DOCUMENT RESUME

ED 055 023 SP 004 787

AUTHOR Short, Edmund C.

TITLE Knowledge Production and Utilization in Curriculum.

PUB DATE Feb 71

NOTE 51p.; Paper presented at annual meeting, AERA, New York, 1971

EDRS PRICE MF-$0.65 HC-$3.29

DESCRIPTORS *Curriculum; *Curriculum Research; Information Utilization; *Research Needs; *Research Utilization

IDENTIFIERS *Zetetics

ABSTRACT

The intent of this paper is to examine several dimensions of knowledge production and utilization in curriculum. Attention is given to what sorts of knowledge the field requires, the form it must take to be effectively utilized, and the processes by which the required knowledge is created and put into appropriate form. The paper draws upon work by Schwab and Broudy on the use of knowledge in educational practice. Reference is also made to the relationship between knowledge in curriculum and the larger field of zetetics. Discussion of the development of curriculum knowledge in technological form depends chiefly upon studies by Westbury and Oliver. Forms of inquiry in curriculum and the resultant knowledge pool are examined comprehensively. Finally, knowledge utilization concepts from Havelock and applied to linkage of curriculum knowledge and practice. (RT)

KNOWLEDGE PRODUCTION AND UTILIZATION IN CURRICULUM*

Edmund C. Short
College of Education
University of Toledo

A basic grasp of the overall problem of knowledge production and utilization in the field of curriculum would seem to be essential for the curriculum researcher, developer, or practitioner. To know the chief features of the terrain in which one works is a minimum expectation for anyone engaged in such work professionally. Yet, it may be observed that a great many creators, conveyors, and users of curriculum knowledge are considerably uncertain of their terrain, especially outside the limited range of guidelines within which they regularly think and operate. Knowledge of the more general phenomenon, to which each may be contributing in some particular aspect, would be helpful, were such knowledge available. This larger perspective might then make it possible to see new lines of research, to recognize unfruitful or less desirable efforts which need not be pursued, or at the very least, to suggest relationships among studies that are done independently. All of these possibilities

---

*Paper presented at Session B22, American Educational Research Association Meeting, New York City, February 7, 1971. Not to be reproduced or quoted without the author's permission.

would contribute to an accumulation of knowledge about curriculum research and its utilization that is needed by anyone working in this field. This paper is directed to the examination of this larger context for curriculum research and practice.

This study has attempted to bring together what is known at present about the production and utilization of knowledge in the field of curriculum. At the outset, it must be admitted that no previous effort to survey this matter specifically in the field of curriculum has been found, though within the field of educational administration, a substantial monograph on this topic was issued in 1968, in which there is some parallel work of considerable value. (Eidell, 1968) This absence of previous work on the problem of knowledge production and utilization in curriculum is evidence that scholars in curriculum have generally pursued their work without reference to what is known about knowledge production and utilization* in general or to what others have learned about it who are engaged in research in various practice-oriented fields where the problem is similar to their own -- that is, where the problem of what knowledge to attempt to produce is intimately tied to the needs of the consumers for specific kinds of knowledge. Data on phenomena related to KP&U have been

*Frequently hereafter referred to simply as KP&U.

collected from a wide variety of fields. Analysis of these data has yielded much knowledge about KP&U in general. This body of accumulated knowledge serves as an excellent reference point for the present review of the problem of KP&U in curriculum. It is at least as relevant a resource for curriculum as the research in other fields, such as educational psychology or the subject matter fields, on which curriculum research has typically depended.

It is not convenient in this paper to review what is known about the general problem of KP&U.* It is, nevertheless, appropriate to recognize that research on KP&U in curriculum can be viewed as an applied field related to the more general study of KP&U. Thus, the various domains of interest and the research perspectives characteristic of the general field are taken as points of departure in searching the curriculum field for studies that may provide some understanding of the problem in curriculum. These are then cited or reviewed in synthetic mode and ordered to permit some structured picture of KP&U in curriculum to emerge. The full picture, however, cannot be discerned from the results of this study. It will become quite apparent that too few studies have been carried out so far for this to

---

*Such a review was conducted as background for the present study. See Short, 1971.

be possible. This survey reflects the great need for a new kind of curriculum research that fills in knowledge of KP&U in curriculum. Nevertheless, even the partial picture that can now be put together has many implications for research, development, and utilization activities that go beyond current practices.

Research Into Practice

Studies concerning the relationship between curriculum research and curriculum practice are quite limited in number, and many related studies add little to an understanding of the problem of producing and utilizing curriculum knowledge.* There are no general studies of the problem of how curriculum research gets into curriculum practice; no general studies of the problem approached even in terms of the phrase, "knowledge production and utilization;" and few instances where particular cases of knowledge production and utilization in curriculum have been documented. (Zidonis, 1967; Marsh, 1964; Grobman, A., 1969; Wooten,

*This state of affairs is perhaps lamentable. No doubt it represents a view of curriculum scholarship that has not placed much emphasis upon checking what knowledge of curriculum is utilized nor upon what kind of knowledge the field requires and, consequently, should be produced for its use.

1965; Grobman, H., 1968; Rosenbloom, 1964) The difficulties in the process have been noted occasionally, but attempts to study it are virtually nil. (Zidonis, 1967; Stufflebeam, 1966; Boyan, 1968; NCERD, 1970) * Despite the complexity of the actual phenomenon and the fact that it remains largely unstudied, articles advocating a look at the research-into-practice problem in curriculum appear rarely. (Goodlad, 1969, pp. 369 and 374)

Knowledge Production

Knowledge production in curriculum, as one aspect of the problem, has been somewhat more thoroughly studied. Its chief elements, nevertheless, tend to remain obscure. Many areas have not been touched upon anywhere in the research literature. Nothing substantial can be identified within either the sociology or psychology of curriculum science. We do not know how the

---

* "The path from knowledge creation to knowledge utilization is a tortuous one, requiring extensive planning." (Zidonis, p. 85) In discussing Title I programs, Stufflebeam makes this same point. "The path between theory and practice is long and fraught with many hazards." (Stufflebeam, p. 126). Boyan discusses curricular research and development problems related to federal programs and observes the slow but noticeable progress toward achieving the widespread utilization that had been expected to result from ESEA projects and R & D centers. (Boyan, 1968, pp. 22-29) Evidence of the impact of federal efforts is reviewed in NCERD, pp. 139-153, which concludes with a caveat on the difficulty of tracing specific innovations back to research. It is somewhat easier in such projects as PSSC Physics or CHEM Study.

the scientific community within the field of curriculum functions organizationally or under what social and psychological stimuli, constraints,and norms it operates. We do not know whether it participates in the general attributes of the educational research community as a whole or whether it behaves quite differently from it.

The quantity of research productivity in curriculum, it is frequently pointed out, is quite low. These estimates are most often derived subjectively, no doubt, by making comparisons with work in other fields of educational research or in terms of standards internal to the curriculum field as to what counts as quality research. There are no empirical studies that would help confirm or deny these thoughtful hunches, however. (Westbury, 1969, pp. 4-6; Mann, 1968, pp. 375-376; Abramson, 1966, p. 389; Short, 1970, pp. 7-8; Goodlad, 1969, p. 368; Foshay and Beilin, 1969; Myers and Klein, 1969, pp. 395-402; Broudy, 1970, pp. 16-17)

Areas of Productivity

Occasionally, scholars have focused attention on the need to redirect research efforts into new dimensions of the field in an attempt to stimulate increased productivity. Recently, Schwab (1970) has called for specialists in curriculum to take charge of their own field of expertize, charging that much of the proper

work of curriculum research has been translocated to other fields and other scholars outside its own immediate community of scholars, e.g., the subject matter specialists who inaugurated and developed major curriculum reform projects of the 1960's. He has also noted that the field of curriculum inquiry has devoted considerable attention to inappropriate metatheoretical questions. As a consequence, the barriers to productivity in the field have not been reduced as much as should be expected from such work. Schwab suggests that questions of the judgment of curricula, their construction, and their reconstruction have been neglected in the work of those whose task is to facilitate inquiry with metatheoretical clarification.

Schwab also finds that the same few concepts which have been generated in the field, have been reiterated, restated, commented upon, criticized, collected, traced historically, and used as the basis for curriculum proposals over and over again without the concommitant generation of new concepts that meet the challenge of practical imperatives at hand. Instead of facing these hard, substantive problems, curriculum scholars have tended to substitute psuedo-scholarly charge and countercharge among themselves over each others' methods and research results (not the only field of study to be guilty of this, to be sure), and needed new work is left uncreated.

And finally, Schwab is persuaded that the flight from the practical to the theoretical in curriculum study has resulted in many dead ends. He recommends the more fruitful approach, at least for the moment, of examining at first hand the various exigencies of curriculum as they exist at various levels -- the classroom, the school district, the state, the nation,or others. (Schwab, 1970, pp. 19-20)

Schwab's effort to redirect research productivity in curriculum has so recently been presented to the field that it will be necessary to put off any attempt to determine whether research will tend to follow his recommendations or not. In any event, several other curriculum scholars who have set forth possible lines of inquiry or who have been provoked to discuss the topics treated by Schwab have found themselves in essential agreement about the desirability of conducting more naturalistic studies in curriculum. (Goodlad, 1969, pp. 369 and 374; AERA, 1971; Eisner, 1970)

Eisner (1970) has suggested a number of areas of the field in which increased productivity is urgently needed. He includes the products and processes of curriculum reform and development projects, the implementation of a curriculum in schools, evaluation of curricula, the role of curriculum specialists, different approaches to curriculum building, (interdisciplinary, discipline-centered, etc.), the way the instructional support system and

organizational structure affect curriculum, and ways of adapting curricula to particular settings.

Broudy (1970a) has reminded us that ultimately curriculum research must seek generalizations that are embedded in integrated frameworks of knowledge if studies are to be cumulative and have power enough to be relied upon. He sets forth five categories of hypotheses in which work could be pursued and research productivity increased: hypotheses about objectives, hypotheses about relations between curriculum input and outcomes, hypotheses about specific curricular inputs based on these conclusions, hypotheses about rules for sequencing or packaging inputs, and hypotheses about the uses of schooling.

Thirty-four types of curriculum studies are cited by Short (1970) with, however, no indication given of the relative productivity among these various types. Although areas of high and low productivity seem to exist among the various areas of work mentioned, it would be difficult to conclude whether the distribution of knowledge production has any definite relationship to the degree of need for curriculum knowledge in the various areas as expressed by those seeking it. Considering the curriculum research context without reference to the demand for its productivity, one must recognize that a high accumulation of individual studies does not necessarily constitute growth in knowledge. For, as Glass points

out, knowledge about education is not increasing nearly as fast as is alleged. It is the educational research literature that is proliferating. He adds:

> "A body of literature can grow faster than a body of knowledge when it swells with false knowledge, inconclusive or contradictory findings, repetitive writing or simple dross. If knowledge is not subjected to scrutiny, it cannot be held confidently to be true.... The integration of isolated research reports and the criticism of published works serve an essential purpose in the growth of a discipline." (Glass, 1970, pp. 323-324)

It would not be far wrong to conclude that, if productivity in curriculum research refers to the kind of knowledge that is scrutinized, synthesized, packed-down,and highly valid, there is really a very low level of knowledge production in any of the many aspects of the field and, consequently, in the field as a whole.*

One cannot help but wonder why this may be so. No disciplined studies have been found which have traced the causes of

---

*Of course, this conclusion is difficult to validate since the body of curriculum knowledge that has accumulated is not readily available in the form suggested by Glass. Individual studies are scattered and current reviews of convenient groupings of them are spotty. Anyone who might wish to collect and boil down all that has been generated on a given problem in the curriculum field has no easy time of it in gaining access to whatever research is relevant and in being confident that he has not overlooked something of importance. An examination of curriculum textbooks indicates a similar difficulty encountered by their authors.

this condition,and so the matter is open to several hypotheses. If it is because competition and scientific norms within the community of curriculum scholars discourage rather than encourage research productivity, we do not have studies to tell us so. If it is because researchers have viewed the phenomena of the curriculum field from less than the most fruitful perspectives, we are only now beginning to have alternative vantage points being cogently suggested which might evoke changes in what is studied and hopefully lead to more productive lines of inquiry. Perspectives presented by Schwab, Eisner, Broudy,and Glass represent a few of the more radical alternatives* among proposals which vie for recognition in the field as to what should be studied in curriculum and how such matters should be viewed.

Factors Affecting Quality of Knowledge Produced

No doubt this dilemma over what constitutes the proper context for curriculum inquiry plays a large part in inhibiting research productivity in the field. For purposes of conducting research upon particular phenomena associated with the curriculum field, definition of its boundaries, its subject matter, its

*Radical in the sense that they require conceptual shifts in the way the problems of the field are viewed and not just more and better refined studies of the sort that have largely been generate up till now.

major domains of inquiry, its most telling questions and most insistent problems, its key concepts, its generative ideas, and its conceptual systems would seem to be necessary. (Westbury, 1969; see also Gowin and Millman, 1969, pp. 554-556) Yet inquiry in the curriculum field is so unsettled that it is difficult to find two studies that define any of these features in the same way. This situation tends to impose upon every investigator the necessity either to stipulate his own original definitions without regard for previous work done or to examine exhaustively all such definitions generated to date before deciding to build his inquiry upon those he finds reason to believe best serve his purposes. If this is the sort of situation faced by the curriculum researcher, it alone could considerably limit the amount and quality of curriculum research ultimately produced. However, this hypothesis has admittedly not been checked, let alone confirmed.

It may be instructive to mention some concrete examples of controversies that exist within this contextual aspect of knowledge production in curriculum. For instance, boundaries that differentiate curriculum phenomena from those appropriate to some other field of investigation are among those features that must be defined with reasonable clarity before studies can be built upon other related work. The chief boundary problem that is most

frequently the source of quite different definitions of the phenomena appropriate for study in curriculum is what the line should be which marks off instruction, methodology, and/or instructional materials from curriculum. Johnson would sharply divide them into mutually exclusive areas of research concerns. (Johnson, 1967, 1969b) Mann and Westbury, among others, apparently would not. (Mann, 1966; Westbury, 1969; Myers and Klein, 1969, pp. 397-398 and 401-402) Alvik has analyzed the different positions in this controversy. His work makes it possible to stipulate boundaries in terms of the kinds of questions one is interested in exploring -- questions of educational philosophy, didactics (educational ends and means), methods of instruction, implementation of plans, or evaluation of plans and of their implementation. (Alvik, 1970) Another boundary problem that is far from being satisfactorily resolved, concerns the milieu in which curriculum is set. Clearly, there are variables which affect an educational program that exists outside the curriculum itself but which cannot be totally ignored in curriculum research. (Eisner, 1967; McNeil, 1969; Weiss, 1969; Macdonald, 1969-70)

One definitional problem related to the context for curriculum inquiry has continued to be very vexing for many researchers despite the fact that there has long been considerable clarity and wide acceptance in the field of a certain set of distinctions

that are virtually self-evident. Two domains of curriculum inquiry which concern different phenomena and which need not be confused are those pertaining to curriculum as a product (of a curriculum development process) and to curriculum development as a process (of developing a curriculum product). (Macdonald, 1964; Johnson, 1969a) While these two domains do not exhaust the list of possible phenomena of interest to researchers, they do have the virtue of being relatively discrete domains, perhaps more so than others that have been set forth, such as that of curriculum evaluation. It is surprising that so much of the language in which curriculum inquiry has been explicated has overlooked this rather firm distinction. An example of another domain of inquiry, which is not so widely accepted as that of curriculum as a process or that of curriculum as a product, concerns problems of curricular policy as they appear separately or as part of matters of public or administrative policy. (Westbury, 1969, p. 11)

The so-called Tyler rationale (Tyler, 1950) has served as one rather widely accepted conceptual system for defining the context of curriculum inquiry. Together with some of its more recent modifications (Goodlad and Richter, 1966), it is coming more into question as a suitable conceptual scheme within which to conduct practice and, secondarily, inquiry. Still, there are those who defend it vigorously. (Myers and Klein, 1969, pp.

397-389; Kliebard, 1970; Macdonald, 1965, 1966, 1967, 1968; Huebner, 1966a, 1966b, 1967; Tyler, 1970, pp. 30-35)

Partially a result of different philosophical positions on curriculum (and perhaps of some differences in interpretation of Tyler rationale), this question of the definition of an appropriate conceptual system for the curriculum field is part of a deeper dilemma that has long puzzled curriculum researchers. This is the all-pervasive issue of the kind of theoretical effort that is appropriate to the field. Some scholars have assumed that descriptive theory of the kind generally sought in the basic sciences, is the only proper kind of theory to be generated in curriculum. Others have assumed that prescriptive theory, which offers programmatic guidance, is the essential need of the field. Still others are not certain, but what both or perhaps neither are the correct ones to aim for. (Mann, 1968; Scott, 1968; Beauchamp, 1965, 1968; Eisner, 1967; Macdonald, 1967; Huebner, 1968b; Maccia, 1963, 1965, 1966, 1968; Smith, 1963; Goodlad, 1968; Schwab, 1969; Elliott and Foshay, 1963; Foshay and Beilin, 1969) This fundamental issue is beginning to show signs of possible resolution through the advent of relevant theoretical studies within the field of instructional systems and the field of knowledge production and utilization. (Oliver, 1970; Havelock, 1969, pp. 8-1 to 8-51)

Those factors which seem to have an impact upon the quality of knowledge produced in curriculum research, have been reviewed

here briefly in so far as work now available or related to this matter permits. One is left with the distinct impression that there may have been more debate in the research literature over what problems should be approached and how they should be defined than there has been actual production of studies or accumulations of curriculum knowledge. One cannot say for certain without a complete review of the substantive studies done in the field. Since this has not been attempted anywhere in the literature and since the present treatment is concerned primarily with studies of the problems of knowledge production in the curriculum field and not with the recitation of the research produced within it, it is only proper to leave open the question of the quality of work done in the field and to defer judgment on how well the actual research fares in making curriculum intelligible and in providing useful knowledge.

Methods of Inquiry

An examination of the methods of inquiry used in curriculum research provides another perspective on the problem of knowledge production in curriculum. Methods of research are at the heart of creating knowledge, and some understanding of the state of curriculum inquiry from the methodological point of view is required if one is to have a comprehensive picture of the problem of knowledge production in curriculum.

There is no evidence that the work of zetetics, the most general science of research and creative activity (Tykociner, 1966), has been deliberately utilized in the conduct of curriculum inquiry. That is, there appears to be very little awareness that knowledge production in curriculum is a species of the more general phenomenon of knowledge production and, consequently, may derive power from the concepts developed in that science concerned with the general area. Curriculum research does not reflect the conceptual clarification zetetics provides regarding classification of phenomena and methodologies of research. Education and its constituent fields of study, including curriculum, in Tykociner's zetetic system of knowledge, is one of the disseminative sciences. Such disseminative sciences bridge the gap between that area of knowledge concerned with increasing understanding of new problems through the creation of disciplined knowledge (called zetetics) and that area of knowledge concerned with enabling the work of society, political,economic, social, etc., to be carried on (referred to as social cybernetics). This position within the total scheme of knowledge has two dimensions resulting from its relationship to zetetics and to social cybernetics. There is first, a social ethics dimension resulting from the obligation to disseminate knowledge for the use of personal living and acting in society. The second is a dimension which would

emphasize education in zetetics itself so that pupils may know the principles and methods of knowledge creation which will enable them to cope with problems of life and society that would remain unintelligible, given the knowledge at hand. (Tykociner, 1966, pp. 59-62 and 79-82) These ideas about the location of the phenomena of curriculum in the total range of possible categories of scientific study suggest much of value about the substantive character of the context of curriculum inquiry. While they do not solve all the problems of defining the context of curriculum inquiry, they do lead to an intelligible grasp of problems virtually unassailable without such a theoretical framework of a system of sciences and they may suggest fruitful lines of inquiry.

With respect to what can be learned in zetetics that may clarify methodological questions in curriculum inquiry, it is evident from the work of Tykociner that an understanding of research methods in general can provide more fundamental tools than those we have adapted from basic scientific disciplines, often inadequately perceived. Systematic study of the research process falls in the branch of zetetics known as zetesis. Work in the field of zetesis has yielded analysis of the logical methods available for use in inquiry, an understanding of the types of problems for which each logical method is valid, a recognition of the technological instrumentation appropriate to

the conduct of experimental and theoretical investigation, and knowledge of general research methodologies. Perhaps most useful is a description of the essential phases of the general zetetic process, which in Tykociner's representation includes twenty-three steps from the inception and definition of a problem to be explored through the setting forth of new findings and their implications. (Tykociner, 1966, pp. 173-201) It is to work of a similar nature that philosophers of science interested in educational phenomena, have most recently turned for resources in their efforts to clarify the methodological issues in educational research. (Cronbach and Suppes, pp. 135-148; Gowin and Millman; Glass, 1970; Maccia, 1971).

To date no authoritative guide to inquiry in curriculum has been published. Thus, there is considerable debate about methods of work appropriate to curriculum inquiry. (Schutz, 1969) It must be recognized, however, that ingredients for the development of methods of work appropriate to curriculum inquiry are already available in the metatheoretical contributions of scholars in the science of zetesis, philosophers concerned with refining scientific methods of work, methodological theorists in educational research, and curriculum research methodologists. The task that remains to be done is to synthesize and structure the relevant knowledge available in these sources and to identify the

kinds of curricular research problems to which these methods are appropriate.

Among the most promising work done specifically on methods of curriculum inquiry are studies by Easley, Stanley, Goodlad, and Schwab. Easley makes a case against over-dependence upon statistical procedures in a field which has yet to produce phenomenological and theoretical work in which such tools are appropriate. Easley advocates studies which report the operation of the full range of variables observable in curriculum as a basis for theoretical development and statistical testing of generalizations.(Easley, 1967) * On the other hand, Stanley notes that for purposes of conducting decision-oriented studies, the method of controlled comparative experimentation in curriculum is quite appropriate and amenable to statistical treatment. (Stanley, 1970) ** Goodlad stresses the role of invention as a mode of inquiry appropriate to a field such as curriculum. As a form of fluid, as opposed to stable, inquiry (Schwab, 1964), invention "poses alternative concepts, modes, and principles for conducting

---

*See as an example of such inquiry, the study by Hawthorne, 1971. Also McClure, 1971a, and Walker, 1969.

**Anderson, 1969, is typical of this type of study. For a discussion of the possibilities (and the difficulties) of utilizing curriculum reforms as experiments, see Campbell, 1969. For recent general reviews of methodological problems in curriculum evaluation, turn to Baker, 1969, Westbury, 1970, Heath, 1969, Suchman, 1970, Hemphill, 1969, and Welch, 1969.

practice." (Goodlad, 1968, pp. 11-14) Schwab also has urged this same kind of inquiry in curriculum. He has termed it "the anticipatory generation of alternatives." (Schwab, 1970, pp. 33-35) *

Turning to the question of who should do the inquires appropriate to the field of curriculum, recognition has slowly emerged that the problems of curriculum require both the use of methods of work mastered by those schooled in particular conventional disciplines of inquiry and methods not available in such sources but possessed by persons skilled in creating new forms of knowledge through the processes of selecting and combining diverse elements in accord with the demands of particular curricular tasks. The full implications of this recognition of the need for multiple and varying approaches in curriculum inquiry are not yet apparent. Nevertheless, a rationale is beginning to be articulated on the basis of Schwab's categorization of curriculum as a practical enterprise, chiefly deliberative in character. (Schwab, 1970, pp. 2-14 and 36-39) If curriculum is indeed essentially a deliberative phenomenon, then to obtain the best selection from among alternatives, there must be knowledge about

---

*See Shane, 1967, and Shane & Shane, 1970, for analyses basic to the kind of inquiry in curriculum that invents future alternatives.

every aspect of all proposed solutions and about the effect of each as a whole, as well as about the deliberative process itself. Research is needed, therefore, on both discrete questions that can be studied with methods from a given discipline and on more complex ones that can be answered only by eclectic treatment, utilizing the informed judgment of persons fully immersed in the practical ramifications of the curricular issue being considered.

Studies illustrating the use of curriculum inquiry may be cited to clarify this emerging view of curriculum inquiry.* Historical approaches have been utilized by Kliebard, 1968, 1970a, and by Seguel, 1966. A review of historical studies in curriculum appears in Bellack, 1969.

Broudy, 1967, 1970b; Soltis, 1968, 1970; Phenix, 1962, 1964a, 1964b; Schwab, 1964a; Scheffler, 1958; Huebner, 1967; Martin, 1969, all illustrate philosophical approaches. Collections of such studies appear in Levit, 1971, and Martin, 1970.

---

*Note that every one of these studies deals with different curricular phenomena and that no attempt is made here to trace replications of any study, if in fact they exist; consequently the validity of each study's findings cannot be considered fully verified. Also note that the illustrations of curriculum inquiry listed here do not exhaust those that could be identified in each category nor is a full taxonomy of categories of inquiry intended. Not included in this sample of curriculum studies are many which primarily concern problems of the validity of methods of research utilized in curriculum inquiry and other related metatheoretical matters, e.g., Huebner, 1968b, and Mann, 1969.

Political-Sociological Studies: Kimbrough, 1965, 1970; Lippitt, 1965, 1966; Huebner, 1970.

Social-Psychological Studies: Dreeben, 1968; Anderson, et al., 1969; Eisner, 1967; Macdonald, 1969-70; Walberg, 1969; Overly, 1970; Huebner, 1966a, 1968a.

Policy-Deliberation Studies: Gideonse, 1968; Cohen, 1970*

Alternatives Generated:

Technologies for Doing Various Curricular Activities:

For Innovating in Curriculum: Lawler, 1970.

For Developing or Selecting Curriculum Material or Packages: Eash, 1969; Payne, 1969; Tyler & Klein, 1968; Stevens & Morrisett, 1968.

For Developing Proposals for Total Curricular Programs: Short, 1965.

---

*In commenting upon the need for research on problems of overall curriculum development for use in formulating educational policy, the authors of recent O.E.C.D. study stress, "The need for an overall approach to the educational system, as distinct from the research into, and the development of, particular sectors or fields of study." This emphasis upon research and development within subjects or portions of the curriculum, characteristic of most of the curriculum reform projects of the 1960's, has been challenged by those who recognize the very limited value of much of the research done in this connection for policy deliberations concerning the overall curriculum. (Stoke, et al., 1966) See also Goodlad, 1966; Keppel, 1966; King, 1969; Meyers and Klein, 1969; McClure, 1971b, and Eisner, 1971.

For Evaluating Curricula: Grobman, 1968.

For Choosing among Policy Alternatives: Berlak, 1970.

For Selecting and Organizing Curriculum Content: DeVore, 1970.

For Determining Curriculum Objectives: Weaver, 1971.

Proposals for Total Curricular Programs:

Broudy, et al., 1964; Phenix, 1964; Stratemeyer, et al., 1957; Smith, et al., 1957; King & Brownell, 1966; Berman, 1968.

Proposals for Curriculum Elements:

Kind of Individual to be Developed: Alberty, 1967.

Content for Basic Studies, Developmental Studies, Molar Studies: Broudy, et al., 1964.

Objectives in Various Subjects: Popham, 1970.

The use in curriculum research of each of these modes of inquiry (and of additional ones not illustrated here) has tended to produce a product of more quality than when undisciplined methods have been attempted. Still, it is apparent that formal conceptualization of the most valid procedures associated with each method of study needs to be explicated in terms applicable to curriculum phenomena if the quality of the products of curriculum inquiry is to be improved.

This examination of several aspects of the problem of knowledge production in curriculum permits only one broad conclusion,

and that is that we know remarkably little about it. The activity which can be identified as knowledge production in curriculum is little understood; it produces relatively little quality work; it is uncertain what it should be studying and what definitions it most profitably might adopt; the controversies over its key concepts and modes of inquiry fill more of the research literature than do solid reports of research accomplished; and it appears to be quite isolated from the mainstream of known-how about sound techniques of inquiry. We know more about the difficulties encountered in the field than we do about the elements that constitute its structure. Within the last few years, however, new developments have begun to appear which may stimulate the refinement of the task and methods of knowledge production in curriculum and may direct inquiry toward the production of more and better curriculum knowledge.

Utilization of Curriculum Knowledge

If little has been found that makes knowledge production in curriculum intelligible, much less is available on the subject of knowledge utilization in curriculum. As a domain for investigation, it has literally escaped direct attack. One could easily suspect that curriculum knowledge is not used in curriculum practice or that it has not been noticed that it has been used and,

therefore, left unexamined. Perhaps this is too harsh a judgment to draw merely from the absence of studies about utilization of curriculum knowledge. It may not be far wrong, however, to think that the practitioner or user of curriculum knowledge has perceived the confused state of knowledge production in the field and has chosen to remain skeptical of its findings. Wishing to act responsibly, he has deferred his use of knowledge produced about curriculum until he could receive it with more confidence. Meanwhile, he turns to other sources of information in which he believes he can put more faith. This matter of user attitude toward curriculum research has not been studied. It is this kind of fundamental research that is necessary if utilization rather than non-utilization of curriculum knowledge is taken as a desirable goal. Reasons for non-utilization would also be worthy objects of investigation.* No doubt, the kind of social psychological factors reported in studies of reasons given by educational administrators for not using research knowledge (Schmuck, 1968) would be similar to those that might turn up in studies pertaining to the utilization of curriculum knowledge.

---

*Applications in the field of curriculum of concepts related to factors affecting the utilization of knowledge, as generated in the more general science of knowledge utilization, would be useful in expanding the understanding of this phenomenon in curriculum. See Havelock, 1969.

Whatever the actual factors are which may account for the prevailing level of use of curriculum knowledge, there is more interest at the present time in developing new and better techniques for putting users in touch with the available knowledge than there is in learning what the phenomenon of knowledge utilization in the field of curriculum is like and what inhibits or augments the functioning of this process. Without the benefit of knowing in what ways such efforts may contribute to actual utilization of curriculum knowledge, a number of delivery systems have been established that make possible more and speedier access to curriculum information. The ERIC system, which facilitates the dissemination of educational research and information in general, provides curriculum information via comprehensive indexing of published and unpublished documents and access to reproduction in hard copy or microfiche on a fee per item basis.* No studies of how much this system is utilized to obtain curriculum information have been located, nor have any curriculum studies apparently been directed at an assessment of the impact of what

---

*Research in Education, available since 1966 from Superintendent of Documents, Washington, D. C., indexes chiefly unpublished reports filed with Educational Resources Information Center, USOE. Current Index of Journals in Education, a publication since 1968 of Collier-Macmillan, New York City, indexes published articles from most major educational journals.

has been retrieved through the system. Clearly, that which may be accorded the status of curriculum knowledge (derived by means of valid modes of inquiry and development) is not readily distinguished in this system from that which is curriculum opinion, reports of practice, limited studies and experiments, or untested products. Thus, it is possible for a user to attribute to certain information obtained with the assistance of ERIC more validity as tested curriculum knowledge than it may deserve and to utilize it inappropriately. This delivery system takes no responsibility for the way in which its consumers handle the information it makes available.

Certain of the professional journals and publications of professional organizations in the field of curriculum share to some extent in this same dilemma, but often through the exercise of editorial and advisory board judgments, the quality of scholarship in the publication is quite high.* A comprehensive review of

---

*See Educational Leadership, Journal of Curriculum Studies, and Curriculum Theory Network. The Review of Educational Research, issued by the American Educational Research Association, has as its purpose to identify, summarize, and critically analyze research in education. Its integrative reviews and critical perspective on knowledge being generated provide, perhaps, the best overall access for potential users to quality knowledge. Studies in curriculum are periodically reviewed. See also AERA's forthcoming Annual Review of Educational Research and the AERA sponsored Encyclopedia of Educational Research, appearing at the beginning of each decade.

such journals would be helpful to determine how consistently the criteria of quality production of curriculum knowledge is evident in the work published. Here again, however, the publishers have little control over how their readers interpret or utilize this material, whatever its quality as legitimate knowledge. Studies of what persons do with what they read in these sources and in other curriculum literature are done infrequently and suggest little that might illuminate the problem of utilization of curriculum knowledge. (Huenecke, 1970)

The mechanisms now available for locating and retreiving curriculum knowledge seem inadequate at best. (Schwab, 1970, pp. 36-39) A special purpose information analysis center devoted to curriculum knowledge, like those existing in the ERIC system in fields such as administration, counseling and personnel services, and the several subject and problem areas of education, does not exist. There is little opportunity for those who need specialized knowledge about curriculum to be put in touch with those who may have this knowledge or who could generate it. There is no authoratative journal established to serve this purpose. Among the few channels that exist for obtaining access to expert knowledge in curriculum, particularly that which is not readily available in print, are the graduate schools of education and their curriculum

research centers.* One may go to them to learn what is new, or one may call upon a consultant from such a center to come and present some of this hard-to-get knowledge. If one is willing to wait awhile, what one may learn in either of these ways may come out in print eventually, though there is no guarantee that it will or that it will come out in a form appropriate to users' requirements. Interestingly, the need for improved information transfer within the field of curriculum has not received systematic or comprehensive study.

When viewed more broadly, the problem of the utilization of knowledge in curriculum can be studied in several ways. It may be approached as a natural process which needs to be observed and recorded, abstracted and conceptualized, and both distinguished from and integrated into situations which motivate the phenomenon in order that particular curriculum practices may be understood and rationally directed toward selected goals. It has already been noted that seldom has the process been observed and recorded

---

*Occasionaly, curriculum knowledge of wide utility is generated in the U. S. Educational R & D Centers and the Regional Educational Laboratories, in independent curriculum projects, and in state and local school agencies, but none of these is devoted primarily to this task. (Chase, 1968; Boyan and Mason, 1968; Chase, 1969; Schutz, 1970; Lindman, 1968; Alkin, 1969, 1970) The graduate schools of education working in this area vary considerably in their output. It is not common knowledge which of these can best provide particular kinds of curriculum knowledge.

in curriculum. In the records of the activities carried on by several of the early national curriculum reform projects, no mention is made of whether the developers turned to curriculum knowledge as part of the input to their task, or if they did, how they extracted such knowledge for their use. (Grobman, 1969; Bruner, 1966; Marsh, 1964; Watson, 1965; Clark, 1965, especially p. 236; Schwab, 1970, p. 19) In many local development projects, no doubt consultants bring curriculum expertize to those doing the planning, but this kind of event and the sort of knowledge conveyed is rarely committed to paper (or any other record) so that the phenomenon may be studied.

As for conceptualizations of the knowledge utilization process in curriculum, the task has not been attempted apart from the more general treatments of educational research, development, and dissemination. (Clark, 1965; Anderson, 1961) Much research could be done to check whether the Havelock and Benne conceptualization of knowledge utilization in general, both as a system and as a process, can be empirically validated within the narrower context of curriculum. (Havelock and Benne, 1967)

Of somewhat more interest to students of the utilization of curriculum knowledge, has been the problem of developing strategies for increasing utilization in the context of curriculum innovation. In this domain, curriculum scholars have almost always deliberately

sought to incorporate the work of scholars in the science of knowledge utilization in general into their guidelines for planned curriculum change. (Mackenzie, 1964; Leeper, 1965, 1966; Lawler, 1970) Possibly, as that science increases knowledge, more and more of its concepts and relationships will need to be integrated into new guidelines for introducing curricular innovation. (Miles & Lake, 1967; Jung, 1967; Havelock, 1970b) A recent synthesis of such knowledge into A Guide to Innovation in Education by the Center for Research on the Utilization of Scientific Knowledge (CRUSK) at the University of Michigan (Havelock, 1970a) provides an authoritative and practical handbook, easily translatable into curriculum terms. Once such strategies are developed for curriculum, they will need to be tried out and tested in many practical situations to see just how curriculum knowledge is utilized and whether the desired changes are produced. Reports of the results of such research will provide data on how to attain fuller utilization of curriculum knowledge (among other things) so that curricular change may be more rationally controlled. (Dionne, 1970; Walker, 1971) Both curriculum knowledge utilization models built upon the parent sciences and techniques for effecting appropriate utilization of curriculum knowledge must be tested in the heat of practice if dependable models and techniques are to emerge. Alternative models and techniques of these kinds have yet to be generated in curriculum, let alone tested.

Studies examined to this point reflect a conception of the utilization of curriculum knowledge which is more complex than the direct transfer of information from a producer to a willing recipient who forthwith "utilizes" it. This complexity should be anticipated from studies done on the utilization process in general, but nothing exists in the curriculum research literature that fully penetrates this mystery and makes intelligible the dynamics of utilization when it occurs.

It has been widely recognized, however, that development efforts of the kind found in large scale curriculum development projects form an essential link in the chain between knowledge production and utilization. (Boyan, 1968, pp. 21-24) Boyan, in reviewing the state of the art of educational development says:

> "Observation of what has occurred in instances where serious, sophisticated, and extensive development work characterized the introduction of a tested innovation strongly suggests that educational development is a necessary, if not sufficient, condition to improving the relationship between the production and utilization of new knowledge." (Boyan, 1968, pp. 23-24)

Studies of ways curriculum development processes, in fact, can be effectively conducted and linked to utilization processes, as well as to knowledge production processes in curriculum, remain to be done. Again, work by CKUSK suggests that such procedures can be conceived and these activities optimally linked if curriculum

scholars, who are immersed in the requirements of curricular problems, capitalize upon models of knowledge utilization in general and engage in this metadevelopment task. (Havelock, 1969, pp. 11-15 to 11-32)

Boyan goes on to observe that intended users of the products of educational inquiry or of educational development, often do not find these products available in an understandable form nor do they receive preparation or training for using them wisely and well. (Boyan, 1968, p. 24) This observation suggests the need not only for developers to serve as linkers to users, but also for, perhaps, a whole series of specialists who know particular knowledge at various stages along the knowledge production --knowledge utilization continuum and can translate the knowledge into appropriate forms for particular users and can prepare them to use it appropriately. Such roles and divisions of knowledge have not yet been conceived or acted upon in this sense in the curriculum field. If the work of CRUSK is taken as illuminating this problem of linkage roles and differentiated forms of linkage messages (knowledge), then its implications for creation of new patterns and technologies of utilization of curriculum knowledge are far beyond the present realities in curriculum and much work to advance the field in this direction can be undertaken. (Havelock, 1969, pp. 7-1 to 7-40 and 8-1 to 8-51) Examination of the types

of knowledge received and possessed by various persons in curriculum who act as linkers, together with studies of what transformations in that knowledge they generally make to enable clients to be able to use it, are necessary first steps in research that will lead to improved practice in this area. Not even the distinctions between basic research, applied research and development, practitioners, and users are yet clear in curriculum research, so it is unlikely that knowledge of dependable linkage strategies among various persons located within these categories is in an adequate state of refinement.

In summary, research to date on knowledge utilization in curriculum sheds little light on the problem. This review of available research suggests more gaps that need to be studied than it reveals substantial knowledge already gained. Several lines of inquiry are open. Social-psychological-organizational factors affecting utilization of curriculum knowledge in positive or negative ways need to be investigated. A better understanding of present research dissemination mechanisms available to anyone seeking curriculum knowledge would be a desirable goal for future studies. The advances made in the mapping and control of curriculum innovation can be examined and improved upon through the development of more precise formulations of the knowledge transfer and utilization process and the testing of newer change strategies based on these models. The implications for research of the

linkage concept include work on who serves in linkage capacities in the curriculum knowledge production-to-utilization chain, what types of knowledge each takes responsibility for, and how each handles such knowledge in the face of user needs. The ingredients for fashioning schemes for improved curriculum knowledge utilization which can then be tried and tested will be available if, and only if, these many types of curriculum research are undertaken.

Conclusions

Knowledge about curriculum is a significant, perhaps indispensable, contribution to the array of information needed to make practical decisions on many aspects of educational programs. Not always, however, is curriculum knowledge sought out in recognition of its value in such circumstances. When it is, the storehouse of curriculum knowledge may, at times, seem void of that which is most needed. Producers of such knowledge are often concerned that the knowledge they have generated is not utilized. Thus, a classic situation occurs in which the knowledge production components of a given field of endeavor appear unsynchronized with the knowledge utilization components of that field, or vice versa.

This kind of problem may seldom be fully resolved, but an improved relationship between knowledge production and utilization of knowledge in curriculum, or in any other field, can be sought.

As a first step, the problem has to be analyzed conceptually and attacked from a number of research perspectives. A review of this kind of research on the curriculum KP&U problem has indicated that a degree of understanding is emerging. A great lack of research on relevant dimensions of the problem is apparent, but even though a complete picture is not available, certain key concepts upon which the beginning of a solution may be built have been identified. The second major step in improving the production-utilization relationship concerns addressing these concepts in formulating and testing strategies and procedures for conducting the activity of curriculum KP&U. It is recognized that refinement and extension of the concepts of linkage and of varied forms of knowledge for varied kinds of linkage relationships are required in this second step. Continued interaction between the knowledge that is emerging in the sciences of knowledge production and knowledge utilization in general and the knowledge that is accumulating concerning the phenomenon of curriculum KP&U will provide a number of fruitful avenues for the required research and development.

References

Abramson, David A. Curriculum Research and Evaluation. Review of Educational Research, 1966, 36, 388-395.

Alberty, Elsie. Toward a Framework for Curriculum Development. Theory Into Practice, 1967, 6, 204-208.

Alkin, M.C. Evaluation Theory Development. Evaluation Comment (Center for the Study of Evaluation, UCLA), 1969, 2 (1), 2-7.

Alkin, M.C. Products for Improved Educational Evaluation. Evaluation Comment (Center for the Study of Evaluation, UCLA), 1970, 2 (3), 1-16.

Alvik, Trond. Some Terminological and Conceptual Considerations Concerning Curriculum Problems. Curriculum Theory Network, 1970, 5, 58-68.

American Educational Research Association. Schwab's The Practical: A Language for Curriculum: Analysis and Rejoinder. Division B Symposium B26. Abstracts of the 1971 Annual Meeting, New York City. Washington, D.C.: American Educational Research Association, 1971.

Anderson, G. L., Walberg, H. J., & Welch, W. W. Curriculum Effects on the Social Climate of Learning: A New Representation of Discriminant Functions. American Educational Research Journal, 1969, 6, 315-328.

Anderson, Richard C. The Comparative Field Experiment: An Illustration from High School Biology. In J. Thomas Hastings (Ed.), Proceedings of the 1968 Invitational Conference on Testing Problems. Princeton, New Jersey: Educational Testing Service, 1969. Pp. 3-30.

Anderson, Richard C. The Role of the Educational Engineer. The Journal of Educational Sociology, 1961, 34, 377-381.

Baker, Robert L. Curriculum Evaluation. Review of Educational Research, 1969, 39, 339-358.

Beauchamp, George A. Curriculum Theory, Second Edition. Wilmette, Illinois: Kagg Publishing Company, 1968.

Beauchamp, George A. Progress in Curriculum Theory 1960-1965. (mimeo)

Bellack, Arno A. History of Curriculum Thought and Practice. Review of Educational Research, 1969, 39, 283-292.

Berlak, Harold. Values, Goals, Public Policy and Educational Evaluation. Review of Educational Research, 1970, 40, 261-278.

Berman, Louise. New Priorities in the Curriculum. Columbus, Ohio: Chas. E. Merrill, 1968.

Boyan, Norman J. Problems and Issues of Knowledge Production and Utilization. In Terry L. Eidell & Joanne M. Kitchel (Eds.), Knowledge Production and Utilization in Educational Administration. Eugene, Oregon: Center for the Advanced Study of Educational Administration, University of Oregon, 1968. Pp. 21-36.

Boyan, Norman J., & Mason, Ward S. Perspectives on Educational R & D Centers. Journal of Research and Development in Education, 1968, 1 (4), 190-202.

Broudy, Harry S. Components and Constraints of Curriculum Research. Curriculum Theory Network, 1970, 5, 16-31. (a)

Broudy, Harry S. The Philosophical Foundations of Educational Objectives. Educational Theory, Winter, 1970, 20, 3-21. (b)

Broudy, Harry S. Philosophy and the Curriculum. In Philosophy and Education. Toronto: Ontario Institute for Studies in Education, 1967. Pp. 59-71.

Broudy, Harry S., Smith, B. O., & Burnett, J. R. Democracy and Excellence in American Secondary Education. Chicago: Rand McNally, 1964.

Bruner, Jerome (Ed.) Learning About Learning: A Conference Report. OE-12019. Cooperative Research Monograph No. 15. Washington, D. C.: Superintendent of Documents, 1966.

Campbell, Donald T. Reforms as Experiments. American Psychologist, 1969, 24, 409-429.

Chase, Francis S. Educational Research and Development: Promise or Mirage? Journal of Research and Development in Education, 1968, 1 (4), 3-14.

Chase, Francis S. The R & D Institutional Base: What More Is Needed? Journal of Research and Development in Education, 1969, 2 (4), 19-27.

Clark, B. R. Interorganizational Patterns in Education. Administrative Science Quarterly, 1965, 10, 224-237.

Cohen, David K. Politics and Research: Evaluation of Social Action Programs in Education. Review of Educational Research, 1970, 40, 213-238.

Cronbach, Lee J., & Suppes, Patrick (Eds.). Research for Tommorow's Schools: Disciplined Inquiry for Education. New York: Macmillan, 1969.

De Vore, Paul W. Discipline Structures and Processes: A Research Design for the Identification of Content and Method. Journal of Industrial Teacher Education, 1970, 7, 21-31.

Dionne, Joseph L. Principles and Practices of Organizing School Districts for Innovation. In Marcella R. Lawler (Ed.), Strategies for Planned Curricular Innovation. New York: Teachers College Press, 1970. Pp. 120-132.

Dreeben, Robert. On What Is Learned in School. Reading, Massachusetts: Addison-Wesley, 1968.

Eash, Maurice. Assessing Curriculum Materials: A Preliminary Instrument. Educational Product Report, 1969, 2, 18-24.

Easley, John A., Jr. Curriculum Development, Teacher Education, and Educational Research. Urbana, Illinois: University of Illinois, Curriculum Laboratory, 1967. (mimeo)

Eidell, Terry L., & Kitchel, Joanne M. (Eds.) Knowledge Production and Utilization in Educational Administration. Eugene, Oregon: Center for the Advanced Study of Educational Administration, University of Oregon, 1968.

Eisner, Elliot W. (Ed.) Confronting Curriculum Reform. Chicago: Little, Brown, 1971.

Eisner, Elliot W. Curriculum Development: Sources for a Foundation for the Field of Curriculum. Curriculum Theory Network, 1970, 5, 3-15.

Eisner, Elliot W. Curriculum Theory and the Concept of Educational Milieu. High School Journal, 1967, 51, 132-146.

Elliott, David L., & Foshay, Arthur W. Chart or Charter: Recent Developments in Educational Discourse. Review of Educational Research, 1963, 33, 233-244.

Foshay, Arthur W., & Beilin, Lois A. Curriculum. In Robert L. Ebel (Ed.), Encyclopedia of Educational Research, Fourth Edition. New York: Macmillan, 1969. Pp. 275-280.

Gideonse, Hendrik D. The Relative Impact of Instructional Variables: The Policy Implications of Research. Teachers College Record, 1968, 69, 625-640.

Glass, Gene V. Editorial. Review of Educational Research, 1970, 40, 323-324.

Goodlad, John I. Curriculum: State of the Field. Review of Educational Research, 1969, 39, 367-375.

Goodlad, John I. Thought, Invention, and Research in the Advancement of Education. The Educational Forum, 1968, 33, 7-18.

Goodlad, John I. Where Pre-College Reform Stands Today. The Challenge of Curricular Change. New York: College Entrance Examination Board, 1966. Pp. 1-11.

Goodlad, John I., & Richter, Maurice N., Jr. The Development of a Conceptual System for Dealing With Problems of Curriculum and Instruction. Cooperative Research Project No. 454. Los Angeles: University of California, 1966. (ERIC: ED 010 064)

Gowin, D. Bob, & Millman, Jason. Research Methodology--A Point of View. Review of Educational Research, 1969, 39, 553-560.

Grobman, Arnold B. The Changing Classroom: The Role of the Biological Sciences Curriculum Study. Garden City, New York: Doubleday, 1969.

Grobman, Hulda. Evaluation Activities of Curriculum Projects. Chicago: Rand McNally, 1968.

Havelock, Ronald G., et al. Planning for Innovation: A Comparative Study of the Literature on the Dissemination and Utilization of Scientific Knowledge. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, July, 1969.

Havelock, Ronald G. A Guide to Innovation in Education. Ann Arbor, Michigan: Center for Research on the Utilization of Scientific Knowledge, Institute for Social Research, 1970. (a)

Havelock, Ronald G. Innovations in Education: Strategies and Tactics. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, 1970. (mimeo) (b)

Havelock, Ronald G.,& Benne, Kenneth D. An Exploratory Study of Knowledge Utilization. In Goodwin Watson (Ed.), Concepts for Social Change. Washington, D. C.: National Training Laboratories, National Education Association, 1967. Pp. 47-70.

Hawthorne, Richard. An Empirical Approach to Curriculum Theory Building. Paper presented to Session B22, American Educational Research Association, February, 1971.

Heath, Robert W. Curriculum Evaluation. In Robert L. Ebel (Ed.), Encyclopedia of Educational Research, Fourth Edition. New York: Macmillan, 1969. Pp. 280-283.

Hemphill, John K. The Relationship Between Research and Evaluation Studies. In Ralph W. Tyler (Ed.), Educational Evaluation: New Roles, New Means. 68th NSSE Yearbook, Part II. Chicago: University of Chicago Press, 1969. Pp. 189-220.

Huebner, Dwayne. Curricular Language and Classroom Meanings. In James B. Macdonald & Robert R. Leeper (Eds.), Language and Meaning. Washington, D. C.: Association for Supervision and Curriculum Development, 1966. Pp. 8-26. (a)

Huebner, Dwayne. Curriculum as a Field of Study. In Helen F. Robison (Ed.), Precedents and Promise for the Curriculum Field. New York: Teachers College Press, 1966. Pp. 94-112. (b)

Huebner, Dwayne. Curriculum as Concern for Man's Temporality. Theory Into Practice, 1967, 6, 172-179.

Huebner, Dwayne. Implications of Psychological Thought for the Curriculum. In Glenys G. Unruh & Robert R. Leeper (Eds.), Influences in Curriculum Change. Washington, D. C.: Association for Supervision and Curriculum Development, 1968. Pp. 28-37. (a)

Huebner, Dwayne. The Tasks of the Curriculum Theorist. Paper presented at ASCD, Atlantic City, March, 1968. (mimeo) (b)

Huebner, Dwayne. The Leadership Role in Curricular Change. In Marcella R. Lawler (Ed.), Strategies for Planned Curricular Innovation. New York: Teachers College Press, 1970. Pp. 133-151.

Huenecke, Dorothy. Knowledge of Curriculum Works: Its Relation to Teaching Practice. Journal of Teacher Education, 21 (Winter, 1970), 478-483.

Johnson, Mauritz. Definitions and Models in Curriculum Theory. Educational Theory, 1967, 17, 127-140.

Johnson, Mauritz. On the Meaning of Curriculum Design. Curriculum Theory Network, 1969, 3, 3-9. (a)

Johnson, Mauritz. The Translation of Curriculum Into Instruction. Journal of Curriculum Studies, 1969, 1, 115-131. (b)

Jung, Charles C., Fox, Robert, & Lippitt, Ronald. An Orientation and Strategy for Working on Problems of Change in School Systems. In Goodwin Watson (Ed.), Change In School Systems. Washington, D. C.: National Training Laboratories, National Education Association, 1967. Pp. 68-88.

Keppel, Frances. Quality in Education: The Curriculum. In The Necessary Revolution in American Education. New York: Harper & Row, 1966. Pp. 104-108.

Kimbrough, Ralph B. Community Power Structure and Curriculum Change. In Robert R. Leeper (Ed.), Strategy for Curriculum Change. Washington, D. C.: Association for Supervision and Curriculum Development, 1965. Pp. 55-71.

Kimbrough, Ralph B. Community Power Systems and Strategies for Educational Change. In Marcella R. Lawler (Ed.), Strategies for Planned Curricular Innovation. New York: Teachers College Press, 1970. Pp. 60-80.

King, Arthur R. Jr. Curriculum Projects: A Perspective. Educational Leadership, 1969, 26, 493-499.

King, A. R., Jr., & Brownell, J. A. The Curriculum and the Disciplines of Knowledge. New York: John Wiley, 1966.

Kliebard, Herbert M. The Field of Curriculum in Retrospect. In Paul W. F. Witt (Ed.), Technology and the Curriculum. New York: Teachers College Press, 1968. Pp. 69-84.

Kliebard, Herbert M. Persistent Curriculum Issues in Historical Perspective. In Edmund C. Short (Ed.), A Search for Valid Content for Curriculum Courses: Educational Comment, 1970. Toledo, Ohio: College of Education, University of Toledo, 1970. Pp. 31-41. (a)

Kliebard, Herbert M. The Tyler Rationale. The School Review, 1970, 78, 259-272. (b)

Lawler, Marcella R. Guidelines for Developing Strategies for Introducing Planned Curricular Innovations. In M. R. Lawler (Ed.), Strategies for Planned Curricular Innovation. New York: Teachers College Press, 1970. Pp. 13-47.

Levit, Martin (Ed.) Curriculum. Urbana, Illinois: University of Illinois Press, 1971.

Leeper, Robert R. (Ed.) Curriculum Change: Direction and Process. Washington, D. C.: Association for Supervision and Curriculum Development, 1966.

Leeper, Robert R. (Ed.) Strategy for Curriculum Change. Washington D. C.: Association for Supervision and Curriculum Development, 1965.

Lindman, Erick L. Center for Study of Evaluation of Instructional Programs. Journal of Research and Development in Education, 1968, 1 (4), 143-150.

Lippitt, Ronald O. Processes of Curriculum Change. In Robert R. Leeper (Ed.), Curriculum Change: Direction and Process. Washington, D. C.: Association for Supervision and Curriculum Development, 1965. Pp. 43-59.

Lippitt, Ronald O. Roles and Processes in Curriculum Development and Change. In Robert R. Leeper (Ed.), Strategy for Curriculum Change. Washington, D. C. Association for Supervision and Curriculum Development, 1965. Pp. 11-28.

Maccia, Elizabeth Steiner. Curriculum Theory and Policy. Occassional paper, 65-176. Columbus, Ohio: Educational Theory Center, Ohio State University, 1965. (mimeo)

Maccia, Elizabeth Steiner. Curriculum Theory and Research. In Meno Lovenstein, et al., Development of Economics Curriculum Materials for Secondary Schools. CRP No. HS-082. Columbus, Ohio: Research Foundation, the Ohio State University, 1966.

Maccia, Elizabeth Steiner. Development of Theory in the Curriculum Field. Paper presented to Faculty Seminar in Curriculum, Temple University, May 6-8, 1968. (mimeo)

Maccia, Elizabeth Steiner. Educational Inquiry Methodology and Curricular Studies. Paper presented to Session B22, American Educational Research Association, February, 1971.

Maccia, Elizabeth Steiner. The Scientific Perspective: Only One Curricular Model. Occassional paper, 63-143. Columbus, Ohio: Center for the Construction of Theory in Education, Ohio State University, 1963. (mimeo)

Macdonald, James B. A Curriculum Rationale. In Rolland Callaway (Ed.), Core Curriculum: The Why and the What. Milwaukee, Wisconsin: School of Education, University of Wisconsin-Milwaukee, 1966. Pp. 5-20. Reprinted in Edmund C. Short & George D. Marconnit (Eds.), Contemporary Thought on Public School Curriculum. Dubuque, Iowa: Wm. C. Brown, 1968. Pp. 37-42.

Macdonald, James B. Curriculum Theory: Problems and a Prospectus. Speech given at Professors of Curriculum Meeting, ASCD, Miami Beach, April 3, 1964. (mimeo)

Macdonald, James B. An Example of Disciplined Curriculum Thinking. Theory Into Practice, 1967, 6, 166-171.

Macdonald, James B. Myths About Instruction. Educational Leadership, 1965, 22, 571-576; 609-617.

Macdonald, James B. The Person in the Curriculum. In Helen F. Robison (Ed.), Precedents and Promise for the Curriculum Field. New York: Teachers College Press, 1966. Pp. 38-52.

Macdonald, James B. The School Environment as Learner Reality. Curriculum Theory Network, 1969-70, 4, 45-54.

Mackenzie, Gordon N. Curriculum Change: Participants, Power, and Processes. In Matthew B. Miles (Ed.), Innovation for Education. New York: Bureau of Publications, Teachers College, Columbia University, 1964. Pp. 399-424.

Mann, John S. Curriculum Criticism. Teachers College Record, 1969, 71, 27-40.

Mann, John S. A Discipline of Curriculum Theory. The School Review, 1968, 76, 359-378.

Mann, John S. Functions of Curriculum Research. Educational Leadership, 1966, 24, 75-85.

Marsh, Paul E. Wellsprings of Strategy: Considerations Affecting Innovations by the PSSC. In Matthew B. Miles (Ed.), Innovation in Education. New York: Bureau of Publications, Teachers College, Columbia University, 1964. Pp. 249-270.

Martin, Jane R. (Ed.) Readings in the Philosophy of Education: A Study of Curriculum. Boston: Allyn and Bacon, 1970.

Martin, Jane R. The Disciplines and the Curriculum. Educational Philosophy and Theory, 1969, 1, 23-40.

McClure, Robert M. Field Studies in Curriculum Development. Washington, D. C. Center for the Study of Instruction, National Education Association, 1971. (a)

McClure, Robert M. (Ed.) The Curriculum: Prospect and Retrospect. 70th NSSE Yearbook, Part I. Chicago: University of Chicago Press, 1971. (b)

McNeil, John D. Forces Influencing Curriculum. Review of Educational Research, 1969, 39, 293-318.

Miles, Matthew B. & Lake, Dale G. Self-Renewal in School Systems: A Strategy for Planned Change. In Goodwin Watson (Ed.), Concepts for Social Change. Washington, D. C.: National Training Laboratories, National Educational Association, 1967. Pp. 81-88.

Myers, Donald A., & Klein, M. Frances. Educational Programs--Elementary Schools. In Robert L. Ebel (Ed.) Encyclopedia of Educational Research, Fourth Edition. New York: Macmillan, 1969. Pp. 395-410.

National Center for Educational Research and Development. Educational Research and Development in the United States. Washington, D. C.: U. S. Government Printing Office, 1970. HE 5.212:12049.

Oliver, G. L. Toward Improved Rigor in the Design of Curricula. Educational Technology, 1970, 10, 18-23.

Overly, Norman V. (Ed.) The Unstudied Curriculum: Its Impact on Children. Washington, D. C.: Association for Supervision and Curriculum Development, 1970.

Payne, Arlene. The Study of Curriculum Plans. Washington, D. C.: National Education Association, 1969.

Phenix, Philip H. The Architectonics of Knowledge. In Stanley Elam (Ed.), Education and the Structure of Knowledge. Chicago: Rand McNally, 1964. Pp. 44-62. (a)

Phenix, Philip H. Realms of Meaning: A Philosophy of the Curriculum for General Education. New York: McGraw-Hill, 1964. (b)

Phenix, Philip H. The Use of the Disciplines as Curriculum Content. The Educational Forum, 1962, 26, 273-280.

Popham, W. James. Instructional Objectives Exchange. Los Angeles: Center for the Study of Evaluation, School of Education, University of California, 1970.

Rosenbloom, Paul C. (Ed.) Modern Viewpoints in the Curriculum. New York: McGraw-Hill, 1964.

Scheffler, Israel. Justifying Curriculum Decisions. The School Review, 1958, 66, 461-472.

Schmuck, Richard. Social Psychological Factors in Knowledge Utilization. In Terry L. Eidell & Joanne M. Kitchel (Eds.), Knowledge Production and Utilization in Educational Administration. Eugene, Oregon: Center for the Advanced Study of Educational Administration, University of Oregon, 1968. Pp. 143-173.

Schutz, Richard E. Methodological Issues in Curriculum Research. Review of Educational Research, 1969, 39, 359-366.

Schutz, Richard E. The Nature of Educational Development: SWRL. Journal of Research and Development in Education, 1970, 3 (2), 39-64.

Schwab, Joseph J. Structure of the Disciplines: Meanings and Significances. In G. W. Ford & Lawrence Pugno (Eds.), The Structure of Knowledge and the Curriculum. Chicago: Rand McNally, 1964. Pp. 6-30. (a)

Schwab, Joseph J. The Structure of the Natural Sciences. In G. W. Ford & Lawrence Pugno (Eds.), The Structure of Knowledge and the Curriculum. Chicago: Rand McNally. 1964. Pp. 39-46. (b)

Schwab, Joseph J. The Practical: A Language for Curriculum. Washington, D. C.: Center for the Study of Instruction, National Education Association, 1970.

Scott, Harry V. A Primer of Curriculum Theory: Descriptive Theory. Educational Theory, 1968, 18, 118-124.

Seguel, Mary Louise. The Curriculum Field: Its Formative Years. New York: Teachers College Press, 1966.

Shane, Harold G. Future Shock and the Curriculum. Phi Delta Kappan, 1967, 69, 67-70.

Shane, Jane Grant, & Shane, Harold G. Cultural Change and the Curriculum: 1970-2000 A.D. Educational Technology, 1970, 10, 13-18.

Short, Edmund C. Curriculum Scholarship--Sources of Knowledge for the Curriculum Field. In Edmund C. Short (Eds.), A Search for Valid Content for Curriculum Courses. Toledo, Ohio: College of Education, The University of Toledo, 1970. Pp. 7-19. (ERIC: ED 040 129)

Short, Edmund C. Formal Criteria for Curriculum Proposals in Teacher Education. Ed. D. Dissertation. Teachers College, Columbia University, 1965.

Short, Edmund C. A Review of Studies on the General Problem Of Knowledge Production and Utilization. Unpublished Paper. Toledo, Ohio: College of Education, The University of Toledo, 1971.

Smith, B. Othanel. The Role of Philosophy in the Development of Scientific Curriculum Theory. Paper presented at ASCD meeting in St. Louis, March, 1963. (mimeo)

Smith, B. O., Stanley, W. O., & Shores, J. H. Fundamentals of Curriculum Development, Revised Edition. New York: Harcourt, Brace & World, 1957.

Soltis, Jonas F. The Concept of Valid Content. In Edmund C. Short (Ed.), A Search for Valid Content for Curriculum Courses. Toledo, Ohio: College of Education, The University of Toledo, 1970. Pp. 20-30.

Soltis, Jonas F. The Disciplines and Subject Matter. In An Introduction to the Analysis of Educational Concepts. Reading, Mass.: Addison-Wesley, 1968. Pp. 17-34.

Stanley, Julian C. Controlled Experimentation: Why Seldom Used in Evaluation? In Philip H. DuBois (Ed.), Toward a Theory of Achievement Measurement. Proceedings of the 1969 Invitational Conference on Testing Problems. Princeton, N. J.: Educational Testing Service, 1970. Pp. 104-108.

Stevens, W. William, Jr. & Morrissett, Irving. A System for Analyzing Social Science Curricula. Curriculum Theory Network, 1968, 1, 28-36.

Stoke, Harold W., Löwbeer, Hans, & Capelle, Jean. Curriculum Improvement and Educational Development. Paris: Organization for Economic Cooperation and Development, 1966. Pp. 72-76.

Stratemeyer, F. B., Forkner, H. L., McKim, M. G. and Passow, A. H. Developing a Curriculum for Modern Living, Second Edition. New York: Bureau of Publications, Teachers College, Columbia University, 1957.

Stufflebeam, Daniel L. Depth Study of the Evaluation Requirement. Theory Into Practice, 1966, 5, 121-133.

Suchman, Edward A. The Role of Evaluative Research. In Philip H. DuBois (Ed.), Toward a Theory of Achievement Measurement. Proceedings of the 1969 Invitational Conference on Testing Problems. Princeton, New Jersey: Educational Testing Service, 1970. Pp. 93-103.

Tykociner, Joseph T. Outline of Zetetics: A Study of Research and Artistic Activity. Urbana, Illinois: Engineering Publications Office, University of Illinois, 1966.

Tyler, Louise L. A Selected Guide to Curriculum Literature: An Annotated Bibliography. Washington, D. C.: Center for the Study of Instruction, National Education Association, 1970.

Tyler, Louise L., & Klein, M. Frances. Recommendations for Curriculum and Instruction Materials. Curriculum Theory Network, 1968, 1, 2-10.

Tyler, Ralph. Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press, 1950.

Walberg, H. J. The Social Environment as a Mediator of Classroom Learning. Journal of Educational Psychology, 1969, 60, 443-448.

Walker, Decker F. A Case Study of the Process of Curriculum Development. Stanford, California: School of Education, Stanford University, 1969. (mimeo)

Walker, Decker F. A Study of Deliberation in Three Curriculum Projects. Paper presented at Session B14, of the Annual Meeting, American Educational Research Association, 1971.

Weaver, W. Timothy. The Delphi Forecasting Method. Phi Delta Kappan, 1971, 52, 267-271.

Weiss, Joel. A Model of Curriculum Evaluation. Toronto: Ontario Institute for Studies in Education, December, 1969. (mimeo)

Welch, Wayne W. Curriculum Evaluation. Review of Educational Research, 1969, 39, 429-443.

Westbury, Ian. Curriculum Evaluation. Review of Educational Research, 1970, 40, 239-260.

Westbury, Ian. Problems in Search of Disciplined Attention or a Discipline in Search of Its Problems: A Discussion of Some Assumptions in a Curriculum Theory. Paper given at AERA meeting, Los Angeles, 1969.

Wooten, William. SMSG, The Making of a Curriculum. New Haven: Yale University Press, 1965.

Zidonis, Frank J. Effecting Curriculum Change Through Research. Theory Into Practice, 1967, 6, 85-88.