

# The Scientific-Aesthetic Evaluation Model Interface

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IT IS time to penetrate the scientific-aesthetic model interface in educational evaluation. Instead of sustaining the presently existing boundary conditions, emerging behavioral theory in the social sciences may provide the means for developing reciprocal relations between scientific and aesthetic models. Our purposes in this article are twofold: (a) to describe some unique properties and values in both scientific and aesthetic models, and (b) to propose some ways to use the models as complements.

Research in education has gained some sophistication among the social sciences in terms of research method. However, this has been a tilt situation, favoring scientific method. In an AERA address, Eisner charged that procedures for educational evaluation have been borrowed from the assumptions and procedures of educational research, and that educational research used as its model

the natural sciences. He also charged that the assumptions and procedures most commonly used in educational evaluation today "represent an extremely narrow conception of the way in which educational evaluation can be pursued."<sup>1</sup>

Recognizing the one-sidedness of educational research and evaluation procedures, Eisner proposed a supplement to the presently popular scientific procedures. The nonscientific approach he suggested requires the development of techniques of *connoisseurship* and *criticism*. Connoisseurship was used to indicate "any form of expertise in any area of human endeavor."<sup>2</sup> Criticism was used to indicate the process "aimed at revealing the characteristics and qualities that constitute any human product."<sup>3</sup> Connoisseurship

<sup>1</sup> Elliot W. Eisner. "The Perceptive Eye: Toward the Reformation of Educational Evaluation." (Mimeographed.) An unpublished paper presented at the Annual Meeting of Division B of the American Educational Research Association, Washington, D.C., March 1975. p. 1.

<sup>2</sup> *Ibid.*, p. 2.

<sup>3</sup> *Ibid.*

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# National Curriculum Study Institutes for November and December

## Creating and Maintaining Humanistic Climates in Schools

November 10-11, Atlanta (Atlanta American Motor Hotel)

This institute is organized in workshop format. Small groups of participants will examine:

- "Humanistic Education: Concepts and Components"
- "Humanistic Education: Implications for Teacher Preparation and Staff Development"
- "Reforming School Curricula to Reflect Humanistic Concerns"
- "Being Accountable in Humanistic Ways"
- "Making School Climates More Humanistic: The Cleveland High School Case Study"
- "Fostering Self-Actualization and Humanism in the Classroom"
- "Administrative Competencies for Creating Humanistic School Climates"
- "Assessing and Evaluating Goals of Humanistic Education"

Consultants: David Aspy, Texas Women's College; Monte Clute, University of Colorado; Laurabeth Hicks, Southern University; William Maynard, Cleveland High School, Seattle.

## Supervisory Techniques for Evaluation of Teaching Personnel

December 1-2, Phoenix (Del Webb's TowneHouse)

Participants will explore roles and functions of supervisors; managing conflict and role expectations; and ways of improving leadership/supervisory capabilities.

- "Role Definitions, Functions, and Expectations of Supervisors in the Evaluation Process"
- "Analyzing Leadership Behavior"
- "Understanding the Leadership Roles and Demands of Supervisors"
- "Critical Components of Instructional Supervisory Behavior"
- "Evaluating Supervisory Practices Using Competency Assessment Techniques"
- "Clinical Supervision and Diagnostic Techniques for Teacher Growth"

Consultants: Robert Anderson, Texas Tech University; Louise Dieterle, Illinois State University; Ben Harris, University of Texas; Tom Sergioanni, University of Illinois; Leonard Valverde, University of Texas.

### REGISTRATION FORM

- Designing Humanistic Climates for Schools** / November 10-11, Atlanta (Atlanta American Motor Hotel)
- Effective Supervision: Techniques for Improving Professional Evaluation Skills** / December 1-2, Phoenix (Del Webb's TowneHouse)

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is an art of appreciation and essentially private in nature. Criticism is an analytical process with poetic rendering as its product, and it is essentially public in nature. The aesthetic model for evaluation that Eisner has proposed begins at the practical level of having those engaged in educating children seeing and thinking about what they do.

It is our contention that Eisner's model could, conceivably, provide the kinds of data needed to further the development of theory-directed research in the field of education. Conran and Beauchamp discussed the problem of doing sophisticated research in education, and more generally in the social sciences:

Until recently, the social sciences were considered too complex and relationships too ill defined or variables too unmeasurable to lend themselves to quantitative analysis.

Gradually, however, theorists are finding ways to rework verbal theories so they can be recast using mathematical reasoning.<sup>4</sup>

In order to understand how an aesthetic model can supplement scientific research, and more specifically, research using mathematical reasoning, it is necessary first to understand Eisner's conception of the aesthetic model and the authors' conception of scientific and mathematical models.

## Connoisseurship and Criticism

Connoisseurship and criticism were noted earlier as requirements specified in Eisner's discussion of the aesthetic evaluation model. He referred to connoisseurship as the art of appreciation and to criticism as the art of disclosure. Connoisseurship implies an awareness of qualities, relationships among qualities, and a "comprehension of the other states and values against which the presently encountered state can be compared and contrasted."<sup>5</sup> Conclusions of the connoisseur are judgments grounded in reason, and they imply a degree of inter-

<sup>4</sup> Patricia C. Conran and George A. Beauchamp. "A Causal Model in Curriculum Research: An Aid to Theory Building." *Educational Leadership* 32 (6): 392-97; March 1975.

<sup>5</sup> Eisner, *op. cit.*, pp. 2-3.

rater (inter-connoisseur, if you will) reliability. But the connoisseur's judgments can be silent and private in contrast to the critic's expressed, public art. Eisner claimed that it is not enough for the critic to discern; "the critic also aims at providing a rendering in linguistic terms of what it is that he or she has encountered in such a way that others not possessing his level of connoisseurship can also enter into the work."<sup>6</sup> Eisner readily admitted that translating an object or event into a linguistic equivalent is not possible. Instead, criticism was considered as "a rendering, or linguistic set of pointers, a poetic form of analogue that suggests and adumbrates rather than literally describes what is there to be seen."<sup>7</sup> The measure of adequacy of the criticism is its brightness of illumination; that is, the extent to which there are adequate referents in the object or event subjected to criticism. This brightness of illumination, or referential adequacy, determines the validity of the criticism.

To illustrate the idea of rendering, Eisner quoted Max Kozloff's description of a visit to an exhibition of paintings by the contemporary British painter, Francis Bacon:

Wandering up and down the ramp of the Francis Bacon exhibition at the Guggenheim Museum on a sunny afternoon is a grisly experience. The joys of painting and the presence of a brilliant mind are not enough to dispel one's morbid embarrassment, as if one had been caught, and had caught oneself, smiling at a hanging.

... Earlier I was aware of his velvety, featherlike white strokes, which tickle the navy blue ground and form an urgent image all in their own time, only as an irritant. It is irritating, that is, to be cajoled, wheedled, and finally seduced into an enjoyment of a painted scene whose nature connotes only horror or repulsion. Such are his various tableaux of crucifixion and murder, although his merely voyeuristic glimpses of male orgies arouse guilt in this same way.<sup>8</sup>

It is evident in the reading of Kozloff's description that this kind of language is not used in educational evaluation. The lan-

guage used in rendering is filled with metaphor, contrast, redundancy, emphasis, and unlikely analogies; it is poetic.

We are probably all familiar enough with the terms connoisseurship and criticism to be able to conceive of each in its many aspects: the wine connoisseur, the French gourmet, the art and music critics, and others. The transition to educational con-

***"We are probably all familiar enough with the terms connoisseurship and criticism to be able to conceive of each in its many aspects: the wine connoisseur, the French gourmet, the art and music critic. . . . The transition to educational connoisseurship and educational criticism is not difficult to imagine."***

noisseurship and educational criticism is not difficult to imagine. The qualities of the teaching-learning act need to be rendered in a language independent of its relationship to the event. The qualities of the experiences of the connoisseur and critic as they interact with educational phenomena need to be described, and the phenomena need to be placed within a sociocultural context.

The value of aesthetic evaluation, according to Eisner, is that it permits a rendering of some educational phenomena which cannot be measured. Eisner charged:

... scientific studies in education are more often defined by the form of research one has learned to use than by the substantive problems one believes to be significant. Becoming familiar with correlation procedures too often leads simply to questions about what one can correlate; the existence of statistically reliable achievement tests too often leads to a conception of achievement that is educationally eviscerated. Our tools, as useful as they might be initially, often become our masters.<sup>9</sup>

Eisner's observations here may be true in circumstances where members of the scholarly community permit such research and publish the results. However, no self-respecting advocate of scientific procedures

<sup>6</sup> *Ibid.*, p. 5.

<sup>7</sup> *Ibid.*, p. 6.

<sup>8</sup> *Ibid.*, p. 7.

<sup>9</sup> *Ibid.*, p. 9.

in research would condone such nonsense. We would not care to endorse an aesthetic approach to research as a means for compensating for poor (and unacceptable) research utilizing scientific procedures, but that does not preclude our welcoming aesthetic procedures as supplemental to scientific.

Eisner prefers "danda" to data—an "active network of information"—the culled judgments of the educational connoisseur. Danda may be likened to "circumstantial evidence," "structural corroboration," or "unobtrusive measures." What is subtle and complex is the source of danda. We believe the subtle and complex is also the scientific-aesthetic interface condition. It is from these that theories emerge which eventually can be refined and represented mathematically. Eisner, too, acknowledged that "development of higher levels of connoisseurship than we have in general at present might provide new subject matters not only for theoretical attention, but for empirical research of the conventional variety."<sup>10</sup> Connoisseurship could lead to the development of a behavioral theory with "thick" rather than "thin" description; that is, a theory which describes, not only the behavior itself, but also the meaning or significance of behavior. What is demanded is the supplementation of descriptive and predictive data about behavior with danda illuminating the significance of the behavior.

Eisner named the requirements of criticism to be "understanding of the range of educational styles possible in teaching, in organizing classrooms and schools, in using curriculum materials, and in providing educational activities."<sup>11</sup> When the educational critic has done his or her job well, there is a "referential adequacy," a disclosure that has referents in the teaching-learning act itself, a description that brings a creative "ah ha!" experience. The important point on referential adequacy is that a person who views the educational setting and who also reads the criticism can better perceive the qualities of the phenomenon observed.

<sup>10</sup> *Ibid.*, p. 13.

<sup>11</sup> *Ibid.*, p. 16.

## Causal Modeling

Disclosure of this nature is likewise the aim of much scientific research, particularly that using causal modeling to demonstrate relationships among variables. For example, Conran developed a causal model and used path analysis to demonstrate relationships among principals' leadership, teachers' attitudes and performance, students' performance, and certain background variables. The model is shown in Figure 1 for purposes of clarification.<sup>12</sup>

In the model, the straight arrows ( $\rightarrow$ ) represent one-way causation, and the curvilinear arrows ( $\curvearrowright$ ) represent correlation. The postulated relationships among the variables are defined by the following structural equations:

$$\begin{aligned} SA &= n_5 + p_{54}n_4 + p_{53}n_3 + p_{5a}\xi_a + p_{5d}\xi_d \\ &\quad + p_{5e}\xi_e + p_{5f}\xi_f + R_y \\ TPP &= n_4 + p_{4a}\xi_a + R_x \\ TPT &= n_3 + p_{32}n_2 + p_{31}n_1 + p_{3c}\xi_c + R_w \\ TMT &= n_2 + p_{2a}\xi_a + R_v \\ TMC &= n_1 + p_{1a}\xi_a + p_{1b}\xi_b + R_u \end{aligned}$$

The model supported the *a priori* assumption that principal leadership has a causal relationship with student achievement as mediated through teacher motivation and teacher performance. The particular example chosen to illustrate is a time-series model so there is also an assumption that an initial achievement level influences subsequent achievement. The purpose of this article is not to discuss results of data analysis that was carried out for all grade levels and all subjects. Rather, the example is used to illustrate a scientific model for research. Solutions to structural equations did show that the equations fit the data. Some needs for future research were noted. These included the need for *a priori* assumptions that will not distort reality and the need to iden-

<sup>12</sup> For a more detailed explanation of the theoretical framework that supports this and a comparable static model, see: Patricia C. Conran. "A Study of Causal and Other Relationships Among Leadership, Teacher, and Student Achievement Variables in Curriculum Engineering." Unpublished doctoral dissertation. Evanston, Illinois: Northwestern University, 1974.

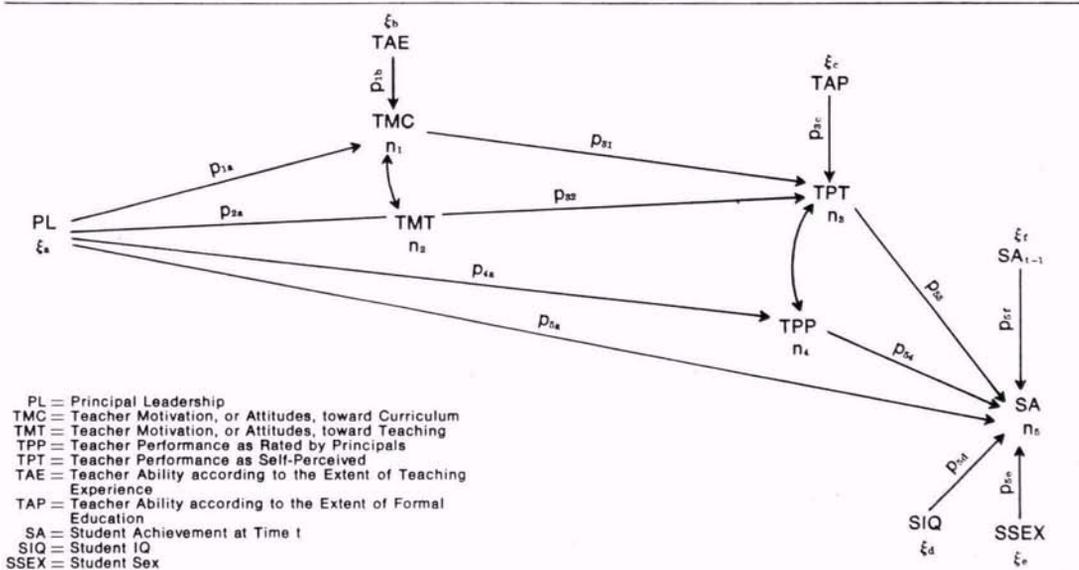


Figure 1. Time-Series Model Subscripted

tify multiple output functions. A plan to extend future research to include additional variables and to test more complex relationships was noted. It is in this future development of the scientific model that the authors acknowledge the potential usefulness of the aesthetic model outlined by Eisner.

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What is now an interface condition between the scientific and the aesthetic may, in the future, be one of mutual relationships that feed back on one another to enlighten perception. For example, the use of connoisseurship and criticism to produce and classify description or renderings would make it possible to identify qualities of teaching-learning phenomena in educational settings, to show relationships among qualities of these, and to point up the peculiarities of each in unique social settings. Such data, or

danda, would pave the way for scientific research using mathematical reasoning and quantitative analysis.

Webb *et al.* gave some examples of unobtrusive measures that could very well be the next step after gathering danda, an active network of information, or thick description. These methods were classified as physical traces, archives, and observations. For example, in observation, data might be gathered while observing children during a ghost-story-telling session. The degree of fear induced can be measured by noting the shrinking diameter of a circle of seated children. Archives may be used in gathering information in libraries. Library withdrawals may be used to demonstrate the effect of introducing television into a community. Webb *et al.* cited the example of the measure of popularity of the hatching-chick exhibit at Chicago's Museum of Science and Industry. The floor tiles around this exhibit need to be replaced every six weeks in contrast to floor tiles in other parts of the museum which need not be replaced for years.<sup>13</sup> These and

<sup>13</sup> Eugene J. Webb, Donald T. Campbell, Richard D. Schwartz, and Lee Sechrist. *Unobtrusive Measures*. Chicago: Rand McNally & Company, 1966. pp. 2-3.

other measures allow the evaluator to gather information that might otherwise be overlooked or ignored. Even with these unobtrusive measures we have only the answer to *that* something is; we still need the danda for *why*.

### Frame Factors in Pedagogy

Another possibility that is presently being tested in Sweden is to identify "frame factors," or structures, in pedagogy. The work of Dahllöf and Lundgren has supported the use of frame factors to test results in a teaching-learning situation when one variable, or frame factor, is manipulated while all others are held constant. Dahllöf divided his frame factors into stimulus or situation factors, individual factors, and response factors.<sup>14</sup> With thicker description, it would be possible to more adequately categorize stimulus or situation factors in the educational process. Then, if other frame factors could either be held constant or more adequately categorized, scientific analyses would be more meaningful.

Lundgren's research is similar to that of Dahllöf in the use of frame factors. However, since he concentrated on analyzing the teaching process, the connoisseur and critic may benefit more from his efforts. Lundgren classified pedagogical moves in a manner similar to that of Bellack. He identified five moves: structuring, soliciting, responding, reacting, and individual help. A sixth was added to account for indistinct utterances and statements that cannot be classified. Lundgren analyzed the teaching process in terms of its content, form, and the persons involved.<sup>15</sup> It is not difficult to project educational connoisseurship and educational criticism emerging in terms of frames and the types of analyses used by Dahllöf and Lundgren. Environmental factors and teacher-pupil gestures and postures could be added

to the description to allow for the necessary rendering that would permit a re-creation of the teaching-learning act in linguistic terms that would be independent of the act itself.

It has always been the concern of the humanist or the aesthete to question *why*, to attempt to explore reasons, and to render explanations. The social scientist, on the other hand, has always taken as a mandate that only the *what* should be of scientific interest and concern. These dual interests have created an interface condition in which a false surface exists creating unnecessary boundaries. It is time to challenge the solitary interest in the *what* as a necessary and sufficient condition for doing scientific research. Are physicians less scientists because they are as interested in symptoms as in causes and take the time to elaborately describe these? Can they, in fact, even claim to be scientists if they have no concern for the causes of a patient's illness (or well-being)? Must they not be able to fully describe the *why* of whatever functions manifest themselves?

Eisner has acknowledged the usefulness of educational connoisseurship and criticism to produce danda to give answers to *why*. He cited as examples judgments made by the teacher as to when children have had enough art, "free time," or some other activity. He noted the distinctions made by teachers between productive noise of children working and just plain noise. Eisner suggested listening to the shop talk of teachers as an application of levels of connoisseurship.<sup>16</sup> All of these possibilities, and others, render danda about what is subtle and complex. While identifying the subtle and complex is the aim of the connoisseur and critic in educational evaluation, it is likewise the goal of the scientific researcher.

We are convinced that the interface condition between the aesthetic approach and the scientific approach to educational evaluation and research can be eliminated by treating the approaches as complements rather than as alternatives. □

<sup>14</sup> Urban S. Dahllöf. *Ability Grouping, Content Validity, and Curriculum Process*. New York: Teachers College Press, Columbia University, 1971.

<sup>15</sup> Ulf P. Lundgren. *Frame Factors and the Teaching Process*. Stockholm: Almqvist and Wiksell, 1972.

<sup>16</sup> Eisner, *op. cit.*, pp. 10-11.

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