My remarks are from the perspective of an industrial psychologist who has had the opportunity to study vocational education for the past four years. I have no particular expertise in either economics or statistics, but from my own particular perspective I would like to offer some personal observations about vocational education and then a few specific comments on the papers.

I want to warn you that my remarks arise from a personal judgment—I believe that more occupational-oriented education is necessary in the public schools. I am not advocating the expansion of the type of vocational education that is now generally offered but an expanded concept of occupational familiarization that could bring interest and meaning to the educational experiences of a majority of students.

I believe that the majority of students—something over 50%, but don't ask me to cite a specific figure—are being largely ignored in our secondary schools. Approximately one-third of high school students have the ability and interest to benefit from a college education. Another five to ten percent have a specific occupational goal they can specify and work towards at the secondary level. The remainder need not specific skill training so much as an opportunity to acquire basic work habits and general skills that can be used in a variety of occupations. Even more than this, they need exposure to an education experience that is stimulating rather than stultifying. And this is what I believe an occupational orientation can bring. Youngsters who are bored by the verbal abstractions that dominate the traditional high school course can find topics of intrinsic interest in occupational oriented subject matter that is more congruent with their style of learning, that provides opportunities for achievement, and that has relevance to their lives after they leave school.

It is from this personal position that I approach the question of vocational education statistics. If education is to be guided along the lines I have suggested, what data are needed? First, I think we need some data about the students' reactions to their school experiences—that is their attitudes towards school. I think we would find reflections of discontent and frustration quite prevalent among students in the general curriculum. This is the catchall curriculum for those students who either are not able to or do not wish to enter the college preparatory or traditional vocational curriculums. It is these students who are most cheated in high school.

The attitudinal data could also be helpful in the debate as to the proper setting for vocational education which centers on the comprehensive high school versus the separate vocational-technical school. The reactions of the students, both during their school years and after, should be considered.

Second, I think we need data on the degree to which the students change in the maturity of their vocational considerations during their school years. Vocational maturity is a relatively new concept in the study of career development and career choice but I think the work of Donald Super and his students, especially John Crites, has brought it to the stage that it can be of direct help to the practicing high school counselor.

Which brings me to my third data need, which is more data on the amount and quality of vocational guidance that students receive. Our lack of data is woeful in this area, but it only reflects the woeful lack of vocational guidance in our high schools. The time of most high school counselors tends to be spent in course scheduling and helping college preparatory students to enter college. The work-oriented students are too often ignored. If this condition is to be changed data on counselor activities is obviously essential.

As my last personal point, I think the definition of training-related placement must be sharpened. Most reports of vocational educators state that three-fourths or more of their students are placed in jobs that are related to their training. Studies by other investigators such as Eninger and Kaufman et al. find much lower figures—usually around one-third of the students in jobs related to their training. I am speaking of T & I (trade and industrial) and technical training not of business or commercial education. This latter area does place high proportions of its graduates. This high placement rate in the business area reflects, I believe, the general point being made in these remarks. Business education which has mainly female students, is fundamentally different than the traditional male vocational program which are the trade and industrial and technical fields. Business education is quite general. The skills the young girl learns on one typewriter can be transferred to almost any other. Stenography, office machine, filing systems, business practices, etc., are quite similar in all offices in all labor markets. The skills the young male learns in his vocational shops are much more specific and limited.
to certain types of work. The chances that he will find a job using these skills are thus much lower.

An expanded concept of occupational education which teaches more generalized skills and at the same time brings meaning and interest to other educational experiences could help to overcome many of the limitations of the current approach.

Now, to some specific comments on the papers. I would like to comment on Mr. Stromsdorfer's first.

I was impressed by the care with which the various considerations in defining costs were delineated and I have neither the competence nor the information to discuss this aspect. I would, however, like to take exception to Mr. Stromsdorfer's discounting of the possibility of measuring quality in education. As a psychologist, I have to contend, almost as an article of faith, that such phenomena can be measured. I even suggest that performance on standardized achievement tests is one indication of the quality of education. Such measures would be more persuasive if they were put into a "value added" framework that would attempt to measure changes across time as a result of defined educational experiences. And, of course, the concept of vocational maturity referred to above, I would contend is another indication of the quality of education.

I wish to support Mr. Stromsdorfer's recommendation for a nationwide sample administered by a central staff that can assure adequate and comparable data. Approximately a year ago the Carnegie Corporation was exploring the feasibility of such yearly surveys. They encountered considerable opposition from school administrators, and I do not know at what stage their proposal currently stands.

I was happy to see that Mr. Ullman's paper supported my opening remarks for evaluation beyond economic efficiency. (My remarks incidentally were written before I saw the paper.) While I cannot argue with the general framework of cost-benefit analysis, I would repeat again the point made by Ullman that the benefits to be measured need study and specification.

I also would strongly second Mr. Ullman's proposal for more follow-up information. I think it is regrettable that vocational educators, who spend so much time in follow-up studies, gather so little information from them. And even that which is gathered, such as job placement rates, is suspect.

My major exception to Mr. Ullman's paper is that it is so concerned with vocational education as it is. I would hope the Office of Education would be more concerned with gathering statistics that would point the way to occupational education as it should be.
IX

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