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ABSTRACT

The paper reports the results of a study which surveyed a national sample of male non-college-bound high school graduates and examined the relationship between vocational and other high school curricular programs and: (1) apparent needs for additional training and (2) kinds of jobs obtained. Data are drawn from the National Longitudinal Surveys of Young Men, a research project sponsored by the Employment and Training Administration (formerly the Manpower Administration) of the Department of Labor. Information used in the study was collected between 1966 and 1969 by personal interviews, along with information collected in a mailed survey of their high schools. Graduates of various high school programs are compared with: (1) their expressed desire for additional post-school training after gaining work experience, (2) the kinds of further training desired, (3) the actual acquisition of such training, and (4) the skill level of first and subsequent jobs. Both tabular and regression analysis are used. Findings can be useful in debating the contributions of vocational components of secondary education and in developing career education programs. (Author/EA)

Vocational Education, Training, and Job Skills for Youth

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This paper is a report of research concerning the role of high school education in preparing youth for the world of work. Its undertaking is related to many events in the past fifteen years: the persistence of high rates of youth unemployment, even during relatively good economic times; the passage of major legislation at the national level on vocational education and training; and, of course, the inception of "career education." From a broader perspective, however, it may be said that the paper derives from a time-honored tradition called the "Vocational Education Debate."

As will be shown in section I below, many complex issues converge on this terrain. Thus, for example, to consider assessing the contribution of vocational(skill development) components of secondary education, one must weigh conceptual issues on the advantage of skill specialization at the high school level, as compared to those for skill development following school, including training on-the-job. At the same time, questions relating to substitutability or complementarity existing among the alternate sources of training cannot be ignored.

As will also be shown in section I, the relevance of findings of much existing research to policy questions of this kind is sharply circumscribed by limitations in the design, data and methodology of such studies. One example of a problem area involves comparing groups of youth with respect to earnings to determine the "payoff" to "investment" in vocational education. Not only can an emphasis on earnings lead to disregard for other important questions (and it appears that it has) but there are literally a host of complicating factors relevant to appraising results based on the first years' earnings of young persons.

Section II presents the research design of the present study. Using data from a national sample of youth, the analysis focuses on graduates of various high school curricula who did not continue their education with college.

Specifically, data are examined with respect to (1) their desires for additional training after having gained work experience; (2) the kinds of further training desired; (3) the actual acquisition of such training; and (4) the kinds of first jobs as well as subsequent jobs which were obtained by the youth. In the latter case, variables relating to jobs are based on several ratings of occupations.

Findings are presented in section III. Finally, the paper concludes with a discussion of implications for policy and for further research.

I. Issues and Existing Research

It maybe useful to proceed by discussing issues in the

Vocational Education Debate within three general topics: staging, specialization, and unity. Such an approach provides an initial framework for addressing current policy questions including: Are vocational high school graduates better prepared for work? Are they able to secure jobs at advanced skill levels? Are graduates of the general track hampered by lack of skills?

Staging

This first topic of debate concerns the "fit" between the high school programs and the students which they presumably serve. While "career development" is best described as a developmental process extending over a lifetime, curricular choice is necessarily encountered in the early high school years.

The ramifications of a potential disparity between the stages of development theory and curricular choice have received special attention in connection with vocational curricula. Lewis (1968) suggests that most theories of vocational choice agree "that the average young person does not have sufficient maturity in the ninth or tenth grade of high school to select a particular vocational area for specialization" (pp. 30-31).

Research on career development suggest that "students have been faced with choices they were not adequately prepared to make" (Flanagan & Cooley, 1965, p. 1-6). Indeed, some research on students in vocational areas can be taken to imply that curricular placement is a more accurate term than curricular choice in this regard (see Manpower Administration, 1970, p.12). The obvious importance of the point is that the remedy to possible violations of developmental precepts must lie in delaying until the last high school years - or later - the necessity to make choices having ramifications over the long run.

On the other hand, many proponents of the concept of career education, in recognition of these problems, suggest that greater attention to career matters - beginning in elementary school - is the only appropriate policy response. Only in such a way, it is argued, will the educational system be able to serve the many youth who discontinue formal schooling with high school (e.g., see Marland in U.S. Office of Education, 1973, especially pp. 7-8).

Specialization

The second major focus of current debate involves the concept of specialization. It should be noted that what is "specialized" to one writer may be considered "general" to another and "unwisely over-specialized" to still a third.

It is useful to begin with Conant's view of the purpose of the comprehensive high school:

> It endeavors to provide a general education for all future citizens on the basis of a common democratic understanding; and it seeks to provide in its elective offerings excellent instruction in academic fields and rewarding, first-class vocational offerings (1966, p. 4).

This view categorizes as general those studies which are apparently advantageous for all students, and as specialized those which are elected for individual needs.

This definition qualifies college preparatory studies as specialized education, and such programs have indeed been criticized for narrowness of purpose (e.g., by Evans in Princeton Manpower Symposium, 1968, especially pp. 191-192). The high rates of noncompletion of college and excesses in the supply of college graduates in certain fields also serve to question the wisdom of large enrollments in this track.

Clearly the program which is most criticized on grounds of specialization (over-specialization, misguided specialization, and the like) is the vocational track. In this case, it is frequently argued that high schools are for "education" while special technical schools should train for specific skills (see Coleman et al., 1974, pp. 141-143; Ditlow, 1970, pp. 285-287).

In addition, some suggest that specialized training is competitive with, and perhaps detrimental to, achieving other objectives. The latter are held to include reading and other basic skills (see Flanagan et al., 1962, p. 4-22) as well as broader understandings of one's self and society (Venn, 1970, pp. 60-1).

Lastly, some have questioned the adequacy and emphasis of the "most specific" aspect of the vocational curriculum--specialized vocational training. Assessing the relevance to market demands of the composition of vocational programs, Somers has called the vocational education system "sluggish" in responding to the ever changing labor market (1968, p. 58). In addition, existing research suggests that, in some cases, firms may place no premium on training received in school (see Manpower Administration, 1970, p. 12; Taussig, 1968, pp. 77, 84-85).

Special surveys of workers provide some evidence in this regard.

A 1963 Department of Labor survey (Manpower Administration, 1964) of the education and training backgrounds of adults in the labor force demonstrated that a direct relationship between education and training, on the one hand, and occupational assignment, on the other, prevails in relatively few occupational categories. The data underscore the importance of on-the-job and more casual methods of preparation, which evidently play a major role throughout the career. Among construction craftsmen, for example, the most

helpful way of learning their current jobs was, in many cases, "on-the-job instruction," "just picked it up," and "learned from a friend or relative." Only 4.3 percent and 11.0 percent reported that schools and apprenticeship programs, respectively, were the most helpful way. Findings of other research confirm the existence of many training paths to jobs (Bergstrom, 1966; Brecher, 1972; Foster, 1970; Freedman, 1969; Garbin et al., 1970; Marshall et al., 1973). In the words of one author:

> The point here is by no means that in-school vocational education is a useless form of training, but rather that in current practice it often does not complete the worker's training, that it usually must be combined with other avenues of skill acquisition (Foster, 1970, p. 25).

On the other hand, proponents of vocational education have argued that specialized skill development is not only appropriate for secondary education, but necessary for youth. Frequently, such arguments include the suggestion that high unemployment and other labor market problems of youth are the results of low secondary-level vocational enrollments (Marland, 1971a and 1971b). In addition, proponents have argued that properly-designed vocational programs can contribute in a positive way to achieving academic goals by helping students find new "significance in learning" (Parnell, 1971, p. 102).

Unity

The concept of achieving "unity" in instruction, where every instructional unit is designed comprehensively, is still best expressed by Dewey: "Any fact is general if we use it to give meaning to a new experience" (1916, p. 399). The general curriculum is claimed by some to accomplish this very end, particularly in the subjects of the practical arts, where emphasis is placed on the development of understanding of technology in the modern world.

Hammond (1969) describes the Industrial Arts Curriculum Project, developed by The Ohio State University and the University of Illinois, as one which will "permit each student to relate in his own way to that portion of the course which interests him ... This will be effective preparation for apprenticeships" (pp. 58-59).

This view is by no means universally held. Some have called for the abolishment of the general curriculum on the grounds that it leads neither to higher education nor to work (Evans, Mangum & Pragan, 1969, p. 47; Marland, 1971b, p. 6). Even within the practical arts, Evans suggests:

> It is difficult to characterize these practical arts as subjects. Industrial arts, for example, often consists of instruction about processes common in industry two hundred years ago, taught

on equipment invented one hundred years ago (Princeton Manpower Symposium, 1968, p. 195).

In sum, these debates comprise a complex conceptual terrain for conducting research about the comparative contribution of the various components of secondary-level education to the career preparation of youth. The complexity has had an impact on research. In one early study, for example, the college preparatory program was criticized when it was found that graduates of this track who had not gone to college reported substantial levels of participation in post-school training programs. By the same logic, one might also criticize that track on the basis of high college entrance rates, for in both cases graduates are "forced" to take additional preparation. Clearly, however, training and learning opportunities, available from many sources and at various stages or points in time, should be conceived as either substitutes for, or complements to, one another.

The preceeding distinctions drawn between the issues staging, specialization, and unity serve to highlight issues in the Vocational Education Debate. They also illuminate the diversity existing among proponents of vocational education. On the one hand, some argue that without skill development in the high school, youth are set adrift in the world of work. On the other, when specialized skill programs are criticized for narrowness or because of the possibility of obsolescence, others will argue that such programs are more "general" and relate only to "clusters" of jobs.

Indeed, the failure of the Office of Education to supply a definition for the emerging concept of "career education" has encouraged the diversity to persist. The absence of an official definition led to the formulation of many definitions, both broad and narrow. This, in turn, has had the effect of promoting subscriptions to the concept(s) of "career education." Aside from these implications, however, the extant diversity in vocational education as well as the diversity within other curricula carry direct implications for research. Specifically, it implies that it is simplistic to conceive of the graduates of vocational programs as "trained" and of all others as "not trained." Rather, the literature strongly implies that eaoh of the programs contains both vocational and prevocational components and also that each program should be viewed in the context of training and learning to follow the high school years.

Unfortunately, the design of some existing studies on the effectiveness of the several curricula fails to reflect an appreciation of these factors. This is particularly true in several cost-benefit analyses of vocational programs. In most cases, the question of post-school training has been ignored. This, coupled

with the practice of employing groups of non-college-attending academic curriculum graduates as the "reference group," makes it necessary to exercise great caution in interpreting the findings of such research (Grasso, 1975, pp. 37-44). Indeed, in view of the extant variation among such studies on other points --limitations in the data used in each, differences in methods of analysis, and differences in the choice of appropriate criterion measures, to name a few-- and also in view of the inconsistent findings of these studies, it is not entirely clear what the contribution of such studies to policy matters has been, to date.

In a different vein, other aspects of the process of work establishment remain virtually unexplored. In the present context, the most glaring omission concerns the kinds of work which youth ultimately obtain.

Of course, we would concede that the U.S. Office of Education as well as state and local authorities have shown continuing concern with one aspect of this: namely, in the degree to which vocational graduates perceive their jobs as relating to their high school specialty areas. It may be interesting to note in passing that the evidence on placement is mixed; Reubens points out that figures from the Office of Education have been typically higher than those of most microanalytic studies (1974, p. 24). In any event, our present interest centers on the somewhat broader question of whether youth with different kinds of preparation at the high school level -- and beyond-- ultimately obtain different kinds of work, and the evidence on this question has been scarce.

In the existing research, some work might be conceived as constituting pilot studies in this regard (e.g., Garbin et al., 1970, pp. 118, 142; Kaufman & Lewis, 1968, pp. 88-90, 159-169). From a broader perspective, however, work by Reubens bears directly on our point: her review of data from the Bureau of Labor Statistics covering the period 1959 to 1972 led to the following observation:

> (that) there is a limited demand for skilled high school graduates . . . (and) it is only after being out of high school several years that young men make sizable shifts toward more skilled occupations (1974, p. 29).

Obviously, this is a critical point deserving greater attention than has been paid to date. It is by no means clear whether differences exist among youth from different high school programs.

In summary of the issues reviewed in the foregoing discussion, we are concerned with the relationship between high school curric-

ulum and post-school training and learning opportunities, on one hand, and between both of these sources of preparation and the kinds of work obtained, on the other. It is to the ways and means of further exploring these associations that we turn our attention now.

II. The Present Study

In the present study, we examine and explore the nature and extent of the relationships existing between several criterion measures and high school curriculum. Data are drawn from the National Longitudinal Surveys of Young Men, a research project sponsored by the Employment and Training Administration (formerly the Manpower Administration) of the U.S. Department of Labor. The project is conducted by the Bureau of the Census and the Center for Human Resource Research, The Ohio State University. For more detailed information about the project, as well as a list of completed research, see Center for Human Resource Research (1973).

Information collected in personal interviews with a national sample of males, aged 14-24 in 1966, along with information collected in a special mailed survey of their high schools, is used. Attention is confined, however, to those youth who graduated from high school but who did not attend college. In addition, the study is based on data collected through 1969.

Four sets of criterion measures are used: (1) the desires of youth with work experience for additional training, (2) the kinds of further training desired, (3) the actual acquisition of post-school training and (4) the kinds of work obtained. In the case of each, our intent is to uncover the relationship if any between the several criteria and high school curriculum. We now describe the variables used in the empirical work.

High school curricula. It is necessary in the NLS to rely on respondents' self-reports of the curricula they (last) followed in high school. For present purposes, responses have been grouped into four categories: commercial-vocational, other vocational, college preparatory, and the general track.

Training desired. In the 1966 interview, respondents who were not currently enrolled in school were asked the following three questions:

(1) Considering all the experience you have had in working or looking for jobs since leaving school, do you feel that not having had more education has hurt you in any way?

(2) If you could, would you like to get more education or training?
(3) (If "Yes" to the second) what kind of courses or training would you like to take?

Training received. In the NLS, out-of-school respondents were asked a series of questions on the training they may have received since leaving school in each of the following categories:

(a) business college or technical institute, such as drafting, electronics training, etc.;
(b) full-time programs lasting six weeks or more at a company training school;
(c) apprenticeship training or any other vocational or technical training (aside from regular school and on-the-job training given informally);
(d) additional general courses in a regular school such as English, math, or science; and
(e) training received in the Armed Forces (except for basic training).

Skill level. Scoville (1969), in analyzing the changing job content of the U.S. economy, has presented for each 3-digit Census occupation category two ratings of the skill demands of jobs (pp. 80-90), which he had obtained originally from material on workers' traits from the Dictionary of Occupational Titles (Manpower Administration, 1965, pp. 651-653).

The first of the two ratings, called General Educational Development (GED), is designed to embrace "those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions, and (b) acquisition of 'tool' knowledge, such as language and mathematical skills. It is education of a general nature" (Manpower Administration, 1965, p. 651). The second, termed Specific Vocational Preparation (SVP), represents the time needed to facilitate "average performance in a specific job-worker situation" (p. 652) and encompasses training received in vocational education, apprenticeship programs, in-plant and on-the-job training, and experience in other jobs.

Duncan index. One way to explore the possible long run impact of the various kinds of career preparation is to compare the groups of graduates according to the socioeconomic status of the occupations they held in 1969. The Duncan socioeconomic index of occupational status is one of the most widely-used occupational prestige indexes (Duncan, 1961). Because of its strong, virtually definitional association with average earnings and average educational attainment in an occupational category, it is used in the present study as a measure of the monetary and nonmonetary long run potential of the emerging career patterns of the young men.

Job family and level. In addition, Scoville provides a matrix of families and levels of jobs (1969, pp. 80-90), based on an analysis of both the nature and complexity of kinds of work. Each of these constitutes an additional provisional variable for exploring differences in the employment of youth.

III. Empirical Results.

Table 1 presents results on the desires of youth with work experience for additional training. Among both whites and blacks, the responses of graduates of the several curricula are remarkably similar, with the exception of the finding that those from an academic program desired to go to college at higher rates.

Table 2 presents results on the actual participation of youth in post-school training. The important differences which emerge relate not to the level of participation in training after school, but to the type. Those from college preparatory programs have received more professional or technical training, while the commercial-vocational group reports more managerial training. It also appears that youth from other vocational programs report more skilled manual training. Thus it would appear that, in part, high school programs are only the first step in career preparation. In addition, the patterr of youth in the general track leads to no obvious conclusion but is consistent with the view that this group contains young men with various interests as well as those whose interests may not have coalesced until after leaving high school.

In Table 3 we compare both forms of skill level of the first jobs which the graduates had obtained. In the case of whites, the jobs of those from commercial-vocational programs fell below the jobs of the general graduates, while the jobs of other vocational graduates ranked above those of the general track. In Table 4 we compare the groups on the jobs held in 1969, a time when the youth were well into the first decade of work. In this case, the somewhat inconsistent associations found in first jobs have disappeared. In addition, the data suggest that the young men from the college preparatory track --particularly those with post-school training-- are in the possession of jobs with comparatively high skill content.

In order that we may achieve a better perspective on these data, Tables 5 and 6 present results for (a) all out-of-school youth employed in 1969 and (b) high school graduates.

In the former case, the association between level of skill and educational attainment is almost completely monotonic; this is not, of course, surprising. However, we can also compare the job

Table 1

Attitudes towards Adequacy of Preparation by Curriculum and Race (Respondents with Twelve Years of School; Not Enrolled in 1966)

Item from 1966 survey	General	Vocational	Commercial	College preparatory
Whites				
A. Considering all the experience you have had in working or looking for jobs since leaving school, do you feel that not having more education has hurt you in any way? Percent responding "yes"	42%	29**	25*	50
B. If you could, would you like to get more education or training? Percent responding "yes"	83	83	87	88
C. (If "yes") what kind of courses or training would you like to take? Percentage distribution by type:				
White collar	27	28	26	25
Blue collar	35	39	17*	26*
"Go to college".	26	16*	30	37**
Other	12	16	28	12
Weighted n (in thousands)[a]	1,492	401	136	489
Blacks				
A. Considering all the experience you have had in working or looking for jobs since leaving school, do you feel that not having more education has hurt you in any way? Percent responding "yes"	57%	70	b	68
B. If you could, would you like to get more education or training? Percent responding "yes"	91	96	b	100
C. (If "yes") what kind of courses or training would you like to take? Percentage distribution by type:				
White collar	27	18	b	16
Blue collar	53	66	b	21**
"Go to college"	14	16	b	60**
Other	6	0	b	3
Weighted n (in thousands)[a]	227	54	b	35

[a] Here and elsewhere, absolute numbers represent population estimates (i.e., weighted data). To obtain the approximate number of actual sample cases, it is necessary to know that each young white represents on average 4,000 youth and each young black about 1,000. Moreover, it should be noted that comparative analyses are generally omitted in instances involving less than 25 sample cases in either group.

(Table continued on next page.)

Table 1

Continued

[b]Sample size does not permit separate analysis of blacks taking the commercial program.

x Statistically significantly different from the proportion of general graduates by t-test at .10 level.

xx Statistically significantly different from the proportion of general graduates by t-test at .05 level.

Table 2

Participation in Post-Secondary Training, 1969, by Curriculum and Race (Respondents with Twelve Years of School; Not Enrolled and in the Labor Force in 1969)

	Whites				Blacks[a]
	General	Vocational	Commercial	College preparatory	Total
Source					
All sources[b]	52%	54	63	67**	43
Business college or technical institute	20	15	13	24	16
Company school	15	22**	14	19	16
Apprenticeship or other vocational	9	10	0*	8	3
Military	15	11	12	11	12
Other sources (correspondence, night school, etc.)	18	19	36**	34**	11
Type					
Professional, technical	19	14	20	38**	23
Managerial	6	4	15**	9	1
Clerical, sales	8	9	11	11	5
Skilled manual	33	40	29	29	26
Weighted n (in thousands)[c]	1,386	460	137	467	223

[a]Sample size does not permit cross-classification of blacks by both curriculum and detailed training categories.

[b]Unduplicated count; that is, youth reporting more than one training program are shown within the detail in every separate instance but are counted only once in "All sources."

[c]See footnote a, Table 1.

* Statistically significantly different from the proportion of comparable general graduates, by t-test at .10 level.

** Statistically significantly different from the proportion of comparable general graduates, by t-test at .05 level.

Table 3

Mean Values of Skill Level for First Jobs Held by Graduates, by Curriculum and Race (Respondents with Twelve Years of School; Not Enrolled in 1966)

Skill level variable	All graduates	General	Vocational	Commercial	College preparatory
			Whites		
SVP rating[a]	1.30	1.27	1.58*	.80*	1.29
GED rating[a]	9.15	9.04	9.43	8.77	9.33
Weighted n (in thousands)[b]	1,923	1,903	318	109	402
			Blacks		
SVP rating[a]	.95	.95	.56	c	1.32
GED rating[a]	8.30	8.16	7.41	c	9.76**
Weighted n (in thousands)[b]	168	118	23	c	26

[a]The unit of measurement of both ratings was originally designated by Scoville (1966, 1969) in terms of "years." In the case of the GED rating, this was represented as "years of school," a designation which prompted serious objection by Fine (1968). We conceive there to be indexes independent of unit, even though we have not standardized to a common metric.

[b]See footnote a, Table 1.

[c]Sample size does not permit separate analysis of blacks taking the commercial program.

* Statistically significantly different from the mean value for general graduates, by t-test at .10 level.

** Statistically significantly different from the mean value for general graduates, by t-test at .05 level.

Table 4

Mean Values of Skill Level for Jobs Held in 1969, by Curriculum, Training and Race (Employed Wage or Salary Workers with Twelve Years of School and Not Enrolled in 1969)

Skill level variable	General	Vocational	Commercial	College preparatory
Whites				
SVP rating:[a]				
All graduates	1.54	1.69	1.70	1.79*
Those with post-secondary training	1.61	1.86	b	1.92*
Those without	1.46	1.47	b	1.48
GED rating:[a]				
All graduates	9.87	9.98	10.22	10.54**
Those with post-secondary training	10.28	10.39	b	11.07**
Those without	9.41	9.43	b	9.19
Weighted n (in thousands)				
All graduates	1,230	410	114	420
Those with post-secondary training	650	231	b	295
Those without	580	179	b	125
Blacks				
SVP rating:[a]				
All graduates[c]	1.19	1.41	d	1.59
GED rating:[a]				
All graduates[c]	9.92	8.99	d	9.89*
Weighted n (in thousands)	144	45	d	25

[a] See Table 3, footnote a.

[b] Sample size does not permit comparison of white commercial graduates within categories of training.

[c] Sample size does not permit cross-classification of blacks by both curriculum and receipt of training.

[d] Sample size does not permit separate analysis of blacks taking the commerical program.

* Statistically significantly different from mean value for comparable group of general graduates, by t-test at .10 level.

** Statistically significantly different from mean value for comparable group of general graduates, by t-test at .05 level.

Table 5 GED Scores for 1969 Job, by Education and High School Curriculum: Employed Young Men 17 to 27 Years Old

	Educational attainment						High school graduates only			
	Total	0-8 Years	9-11 Years	12 Years	13-15 Years	16+ Years	Vocational (not commercial)	General	Commercial-vocational	College preparatory
GED Score										
Highest category	7.6%	0.8%	0.2%	1.3%	6.3%	46.7%	0.0%	1.5%	0.0%	2.3%
Highest 2 categories	19.8	1.6	4.0	9.7	27.8	74.8	5.4	8.3	13.2	19.3
Highest 3 categories	47.7	30.2	33.0	44.6	54.3	85.0	52.0	41.2	39.0	52.9
Highest 4 categories	83.5	67.7	75.1	84.3	87.7	98.6	85.0	83.3	89.7	87.8
n (Weighted, in thousands)	6,965	607	1,258	3,184	989	928	531	1,874	174	522

Table 6 . SVP Scores for 1969 Job, by Education and High School Curriculum: Employed Young Men 17 to 27 Years Old

	Educational attainment						High school graduates only			
	Total	0-8 Years	9-11 Years	12 Years	13-15 Years	16+ Years	Vocational (not commercial)	General	Commercial-vocational	College preparatory
SVP Score										
3 Years or more	22.7%	3.8%	10.0%	16.7%	29.0%	68.6%	15.1%	14.7%	25.6%	23.8%
Over 1 year	49.3	44.2	37.7	43.7	54.2	84.0	49.7	40.9	43.3	49.7
Over 6 months	79.3	72.8	72.5	77.4	83.1	95.8	80.7	76.4	81.3	77.2
Over 4 months	89.7	89.7	88.9	87.4	91.3	97.6	92.2	86.6	86.5	84.7
Over 2 months	95.9	98.2	97.0	94.4	96.1	97.7	95.7	94.8	94.3	90.7
n (Weighted, in thousands)	6,965	607	7,258	3,184	989	928	531	1,874	174	522

scores of the high school graduates separately by curriculum with those of youth with other educational attainments. In the case of the GED rating, it would appear that some of those from college preparatory programs have more demanding jobs than other high school graduates and resemble to some extent the youth who in fact went to college. This is not, however, the case in Table 6.

Results based on the Duncan index are contained in Table 7. From the data on jobs held by all youth, the monotonic association between level of job and educational attainment emerges clearly. Moreover, from the data for youth of the several separate curricula, it can easily be conceived that the monotonic association persists; non-commercial vocational graduates can be seen to be at one extreme (i.e., closest to high school drop outs), and the college preparatory graduates can be seen to be at the other (i.e., resembling those with some college).

With few exceptions, the use of Scoville's "Job Level" in Table 8, leads to the same implications as with the Duncan index. In this case, however, the similarity is probably not a confirmation of results. Rather, the similarity might be viewed as arising from underlying similarities in the construction of these ratings. Both of these have been constructed, for example, using education and earnings criteria.

By way of contrast, the use of "Job Family" is both conceptually and operationally distinctive from the use of any other measure reported here. "Job Family" derives from differences in the type of work performed. In some ways, this measure resembles an orientation towards an industrial affiliation even though it is based operationally on an occupational basis.

Turning first to data for all youth in Table 9, we observe that the association between type of work and education is not uniform; this partly confirms the non-hierarchical character of "Job Family." In some cases, the proportions of workers with different educational attainments declines (e.g., in tool-using occupations, from 40.2 to 2.2 percent). In others, the proportions rise (e.g., in jobs in health, education, and welfare). In the remainder, an inverted "U-shaped curve" is obtained (e.g., in jobs in protection and inspection).

Turning next to the data on high school graduates only, several differences emerge. Non-commercial vocational graduates, for example, are more likely than their peers to work in farming occupations; at the same time, they are much less likely to be in clerical or professional services kinds of work. Graduates from commercial programs are found to be more likely to hold clerical and managerial jobs. Finally, youth from the college preparatory track are much more likely to hold positions in R&D, managerial and professional services fields. Despite these differences, perhaps the strongest impression of all is the overall <u>similarity</u> of the distributions of the jobs held by the

Table 7 Duncan Index Score for 1969 Job, by Education and High School Curriculum: Employed Young Men 17 to 27 Years Old

	Educational attainment						High school graduates only			
	Total	0-8 Years	9-11 Years	12 Years	13-15 Years	16+ Years	Vocational (not commercial)	General	Commercial-vocational	College preparatory
Duncan Index										
Greater than 70	21.4%	1.6%	3.1%	10.4%	32.8%	85.9%	7.7%	7.6%	21.6%	19.6%
Greater than 50	35.9	3.5	11.9	29.0	52.4	93.9	20.0	26.4	39.9	44.1
Greater than 40	48.8	14.3	26.2	45.7	66.1	95.9	38.6	43.3	54.4	60.2
Greater than 30	61.8	30.1	44.3	60.9	73.7	97.9	56.8	59.7	70.6	66.9
Greater than 20	86.6	68.4	81.2	88.2	88.9	99.3	86.2	88.0	94.4	90.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n (Weighted, in thousands)	6,965	607	1,258	3,184	989	928	531	1,874	174	522

Table 8 "Job Level" of Job Held in 1969, by Education and High School Curriculum: Employed Young Men 17 to 27 Years Old

	Educational attainment						High school graduates only			
	Total	0-8 Years	9-11 Years	12 Years	13-15 Years	16+ Years	Vocational (not commercial)	General	Commercial-vocational	College preparatory
"Job Level"										
Highest	9.6%	0.8%	0.5%	1.6%	7.8%	57.5%	0.0%	1.8%	0.0%	3.0%
Top 2 categories	29.1	6.4	14.4	21.5	37.9	80.8	20.4	19.2	27.2	29.8
Top 3 categories	60.7	40.8	49.0	57.6	71.0	89.5	55.9	56.5	65.7	59.7
Top 4 categories	71.1	49.3	57.7	68.9	83.5	98.0	64.8	67.8	72.6	75.9
Lowest (only)	28.9	50.7	42.4	31.1	16.5	2.0	35.3	32.2	27.4	24.1
n (Weighted, in thousands)	6,965	607	1,258	3,184	989	928	531	1,874	174	522

Table 9 "Job Family" of Job Held in 1969, by Education and High School Curriculum: Employed Young Men 17 to 27 Years Old

	Educational attainment						High school graduates only			
	Total	0-8 Years	9-11 Years	12 Years	13-15 Years	16+ Years	Vocational (not commercial	General	Commercial-vocational	College preparatory
"Job Family"										
Farming	1.9%	8.3%	2.5%	1.2%	1.3%	0.0%	2.8%	0.9%	0.0%	1.3%
Vehicle operation	7.5	15.0	12.3	6.9	5.9	0.0	5.9	7.5	4.7	5.2
Personal services	2.2	3.5	3.2	2.2	2.2	0.0	2.2	2.0	3.0	1.9
Machines and equipment	16.8	[illegible]	22.6	20.7	7.2	1.1	21.9	22.6	21.4	12.6
Tools	32.0	[illegible]	43.1	36.4	26.2	2.2	45.1	37.2	25.3	29.4
Protection	1.8	[illegible]	1.5	2.2	2.8	0.5	1.4	2.4	2.1	2.7
Inspection	3.8	[illegible]	2.8	5.0	4.6	2.3	3.2	4.8	5.0	6.7
Sales	7.8	[illegible]	4.7	7.3	11.8	13.5	8.6	6.2	7.1	10.0
Clerical	8.1	[illegible]	3.0	8.9	12.2	10.4	3.6	9.1	18.5	10.4
Entertainment	0.7	0.0	0.2	0.3	1.2	2.8	0.0	0.4	0.0	0.0
Research and development	3.1	0.0	0.3	1.6	5.6	11.6	1.4	0.9	0.0	5.0
Administrative or organizational	9.0	0.8	3.5	6.7	17.4	21.1	4.0	5.6	12.9	12.4
Health, education, or welfare	5.2	0.0	0.4	0.6	1.7	34.5	0.0	0.9	0.0	2.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n (Weighted, in thousands)	6,965	607	1,258	3,184	989	928	531	1,874	174	522

several groups of high school graduates.

IV. Discussion

We began this report with an attempt in Section I to conceptualize the role of the several high school curricula in preparing youth for the world of work. To this end, we considered many facets of what we have called the Vocational Education Debate; this was done in the rubric of three major issues: staging, specialization, and unity. This review led, at least tentatively, to the conclusion that there are both vocational and prevocational components in each of the different high school programs.

In order to study this tentatively-held belief, we have explored with data from a national sample of youth two major kinds of relationships. In the first, the association between high school program of study and the desire for, and actual acquisition of, post-school training was explored. Remarkable similarities were found across the various high school programs regard both desires and behavior. Specifically, the data failed to provide support for any of the following: that vocational graduates are better prepared for work; that general and college preparatory graduates are disadvantaged in this regard; that high school programs which are vocationally-oriented preclude the need for subsequent training and learning. If anything, the data did support the view that the high school program of study is only a part of the process of career development and work establishment among youth.

In the second major topic of research, the association between high school program of study and kinds of jobs ultimately obtained was explored. In this case, several available measures purporting to reflect differences among occupational categories were used. Generally, the results of these several analyses have pointed again to the existence of substantial similarities among graduates of the various programs.

Of course, it is possible that with the measures we have used we were unable to uncover other substantial differences which do exist. However, given the measures which we have used, our failure to show an advantage for the vocational group may give rise to concern to proponents of such programs.

From a broader perspective, however, our findings should be viewed only tentatively. Future work which might use, for example, information from employers of youth can improve upon the data and methods employed in the present study. In addition, of course, our use of data collected only through 1969 reveals little regarding substantial changes occurring in vocational education and in "career

education" since that time. From this perspective the contribution of our results lies in providing important baseline data for the future assessment of these newest changes, and in providing useful information for appropriate directions for improvements yet to be made.

To this end, we would urge those responsible for the conduct of educational programs at the secondary level to make every effort to collect and use timely and relevant data for the continuation of research. Such information can play a major role in the improvement of the process of work establishment of youth.

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