

Discussion

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Rather than take issue with specific points in Dr. Chandler's paper, with which I am in substantial agreement, I would like to concern myself mainly with advocating a broader definition of output than she used.

First, it would be desirable if output were considered to include all those kinds of evidence which might serve as dependent variables or criteria in assessing the effects of the many influences currently at work in education. For example, information about the educational programs which high school graduates had followed could be regarded as describing output. The College Board is currently planning a study which will attempt to find out--at the topical level--what high school students are studying. The influence of the current ferment in curriculum may show up more clearly when fairly detailed data are collected. It seems possible, also, that topics may provide a better indicator than course titles for comparisons over a period of time.

Greater detail in existing reports should increase their usefulness as indicators of trends. For example, I regret that the category of "first-time full-time degree-credit students" is no longer reported. Of course, if the scope of output statistics is enlarged and if the various series are explored in greater detail, there is a danger that the sheer bulk of figures produced will overwhelm the users. Here, the developing use of computers in information retrieval may help to resolve the difficulty by making it possible to produce special purpose reports as needed from a comprehensive set of basic data.

Second, it would be highly desirable if the variables on which data were collected could be derived from a conceptual structure. Lazarsfeld¹ has pointed out that while Quetelet repeat-

edly suggested "that special data could be collected to form the empirical basis of a new concept, he never set a concrete example". Educational statistics needs new, conceptually-derived variables which, along with some currently used variables, might make up a system. This kind of approach seems essential if the kind of solid forecasts most useful for planning are to be produced. To describe the tides without considering the moon would undoubtedly be cumbersome. In somewhat the same way, the "bulges" to which Dr. Chandler referred were made plausible by Thompson and others who foresaw the effect of birth rates on future enrollments.

If a broader view is taken regarding the nature of output statistics, certain implications for data-collection seem clear. The compilation of data reported in tabular form by institutions has definite advantages. It seems important, however, that these statistics be augmented extensively by data collected directly from individuals, preferably using modern sampling methods. Collecting data directly from individuals would facilitate studies of relationships and the inclusion of more variables. Project Talent and other special studies are using this approach. It should be equally desirable for recurrent surveys. For such surveys, it should be possible to sample within a school or college to identify the individuals to be included. We have sampled in this way to develop test norms.

Finally, I would urge that many frankly methodological studies be undertaken both to clarify the interpretation of regularly collected data and to aid in relating data collected by different methods but bearing on the same question.

¹In Woolf, H., ed. Quantification. Indianapolis, Ind.: Bobbs-Merrill, 1961.