

# A Formal Approach to Curriculum Theory Analysis

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A FORMAL APPROACH TO CURRICULUM THEORY ANALYSIS

*Graeme Sullivan*

When analytic thought, the knife, is applied to experience, something is always killed in the process. That is fairly well understood, at least in the arts. Mark Twain's experience comes to mind, in which after he had mastered the analytic knowledge needed to pilot the Mississippi River, he discovered the river had lost its beauty. Something is always killed. But what is less noticed in the arts - something is always created too. Robert Pirsig

One of the most tangible attempts to bridge the gap between that cliched chasm, theory and practice, is the development of curriculum models and guidelines for instruction. Models of practice for art education need to have a theoretical basis that is conceptually sound and adequacy of practice can be seen as a correlate of adequacy of theory. To assess adequacy involves the dual process of reviewing theoretical structures and the analysis of the methods of implementation advocated. This concern is critical when viewed within the context of education where curricula become the vehicle for translating theoretical descriptions into prescriptions for practice.

In her analyses of educational inquiry Steiner (1972, 1976, 1977) provides a clear articulation of the relationship between theory and practice by bringing into distinction three areas of inquiry: Research; Development; and Practice. Educational research is directed toward answering questions of "what is?" and gives rise to curriculum descriptions that produce principles or facts. Development is directed toward answering questions of "what should be?" and gives rise to curriculum prescriptions that produce policies or programs. The subsequent translation of these programs into specific "performances" provides the third area of inquiry, that being practice, which answers questions of "what is effective?" These categories provide a way of considering the relationship between educational means and ends. This focus on effective practice, or Praxiology as Steiner calls it, is seen as a way of bringing together quantitative areas of research and qualitative areas of development. Steiner thus brings into distinction components of educational inquiry and provides a classification that allows for the discussion of the characteristics of teaching and learning, consideration of the value dimension, and the adequacy of practice.

While Steiner offers a conceptual framework for inquiry, Zimmerman (1979, 1982) extends this rationale and applies formal methods of analysis in the explication of selected theories in art education. In considering the need for a critical analysis of the adequacy of the theoretical foundations of curriculum this study used Zimmerman's method of formal analysis in a critique of an extant curriculum model. The curriculum model analyzed, Efland's Planning Art Education (1977), was

selected in view of its adherence to a conception of art education that was representative of contemporary development in the field.

### Method

In the analysis and construction of theory Zimmerman uses formal methods of definitional analysis, classificatory analysis, and digraph analysis. These procedures help identify theoretical inadequacy and allow for additional concepts to be incorporated to substantiate the theory.

Definitional analysis involves the critique of terms contained in a theory to check if definitions are meaningful, coherent and that no contradictions exist. A general requirement is that terms be expressed in both conceptual and operational form. Zimmerman notes that terms have conceptual meaning when adequate descriptive definitions are presented. While the expression of terms in operational form as described by Kerlinger (1964) is a prerequisite for research, the application of such procedures in the educational domain, where decisions based on values dominate, requires less of a reliance on the quantification of variables and more emphasis on the expression of consistency of meaning between descriptions and explanations. To determine the compatibility between the conceptual framework, which describes desired outcomes, and the operational structures, which prescribes implementation strategies, the curriculum definitions need to exhibit both conceptual and operational adequacy.

Classificatory analysis is directed toward the criteria of completeness. This involves dividing the knowledge base of a field of inquiry into components that include all the known dimensions. Steiner for example partitions educational inquiry into the categories of teacher, curriculum, students and setting. The implication is that for a theory to be adequate it must include descriptions and explanations of all properties in all categories. The use of classificatory analysis in a review of the theory contained in *Planning Art Education* needs some qualification in that Efland's intention is not to present a theory of art, but to focus on matters of curriculum. Steiner's classification of teacher, student, and the setting, however, provide categories for checking the exhaustiveness of the curriculum theory.

Digraph analysis provides a means for identifying the structure of a system and giving meaning to the relations between components. Graphic symbols are used whereby diagrams of points and lines are constructed to represent patterns of relationships among abstract elements. These diagrams show direct relationships and are called digraphs (Mullins, 1971). The underlying notion is that if two concepts are related a digraph may be drawn indicating that association. Zimmerman (1982) explains:

Theories that are presented in narrative form can be represented formally through digraph analysis by identifying key terms in the narrative and treating these as components. Application of digraph analysis to terms of

a theory results in the generation of a network of determinant relationships that can be analyzed for coherence and completeness. (p. 39)

### Summary of Analysis

The initial requirement in the analysis of the curriculum theory contained in Planning Art Education was that the definitions and terms used by Efland be organized into categories that summarize the major constructs. As a result the definitions of the goals of art education were seen to be logically consistent with the aims of education, giving support to the instrumental value claims of art education presented. The intrinsic value of art education was described in terms of the involvement in artistic experience that utilized the unique content of art. The definition of artistic experience as involving expressive and responsive means of participation was seen to be unduly simplistic as an aesthetic foundation for art education (Kaelin, 1964; Stumbo, 1970). This also was evidenced by the concept of appreciation presented with the reliance on the description-interpretation-judgment model seen as limited quasi-operational definition of aesthetic responses (Chapman, 1978).

The use of the artist, historian, and critic as exemplars for study approaches, while indirectly advocating formalistic methods of inquiry, when viewed in relation to other components of the theory encourage a breadth of teaching and learning strategies. The study approaches when grouped in accordance with the aims of personal development, artistic heritage and art in society, loosely correspond to models of the teaching outlined by Joyce and Weil (1972) viz.: personal models, aspects of information processing models and social interaction models. The translation of the study approaches into a variety of learning and teaching situations and the subsequent accommodation of individual differences and teaching styles is hinted at but not fully explained by Efland.

The definition of art content was found to provide a broad conceptual base on which art programs could be developed (Barkan and Chapman, 1967; Chapman, 1969). The classification of art content into the areas of subject, theme, medium, product, function, design and style was found to be particularly comprehensive in defining the domain of knowledge in art education.

Efland is methodical and consistent in operationalizing elements of the art curriculum theory presented. Initially this describes strategies for planning and implementation that conclude with a comprehensive approach for evaluating the quality of the art program. The strategies proposed are consistent with the goals espoused and mindful of the setting. An inconsistency was noted in terms of goal evaluation in that the method prescribed for evaluating goals was at variance with the stated aims. While the rationale for goal evaluation acknowledges a philosophical allegiance to Stake (1975), the use of consensus as an evaluation method is inconsistent with the responsive view of cultural pluralism (Guba and Lincoln, 1981). The methods presented for evaluating program goals, content, quality of instruction, student programs, and the school setting provide a broad dimension for assessment. An analysis of the instruments for evalu-

ation reveal a dominance of nominal and ordinal scales which depict qualitative differences and relative order rather than providing precise quantitative information. The diversity of evaluation procedures, and a consideration of factors such as formative and summative evaluation, however make these methods appropriate in view of the normative nature of education.

As an example of curriculum theory, Planning Art Education was shown to satisfy the criteria of classificatory analysis by considering all the dimensions of the teaching-learning process. The categories of the teacher, student and setting, while given varying degrees of emphasis, were considered within the theoretical framework.

The use of digraph analysis illustrated the structure of the curriculum components of Planning Art Education (See Figure 1). The network of concepts and their determinant relations were described in a series of digraphs. In example the instrumental and intrinsic value of art education was clearly expressed when presented in digraph form. Digraph analysis also was used to extend the concepts of goal evaluation in the direction of adequacy with the inclusion of additional elements that made the procedure more consistent with the stated aims.

### Conclusion

The variety of criteria addressed by the formal methods of analysis constitute a dimension of inquiry that is particularly comprehensive and appropriate for the study of educational phenomena. Within the educational domain where curriculum theory confronts the dual issues of justification and prescription, theory construction and analysis demand consideration of both conceptual and pragmatic concerns. Formal methods of analysis can assist in the determination of the adequacy of theoretical descriptions in relation to curriculum prescriptions. In a field such as art education where curriculum theory, curriculum development and curriculum practice can be seen as means to bridge the gap between theory and practice, the need for a methodological structure for checking for adequacy seems imperative.

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Figure 1. Description of the Curriculum Theory of Planning Art Education

