	12123	12136	--	12107	12128	.912	.999		
% white collar or farmer	Gow	96.5	97.0	96.7	100.0	100.0	97.2	97.3	.828	.564	.322	.184
	Cont	92.6	98.0	99.2	100.0	--	98.3	98.7	.082	.448		
% Professional/ technical	Gow	33.3	31.2	31.5	30.6	22.2	31.3	31.2	.977	.994	.000	.000
	Cont	37.0	49.2	48.4	45.1	--	47.6	48.4	.665	.870		
% Manager/farmer	Gow	52.6	54.0	53.3	61.1	66.7	54.6	54.6	.858	.701	.000	.000
	Cont	44.4	40.8	39.5	41.2	--	40.7	40.4	.972	.968		
Respondents' current or last occupation												
Prestige level of job	Gow	36	49	51	51	49	47	49	.000	.089	.000	.000
	Cont	46	62	64	61	--	61	62	.000	.417		
GED level of job	Gow	3.6	4.5	4.8	4.8	4.3	4.4	4.6	.000	.003	.000	.000
	Cont	4.3	5.2	5.4	5.3	--	5.2	5.3	.000	.469		
Usual (1969) income of job	Gow	7325	10338	10875	10689	10068	10045	10523	.000	.195	.000	.000
	Cont	9061	11513	11885	11570	--	11464	11644	.000	.387		

Table 5 cont.

Characteristic		Age Cohorts 16-25	26-35	36-45	46-55	56-60	Totals 16-60	Totals 26-55	Significance Levels: Cohort Differences 16-60	Cohort Differences 26-55	School Differences 16-60	School Differences 26-55
% White collar or farmer	Gow	60.3	85.2	93.6	88.9	88.9	84.0	87.9	.000	.112	.000	.000
	Cont	82.8	96.6	99.2	98.2	--	96.6	97.7	.000	.293		
% Professional/ technical	Gow	12.1	18.2	17.0	16.7	11.1	16.7	17.7	.841	.957	.000	.000
	Cont	27.6	55.1	53.1	44.4	--	51.2	53.0	.030	.378		
% Manager/farmer	Gow	20.7	48.3	61.7	55.6	55.6	48.3	52.8	.000	.092	.000	.000
	Cont	37.9	30.2	35.2	40.7	--	33.7	33.3	.451	.302		

[a] N's are slightly lower for some variables, primarily fathers' occupational characteristics, because of missing data.

[b] The survey of the Gow men was done one year earlier, in 1979, than for the control men. Therefore, for the same age at time of survey, the Gow men were born one year earlier than the control men and, all else equal, would have also graduated from high school one year earlier. Gow men actually ranged in age only from 18-59 and control men from 24-55.

Table 6

Percentage of Men in Different Occupational Groups: Gow and Control Men Aged 16-60, Their Fathers, and White Men in General[a]

Occupational Group	Unweighted mean prestige of titles[b]	White Men in General	Respondents		Fathers	
			Gow	Control	Gow	Control
Professional/ technical	62	15.0	16.7	51.2	31.3	47.6
Managerial	51	11.9	45.6	32.9	53.0	39.7
Sales	40	7.3	16.0	9.6	11.4	9.7
Clerical	38	7.5	3.0	2.2	0.0	0.2
Crafts	38	21.9	5.9	1.4	2.0	1.7
Operatives, ex. transport	28	13.2	1.2	0.2	0.5	0.0
Transport operatives	28	5.6	3.2	0.0	0.0	0.0
Laborers	18	5.9	2.5	0.7	0.0	0.0
Farmers	35	3.0	2.7	0.7	1.5	1.0
Farm Laborers	20	1.5	0.2	0.0	0.0	0.0
Service	26	7.2	3.0	1.0	0.3	0.0
Household	11	0.04	0.0	0.0	0.0	0.0
(N)		(~2,118,250)	(406)	(416)	(396)	(403)

[a]Calculated from data on white men age 16 and over in the 1970 experienced civilian labor force (U.S. Bureau of the Census, 1973, Table 2). These data represent a 5% sample of the U.S. population. Men not reporting a codable occupational title are excluded here.

[b]Source: Gottfredson (1980).

Table 7

Percentage of Men in Different Specific Occupations: Gow and Control Men Aged 26-55, Their Fathers, and White Men in General[a] (Column Percentages)

	Unweighted Mean Prestige of Titles[b]	White Men in General	Respondents		Fathers	
			Gow	Control	Gow	Control
Professional/technical		15.0	17.7	53.0	31.2	48.4
Accountant (001)[c]	61	1.2	0.6	0.8	1.2	1.9
Architect (002)	71	0.1	0.9	1.8	1.2	1.1
Computer specialist (003-005)	65	0.5	1.5	1.8	0.3	0.0
Designer (183)	56	0.2	1.5	0.5	0.3	0.3
Engineer (006-023)	66	2.8	1.2	3.1	5.8	6.9
Lawyer/judge (030, 031)	77	0.6	0.9	14.5	7.3	9.6
Physician/dentist (062, 065)	83	0.8	0.3	10.3	10.3	18.6
Reporter/editor (184)	65	0.2	0.6	2.6	0.0	0.5
Scientist, physical & math (035-054)	69	0.4	0.6	1.3	1.2	1.3
Scientist, social (091-096)	69	0.2	0.3	1.3	0.0	0.0
Social work, clergy (086, 100, 101)	57	0.7	1.5	1.3	0.6	0.8
Teacher, college (102-140)	72	0.8	0.0	3.9	0.6	2.4
Teacher, non-college (141-145)	57	1.8	2.1	5.2	0.3	1.3
Technician (150-173)	49	2.0	2.9	0.3	1.2	0.0
Other professional	55	2.7	2.9	4.4	0.9	3.7
Managerial		11.9	49.6	32.6	53.0	39.6
Bank officer/financial manager (202)	60	0.6	5.3	5.7	5.2	5.6
Buyer/purchasing agent (203, 205, 225)	50	0.7	1.1	0.5	0.9	1.1
Manager, n.e.c. (245)	50	7.2	34.2	19.1	41.5	29.0
President/V. President/CEO		—	23.0	9.6	—	—
Other		—	11.2	9.6	—	—
Public official/inspector (215, 222)	51	0.6	0.9	1.3	0.3	0.8
Sales manager (231, 233)	54	1.0	5.0	2.1	3.6	1.6
School administrator (235, 240)	70	0.3	0.6	1.6	0.6	1.3
Other manager	51	1.5	2.4	2.3	0.9	0.3
Sales		7.3	15.3	9.8	11.5	9.6
Insurance, real estate (265, 270)	49	1.3	4.7	4.1	4.2	3.5
Retail sales (283-285)	37	3.1	1.8	0.5	3.3	4.5
Sales representative (281-282)	45	2.3	5.9	1.3		
Stock & bond (271)	66	0.2	2.4	3.4	3.9	1.3
Other sales	30	0.4	0.6	0.5	0.0	0.3
Farmer		3.0	3.4	0.8	1.5	0.8
Farmer (801)	31	2.8	2.7	0.3	1.2	0.8
Farm manager (802)	39	0.1	0.6	0.5	0.3	0.0
Other		62.8	14.2	3.9	2.7	1.6
(N)		(~2,118,250)	(339)	(387)	(330)	(376)

[a] See footnote a on Table 6.

[b] Calculated from data in Gottfredson & Brown (1978).

[c] Numbers next to occupational titles are the codes assigned by the Census in its 1970 occupational classification (see Gottfredson & Brown, 1978).

Table 8

Occupational Distribution and Educational Level of Respondents Aged 26-55 with Fathers in Different Occupational Groups: Gow Men, Control Men, and Men in General[a]

(Row percentages)

Father's Occupation	Respondent's Occupation						(N)	% Respondents with:	
	Prof	Man	Sales	Cler	Farm	Other		BA or more	MA or more
Professional									
Gow	25.2	48.5	11.7	1.9	1.9	10.7	(103)	59.0	10.0
Control	65.9	26.4	5.5	0.5	0.0	1.6	(182)	94.5	65.2
General[b]	41.0	17.5	9.0	6.9	1.2	24.4	(753)	n.a.	n.a.
Managerial									
Gow	15.3	54.0	13.6	1.7	2.3	13.1	(176)	55.2	8.0
Control	43.6	40.3	9.4	2.0	2.0	2.7	(149)	94.0	51.4
General	21.6	34.1	9.1	7.1	1.0	27.2	(1844)	n.a.	n.a.
Sales									
Gow	7.9	47.4	34.2	0.0	2.6	7.9	(38)	59.5	8.1
Control	30.6	27.8	33.3	5.6	0.0	2.8	(36)	97.2	44.4
General	19.5	30.0	15.0	6.2	1.7	27.7	(629)	n.a.	n.a.
Clerical									
Gow	--	--	--	--	--	--	(0)	--	--
Control	--	--	--	--	--	--	(1)	--	--
General	28. 1	17.8	7.8	9.6	1.4	35.3	(530)	n.a.	n.a.
Farmers									
Gow	--	--	--	--	--	--	(4)	--	--
Control	--	--	--	--	--	--	(3)	--	--
General	5.3	11.5	2.5	4.7	17.8	58.2	(4382)	n.a.	n.a.
Others									
Gow	--	--	--	--	--	--	(9)	--	--
Control	--	--	--	--	--	--	(5)	--	--
General	10.7	13.2	4.4	7.4	1.2	63.1	(7518)	n.a.	n.a.
Total									
Gow	17.6	50.3	15.2	2.1	2.7	12.1	(330)	56.5	8.4
Control	53.5	31.9	10.1	1.6	0.8	2.1	(376)	94.4	57.8
General	12.9	16.2	5.2	6.6	5.9	53.2	(15695)	12.3[c]	n.a.

[a]Gow men were aged 26-55 in 1979, control men were 26-55 in 1980, men in general were 25-64 in 1962.

[b]Source for men in general: Blau & Duncan (1967, Table J2.1). N's for occupational results were reconstructed by dividing population estimates in Table J2.1 by 2170 (refer to Blau & Duncan, p. 479). Results based on both white and non-white men in the experienced civilian labor force.

[c]1970 census data (U.S. Bureau of the Census, 1973, Table 5) show that 13.8% of men in general in 1970 had 16 or more years of education (presumably at least a BA).

Table 9

Occupational Distribution of
Respondents Aged 26-55 with Fathers in Different Occupational Groups:
Gow vs. Control Men with Different
Levels of Education
(Row percentages)

Father's Occupation	Respondent's Education and Occupation														
	HS Grad Only					BA Only					More than BA				
	Prof	Man	Sales	Other	(N)	Prof	Man	Sales	Other	(N)	Prof	Man	Sales	Other	(N)
Professional															
Gow	17.6	58.8	5.9	17.6	(34)	22.4	51.0	18.4	8.2	(49)	—	—	—	—	(10)
Control	--	--	--	--	(10)	47.2	37.7	13.2	1.9	(53)	77.1	20.3	1.7	0.8	(118)
Manager/Farmer															
Gow	8.2	53.4	11.0	27.4	(73)	15.5	59.5	19.0	6.0	(84)	—	—	—	—	(14)
Control	--	--	--	--	(10)	25.4	47.6	17.5	9.5	(63)	65.4	33.3	1.3	0.0	(78)
Sales															
Gow	6.7	40.0	33.3	20.0	(15)	5.3	52.6	42.1	0.0	(19)	—	—	—	—	(3)
Control	—	—	—	—	(1)	10.5	36.8	47.4	5.3	(19)	56.3	18.8	12.5	12.5	(16)
Total [a]															
Gow	11.1	53.2	11.9	23.8	(126)	16.0	55.1	21.8	7.1	(156)	57.1	39.3	0.0	3.6	(28)
Control	19.0	47.6	19.0	14.3	(21)	31.4	41.6	21.2	5.8	(137)	71.3	25.0	2.3	1.4	(216)

[a] Includes fathers in "other" occupations.

Table 10

Occupational Distribution of Highly Disabled, Mildly Disabled, and Control Men Aged 26-55 by Educational Level and Father's Occupation

(Row Percentages)

Father's Occupation	Respondent's Education and Occupation									
	HS Grad Only					BA Only				
	Prof	Man	Sales	Other	(N)	Prof	Man	Sales	Other	(N)
Professional										
High	5.9	70.6	0.0	23.5	(17)	15.4	53.8	15.4	15.4	(26)
Mild	25.0	50.0	12.5	12.5	(16)	30.4	47.8	21.7	0.0	(23)
Control	--	--	--	--	(10)	47.2	37.7	13.2	1.9	(53)
Manager/Farmer										
High	9.8	51.2	9.8	29.3	(41)	10.5	57.9	21.1	10.5	(38)
Mild	6.3	56.3	12.5	25.0	(32)	17.8	62.2	17.8	2.2	(45)
Control	--	--	--	--	(10)	25.4	47.6	17.5	9.5	(63)
Total										
High	8.3	56.9	8.3	26.4	(72)	11.5	56.4	20.5	11.5	(78)
Mild	12.5	51.8	16.1	19.6	(56)	21.0	53.1	22.2	3.7	(81)
Control	19.0	47.6	19.0	14.3	(21)	31.4	41.6	21.2	5.8	(137)

Table 11

Means and Standard Deviations of Career Predictors and Outcomes in Path Model: Gow Men Aged 26-55 in Either Professional or Managerial Jobs

(N=230)

Variable	Mean	SD
Severity of Dyslexia[a]	.80	.10
IQ	118	9.6
Professional father vs. other[b]	.33	.47
Age at survey	35	6.9
Paragraph Meaning Quotient	.90	.10
Average grade at Gow	73	5.3
Degree level[d]	1.67	.74
Respondent holds professional vs. managerial job[e]	.25	.43

[a]Average of Gray Oral and Morrison McCall Spelling quotients.

[b]Professional = 1; all others = 0.

[c]Average grades at Gow including failures and repeats.

[d]Less than high school diploma = 0; high school diploma = 1; BA = 2; higher degree = 3.

[e]Professionals = 1; managers = 0; all others excluded from analysis. Farmers are included as managers.

Table 12

Percentage of Control Men Aged 26-55 Rating 37 Job-Related Abilities or Traits as Critical for Doing their Own Jobs Well: For Major Occupational Groups and Several Specific Occupations

Job-Related Abilities or Traits	Major Occupational Groups[a]				Specific Occupations[b]				
	Professional	Manager/ Farmer[c]	Sales	Significance Level of Differences	Lawyer[d]	Physician[e]	VP/Pres/CEO	Other Manager n.e.c.	Significance Level of Differences
Get information by talking with people	68.2	69.9	61.3	.659	70.8	89.2	58.1	81.3	.020
Give information by talking with people	66.3	62.8	71.0	.666	68.1	81.1	71.0	65.6	.479
Have integrity	62.3	61.4	77.4	.233	70.8	78.4	62.5	53.1	.134
Get information by reading	61.4	29.8	35.5	.000	77.1	59.5	25.0	34.4	.000
Think logically and analytically	58.8	46.5	37.5	.026	75.5	54.1	37.5	65.6	.006
Pay attention to details	53.4	39.5	56.3	.046	72.9	54.1	21.9	46.9	.000
Be dedicated and conscientious	51.4	43.8	59.4	.224	47.9	64.9	45.2	56.3	.323
Handle several tasks at one time	51.1	66.7	35.5	.002	58.3	54.1	65.6	65.6	.696
Have higher degree or credential	45.3	2.6	0.0	.000	68.9	66.7	0.0	0.0	.000
Plan ahead and anticipate problems	44.1	52.6	37.5	.203	42.9	51.4	62.5	62.5	.223
Give information by writing reports; memos etc.	42.4	28.9	18.8	.008	57.1	32.4	12.5	37.5	.001
Spot and tackle problems quickly	38.4	48.2	37.5	.221	44.9	51.4	50.0	59.4	.651
Take initiative and responsibility	36.7	60.7	31.3	.000	34.7	27.0	58.1	68.8	.001
Learn quickly	35.1	28.9	19.4	.175	36.2	40.5	31.3	31.3	.821
Concentrate in distracting or stressful situations	34.5	28.6	25.0	.408	40.8	51.4	21.9	32.3	.074
Be fair and impartial	34.1	29.8	12.5	.050	26.5	22.2	25.0	34.4	.712
Visualize things before completion	31.6	35.1	21.9	.364	30.6	29.7	40.6	50.0	.240
Coordinate and schedule activities	30.5	39.5	40.6	.221	28.6	21.6	25.0	53.1	.024
Be persuasive and motivating	26.1	43.9	56.3	.000	44.9	16.2	62.5	40.6	.001
Think of new approaches to problems	26.0	31.6	15.6	.182	28.6	21.6	31.3	37.5	.540
Make decisions quickly	24.9	32.5	18.8	.198	18.4	51.4	25.0	40.6	.007
Evaluate, discipline, praise others	24.4	46.5	15.6	.000	6.1	16.2	56.3	34.4	.000
Have a good memory	22.2	16.7	18.8	.512	20.4	29.7	12.5	15.6	.296
Represent company well to the public	21.7	37.7	50.0	.001	22.9	16.2	37.5	34.4	.152
Have poise	21.1	24.8	34.4	.257	27.7	21.6	19.4	31.3	.662
Cooperate with coworkers	20.6	28.9	12.5	.087	8.3	16.2	21.9	34.4	.031
Be tactful and considerate	20.5	19.3	31.3	.325	8.3	35.1	15.6	18.8	.018
Have a lot of ideas	17.6	15.8	28.1	.270	16.3	8.1	15.6	18.8	.609
Be competitive	14.3	22.8	46.9	.000	20.8	11.1	25.0	25.0	.430
Have good contacts	13.6	17.5	31.3	.046	12.2	10.8	37.5	6.3	.002
Have manual dexterity	9.7	3.5	0.0	.034	0.0	35.1	0.0	6.3	.000
Be good at math	8.6	17.7	9.7	.063	0.0	0.0	18.8	18.8	.001
Have physical coordination	6.2	3.5	0.0	.244	0.0	21.6	0.0	9.4	.000
Follow orders and support company policies	4.0	12.5	15.6	.011	2.0	0.0	12.9	9.4	.057
Be attractive and well groomed	3.4	5.3	21.9	.000	6.1	2.7	9.4	0.0	.294
Have attended the right college	2.9	0.9	3.1	.492	2.1	2.7	0.0	0.0	.662
Have physical strength and endurance	2.3	6.1	0.0	.111	0.0	5.4	3.1	9.4	.195
(N)[f]	(175)	(114)	(32)		(47)	(37)	(32)	(32)	

[a] All percentages ≥ 40.0 are underlined for major occupational groups.

[b] All percentages ≥ 50.0 are underlined for specific occupations. The specific occupations are also included in the major groups: lawyers and physicians are professionals and the vice presidents/presidents/CEOs and managers, n.e.c. are included in the managers major group.

[c] Three farmers are included with the managers.

[d] One judge is included with the lawyers.

[e] Two dentists are included with the physicians.

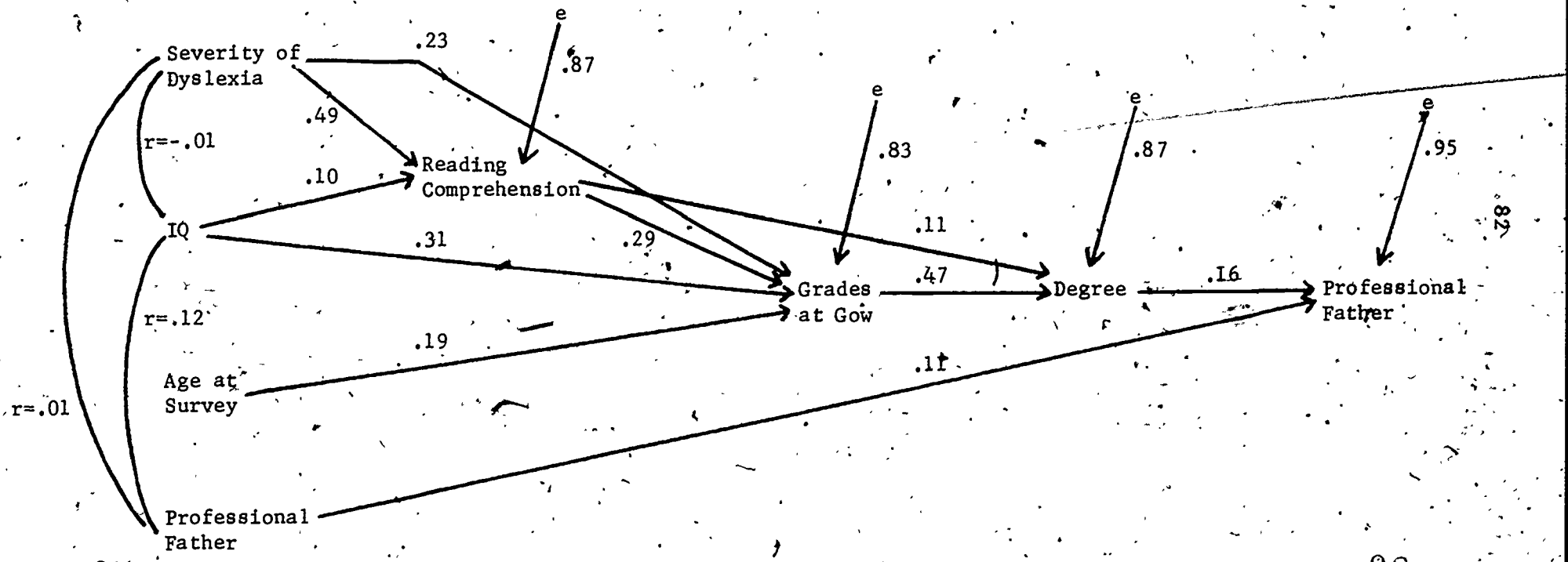
[f] N's are slightly higher for some items than shown here.

Figure 1

Path Model of Educational and Occupational Attainment Among Gow Men Aged 26-55

Who Hold Either Professional or Managerial Jobs

(Standardized Regression Coefficients, N=230)



Appendix A

Gow Questionnaire

GOW SCHOOL-JOHNS HOPKINS
FOLLOW-UP QUESTIONNAIRE

CONFIDENTIAL

A. This section includes questions about your EDUCATIONAL EXPERIENCES since leaving the Gow School

(Please do not write in this space)

1. List below any schools and colleges that you have attended since leaving Gow. (If none, check this box ☐.)

		School	Dates of Attendance (from)	(to)
Jr. High, Sr. High, or Prep School	a)			
	b)			
	c)			
Tech. School, Jr. Coll., College or University	a)			
	b)			
	c)			
Professional School or Graduate School	a)			
	b)			
	c)			

2. Are you a student now? Yes ☐1 No ☐2

3. Check below any and all diplomas or degrees which you have earned and state the years in which they were awarded

		Year awarded
a) High school equivalency (GED)	☐0	
b) High school diploma	☐1	
c) Technical school diploma	☐2	
d) A.A. (Associate in Arts)	☐3	
e) 3-year degree or R.N	☐4	
f) Bachelor's Degree	☐5	
g) Master's Degree	☐6	
h) Law Degree	☐7	
i) Doctoral Degree	☐8	
j) Other (Explain)	☐R	

4. If you have attended any of the following schools, list your major field of study at each.

a) Technical School or Junior College_____

b) College or University_____

c) Graduate or Professional School_____

S ☐ 5

C ☐ 6

G ☐ 8

YC ☐ 8

YPS ☐ 9

SN ☐ 10

YHSG ☐☐ 11 12

YCG ☐☐ 13 14

HD ☐ 15

FT ☐☐ 16 17

FC ☐☐ 18 19

FG ☐☐ 20 21

FS ☐ 22

SF ☐ ☐ 23 24

5. a) If you have attended college, was the major field listed above the one in which you first enrolled? Yes ☐1 No ☐2

b) If no, from what field did you switch? _____

B. This section includes questions about your OCCUPATIONAL EXPERIENCES

1. Which of the following best describes your present employment status? (Check one)

ES ☐ 25

a) Employed full-time ☐1
b) Employed part-time ☐2
c) Retired ☐3
d) Not employed ☐4
e) Other (explain) ☐5 _____

[If employed, the following questions relate to your present position. If *not* employed, the following questions relate to your last position. If never employed, skip to section C.]

2. For what kind of business or industry do you work? (For example: TV manufacturer, retail store, law practice, city public school system)

TE ☐ 26

3. Are you (Check one)

a) An employee of a PRIVATE company, business, or individual ☐1
b) A GOVERNMENT employee (federal, state, county, or local)? ☐2
c) Self-employed in your OWN business; professional practice, or farm? ☐3

SDS ☐ ☐ 27 28

4. What kind of work are you doing? (For example: car salesman, high school science teacher, manager of a retail store) _____

GC ☐ ☐ ☐ 29 30 31

5. What are your most important activities or duties? (For example: selling clothing, keeping account books, building houses, designing diesel engines)

6. What is your job title? _____

C. This section includes questions about your FAMILY

1. What is your marital status?

ST ☐ 32

a) Never married ☐1
b) Married ☐2
c) Separated or divorced ☐3
d) Widowed ☐4

2. Check below the highest diploma or degree earned by
i) your father ii) your mother iii) your wife

	Father	Mother	Wife
a) High school equivalency (GED)	☐ 0	☐ 0	☐ 0
b) High school diploma	☐ 1	☐ 1	☐ 1
c) Technical school diploma	☐ 2	☐ 2	☐ 2
d) Associate or 2-year degree	☐ 3	☐ 3	☐ 3
e) 3-year degree or R.N.	☐ 4	☐ 4	☐ 4
f) Bachelor's Degree	☐ 5	☐ 5	☐ 5
g) Master's Degree	☐ 6	☐ 6	☐ 6
h) Law Degree	☐ 7	☐ 7	☐ 7
j) Other (Explain)_____	☐ R	☐ R	☐ R

_____

_____

[The following questions relate to biological rather than adoptive relatives.]

3. How many children do you have who have completed first grade?

Sons_____ Daughters_____

4. a) Do any of your children who have completed first grade have a reading disability? (Check one)

Yes ☐ 1 No ☐ 2 Don't know ☐ 3

b) If yes, give details. (How many; sons or daughters; how old are they; have they received special schooling or tutoring?)

_____

_____

_____

_____

_____

5. How many brothers and sisters did you have who have completed first grade?

Brothers Sisters

6. a) Did any of your brothers and sisters who completed first grade have a reading disability? (Check one)

Yes ☐ 1 No ☐ 2 Don't know ☐ 3

b) If yes, give details. (How many; brothers or sisters; have they received special schooling or tutoring?)

_____

_____

_____

_____

7. What was your father's primary occupation? (If title is not descriptive, describe in a few words.)_____

_____

F ☐ 33

M ☐ 34

W ☐ 35

SO ☐ 36

DA ☐ 37

DC ☐ 38

NSO ☐ 39

NDA ☐ 40

BR ☐ 41

SI ☐ 42

DS ☐ 43

NB ☐ 44

NS ☐ 45

FSDS ☐ ☐ 46 47

FGC ☐ ☐ ☐ 48 49 50

PWD ☐ ☐ ☐ (51 52 53)

SP ☐ (54)

RP ☐ (55)

DNP ☐ (56)

TDNP ☐ ☐ (57 58)

SNP ☐ ☐ (59 60)

TSNP ☐ ☐ ☐ (61 62 63)

PM ☐ ☐ (64 65)

BP ☐ ☐ (66 67)

RF ☐ (68)

RW ☐ (69)

D. This section includes questions about your current READING HABITS AND ATTITUDES.

1. What percentage of the work day do you spend in reading and writing on the job?_____

2. How do you rate your spelling in comparison to that of others of your age and education?

a) Above average ☐ 4
b) Average ☐ 3
c) Below average ☐ 2
d) Poor, terrible ☐ 1

3. How do you feel about reading for pleasure?

a) Do as little as possible, difficult, or chore ☐ 1
b) Don't dislike, it's OK ☐ 2
c) Enjoy it, it's pleasurable ☐ 3
d) Enthusiastic, among favorite pastimes ☐ 4

4. In the average week, how many days per week do you read a *daily* newspaper? _____

5. On the average, how much time do you spend when you do read the daily newspaper? _____

6. On the average, how many Sundays per year do you read a *Sunday* newspaper? ___

7. On the average, how much time do you spend when you read a Sunday newspaper? _____

8. How many non-professional magazines do you subscribe to and read? ___

9. About how many books do you read for pleasure in a year? ___

10. How would you compare the amount of leisure time you spend reading with that of others?

I read	a) than my friends	b) than my wife [if married]
i). More	☐ 4	☐ 4
ii) Same amount	☐ 3	☐ 3
iii) Less	☐ 2	☐ 2
iv) Much less	☐ 1	☐ 1

Please use this space for any remarks you'd like to make.

Appendix B

Gilman Questionnaire

GILMAN SCHOOL-JOHNS HOPKINS

CONFIDENTIAL QUESTIONNAIRE

(Please do not write in this space)

ID ☐☐☐☐ 1 2 3 4

A. This section includes questions about your EDUCATIONAL EXPERIENCES since leaving the Gilman School.

1. List below any schools and colleges that you have attended since leaving Gilman (If none, check this box ☐).

	School	Dates of Attendance mo/yr to mo/yr	Full-time (F) or Part-time (P)
SECONDARY Jr. High, Sr. High, or Prep School	a)		
	b)		
	c)		
POST-SECONDARY Tech. School, Jr. College, College, or University	a)		
	b)		
	c)		
GRADUATE Professional School or Graduate School	a)		
	b)		

S ☐ 5
C ☐ 6
G ☐ 7
YC ☐ 8
YPS ☐ 9

2. Are you currently enrolled in a degree program?
   Yes, full-time ☐
   Yes, part-time ☐
   No ☐

SN ☐ 10

3. Check below any and all diplomas or degrees that you have earned and state the years in which they were awarded.

		Year awarded
a) Doctoral Degree	☐	
b) Law Degree	☐	
c) Master's Degree	☐	
d) Bachelor's Degree	☐	
e) 3-year Degree	☐	
f) Associate's Degree	☐	
g) Technical School Degree	☐	
h) High School Diploma	☐	
i) Other (Explain)	☐	

YHSG ☐☐ 11 12
YCG ☐☐ 13 14
HD ☐ 15

4. If you have attended any of the following schools, list your major field of study at each.
   a) Technical School or Junior College _____
   b) College or University _____
   c) Graduate or Professional School _____

FT ☐☐ 16 17
FC ☐☐ 18 19
FC ☐☐ 20 21

5. a) If you have attended college, was the major field listed above the one in which you first enrolled? Yes ☐ No ☐
   b) If no, from what field did you switch? _____

FS ☐ 22
SF ☐☐ 23 24

B. This section includes questions about your OCCUPATIONAL EXPERIENCES.

(Please do not write in this space)

ES ☐ 25

1. Which of the following best describes your present employment status? (check one)

   a) Employed full-time ☐
   b) Employed part-time ☐
   c) Retired ☐
   d) Not employed ☐
   e) Other (explain) ☐ _____

[If employed, the following questions relate to your present position. If *not* employed, the following questions relate to your last position. If never employed, check box ☐ then skip to Section C.]

TE ☐ 26

2. For what kind of business or industry do you work? (For example: TV manufacturer, retail store, law practice, city public school system)

   _____

SDS ☐☐☐☐ 27 28 29 30

3. Are you (check one)

   a) An employee of a PRIVATE company, business, or individual? ☐
   b) A GOVERNMENT employee (federal, state, county, or local)? ☐
   c) Self-employed in your OWN business, professional practice, or farm that was STARTED BY A MEMBER OF YOUR FAMILY? ☐
   d) Self-employed in your OWN business, professional practice, or farm that WAS NOT STARTED BY A MEMBER OF YOUR FAMILY? ☐

GO ☐☐☐ 31 32 33

4. What kind of work are you doing? (For example: car salesman, high school science teacher, manager of a retail store) _____

   _____

   _____

5. What are your most important activities or duties? (For example: selling clothing, keeping account books, building houses, designing diesel engines) _____

   _____

   _____

6. What is your job title? _____

C. This section includes questions about your FAMILY.

ST ☐ 34

1. What is your marital status?

   a) Never married ☐
   b) Married ☐
   c) Separated or divorced ☐
   d) Widowed ☐

2. Check below the highest diploma or degree earned by i) your father, ii) your mother, iii) your wife.

	Father	Mother	Wife
a) Doctoral Degree	☐	☐	☐
b) Law Degree	☐	☐	☐
c) Master's Degree	☐	☐	☐
d) Bachelor's Degree	☐	☐	☐
e) 3-year Degree	☐	☐	☐
f) Associate's Degree	☐	☐	☐
g) Technical School Diploma	☐	☐	☐
h) High School Diploma	☐	☐	☐
i) Other (Explain)	☐	☐	☐

F ☐ 35
M ☐ 36
W ☐ 37

_____

[The following questions relate to biological rather than adoptive relatives.]

3. How many children do you have who have completed first grade? [If none, skip to Question 5.]

   Sons _____ Daughters _____

4. a) Do any of your children who have completed first grade have a reading disability?

   Yes ☐ No ☐ Don't know ☐

   b) If yes, give details. (How many; sons or daughters; how old are they; have they received special schooling or tutoring?)

   _____

   _____

5. How many brothers and sisters do you have who completed first grade? [If none, skip to Question 7.]

   Brothers _____ Sisters _____

6. a) Did any of your brothers and sisters who completed first grade have a reading disability?

   Yes ☐ No ☐ Don't know ☐

   b) If yes, give details. (How many; brothers or sisters; have they received special schooling or tutoring?)

   _____

   _____

7. What was your father's primary occupation? (If title is not descriptive, describe in a few words.) _____

   _____

   _____

D. This section includes questions about your CURRENT READING HABITS, ATTITUDES, AND SKILLS.

1. How do you rate your spelling in comparison to that of others of your age and education?

   a) Above average ☐ c) Below average ☐

   b) Average ☐ d) Poor, terrible ☐

2. On the average, how many hours per week do you spend *reading for leisure*?

   _____

3. On the average, how many hours per week do you spend *reading for work or school*? _____

4. What percentage of the work day do you spend in *reading and writing on the job*? _____

5. What is your *single* most important reason for reading?

   a) For pleasure ☐

   b) For general knowledge ☐

   c) To gain specific knowledge related to work and career ☐

   d) To fulfill educational requirements ☐

   e) To gain specific knowledge about current events ☐

   f) As a time-filler ☐

   g) Other (please specify) ☐

   _____

(Please do not write in this spec

SO ☐ 38

DA ☐ 39

DC ☐ 40

NSO ☐ 41

NDA ☐ 42

BR ☐ 43

SI ☐ 44

DSI ☐ 45

NB ☐ 46

NS ☐ 47

FSDS ☐ ☐ ☐ ☐ 48 49 50 5

FGC ☐ ☐ ☐ 52 53 54

SP ☐ 55

RL ☐ ☐ 56 57

RWS ☐ ☐ 58 59

PWD ☐ ☐ ☐ 60 61 62

RR ☐ 63

6. How do you feel about reading for pleasure?
   a) Do as little as possible, difficult, or chore ☐
   b) Don't dislike, it's OK ☐
   c) Enjoy it, it's pleasurable ☐
   d) Enthusiastic, among favorite pastimes ☐

(Please do not write in this space)
RP ☐ 64

7. In the average week, how many days per week do you read a *daily* newspaper? _____

DNP ☐ 65

8. On the average, how much time do you spend when you do read the daily newspaper? _____

TDNP ☐☐ 66 67

9. On the average, how many Sundays per year do you read a *Sunday* newspaper? _____

SNP ☐☐ 68 69

10. On the average, how much time do you spend when you read a Sunday newspaper? _____

TSNP ☐☐ 70 71

11. How many non-professional magazines do you subscribe to and read? _____

NPM ☐☐ 72 73

12. List the principal newspapers and magazines you read for leisure.

(end card 1)

ID ☐☐☐☐ 1 2 3 4

13. About how many books do you read for pleasure in a year? _____

BP ☐☐ 5 6

14. What type of book do you prefer to read?
   a) Fiction ☐ b) Non-fiction ☐ c) No preference ☐

TB ☐ 7

15. From the following categories of *fiction books*, check those you most frequently read.
   a) Action/adventure ☐
   b) Historical novels ☐
   c) Mysteries/detective stories ☐
   d) Short stories ☐
   e) Modern dramatic novels ☐
   f) Romance/Gothic novels ☐
   g) Other (please specify) ☐ _____
   h) Not applicable ☐

Fa ☐ 8 Fe ☐ 9
Fb ☐ 10 Ff ☐ 11
Fc ☐ 12 Fg ☐ 13
Fd ☐ 14 Fh ☐ 15

16. From the following categories of *non-fiction books*, check those you most frequently read.
   a) Biographies/autobiographies ☐
   b) History ☐
   c) Religion ☐
   d) Instructive (how to) ☐
   e) Current events ☐
   f) Sports ☐
   g) Psychology ☐
   h) Other (please specify) ☐ _____
   i) Not applicable ☐

Na ☐ 16 Ne ☐ 17
Nb ☐ 18 Nf ☐ 19
Nc ☐ 20 Ng ☐ 21
Nd ☐ 22 Nh ☐ 23
Ni ☐ 24

(Please do not write in this space)

17. How would you compare the amount of leisure time you spend reading with that of others?

I read	a) than my friends	b) than my wife (if married)
i) More	☐	☐
ii) Same amount	☐	☐
iii) Less	☐	☐
iv) Much less	☐	☐

RF ☐ 25

RW ☐ 26

E. This section includes questions about your READING HABITS AND ATTITUDES WHILE YOU WERE A STUDENT AT GILMAN.

1. How would you characterize your attitude toward reading while you were a student at Gilman?

a) Negative ☐ b) Indifferent ☐ c) Positive ☐

AG ☐ 27

2. During your years at Gilman, did you usually do outside reading other than that required by specific reading assignments?

a) Yes ☐ b) No ☐ c) Don't recall ☐

OR ☐ 28

F. The following question is about your READING HISTORY.

1. Which ONE of the following sentences BEST describes your reading history?

RH ☐ 29

a) I have always read quite a bit; the amount has been *consistent* over the years. ☐

b) In the past I didn't do much reading, but *now I am reading a lot more.* ☐

c) Reading has been an *"on and off"* kind of thing. ☐

d) There was a period in my life when I read quite a bit, but I just *don't read very much anymore.* ☐

e) I have to do quite a bit of reading for work/school, but I *don't expect to continue reading this much in the future.* ☐

f) The only time I did much *reading was when it was required in school.* ☐

G. This section includes questions about your CURRENT TELEVISION WATCHING HABITS.

1. What is your SINGLE most important reason for watching television?

TR ☐ 30

a) For pleasure ☐

b) For general knowledge ☐

c) To gain specific knowledge related to work and career ☐

d) To relax ☐

e) To gain specific knowledge about current events ☐

f) Time filler ☐

g) Other (specify) _____ ☐

2. On the average, how many hours per week do you spend watching television? _____

HT ☐ 31

(end of card 2)

H. This section concerns abilities and traits that are important in doing a job.

Imagine that you are giving advice to someone who is thinking of entering a *job like yours*. How important is it for this person to have each of the following abilities and personality traits in order to be good at the job? (Mark one on each line)

	Makes no difference	Helps a little	Helps a lot	Is critical for doing a good job
1. Handle several tasks at one time	☐	☐	☐	☐
2. *Get* information by talking with people	☐	☐	☐	☐
3. *Give* information by talking with people	☐	☐	☐	☐
4. Learn quickly	☐	☐	☐	☐
5. Be good at math	☐	☐	☐	☐
6. Have integrity	☐	☐	☐	☐
7. Get information by reading	☐	☐	☐	☐
8. Have good contacts	☐	☐	☐	☐
9. Evaluate, discipline, and praise others	☐	☐	☐	☐
10. Be dedicated and conscientious	☐	☐	☐	☐
11. Have physical coordination	☐	☐	☐	☐
12. Plan ahead and anticipate problems	☐	☐	☐	☐
13. Be fair and impartial	☐	☐	☐	☐
14. Spot and tackle problems quickly	☐	☐	☐	☐
15. Represent company well to the public	☐	☐	☐	☐
16. Be competitive	☐	☐	☐	☐
17. Have manual dexterity	☐	☐	☐	☐
18. Cooperate with coworkers	☐	☐	☐	☐
19. Pay attention to details	☐	☐	☐	☐
20. Have higher degree or credential	☐	☐	☐	☐
21. Think of *new* approaches to problems	☐	☐	☐	☐
22. Have poise	☐	☐	☐	☐
23. Visualize things before completion	☐	☐	☐	☐
24. Think logically and analytically	☐	☐	☐	☐
25. Have a *lot* of ideas	☐	☐	☐	☐
26. Be tactful and considerate	☐	☐	☐	☐
27. Take initiative and responsibility	☐	☐	☐	☐
28. Have attended the right college	☐	☐	☐	☐
29. Have physical strength and endurance	☐	☐	☐	☐
30. Have a good memory	☐	☐	☐	☐
31. Give information by writing reports, memos, etc.	☐	☐	☐	☐
32. Make decisions quickly	☐	☐	☐	☐
33. Be attractive and well groomed	☐	☐	☐	☐
34. Concentrate in distracting or stressful situations	☐	☐	☐	☐
35. Follow orders and support company policies	☐	☐	☐	☐
36. Be persuasive and motivating	☐	☐	☐	☐
37. Coordinate and schedule activities	☐	☐	☐	☐
38. Other (please discuss in detail)	☐	☐	☐	☐

Please use this space for any remarks you'd like to make.

(Please do not write in this space)

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 ☐

Thank you for your participation.