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Purpose. The purpose of the Review of Research in Visual and Environmental Education (RRVEE) is to publish critical reviews of empirical research which examine various dimensions of social behavior as they relate to the visual arts and the environmental design and planning disciplines.

RRVEE is a direct outgrowth of a research project initiated by the editors over two years ago. This project attempted to organize quantitative research in the visual arts and selected environmental areas into a data bank. The purpose of the data bank was to provide a comprehensive organizational base to facilitate systematic analyses of the interactions among salient variables used by researchers to study social behaviors, i.e., attitudes, perceptions, preferences, meanings, as they relate to visual and environmental stimuli. In the opinion of the editors, such analyses are essential if knowledge representing these important dimensions of human experience is to be productively reduced from its present state of disjointed and isolated

academic discourse into a mature and clearly defined theoretical hypothetical explanatory system.

To date several hundred studies have been identified, classified, and evaluated by the editors and their assistants. However, preliminary attempts to organize systematic and integrative analyses of this research made it abundantly clear that such analyses were greatly conditioned by the maladroit methodology, inconclusive and contradictory findings, and plain dross which frequently appeared in these studies.

It was apparent that problems involving not only research design but directions for research plagued these fields. Consequently, with the support of active researchers, doctoral advisors, professional organizations, and others associated with the visual arts and the environmental design and planning disciplines, RRVEE was conceived. This publication is dedicated to providing post-publication critiques of doctoral dissertations, research reports, and related documents which appear with increasing frequency in these fields. It is hoped that RRVEE will serve as an effective advocate in shaping the quality, objectivity, and continuity of empirical research in the visual arts and the environmental design and planning disciplines.

Document selection. Titles and abstracts of potential review documents for RRVEE were selected from common bibliographic sources, i.e., *Dissertation Abstracts*, *Research in Education* (ERIC), by use of a key word index designed by the editors to identify documents dealing with social behaviors

as they relate to visual and environmental stimuli. This procedure yielded over 200 titles and abstracts of studies catalogued during 1970-72. In line with the previously stated research orientation of RRVEE, abstracts were carefully pruned by bibliographic technicians in order to further identify those documents using social science research strategies. Microfilm or microfiche copies of the approximately 125 remaining studies were then screened and reduced to approximately twenty documents which, in the judgment of the editors, were representative of recent research in these areas. It should be noted that beyond these preliminary screening procedures no deliberate attempt was made by the editors to prejudge the studies selected for review.

Reviewers. A publication devoted to the review of research is, of course, greatly dependent upon the quality of its reviewers. To this end, the editors undertook a literature search in order to identify researchers of outstanding quality in the visual arts and the environmental design and planning disciplines. These researchers were then invited to serve as reviewers of research in their area of specialization for RRVEE. The reviewers tend to share two qualities: 1) they are actively engaged in the business of research; and 2) their work represents a comprehensive understanding of their area of specialization. RRVEE is indeed fortunate to have acquired the support and services of this diverse and competent core of reviewers.

Acknowledgement. Many people have made important contributions to the development of this publication. It is with great pleasure that we acknowledge the counsel and support of Stanley Robinson, Dean, Division of University Extension; Dennis Dahl,

Assistant Dean, Division of University Extension; Walter M. Johnson, Director, Extension in Visual Arts; James R. Shipley, Head, Department of Art and Design; Lucien White, University Librarian; Carl Regehr, Department of Art and Design (all of the University of Illinois at Urbana-Champaign); and Philip James, Office of the Superintendent of Public Instruction, State of Illinois. To others who gave freely of their time and expertise, including H. James Marshall, Claude Winkelhake, Richard Colwell, Carroll Gonzo, and Peggy Wyatt, we are most appreciative.

The Editors

DIFFERENCES IN PERCEPTION THROUGH TEACHING DRAWING IN CONTRASTING GROUPS OF FIFTH GRADE STUDENTS

Olive Marie Jacobsen Jensen
University of Minnesota, 1971

Perception is a relatively new term in the vocabulary of the art educator. Prior to 1963 research in art education primarily stressed aspects of creativity. The most recent emphasis is upon the visual perception which precedes the creative process. A limited number of studies have dealt with the processes and meanings of perception in the context of the elementary school art program.

This study attempts to develop the investigation by focusing on a single area of art education—the teaching of figure drawing at the fifth grade level. The author is particularly interested in four aspects of perception as it pertains to teaching drawing.

How does the child develop in visual self perception through drawing the figure?

How does the child develop in self-concept through drawing the figure?

How does the child develop in perception of representational forms through drawing the figure?

How does the child develop in perception of non-representational forms through drawing the figure?

In addition, this investigation seeks to study differences in growth in varying groups within the fifth grade classroom, and so the data is analyzed by treatment, school, sex, socio-economic and ethnic group.

Four classes in two elementary schools in St. Paul, Minnesota were used for the study, with students randomly assigned to control or experimental group. Students in control classes were involved in the usual media-oriented elementary art curriculum and the experimental classes studied figure drawing. Because the author of the study taught both experimental groups, with two teachers in the control groups, the effect of teacher personality was confounded with method in the experimental group. This must be recognized when examining the findings. The possibility of the presence of the Hawthorne effect upon the total group must also be noted.

Four tests were used to provide the data for this study, gathered on a pre and post treatment period basis. These tests were the Goodenough-Harris Drawing Test, the Piers-Harris Self Concept Test, the Child Test of Aesthetic Perception and the Graves Design Test.

Mean gain scores were examined rather than a comparison of pre and post scores. This was done because the author sought to deal with the possibilities for growth, not levels of perceptual skills, and felt that recent studies dealing with ethnic differences provided numerical score data which had been misused and misinterpreted by readers. Unfortunately, by limiting data reported to mean gain scores, the question of ceiling effect, regression effect or small effect is raised.

This study indicated several overall trends, as well as some significant findings. All groups, both control and experimental gained in visual self perception and self concept throughout the treatment period, which would indicate that the total art experience was of value to all students. Boys' mean gain scores in contrast to girls' mean gain scores, demonstrated a significant mean gain over the treatment period on the Self Concept Test.

The second observed trend is that of the positive growth seen in the non-Caucasian group. On three of the four tests, the non-Caucasian child gave evidence of greater mean gain than the Caucasian child and on the Child Test the non-Caucasian group demonstrated a statistically significant mean gain when compared with their Caucasian counterparts. In the light of the commonly held notion that the non-Caucasian seems particularly to experience learning difficulties in the American public schools, this significant mean gain should not be overlooked.

The findings of this study indicate a direction for future studies with greater time span for treatment and variety and range within a systematic procedure.

REVIEWER: Richard A. Salome
Illinois State University, Normal

Statement of the problem. Ascertaining the problem for this study involves consideration of several descriptions. The first question posed is: "Does drawing, especially of the figure, and the self, have a positive effect upon the development of the self concept? Finally, does the study of figure drawing have any positive effect upon his general aesthetic perception (Jensen, 1971, p. 3)?"

Next, the author indicates that, "...a study of the effect of figure drawing upon self concept (perception of the self) and aesthetic perception may contribute to the development of better curricula in art for the disadvantaged child (p. 4)."

Shortly thereafter, the author states that, "... focus is upon development of a sound curriculum for the general art classroom, with investigation of its possible implication of curricula for the disadvantaged child (p. 7)."

A fourth purpose is indicated by the statement that, "...the writer hopes to add to the limited

information available in art curriculum studies on the relationship of drawing to visual self perception, verbal self perception, and aesthetic perception of representational and non-objective forms (pp. 8-9)."

The design of the study chapter provides the statement that: "This study will seek primarily to compare the results of the teaching of figure drawing with the usual fifth grade art curriculum, which is essentially a materials oriented program. The comparison of the experimental treatment with the control group will be further examined for the variables of sex, school, socio-economic and ethnic differences (p. 77)."

In closing the chapter on design, the author states that the problem is, "...a study of the effect of teaching figure drawing to fifth grade students upon their perceptual acuity (p. 107)."

The final chapter indicates the purpose is, "...to examine one method of teaching in art; the teaching of figure drawing, and to compare growth by that method over the treatment period with the usual approach to elementary school art over the same period of time. A secondary purpose was, "...to compare differences in growth over the treatment period in visual self perception, verbal self concept, aesthetic perception of representational form and aesthetic perception of non-representational form of varying groups within the public school structure (p. 137)."

These seven statements (quoted from the Jensen dissertation) are similar with differences, making it extremely difficult to focus with confidence on a stated goal which describes the direction of the

study. Several of the statements are broad areas of concern rather than directive goals for the research process. While the study is intended to be experimental, it is difficult to identify a cause-effect relationship. Some of the problem statements imply information gathering, but they do not clearly indicate answers or conclusions that may be obtained, nor is their significance for the field established.

Related research. Seventy-seven of 149 pages included in this study are devoted to discussing related research. Over 100 references are presented for five subdivisions including theories of child art, development of the Perception-Delineation Theory, modes of perception of aesthetic form, perception studies in art education, and perception research in art with the disadvantaged child (Jensen, 1971). No summary of the literature is offered following the review chapter, nor are summaries presented at the end of the five subdivisions. It is difficult to determine how the author relates all of this material to the theoretical basis for the study, since areas of agreement or disagreement with the hypotheses of the study are not identified.

A review of related literature contributes many things to a research project, one of which is further clarification of the problem. However, the researcher must know what topic he/she wants to study if the literature review is to serve this function. In this study, concern is expressed for problems ranging from the effects of figure drawing upon development of the self concept, and general aesthetic perception to development of better curricula in art for the disadvantaged, and growth in "perceptual acuity" in varying groups of children. This confusing array of problem statements is reflected

in the dissertation's lack of a clear identification of what needs investigation, a literature review that does not deal with a specific problem, and loosely defined limits of the study.

The author uses many secondary sources in the literature review, often making it difficult to accurately determine who was originally responsible for the material. For example, the writer says that Harris referred to the body image as a person's self concept and noted that the body image is a configuration, or gestalt (p. 14). However, Harris credits Schilder with this concept (Harris, p. 42). In another instance, the author states that Gestalt Theory was best developed by Rudolph Arnheim in *Art and Visual Perception* (p. 23). Koffka, Kohler and Wertheimer might not agree. Shortly thereafter, it is stated that, "Hastie and Schmidt (1969) presented a thorough discussion of Alport's *(sic)* concept in *Encounter with Art*. Reference is made to his categories of perceptual phenomena...(p. 34)." The above mentioned text makes brief reference to Allport's event-structure theory, but does not include discussion of his categories of perceptual phenomena (Hastie, Schmidt, 1969).

Research objectives. The chapter on design includes five questions which describe the objectives of this study. Three ask if the study of figure drawing at the fifth grade level will significantly affect scores on: 1) the Goodenough-Harris Drawing Test, 2) the Piers-Harris Self Concept Test, and 3) the Child Test of Aesthetic Perception and the Graves Design Judgment Test. Another pertains to the possibility of correlation between performances on the Drawing Test and the Piers-Harris Test. The fifth question is concerned with, "...differences on any of the tests seen in growth patterns in any of the following variables: a. Socio-economic group, b. Ethnic

differences (Caucasion or non-Caucasion), c. Sex, d. School (p. 79)."

The design chapter is introduced with the purpose of comparing the teaching of figure drawing with the usual fifth grade art curriculum, and comparison of treatments for the variables of sex, school, socio-economic, and ethnic differences. At the end of this chapter, the author states, "The problem defined in this investigation was a study of the effect of teaching figure drawing to fifth grade students upon their perceptual acuity (p. 107)." The above stated objectives have some relationship to the introductory purpose, but their relatedness to the second one is not clear. "Perceptual acuity" is an unfortunate choice of terms. Based on the author's definition of perception as, "...the way in which the eye and the mind absorb visual information in the world surrounding the perceiver (p.81)," perceptual acuity is implied. Visual acuity tasks commonly involve discriminations of small differences along limited dimensions, but the instruments used in this study, the Goodenough-Harris Drawing Test, the Child Test of Aesthetic Perception, and the Graves Design Judgment Test are multivariate. They require varied and complex kinds of discriminative, selective responses which are affected by many factors including attitudes and values. What the author studied seems better described as perceptual sensitivity, since none of the above mentioned tests measure acuity. However, this reviewer would not classify the experimental treatment as either visual perceptual training, or perceptual sensitivity instruction.

Methodology. Questions may be raised concerning the adequacy of the experimental control design used in this investigation. The study was designed to, "...compare the results of the teaching of figure

drawing with the usual fifth grade art curriculum, which is essentially a materials oriented program (p. 77)." An acceptable experimental design may include control groups taught by traditional methods, but the adequacy of control group instruction provided in this study is questionable. Figure drawing was taught by an art specialist to experimental groups, while no figure drawing - or for that matter any formal drawing instruction was provided the control sections taught by classroom teachers. Referring to the control sections, the author states, "...both groups seemed to be doing the kind of art activities typical of fifth grade curriculum, centering each session around the introduction of some new material and then abruptly shifting to another new medium in the next session (p. 101)."

Eight forty-five minute sessions, twice a week, providing a figure oriented drawing activity made up the experimental treatment. Referring to the control treatments, the author writes, "No treatment in relation to method was given to the control group. Teachers were simply instructed to teach the art class as they always would (p. 102)." Procedures used in this study seem incongruent with generally accepted procedures for comparison of methods. It is not definitely stated that each control group received eight art lessons during the experimental period--an issue that should not be left to assumption.

There is some uncertainty concerning the value of control group performances. The author compared some treatment with no similar treatment--in this case, figure drawing with no organized, or traditional drawing instruction, but rather any art activity that a classroom teacher might come up

with. What the study compares is: 1) figure drawing instruction with no figure drawing; 2) the effects of instruction by an art specialist with that of classroom teachers; and 3) eight structured and sequenced lessons with a miscellaneous mixture.

In describing the control treatments, the author indicates that one teacher kept records of her activities, while the other did not. Fortunately, the researcher was able to piece together a record of the activities of the control class, and found that both groups seemed to be doing typical things (p. 100).

When structured art instruction in a specific area is compared with a potporri of art activities, one might hope that findings would support art instruction. Unfortunately, the author reports that when the experimental and control group means were compared, no differences significant at the .05 level were obtained on any of the four criterion measures. The researcher did corroborate accepted knowledge that teaching children figure drawing will improve their scores on the Goodenough-Harris Drawing Test (p. 131).

While the author indicates the intent to compare a method involving the teaching of figure drawing with the usual approach to elementary school art, basic controls are lacking. Content and objectives for both groups should have been similar if emphasis was to be placed on a comparison of methods. The author indicates small differences between group performances on the tests used were found. The lack of highly significant differences may be due in part to the lack of any learning model or theory upon which the experimental teaching strategy could have been based to help children learn the kinds of

things measured by the test instruments used. The author does not clearly indicate that figure drawing instruction is related to performance on the various tests used in the study.

The Draw-a-Man-Test is not meant to be used as a measure of the effectiveness of drawing instruction. Rather, it is meant to be used as one measure of a child's conceptual maturity, and one indication of intelligence. This experimenter chose to use it as a measure of the effectiveness of teaching eight figure drawing lessons, and to, "...measure mean gain in drawing of the self (p. 141)."

In any research dealing with teaching methodology, one should define the relevant educational objective, and identify patterns of teaching behavior most likely to aid in attainment of that objective. Once this is done, the researcher may present evidence that a particular startegy seems related to that objective. This study does not follow such a format.

The author recognizes several independent variables not controlled during the study, including the arrangement in which two classroom teachers presented control lessons while the researcher taught the experimental sections. This variable presents additional complications since the control teachers apparently did not teach the same things. Their only consistency was in being classroom teachers who presented whatever they wished for an art activity at a given time.

Two important variables for which no control was attempted are motivation of the learners in the different classes, and the situation in which

the various groups worked. The classroom climate provided for an elementary school child has considerable effect on his or her participation in art learning experiences.

Consideration should also be given to the lack of control over specific events that occurred between pre and posttesting that might effect relevant learning and performances on the tests used in the study. Further, in a study of art teaching methods, one should not overlook teacher effectiveness, student attitudes toward whatever was presented in the different sections, and materials and tools used in the various classes.

Results and discussion. Two three-way analyses of variance were used to examine differences between mean gain scores obtained from pre and posttests. While this is an appropriate statistical test for the study, the author's method of reporting findings is not. Consistently, discussions and tables present mean gain scores first, and deal with them as though significant differences were obtained. Yet, examination of the eight accompanying ANOVA tables, each containing seven sources of variance, reveals only five of fifty-six F-ratios with a probability of .05 or less. Three of these indicate differences due to sex, and two suggest interaction between sex and treatment, or sex and socio-economic group on two of the tests used. In view of the large number of factors tested, these findings do not seem important enough to justify conclusions offered in the study.

The author should have presented the findings obtained from the analyses of variance first, and if significant effects were indicated by the obtained F-ratios, then discussion of mean differences

for the treatment groups would be justified. Further, the author should have indicated the sample size for each of the cells on which mean gain scores were based, as small samples increase the possibility that mean differences may be due to chance.

The writer states that it is impossible to say that findings were not due to ceiling effects (p. 88). If the difficulty range of the tests used did not extend far enough in an upper direction, Ss who had much of the ability tested might make near perfect scores. The reader cannot assess this possibility since neither test ceilings or raw scores for Ss who took the tests are presented. If ceiling effects did exist, analysis of covariance would have been a more appropriate statistical design.

The findings of the study do not have readily apparent implications for direction, or changes in art teaching methodology or curriculum. However, the extensive bibliography will be of interest to persons concerned with research and writing relevant to art education.

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REVIEWER

RICHARD A. SALOME *Address:* Illinois State University, Normal, Illinois *Title:* Associate Professor, Art *Degrees:* M.A. State U. of Iowa; M.A. Iowa State Teachers College; D.Ed. Stanford University *Specialization:* Perception and Learning

AN ORGANIZATION OF INFORMATION FOR COMPUTER-AIDED COMMUNICATION IN ARCHITECTURE

Charles Hamilton Burnette, Ph.D.
University of Pennsylvania, 1970

A comprehensive computer-oriented system for the organization of information to aid technical communication in architecture is presented and demonstrated at a level preliminary to an operating system. The proposed organization is intended as a basis for an operating system that would be capable of replacing architectural files, catalogs, drawings, specifications and most administrative correspondence. The organization proposed to accomplish this replacement is explicitly designed to facilitate information handling, architectural programming, descriptive specification, design, formal presentation, construction, management and research. These eight problem areas are dealt with individually and the issues, fundamental concepts, forms and present practices related to them are separately characterized in the presentation.

An approach to each problem area and a format implementing each approach is proposed. In particular, issues of identification, interpretation, description, organization, representation, application, computation and evaluation are identified with and formulated to facilitate retrieval, classification, storage, coordination, visualization, operation, control and measure- respectively. A language-like structure to guide the understanding and use of this system of eight formats is achieved by providing syntax and semantic guidance which the user interprets to suit his needs. Linked-list data structures for computation are established through the formats to model the problem at hand. The system itself makes use of a dependency by each successive format on a data base established through the use of the preceding formats. To demonstrate the purpose, range, and character of the description which each format organizes various applications of each of them are illustrated. In these representative applications substantive information is drawn from a reference set of architectural drawings and specifications to suggest the feasibility of replacing the entire description in present documentation with a computer-aided system organized in terms of the proposed eight formats.

REVIEWER: Luis H. Summers
Pennsylvania State University

Statement of the problem. The preface to Burnette's dissertation utilizes the standard and undocumented argument often used by architects involved in computer work for the need to computerize architectural information. "The architect is becoming obsolete and is losing his prominence in the construction field because of his inability to handle information efficiently and scientifically, therefore what the architect needs is"(1)"...a more effective means to identify, interpret, organize, represent, communicate, control, and evaluate information in the physical environment."(2) Although most architectural researchers are in agreement with Burnette's reasoning, most practicing architects do not see themselves as becoming obsolete, losing their grip on the construction field, and not being able to cope with information. Perhaps this argument should have been revised and documented further.

Related research. In a brief section on past

work, Burnette alludes to the phenomenological theory of Christian Norberg-Schultz (3) and the *ICES* work by Daniel Roos (4) as the most significant and comprehensive theories of architecture. No mention is made of the many attempts at developing comprehensive computer aided architectural systems such as: Sides' *Housing Study* (5), Negroponte's *Urban 5* (6), Albright's *Modcon* (7), Smith's *Space Form* (8), Graham's *BOP* (9), and others.

Chapter one is a good study on the identification and retrieval of architectural information. The apparent lack of a broad and viable information base in architecture is attributed to the architect's reliance on the intuitive process. A well documented case is made against fixed indexing information systems such as those used by the *Architectural Graphic Standards*, *Sweets Catalogs*, *Construction Specification Institute*, and others. Burnette argues convincingly that fix indexing systems: impede the establishments of equivalence in the use of labels; limit broad access to information; and generate labels which persist long after their utility is lost. Coordinate indexing, a system in which information records are assigned several retrieval terms, although it facilitates retrieval, fails to establish communication among diverse users since "the designation of meaning of the term remains with its author." Burnette proposes an approach to indexing that "permits the author of a message as well as its subsequent users the establishing of any indexing terms for a unit record which seem appropriate or useful."

Research objectives. A concise description of the object and scope of Burnette's work is given in the following two paragraphs found in the Introduction of his dissertation:

"The object of this work is to present a linguistic approach to the coordinated use of the computer in architectural communication. This approach proposes a comprehensive organization for information that includes aids to the semantic identification of information, syntactic patterns to assist organization and normative forms to guide interpretation and use.

The scope of the dissertation is to outline the salient problems regarding the organization and use of information in architecture and to discuss the issues, fundamental concepts, forms and present practices associated with each problem. This discussion is intended to provide a basis for understanding the approach to each problem that is subsequently proposed and for appreciating the individual formats that is developed to implement this approach."

Burnette's highly desirable objective is one which many researchers have pursued with little success in the past. Perhaps the failure of these previous researchers can be attributed to their "wish to use the computer, rather than their need for results they could not get without it." (10) Rather than initiating the problem with an analysis of the architectural information process, as Burnette has done, these researchers turned to information only when the task under investigation demanded the display, retrieval, or correlation of data. A cart before the wheel type of situation.

Methodology. In chapter two Burnette proposes a faceted system for classification. "In this form of classification, each class represents a point of

view (facet), a particularized interest or practice." This system would provide "a mediating language-like formulation manifesting habits of thought and expression; it is further intended to complement computer capabilities, and to serve as a bridge between thought and computer programming."

Perhaps the best description of the language like faceted system of describing information is found in chapter two, dealing with communication and classification, of the dissertation.

Activity Item Control Evaluation

Do not lay masonry when the temperature

Control

is below 40°F unless suitable means

Control Activity

approved by the architect are provided to

Activity Activity

heat materials protect the work from

Evaluation Purpose Item

cold and frost and insure that mortar

Purpose

will harden without freezing.

A recognition of the statement according to the facets would have the following form:

S 'Masonry' e 'protection' e 'freezing'
Symbols=S

P Insure that mortar will harden without freezing
Purpose=P

I 'Mortar"
Items=I

A 1. Do not lay C2 (entry 2 in facet C below)
Activation=A

2. Provide means to heat materials
3. Protect work

C 1. When E1 (entry 1 in E below) A1 (entry 1 in A above)
Control=C

2. Unless suitable means provided by architect

E 1. Temperature below 40°F.
Evaluation=E

In this example, a line from the masonry division of the specifications for a building, the Princeton Memorial Park, designed by architects Venturi and Rauch, is used to illustrate the diverse language-like facets of the proposed system. A helpful aspect of this dissertation is that each facet (S, P, I, L, F, A, C, E) of the system, described in succeeding chapters, is concretely illustrated with an application to the same building, see Table 1. Each of these information facets as discussed in their respective chapters, see Table 1, is well considered and documented. One would, however, wish that Burnette had carried more thorough and detailed analysis of each information facet.

The diverse information and well described facets used by Burnette, seem appropriate for the task proposed. The hardware and software problems inherent in the use, cataloging, cross-listing, storing, and displaying of Burnette's system are not discussed in any significant manner.

Table 1
Burnette's information facets with examples

Chapter	Information facet	Facet	Examples
Three	Description and storage	I	1. itemizing elements for planning 2. specifying materials 3. specifying elements of images
Four	Problem solving and coordination	L	1. the organization of images 2. the organization of assembly 3. space layout
Five	Visual form and presentation	F	1. aggregating form 2. elaborating form 3. interior form 4. exterior form
Six	Activity and the conduct of work	A	1. computational operations 2. activity description 3. task description
Seven	Management and computation	C	1. command 2. scheduling
Eight	Research and evaluation	E	1. quantification 2. dimensioning

Results and discussion. The last two chapters of the dissertation are the recapitulation and the conclusion. Both chapters are extremely short, one and one-half pages each. In the conclusion Burnette states that he has fulfilled the initial object of the dissertation and what remains now is to program the proposed theory and to test it. Judging from the tone of his conclusion, the remaining work, that of: flow charting the system; completing the interpretative system; linking the facets; and testing should not be very hard. From my point of view these tasks were completely avoided by Burnette. So, since the system is not an operational one, there is very little to conclude. Most computer aided architectural systems traditionally have met failure during their execution stage, never in formulation, and if they did fail during formulation, they were never published and one never heard about them.

Reviewer's commentary. Burnette has combined theoretical elements from the fields of information retrieval, classification, and computer-aided communication, into a comprehensive organization for the manipulation, management, operation, representation, etc..., of architectural information. The theory and the claims made by Burnette remain unsubstantiated. The success of any computer aided architectural system is judged by how readily or reluctantly the architectural practitioner embraces the system. Obviously this test cannot be applied to Burnette's work.

As I mentioned earlier, Burnette is to be congratulated for approaching the problem of

organizing architectural information from its logical beginning, that of information and communication. A subjective judgment on the efficiency of Burnette's system is that it would tend to encumber the architectural decision maker with one more set of hurdles on the road to production. From the brief examples presented in the dissertation the proposed faceted system of coding did not make the task of the architectural decision maker shorter or simpler but rather made it longer and more complex. The practicing architect, in his very pragnatic way, will not utilize a system that not only will re-educate him, but will make his task longer and more complex, even if the resulting communication is more exact. Perhaps Alexander's comments of 1964 still apply here, "If you use a computer to solve an equation that you can solve in your head or to provide trivial over-precision, you are only kidding yourself; or trying to kid someone else." (10)

My curiosity made me look some recent work by Burnette (11, 12, 13). In his article for EDRA 1 (11), 1969, he elaborates on his theory further, manages to make it incomprehensible, and still no action is reported. In his article for EDRA 2 (12) his theory is elaborated in a more comprehensible manner, however, no application. The last article I came across was the one Burnette submitted to EDRA 2 (13), 1972, in it he talks about designing spaces for babies, clearly a departure from his system. I guess what I am trying to say is that an architectural theory is useless unless applied and tested.

Bibliography and Notes

1. Although this form of the quote cannot be given

any particular reference, a similar form of the argument has been utilized by almost every architectural researcher involved in computer work.

2. The remaining quotes, unless references, have been taken from Burnette's dissertation.

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REVIEWER

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SOCIAL-CULTURAL ANALYSIS OF AESTHETIC PREFERENCES IN SELECTED URBAN SUBCULTURES

L. J. Stromayer
Wayne State University, 1970

Statement of the Problem

In the main, this study was devoted to an investigation of the aesthetic preferences of three ethnic subcultures who form a community in one section of a large urban center. The ethnic groups involved were Appalachian Whites, Negroes and Spanish-speaking Americans—primarily of Puerto Rican or Mexican ancestry.

The cultural heritage brought by each of these children when they first enter school together with the role of art and art curriculum in being relevant or non-relevant to the respective value systems which helped to form the cultures, served as the major focal point. More specifically, aspects studied were: (1) socio-cultural background of each ethnic group, (2) aesthetic preferences in various types of art which is reflective of the three ethnic groups, (3) the symbolic forms of artistic expression that hold the greatest area of interest for art students, (4) the aesthetic preferences of art work of students according to differing grade levels (1, 5, 6, 7, and 8), and (5) general interest of the three groups as it relates to art as presented in the schools.

Major Findings
Including Data and Pertinent Comments

1. Based on the data in Chapter IV it may be concluded that the students showed a marked preference towards objects of art that perform a function as well as possessing aesthetic qualities as opposed to works of art that appeal to man's ability to intellectualize and show no immediate use or function.
2. The investigation reveals that the students preferred motion compared to non-motion. In other words, the students showed a preference for works of art that suggested action, vitality and motion compared to forms of painting, like a still life, that seemed to be rather static and still.

3. The findings concerning representative art or non-representative art reported that the students showed the greatest range in their preferences, whether looking at grade level, ethnic groups, or the population as a whole. The evidence consistently showed that the students have a decided preference for works of art which have figures and forms that are readily identifiable or representative.
4. The findings revealed that the students preferred works of art depicting rural living as compared to works of art depicting urban living. Theoretically, it might be suggested that the students would show a preference for urban living based upon their immediate environment, but it must be remembered that many students in the urban schools come from and often return to rural settings. Whether in the form of a visit, vacation, or work. Many urban school children find their cultural heritage deeply entrenched in rural soil.
5. The data compiled under the five various schools of art indicated the students first preference was for the neo-classic school, which again demonstrated a preference for highly recognizable art form. The least preferred was cubism.
6. The pattern of aesthetic preference related to individual ethnic groupings was consistent throughout the different areas within the A.P.I. If one ethnic group showed a preference for one variable over the other, the remaining two ethnic groups followed in like fashion.
7. Within the area of ethnic grouping there was presented three areas of artistic expression that was reflective of each ethnic group under investigation. A point of interest here is that out of the three ethnic groups, the only groups that showed a high preference on art forms representative of its own cultural heritage were the Negro students. On the other hand, the Appalachian White students were the only ethnic group receiving the lowest preference within the framework in the framework of art forms reflective of their cultural heritage.
8. Another interesting point produced by the data is that within the guidelines of these three areas of art forms which are reflective of each ethnic group: the Appalachian White group produced the lowest mean score in all three different cultural areas. Perhaps it could be suggested that while art has historically played a major role in the history and development of the other groups, through its ritualistic and religious use, it has played a lesser role in the development and history of the Appalachian White ethnic group.
9. The data about students in the lower grades—primary one and two and grades five and six—consistently ranked their preferences much higher on the five point scale, than the older students in grades seven and eight. One assumption might be that students in different stages of their development have, as Piaget has stated, a different criteria for evaluating and perceiving the world of art. Every mature work of art expresses not only the values and life goals of a particular people but also the artist's unique vision. It accordingly differs in its endowment of innate values as represented by its abstract formal rhythm and symmetry and its potency of social impact and propulsion in the cultural context.

REVIEWER: Ronald H. Silverman
California State University, Los Angeles

Statement of the problem. It would appear that the purpose of this dissertation is to identify socio-cultural components associated with several ethnic minorities and to report upon an examination of the picture-preferences of elementary grade school children who are representative of these minorities. The importance of this study, according to its author, lies in its contribution to the research on ethnic groups and their unique cultural heritage, as well as to our understanding of the preferences of art students.

This dissertation makes no pretense of being either a carefully controlled descriptive study or a scholarly review of the field that results in testing or stating examinable hypotheses. We are informed (in Chapter III, Design of the Study) that it is merely an exploratory study which seeks to answer general questions.

Related research. The exploratory nature of this

dissertation is apparent from the outset. It begins with a discussion of symbols and symbol systems, and it is not until page nine that we are informed of the purpose of the study. Within the "exploratory" discourse leading up to a statement of the problem, one can read such statements as: "Affluent Western culture, which ranges from grinding poverty to untold abundance, has produced not one culture but a multiplicity of cultures." To this reviewer, such a statement reflects a lack of understanding of 1) the logic inherent in the notion that the whole is the sum of its parts, and 2) sociological constructs such as "melting-pot" and "cultural pluralism."

The "review of literature" in this dissertation is primarily devoted to three areas: 1) an attempt to describe creativity, mysteriously sub-titled "Social-Cultural Environment;" 2) a review of theories related to what motivates the artist, which also focus upon the constituents of creativity; and 3) a discussion of child-rearing practices among the lower and middle classes, without any reference to ethnic variants. No mention is made of other studies concerned with the examination of the aesthetic preferences of adults or children. The extensive work of Child at Yale or the many studies by other psychologists and anthropoligists cited in such widely read texts as McFee's *Preparation for Art*, are distinguished by their absence.

The most thorough review of related research occurs in Chapter II, Ethnic Subcultures. The three ethnic types examined are carefully described. They are Appalachian whites, Negroes, and Puerto Ricans, and the socio-cultural factors associated with them are reported. However, descriptions of behavior patterns related to how one functions in

a school setting, other than generalities such as low motivation for school, are not delineated. For example, the extensive work of Martin Deutsch concerned with carefully describing how the disadvantaged behave is not reported. And the widely distributed summary of art in compensatory education projects produced at the Center for Urban Studies of the University of Chicago is also absent from this review.

The chapter concludes without an adequate summary. No attempt is made to organize the content of the discussion in terms of how it specifically relates to examining the aesthetic preferences of Appalachian white, Negro, and Puerto Rican children. The author merely reiterates his belief "that a better understanding of the cultural heritage of a people will provide the necessary foundation for utilizing aspects of this heritage for a meaningful and relevant curriculum."

Research objectives and methodology. Chapter III, Design of the Study, is devoted to rationalizing the "exploratory" nature of the study, setting forth eight general questions to be answered, listing eight assumptions, and to describing the population sample and the *Aesthetic Preference Indicator* devised by the author to elicit responses from first graders and fifth through eighth graders.

The questions to be answered ranged from "Can a general (word omitted in text) of artistic preference be established within ethnic groupings?" to "Is their a decline in ethnocentric preference evidenced in comparison by grade levels?" Questions were primarily concerned with attempting to identify if differences in preferences were related to belonging to a particular ethnic group.

Assumptions included such statements as "The cultural heritage that the art student represents needs exploring and explaining." The following assumption provoked this reviewer to reflect upon its implications within the context of this study: "The subject of art should offer the student a vehicle for developing his selectivity, his preferences, and his individuality for problem solving." Does the author imply that teachers should identify student preferences and then attempt to reinforce them? Isn't the real value of understanding one's students, and their preferences, related to being in a better position to alter their views and expand their frame of reference?

The sample of students in this study was from an inner-city school in Detroit. Tables are provided which breakdown sex and ethnic differences for fifth through eighth grade pupils. No tables were presented for Primary 1-2 grades even though they were included in the survey; no explanation for this omission was provided by the author.

The instrument used to elicit responses to eighty slides, divided equally into eight groups, required pupils to rank each slide on a five point scale from "very good" to "very poor." The eight groups were established on the basis of what the researcher believes is their historic use "as tools for art instruction and the appreciation of art." The groupings of slides included: five utilitarian and five non-utilitarian objects; five non-representative and five representative subjects; five urban and five rural subjects; five slides emphasizing motion and five emphasizing non-motion; ten slides representative of Picasso's periods including cubism, symbolism, influences of primitive art, abstract expressionism, and neo-classicism; ten slides under the

heading "Spanish-Speaking" all of which were works by twentieth century Mexican artists; ten slides of African Sculpture; and ten slides under the heading of "urban-rural," as well as slides of works by Jasper Johns and Robert Henri.

No rationale was presented for the selection of particular slides. There were, however, general statements made in relation to each of the eight categories that contained many assertions none of which were footnoted.

Photographs representative of the slides used in each category were provided in the text. An examination of their formal and representational qualities occasion questions about the face validity of Stromayer's *Aesthetic-Preference Indicator*. For instance, can urban disadvantaged children be expected to identify a ceramic chess set as utilitarian? Or, wouldn't a painting of a Negro youth in a drug store bias a response in relation to a preference for "representative" versus "non-representative?" The examples provided for "motion-non-motion" also raise doubts about validity. An ice-skating scene is countered by a still-life painting. The subjects of these works would favor a bias toward the skating scene. But, because the still-life is dominated by a full-flowing drapery, it is, paradoxically, more active than the skating scene which contains horizontal and vertical elements that contribute to its strength and a sense of immobility. Since no reasons are provided for selecting particular response items and since no attempt was made to establish the reliability of their selection, one can only speculate about the bias behind their utilization.

Results and discussion. The results of this study are reported in Chapter IV, Analysis of Data

and Findings. Tables indicating the mean scores for the sample as a whole and as it was divided into ethnic and grade level groups are presented. While standard deviations and amount of variance are also presented, no test of significance is applied. It is, therefore, difficult to know the true magnitude of variations in pupil responses. The lack of such a test is ascribed to the "exploratory" nature of this study; the implication being that tests of significance are not required.

Because of the rather crude analyses of data and doubts occasioned by the questionable validity and reliability of response items, this reviewer has little confidence in the findings reported in this study. In the final chapter dealing with conclusions and recommendations, Stromayer reports that students showed a "marked" preference for functional as opposed to non-functional works and works that have "figures and forms that are readily identifiable or representative." They also preferred "motion" to "non-motion" and rural over urban scenes. These findings are hardly surprising; they simply confirm what any reasonably intelligent art educator would know empirically.

The implications and recommendations drawn from this study are described in its final nine pages. Here again many unsubstantiated assertions are included, and recommendations are made which have little relevance to either the findings of this study or its essential rationale. Most of them appear to reflect the general milieu of art education objectives and problems generated within urban school settings.

Reviewer's commentary. It can be readily inferred from the foregoing that this reviewer's

impressions of Stromayer's dissertation are non too favorable. His study points to the fact that pupils prefer that which is familiar; a preference established way back in 1934 by psychologist Margaret Bulley. If he had dealt with the issue of relevance--relating his review of the field to the concept of aesthetic preference instead of a rambling survey of symbolism and creativity, as well as relating findings, conclusions, and implications more coherently--Stromayer's study would have been much more valuable. Even if his findings are of limited value to the field of art education, a more rigorous and specific kind of investigation would be invaluable to his own development as an educator and researcher.

It is the effect of this type of study upon the doctoral candidate that troubles me the most. Because his advisors did not require a dissertation that epitomizes a thorough and systematic approach to research, the candidate is allowed to produce a document that is full of typographical errors (words and dates are omitted, lines are repeated, cataloging codes are inaccurate, etc.) and theorizing which fails to establish a relevant background to the study. In his dissertation, it appears that Stromayer has utilized materials gathered to investigate creativity, the nature of symbolism, social class structure, and various theories and styles of art, and then sandwiched within them a study of children's aesthetic preferences. The lack of specific relevance between and among these components is the most obvious shortcoming in this dissertation.

Stromayer is to be commended for attempting to deal with art education for disadvantaged urban minorities. Too few of his colleagues have turned

their attention to this very difficult problem. However, his dissertation committee should be taken to task for not providing the guidance required to develop the candidate's abilities to deal with the issues of validity, reliability, theoretical relevance, and consistency. Any study that does not attend to these variables can hardly be called research, regardless of the intentions or prestige of the principals involved.

If art educators do not develop transferrable research skills when they are in a doctoral program, when will they? Potential advanced degree candidates would be well advised to become involved only in programs that eventuage in transforming them from the loose-thinking perpetuators of "artsy-craftsy" education into the knowledgeable and discriminating professionals our field requires if it is to grow and prosper.

REVIEWER

RONALD H. SILVERMAN *Address:* California State University, Los Angeles, California *Title:* Professor of Art *Degrees:* M.A. Los Angeles State College; E.D. Stanford University *Specialization:* Art Education for the Disadvantaged/Inner City Schools

THE RELATIONSHIP OF CERTAIN SOCIO-CULTURAL AND COMMUNITY FACTORS AMONG SIXTH GRADE STUDENTS TO CREATIVITY IN ART

June F. Keenan
North Texas State University, 1970

The problem with which this investigation is concerned is that of determining the relationship between the sixth grade student's creativity in art and certain socio-cultural and community factors. These independent factors are the student's ethnic group membership, socio-economic group, maternal occupational status, church activity, and the size of the community in which the student lived. One chapter is concerned with the background and significance of these factors with regard to creativity in art. A questionnaire was used to gather the socio-cultural information. A battery of three tests was used to determine each child's creativity in art. The instruments used were the *Barron-Welsh Art Scale,* the *Paper Shapes,* and *Torrance's Test of Creative Thinking, Figural Form A.* The dependent variable in this study was a composite score of creativity derived from the scores of the individual tests.

The 340 students involved in this study were enrolled in the sixth grades of fourteen public elementary schools in North Texas and Central Texas during the 1968-1969 school year. The first part of the study examined the relationship of the major variables (community size, ethnic group membership, and socio-economic group membership) to the child's creativity in art. For this purpose a three-dimensional analysis of variance design was employed, using ninety subjects who were randomly selected from the available population of those who met the criteria variable requirements necessary. These subjects were equally divided with thirty in each ethnic group category, thirty in each community size category and forty-five in each socio-economic group. They were further divided into eighteen cells (each with five students) in order to study the relationship between any two possible groups. The second part of the study examined the relationship of the minor variables (church activity and maternal occupational status) to the child's creativity in art.

An analysis of the data revealed there was no significant difference in the creativity of the sixth grade student as a function of the size of the community in which he lived or his socio-economic group membership. There was no significant difference in the creativity of the three ethnic groups, Negro American, Latin American, and Anglo-American, as evidenced by the composite score of creativity and the scores of the *Paper Shapes* test and the *Barron-Welsh Art Scale,* Torrance's test indicated Anglo-American and Latin American students tended to have an advantage over Negro American students with regard to those factors (fluency, flexibility, originality, and elaboration) which this test purports to measure. No relationship was found to exist between the student's creativity in art and maternal occupational status or church activity.

REVIEWER: James Victoria
Michigan State University

Statement of the problem. The need for schooling to develop within individuals the ability to creatively solve problems is becoming an increasingly important task. The underlying premise of this investigation seems to be that "socio-cultural factors affect the child and are a real concern for the school, for the school operates within the influence of these factors." The researcher states:

> Only when it is known what socio-cultural factors are positively or negatively related to creative development, and to what extent and under what conditions, can a curriculum be planned which will prepare creative students capable of satisfactorily meeting new situations.

The assumption is that education could provide for supplementary desirable experiences that would not be available in the child's out-of-school cultural

milieu. Therefore, a determination of the relationship between the child's creativity in art and socio-cultural and community factors is attempted in this investigation. Specifically, the stated purposes of the study are:

1. To measure the selected sixth grade students' creativity in art.
2. To determine the relationship between the following factors and the degree of creativeness in art demonstrated by the subjects involved:

    A. ethnic group
    B. socio-economic group
    C. community size
    D. church activity
    E. maternal occupational status

Related research. An attempt is made to establish a theoretical basis for the study relative to: 1) the nature of creativity and intelligence; 2) conditions that foster creative development; and 3) the relationship of creativity to ethnology and socio-economic backgrounds. The researcher draws heavily on the investigations of Guilford, Torrance, Taylor, Getzels, Jackson, and Stein, as well as those of Lowenfeld, Beittel, and Burkhart in establishing the nature of creativity and its role in intelligence, art, and education. The studies of Torrance, Kirkpatrick, Simpson, and Wild are utilized to support the developmental aspects of creativity. Research cited indicates the frequency of creativity to be high for both males and females during the sixth grade. Thus, the researcher's determination to utilize a sample population drawn from sixth grades.

Concern as to why there should be a decline in

the creativity of elementary children is recognized. The literature cited suggests that declines are the results of peer group conformity, social pressures at particular stages of development, and environmental factors.

There has been little research concerning ethnic groups, particularly in relation to creativity in art. The researcher notes a study by Ford which finds Anglo-American students to be significantly more creative than Latin-American and Negro-American students, but finds no significant differences between Latin-American and Negro-American students. The literature suggests that "intelligence is an essential factor in creativity but apparently is not a significant factor beyond a certain point."

Haimowitz is cited as suggesting that marginality may be a precondition to creativity. The researcher indicates that "minority groups would more nearly represent marginality and would therefore be more creative, but such has not been shown to be the case."

Social class is the determinant for investigation of the literature relative to creativity and socio-economic background. Burton, Havighurst, Hollingshead, Taylor, and Torrance are the primary sources cited by the researcher. Evidence which has bearing on the study deals with attitudes, beliefs, and the behavior patterns through which these are expressed by the child. Home environments are regarded as external influences enhancing or hindering the development of those attributes found to be predictors of creativity. In addition, parental occupational status and education influence the child's social status; and child-rearing practice and responses differ from class to class

and culture to culture. The researcher summarizes that "evidence is sufficient to conclude one class fosters creative behavior and another does not. However, it does appear that the lower class child nurtures in an atmosphere which is not conducive to divergency or creative behavior."

Research objectives. In order to measure the creativity of the sample population three instruments of creativity were used. The basis for their selection was given as their apparent relationship to creativity in art, and their suitability for sixth grade students. The *Barron-Welsh Art Scale,* a psychological test, is based upon an individual's likes and dislikes and evidence indicates the preference for simplicity or complexity is not dependent upon level of training in art. *Torrance's Test of Creative Thinking, Figural Form A,* measures the student's ability to be original, to elaborate, to be flexible, and his fluency of ideas. The *Paper Shapes Test* by Ford was selected because it gives the opportunity to produce a creative product.

The researcher reports that in a cross validation study the *Barron-Welsh Art Scale* effectively differentiated with high reliability artists and non-artists; and scores on the art scale did not increase as a function of the level of training in art. This reason found the difference between artists and non-artists to be significant at the .01 level of significance. The scale correlated with originality ratings at the .02 level of significance.

It is further reported that *Torrance's Test of Creative Thinking, Figural Form A,* has been used in seven studies involving children to support the construct validity of the tests. Correlation

coefficients from these studies range from -.41 to .51. The negative correlation was made between attitudinal rigidity and the Torrance tests, supporting the rationale upon which these tests were constructed. A test-retest reliability coefficient of .88 has been reported for fifth grade students.

The third test used by the researcher, Ford's *Paper Shapes Test*, utilizes gummed and non-gummed colored paper shapes with which students are asked to create an imaginative design within a twenty-five minute period. Neither the reliability, validity, nor norms have been established for this test.

The relationship of sixth grade students creativity in art to socio-cultural and community factors was examined by the following hypotheses tested:

1. Regardless of the size of the community and ethnic membership, sixth grade children from the higher socio-economic group will reflect greater creativity in art than will Ss of the lower socio-economic group.

2. Sixth grade Anglo-American children in all communities and both socio-economic groups will evidence greater creativity in art than will students of the Negro-American or Latin-American groups.

3. Sixth grade children of all ethnic groups (Anglo-American, Negro-American, and Latin-American) residing in large cities will evidence greater creativity in art than will Ss residing in small cities or rural communities.

4. No significant relationship will be found between maternal occupational status and sixth grade student's creativity in art.

5. No significant relationship will be found between church activity and the student's creativity in art at the sixth grade level.

The researcher notes that studies related to hypotheses three, four, and five have been minimal and inconclusive. Relative to hypothesis three, Ford's *Paper Shapes Test* is cited as giving evidence that students from small cities are more creative than students from either rural communities or large cities. The researcher questions this conclusion based on the assumption that large cities offer many more cultural advantages which are readily available to students. Research relative to hypotheses four and five indicate no significant relationships exist at the elementary level.

Methodology. A total of 340 sixth grade students from fourteen public elementary schools in North and Central Texas were involved in the study. Of these, 54 were ineligible due to age, mental retardation, or incomplete scores. Ninety subjects were randomly selected from the population of those meeting criteria variable requirements, that is, 30 students each of Anglo-American, Negro-American and Latin-American ethnic groups. All available small city, higher socio-economic, Negro-Americans and all available rural community, higher socio-economic, Latin-Americans were used in the study. These students were used to test hypotheses one, two, and three. Thirty subjects came from each of three community categories: large city, small city, and rural community.

Forty-five subjects comprised the higher socio-economic group and forty-five comprised the lower socio-economic group. Maternal employment and church activity of the total number of Ss was categorized according to student response to a questionnaire.

Hypotheses one, two, and three were tested through the use of a three dimensional (2 x 3 x 3) analysis of variance. The three major variables and their principle conditions were: A. Socio-economic, distinguished as higher and lower; B. Ethnic Group, distinguished as Anglo-American, Negro-American, and Latin-American; C. Community Size, distinguished as large city, small city, and rural community. The F statistic was employed to determine if variation existed. Analysis of variance was applied to composite scores based on the measuring instruments for creativity. Duncan's New Multiple Range was used to indicate which factors were variant. Further analysis was made on the basis of the separate creativity instruments.

The second aspect of the study examined hypotheses four and five. The variables were: A. Maternal occupational status outside the home, distinguished on a four point continuum ranging from maternal unemployment to full time employment away from home; B. Church activity, distinguished as very active in church, moderately inactive in the church or inactive in any church. The variables were tested through the use of simple analysis of variance, i.e., the score of creativity in art for each creativity test, to determine their influence. When the F ratio was significant, Duncan's New Multiple Range was applied for comparison of mean differences.

Four socio-cultural factors were derived from the use of a questionnaire: ethnic group, socio-economic group, maternal occupational status, and church activity. The community factor population was derived from the *1968-1969 Texas Almanac*. The researcher used an application of Hollingshead's two factor index of Social Position in determining the socio-economic group of each student. Noting that Hollingshead's occupational scale was not diffinitive enough the researcher used Ford's variation of Hollingshead's scale employing the National Opinion Research Center (NORC) scale. This classified occupations into a continuum.

The five rural communities from which Ss were drawn ranged in size from 1,807 to 9,300 population and these communities were noticeably lacking in cultural opportunities. Ss were drawn from three small cities ranging in population from 26,100 to 43,900 and were characterized as offering more educational and cultural opportunities. The remaining Ss were drawn from two large cities with populations in excess of 165,000. The researcher notes that the students tested from the large city was predominately composed of one ethnic group. Fifty-two students were tested from large cities, 122 were from rural communities, and the remaining 166 were from small cities.

Results and discussion. To determine the rejection or acceptance of all hypotheses the .05 level of significance was applied by the researcher. Further, for the purpose of accepting or rejecting all hypotheses, a composite score of the three creativity tests was used. The researcher reports a high correlation coefficient (.9985)

which resulted when the composite score and the three independent test scores were subjected to analysis, indicating the composite score was representative.

Hypotheses one, two, and three were rejected. Hypothesis one predicted students from higher socio-economic groups would reflect greater creativity in art than those from the lower regardless of community size and ethnic group. Hypothesis two predicted Anglo-American children in all communities and both lower and higher socio-economic groups would evidence greater creativity in art than would Negro-American or Latin-American groups. Hypothesis three predicted students of the ethnic groups who lived in large cities would evidence greater creativity in art than those living in small cities or rural communities. The null hypothesis for both hypotheses four and five were retained, as there was no relationship between a student's creativity in art and his mother's occupational status or his creativity and church activity.

The researcher applied the results of each test of creativity used to each hypothesis. Analysis was applied to the data based on the scores of each of the three tests. Analysis of each individual test resulted in the unanimous rejection of hypotheses one and three, and the unanimous acceptance of null hypotheses four and five. The results of the *Barron-Welsh Art Scale*, the *Paper Shapes Test* scores, and the composite scores rejected hypothesis two. *Torrance's Test of Creative Thinking, Figural Form A*, accepted hypothesis two.

The researcher in stating the conclusions of

the study speculates "whether ethnic group membership is a factor in so far as creativity in art of sixth grade students is concerned is still open to question due to the discrepancy in the scores of the various instruments." The conclusion that *Torrance's Test of Creative Thinking, Figural Form A*, was more sensitive to differences between groups than were the other instruments used is also related to the conclusion that Anglo American students tended to be able to elaborate upon ideas and to be more flexible, fluent, and original in thought than were Negro-Americans or Latin-Americans.

Implications, as stated in the study, are limited for the most part in that they are generalizations that could be made about teacher practices relative to socio-cultural and community factors, and creativity in art without the benefit or the influence of this particular study.

The researcher recommends that the study be replicated with other groups to confirm or negate findings of the study; replication using the same hypotheses and tests on lower elementary level populations to determine whether the influence of these factors is constant in the elementary school; and to investigate socio-economic groups considering the cultural orientation of the home. Additional recommendations include study of the Latin-American and Negro-American childrens' interest in three-dimensional art work; and a study of larger groups having the same socio-cultural and community size controls as those found to be variant by Duncan's New Multiple Range to determine if variation does exist or if this variation occurred by change.

Reviewer's commentary. This study attempts to measure the relationship of certain socio-cultural and community factors among sixth grade students to creativity in art. Methodology relative to population sample, research design, and the collection and analysis of data seem appropriate for the study. However, a question as to the use of an instrument to measure creativity for which neither reliability nor validity has been established is raised. The reviewer also questions whether or not the study has much potential for improving on either theory or practice, particularly as it relates to strategies that might be projected for teachers in dealing with students comprising the socio-cultural backgrounds and residing in the type communities defined by the study.

Rather than replicating the Keenan study, it would seem that studies of socio-cultural and community factors designed to examine S's creativity in art relative to the particular nature of sub-culture values and socialization behaviors of the S's family group, and the patterns of behavior influencing the Ss in the process of their schooling would be a more fruitful avenue of investigation. It may be assumed that certain of the ethnic groups investigated in the Keenan study may be more closely tied to a 'traditional' sub-cultural identity with art than other groups, and that the degree of identification may be influenced by socio-cultural and community size factors as defined by the Keenan study. Further, if an investigation of this nature were able to identify sub-cultural influences that characterized the S's perceptions of art and art behaviors, it may well be that the data resulting from creativity tests could be examined with more meaning, particularly for

projecting strategies for teaching art in the schools.

REVIEWER

JAMES VICTORIA *Address:* Michigan State University East Lansing, Michigan *Title:* Coordinator, Art Education Programs *Degrees:* M.S. Florida State University; Ph.D. Pennsylvania State University *Specialization:* Nonverbal Interaction Behaviors--Teaching Strategies

ART STYLE PREFERENCE RELATIONSHIPS TO PERSONOLOGICAL AND SOCIOLOGICAL VARIABLES

Aino Jarvesoo
University of Massachusetts, 1971

An understanding of aesthetic preference relationships to certain personological and sociological variables is fundamental to educators concerned with reducing the gap of understanding that exists between the contemporary artists and the lay public. Questions arise: What are the determining variables behind the laymen's different aesthetic preferences? Do such variables as sex, age, education, size of community, style of home, social class, and some other common personological and sociological variables influence man's art preferences? If so, what are the relative weights of these variables? How do they function together in aesthetic choice-making?

Independent variables. Fourteen quantifiable personological and sociological variables were selected for study. These were: (1) sex, (2) size of community where formative years were spent, (3) size of present community, (4) years of education, (5) years of art education, (6) number of college art courses, (7) number of art history courses, (8) number of art appreciation courses, (9) relative age of respondent's home style, (10) age of respondent's home, (11) relative age of respondent's preferred home style, (12) number of times respondent had moved, (13) Warner's Index of Social Characteristics value, and (14) age of respondent.

Dependent variables were: art style preferences within three categories of art—landscape paintings, period chairs, and decorative textiles. From each art category, fifteen pictures, representing period styles from 1770 to 1970, were selected for the preference tests.

Hypotheses

A *general assumption* underlying this study postulated that individual tastes, which are complex and influenced by more than one variable, can be empirically analyzed and that the relative weights of these taste-influencing variables can be estimated.

Hypothesis #1: Individual aesthetic style preferences in various art categories are related; i.e., statistically speaking, they correlate positively and significantly differently from zero.

Hypothesis #2: The art preferences of individuals with more schooling have broader scope in style preferences than of those with less schooling.

Hypothesis #3: Individual's age and historical style preferences are positively correlated.

Hypothesis #4: Preferences in visual arts are influenced by the contexts into which the chosen items are to be fitted.

Research Procedure

Data were collected in personal interviews from a sample of 198 randomly selected individuals. The sample was stratified by sex, age, and community size. Stepwise multiple regression model and various other statistical tests were used to analyze the data and to examine the validity of general assumptions and hypotheses.

Findings

General assumption. The fourteen independent variables studied explained the variations in the dependent variables (26 percent in landscape paintings, 42 percent in period chairs, and 41 percent in decorative textiles). The contributions of the individual independent variables to the predictive capacities of the multiple regression equations varied from one dependent variable to another. Among the fourteen independent variables, only the respondent's age made consistently statistically significant contributions In selecting art objects the respondent's age accounted for 21.7, 22.1, and 31.1 percent of the variations in these selections. The five education variables (4-8) investigated did not affect the variations of aesthetic choices in any consistent way.

Hypothesis #1 was accepted. Individual historic style preferences correlated among themselves positively and highly significantly. At 196 d.f., $r = 0.343$, 0.362, and 0.483 for the three-test series.

Hypothesis #2 was tested by calculating F-ratios between the standard deviations of various educational groups. The hypothesis was rejected. Variability of art style preferences of the sample respondents was not dependent upon the number of years of their education.

Hypothesis #3 was accepted. Older respondents tended to prefer older styles while younger subjects revealed tastes for newer creations in art.

Hypothesis #4—in most cases the historic style preferences in the three visual art categories were not influenced by the age or style of the respondent's present home or by his preferred home style. But individuals inclined to select such styles from alternatives within their home decors. Decision about accepting the hypothesis was reserved.

The respondents' mean preferences for landscapes identified styles popular in the 1850's. For chairs the preference mean represented the styles of *ca.* 1870, and for decorative textiles the mean choice aimed at styles of 1860.

REVIEWER: Pavel Machotka.
University of California, Santa Cruz

Research objectives. This dissertation presents four hypotheses:

1) Individual preferences among historical styles of different art objects are intercorrelated;
2) Art preferences of individuals with more schooling are broader than those of individuals with less schooling;
3) Older people prefer older styles;
4) Preferences for art objects are influenced by the context into which they can be fitted.

Methodology. The author constructs three tests of preference with the help of experts, each consisting of fifteen items: landscape paintings, period chairs, and decorative textiles. He administers these tests to a very systematically selected sample (N = 198) of residents of several New England communities, and gathers some additional relevant demographic data. He then intercorrelates the art preferences, and correlates the demographic data with the art preferences, in order to provide data in support of his hypotheses.

Results and discussion. The results permit the following conclusions:

1) First choices among the three categories of art objects do indeed intercorrelate highly (between .34 and .48), while second choices and last choices correlate less highly.

2) Contrary to hypothesis, increasing education does not lead to greater variability in art style preference.

3) Older respondents do indeed prefer the older styles; for every ten years of age, mean preference among landscapes goes 13-14 years back into history.

4) Preference for period chairs is influenced by the respondents' preferred home style; other preferences are only marginally related to actual or preferred home styles. But individuals for the most part see the aesthetic choices they had made as highly appropriate for their homes.

In discussing the implications of his study the author notes the basically conservative nature of the tastes of most of his respondents. (Their tastes are placed on the average in the 1850s). He argues that part of the problem lies in the inattention given to modern art in most art appreciation courses; because it comes last in sequence modern art is sometimes overlooked. He suggests that art history and art appreciation be taught in reverse order--a suggestion which seems to me cogent. He suggests further that contemporary art appreciation programs should be designed for continuing education, that is, beyond the years of formal schooling; again, the suggestion seems justified. He also argues that preference for

the traditional has an inhibiting effect on progress; this I find questionable, in view of the fact that the upper classes seem numerous enough and sufficiently wealthy to support extremely rapid changes in aesthetic styles.

Reviewer commentary. My impression of this dissertation is that it has three fundamental strengths. I like the use of regression equations to relate independent variables to dependent variables; I like their use even though it gives mostly negative results, i.e., that it finds only one out of fourteen independent variables (respondent's age) consistently related to taste. It seems to me that with independent variables carefully chosen for their potential relevance to taste, regression equations could give us quite an exact picture of the relative importance of the many determinants of taste. Another strength is the author's extremely careful sampling technique; he avoided the too easy use of college students as Ss, and chose a carefully stratified sample from a large number of communities. Consequently, he obtained an excellent distribution of age, sex, social status, and education. If one is going to study the distribution of taste in the population at large, it seems to be indispensable to do careful sampling, the author's methods may have been almost too precise, but they are a good model to approach. (The disadvantage of such sampling is that variables which are fairly highly correlated with those which had been used as the basis of sampling lose their distinctness altogether; thus if one wished to study personality as a determinant of taste, for example, one would do best to eliminate the influence of the other variables as much as possible.) The third strength of this study lies in its findings that age is so consistently related to preference among all three

classes of art objects. Having found this, one can ask further questions: Do people tend to choose art objects which were modern when they were children? Or do they choose art objects which they believe reflect the then modern tastes of their parents' generation? Or do Ss become more conservative in their tastes as they grow older? My bias is that of a psychologist, of course, so I tend to favor questions such as these, and I should not criticize the author for not suggesting that further research proceed along these lines. But the author's suggestion that more complex regression analyses on more representative samples be used seems to me highly unpromising. On the contrary, selected focus on a few variables would be much more appropriate.

Having said this, I must however also make clear my disappointment with the study as a whole. First, it seems to me to represent a case of methodological overkill. Here I do not blame the author; I think he was responding to his best understanding of what his dissertation committee required. Thus the dissertation takes about 180 pages to present its material--that is unnecessarily long; it gets bogged down in decimal points (the mean value of first choice landscape paintings is reported to be 5.97980 -- meaningless precision for taste going back to the 1850s). Many variables are studied and incorporated in regression equations for which no theoretical provision had been made at all in the starting hypotheses. I think that dissertation committees are entirely at fault if a thesis becomes mired in methodological and other details to the detriment of critical distance from the data. If this had been an independent study, one could take the author to task for apparently

hiding behind numbers in order to obscure theoretical irrelevance; but because this dissertation was directed, one suspects that the dissertation committee was not sufficiently acquainted with the problems in the field to help the author achieve sharper theoretical focus, or that their supervision was perfunctory.

Second, nowhere is theoretical diffusion more evident than in the author's review of relevant literature, and in his unawareness that his results, once obtained, could have been related to the literature he had originally reviewed. None of the studies reviewed are presented as theoretically relevant to the purposes of the dissertation; there are points in some of them which could have been made relevant, but the author has not picked them up. To someone not familiar with the studies reviewed, the reviews are so brief as to be almost bereft of content; what is worse, some of the conclusions from the reviews are the opposite of what the facts require. (As an example, I would cite the "conclusion" that expert opinions cannot be considered as a measure of goodness of art; it is true that two studies support this conclusion, but they are poorly conceived in comparison with the several studies which show that expert judgment can be highly reliable and useable as the basis of further, extremely interesting studies.) Writers of dissertations are often made to believe that their review of literature must be voluminous; I sympathize with the plight of this author, and wish to suggest that in the case of pointless reviews of literature dissertation supervision must have been either careless or uninformed.

My plea then is for brevity, theoretical relevance, and a sense of perspective--qualities for which

dissertation committees must set standards. If one is going to summarize the research of Eysenck, Pickford, of Dewar, as the author does, one should juxtapose them with one's own findings. One should ask, for example, what are the implications of the conservatism discovered in this study for Eysenck's argument that the best estimate of the "true order" of merit of works of art is actual ranking by a particular sample? Is this conservative taste the "true order" of merit of these works of art? If one is going to ignore these questions, there is no point in citing these studies.

My criticism of this dissertation is not aimed principally at its author; the author is in fact quite modest about his results. My points are that the literature reviewed could have been made relevant to the purposes of this study, that the study could have focused on more interesting questions related to its main findings (concerning taste and age), and that, if this had been done, the result would have resembled less a brick on a brick pile than a brick as part of an edifice.

REVIEWER

PAVEL MACHOTKA *Address:* University of California, Santa Cruz, California *Title:* Associate Professor of Psychology *Degrees:* B.A. University of Chicago; M.A., Ph.D. Harvard University *Specialization:* Psychology of Esthetics

A REVIEW OF AESTHETIC PERCEPTION AND THE SKILLS OF CRITICISM OF THE VISUAL ARTS

H. M. Parramore
The University of Florida, 1970

The purpose of this study was to develop, demonstrate, and measure the effectiveness of a method for teaching aesthetic perception and the ability to verbalize the aesthetic experience to students with little or no previous training in art. Development of the method was based on the elements of art, the process of criticism, and selected learning theory. The method was demonstrated in a class of elementary education students registered for Art in The Elementary School. The effectiveness of the method was measured by rating essays written in response to a drawing and comparing a random selection of 16 students from the trained group with a random selection of 16 students from untrained sections of the same course. Six questions were answered by comparison of the results of scoring by a panel of five judges who were experts in art and humanities, and by a content analysis which determined both the kinds of items and the number of items mentioned in the essays. Ratings were on aesthetic sensitivity, skill of criticism, clarity of language, and overall quality. Content analysis determined questions on the amount of aesthetic perception, and influence of the method on perception. Judges' ratings were subjected to an analysis of variance to determine reliability of judges' ratings, and to a Mann-Whitney U Test to compare the performance of the trained and untrained subjects. Results indicated significant differences in favor of the trained group on every question except for clarity of language, where there was no statistically significant difference.

REVIEWER: Ronald W. Neperud
University of Wisconsin, Madison

Statement of the problem. This study was designed to measure the effectiveness of a method of teaching aesthetic sensitivity and the skills of criticism to preservice education students. Presumably, its purpose was finding ways "to improve and increase the visual perception of preservice education students for art objects, and to develop their ability to verbalize the experiences intelligently and sensitively." The phrase, "increase visual perception," seems to set a rather arbitrary approach to the study. This is borne out in the related literature.

Related research. The related research is divided into three parts: 1) problems and directions in art education today; 2) aesthetics and criticism; and 3) structure in art education programs. The author draws from such diverse approaches as authored by Kaelin, Arnheim, Irving Kaufman, and from various and assorted dissertations to document the neglect of aesthetic education and the need for "more em-

phasis on aesthetic participation with art." Less than five pages is devoted to discussion of aesthetics and criticism, although it is the principal focus of the study, and then it consists of separate discrete paragraphs of a group ranging from Dewey to Norman C. Meier. The author neither draws conclusions nor points to relationships among material quoted other than by way of introduction in which she notes, "the terminology varied so much from critic to critic that the agreement was not readily apparent." The very brief review of structure in art education programs, ranging from various dissertations to Stephen Pepper and Gotshalk, is in no manner integrated, nor are any conclusions drawn from the related literature other than of the most general nature.

No theoretical foundations have been developed from the literature upon which to base the study, most certainly not with respect to a notion of what aesthetics and aesthetic perception might be. The generalized definition of terms reflect no theoretical position, and exist, in effect, separate from even the eclecticism reflected in the review of literature. Although, numerous references are made to perception and aesthetic perception, these terms are not included in the definition of terms. There is little evidence that the rationale for the study is related to studies most nearly approaching the current one. There is the distinct feeling that literature is chosen solely as supportive of pre-existing notions and that consensus establishes direction for whatever the concern may be--perception, aesthetics, criticism.

Research objectives. The principal objectives of

the study being "ways to improve and increase the visual perception of preservice education students for art objects, and to develop their ability to verbalize the experiences intelligently and sensitively." These questions were raised:

1) Would it be possible to organize the problems of visual perception of art objects and the skills of criticism so that the material could be taught to students within the framework of already existing courses in art education?

2) Would it be possible to express the aesthetic experience coherently and lucidly within a predetermined structure without tailoring the experience to meet the needs of the structure?

3) Would a controlled analysis tend to minimize the aesthetic experience itself?

4) Would the aesthetic sensitivity of students who have been taught by this method be greater than the aesthetic sensitivity of students who had not had the training?

5) Would the skills of criticism of students who had this training be better than the skills of students who had not had the training?

6) Would students who had this training be able to communicate visual aesthetic experience with greater clarity of language than students who had not had the training?

No hypotheses are raised which is understandable in terms of the lack of the theoretical grounding of the problem. It will be noted that the questions are all of an either-or type with no accounting

for the manipulation of variable strength. The questions are as sweeping in conception of aesthetic experience, aesthetic sensitivity, and visual perception as is the problem.

Methodology. One of the more integrated efforts in this study is found in the instructional approach. Three points form the bases for development of course content and procedures: "1) the existence of elements which are identifiable and common to all the visual arts, 2) a concensus among many art critics and artists of a logic in the critical process, and 3) the belief that aesthetic perception is learned and therefore can be taught by application of appropriate learning theory." The author's view of teaching is based upon these elements from B. Othanel Smith's *The Logic in Teaching in the Arts:* 1) a set of rules or criteria for judging; 2) a set of facts; and 3) a judgment of how well the facts satisfy the criteria or standards. Knowledge about the process of criticism and the elements of art are considered the rule and standards, the work of art under consideration is the set of facts, and the judgment is the role of the viewer or student. Robert Gagne's *The Condition of Learning* provides the additional reference to learning theory from which principle learning and problem solving are likened to criticism of a work of art. The elements of art are defined as "the facts, or the building blocks, from which all the visual arts are made," a simplistic view; and criticism is the classical view consisting of description, formal analysis, interpretation, and evaluation. There is, it seems to me, a major flaw in the author's conceptualization of the instructional approach. There is an inconsistency in equating "knowledge about the

process of criticism and the elements of art," with "a set of rules or criteria for judging." Knowledge about the process of criticism and the elements of art, particularly as developed by the author, may lead to perception of additional elements, but this does not necessarily constitute, nor lead to the development of, judgmental criteria or a means of placing elements in value relationships. If this is so, then, at best, any development of critical skills would be of a descriptive rather than a judgmental nature.

Upon this base, then, the author formulates the experiment on a posttest - only control group design. Ss consisted of elementary education majors enrolled in two sections of an art in the elementary school course. A third section was formed from an arbitrary split from the other sections. Sixteen students were randomly selected from the third section to form the experimental group and sixteen from the other sections to form the control. The investigator instructed the experimental group; it was not indicated who the other instructors were or the nature of their instruction during the experiment. The design leaves much to be desired in terms of number, description, selection of subjects, instructional bias, controls, and so on.

"Facts and information about the elements of art and the principles of criticism" were presented in lectures along with a demonstration of the process (1 1/2 hours each) during the first three weeks of the experiment. The next six weeks consisted of critiques presented by class members followed by a discussion. The instructor participated by offering additional information, corrected misused terms, questioned students to stimulate recall of

information and principles, presumably basing this on the reference to Gagne's ideas.

The posttest consisted of an essay in which students were to express as completely as possible their individual reactions to a drawing, an Indian miniature brush drawing, chosen by a panel of judges. They were asked to write "the most thoughtful and complete reaction" they could. The word criticism was used in the instructions to the experimental group but not the control. Why this difference should be entered in the instructions to the experimental group is not clearly understood other than that "these students were familiar with the term used in the course." The essays were evaluated as to: 1) evidence of aesthetic perception, skills of criticism, clarity of language, and an overall impression of quality along a scale of poor, fair, and good, scored one to three by a panel of three art professors and two humanities professors, 2) each distinct facet or relationship of the art object, thirty-two in all ranging from "mat" and "frame" to "artist's intention" by three graduate art education students, including the investigator. The panel of five judges participated in a training session until "they felt that they had reached some mutual agreement about quality and rating;" unfortunately, nothing was reported as to the meaning of each evaluative category, nor were the instructions to the judges included. My most distinct impressions in reading the sample essays was the drab descriptions of the experimental essays contrasted to a rather lively and involved tone of the control essays, suggesting that, in some respects, the "controls" were more deeply involved in criticism than the experimental group.

Statistical treatment consisted of an analysis of variance as an indicator of agreement among judges reported as an "average agreement." Unfortunately, nothing is reported to indicate reliability over time. The Mann-Whitney U Test was used in testing significance of differences between scores of groups. The results of the content analysis was handled by a comparison of averaged numbers.

Results and discussion. A significant difference was found between the experimental and control group on aesthetic perception at the .02 level. From this, the conclusion was drawn that "the experimental group appeared to have more aesthetic perception than the control group." How one can have more aesthetic perception is incomprehensible. Even if one were to accept the idea of aesthetic perception as measurable in discrete amounts as this usage implies, the author has not substantiated her own claim. For, the use of aesthetic is in no way anchored in a manner allowing "more than" assertions. The validity of written reports as indices of aesthetic perception was not established; in fact, what the judges construed aesthetic perception to be is anyone's guess. Thus, to conclude that "more aesthetic perception" was an outcome of this study does some injustice to art education research.

In most instances, the lack of even face validity of the assessment approach casts the other findings and conclusions in shadows of doubt. This is particularly noticeable in the analysis of the content analysis data. On the basis of the inclusion of more items in the essays of the experimental group, an average of 21.5 as against 6.9 for the control, the investigator concludes "... the method under investigation does not tend to

inhibit or minimize the aesthetic experience, but rather, indications are that the method promotes aesthetic visual perception." Now, on what items does the experimental group exceed the control--size, mat, frame, ground, brush drawing, 18th Century, etc. Since when do these items have face validity in assessing aesthetic visual perception? The conclusion that "the skills of criticism of the trained group were judged to be superior to the skills of the untrained group" is also doubtful but perhaps less so since items in the essay may be indicative of at least the descriptive phase of the critical process. Also, the conclusion that the experimental group was not able to express the aesthetic experience with greater clarity of language than the control group is doubtful since one is left wondering what precisely "clarity of language" might be. It may seem a bit more reasonable to accept the conclusion that "the skills of criticism of the trained group were judged to be superior to the skills of the untrained group" if one is willing to accept criticism as essentially descriptive. No provision was made for a differential assessment of even the gross parts of the critical process as identified by the investigator--description, analysis, interpretation, and evaluation.

Some rather curious psychological assertions are found in the discussion of the results, such as to the students who "tend to cling to the 'safety' of the phase" (description), or as a "reassuring activity." But perhaps, the most curious are the following which appear to betray a certain naivete: "The second reason for extended description was that the object itself was so foreign to the students that it was very difficult for

them to grasp aesthetically..." "The foreign origin of the drawing left most students without any personal information with which to develop the interpretive phase." At this point a reexamination of the instructional and assessment approaches might be more profitable than psychological rationalizations.

Reviewer's commentary. Some of the reviewer's comments are already apparent. As has been discerned by now, some major weaknesses are apparent in the study, particularly in conceptualization of the problem and in methodology including the approach to assessment. Unless a study is carefully developed within the context of theory, and unless it is firmly documented in behavioral terms how can it contribute to either theory or practice? In this respect, the investigator's definitions are arbitrary and often detached from the problem at hand. This does not deny the study's value, for any effort that raises the level of a teacher's enthusiasm and competency, as this must have done, is not without value. Some teachers continue their development in studio activities; other devise new instructional approaches. To the extent that such efforts have improved the teaching of art, the study has individual worth. Such are, no doubt, the circumstances surrounding this effort.

However, this study raises some questions about the need to formalize such studies whether for the sake of degrees or publication; for studies which may be of considerable worth to one teacher's process of development may not meet the needs of another. Thus, unless research is carefully conceived and executed in a manner that ties it to the broader scheme of things, the value of the study is most

doubtful except for the individual's continued development.

REVIEWER

RONALD W. NEPERUD *Address:* University of Wisconsin, Madison, Wisconsin *Title:* Professor of Art *Degrees:* M.A. Wilamette University; D.Ed. University of Oregon *Specialization:* Structure of Meaning in the Visual Arts

A STUDY OF MEANING AND ARCHITECTURE

Robert G. Hershberger
University of Pennsylvania, 1969

This study consisted of (1) a theoretical investigation of the nature, characteristics, and importance of meaning as it relates to architecture, and (2) an experimental study designed to determine the amount of agreement in the connotative meanings attributed to buildings by architects and laymen --to determine if the physical attributes of buildings constitute a "code" capable of communicating an architect's "intentions" to the users of his buildings. It was also designed to test the hypothesis that the areas of disagreement, if any, would be attributable to the professional education of the architects.

In the theoretical study several models of meaning were reviewed and a model applicable to architecture was postulated. In addition, five basic types and several levels of meaning were isolated and described.

The experiment utilized three groups of twenty-six students each from the University of Pennsylvania as respondents: (1) the graduating thesis students in architecture, (2) a group of pre-architects, and (3) a random sample of non-architects. It also utilized a group of twenty-one architectural students from Drexel Institute of Technology. The "semantic differential" was used to obtain judgements of connotative meaning, each respondent judging the meaning of twenty-five building aspects (represented by colored slides) on thirty semantic scales.

The judgements for each respondent group and each aspect group were factor analyzed separately utilizing the principal factor method with both varimax and oblique rotations. A least-squares approximation procedure was used to compare the factor structures. Comparisons of "meaningfulness," "homogeneity of judgements," and "distance between concepts" were made utilizing the Mann-Whitney U-test and the Wilcoxon matched-pairs signed-ranks test. Comparisons between the judgements of the four respondent groups on individual buildings were made utilizing analysis of variance and Duncan multiple range tests.

The results of the analyses indicated that three independent (orthogonal) factors were operating for each group: (1) spaciousness, (2) organization, and (3) potency. In addition, there were two important, but dependent (non-orthogonal), factors operating for each group: (1) pleasantness, and (2) novelty-excitement. It is primarily in the magnitude of these dependent factors and their loadings with the independent factors that the principal group and aspect differences were found. The experimental hypothesis was generally supported by the comparisons, the judgements of the pre-architects tending to be quite similar to those of the non-architects. Although the same factors operated in all groups, the different dispositions of the dependent factors and a high number of significant differences between the architects and non-architects on specific judgements left doubt as to whether the architects would be able to utilize their buildings effectively to communicate their "intentions" to laymen.

REVIEWER: Robert C. Clements
University of Georgia

In the School of Arts and Sciences and the Institute for Environmental Studies at the University of Pennsylvania, Robert Hershberger wrote his Ph.D. dissertation in Architecture. The advisor was Dean G. Holmes Perkins. The author was assisted in the design, formulation, and interpretation of the experiment by a man known for his work in the development of the semantic differential, Percy Tannenbaum.

The two parts of *A Study of Meaning and Architecture* are rather unrelated. Philosophic meaning and a taxonomy of architectural meaning are discussed in the first sixty pages. The following 240 pages comprise a factor analytic study of architects' and laymens' responses to slides of architecture.

The philosophical discussion is based on the writings of Morris, Langer, Whitehead, Ogden and Richards, and Osgood, Suci, and Tannenbaum. Meaning is discussed as it relates to perception, feelings,

communication, signs and symbols, stimulus response theory, and the semantic differential. Unfortunately, the author does not relate this broad coverage to the specific findings of the experiment.

The discussions of semantic theory have only remotely been related to architectural response, and the lengthy discussion of stimulus-response theory seemed out of place.

The review of related literature shows an attempt to relate broad concepts from philosophy, linguistics, communication theory, aesthetics, perception, and statistical method to architectural meaning. However, the most pertinent literature has not been examined. Empirical research in aesthetics, appreciation, judgment, preference, and education in the arts has almost completely been overlooked. No reference is made to the work of Burt, Valentine, Child, Beittel, Bullough, Guilford, or Eysenck. In his conclusion he briefly refers to two other factor analytic studies in architecture, but to have been unaware of the factor analytic studies of aesthetic preference response in related art forms, several of which have used test instruments similar to the polar scales of the semantic differential, seems to be a major oversight.

In discussing types of architectural meaning, Hershberger discusses several kinds of meaning. Among these are the following: Affective meaning "...we see a magnificent columned building and discover it is a dime store. We are both let down and annoyed." Evaluative meaning "...is the form which excites us appropriate in light of the building's purpose?" Prescriptive meaning "...its

value depends on whether we share the value of the society (from which it was erected)." Expressive meaning "...the personality and attitudes of the designer seem to fall appropriately into the connotative classification."

However, after giving over much of his philosophic discourse to these types of meaning related to a building's purpose and function, its embodiment of the spirit of the age in which it was created, and the architect's personality, the author then leaves them out of his experiment.

He tells us that the study will focus only on the connotative meanings. In part this came about because his judges inadvertently were misdirected to strike out word pairs descriptive of the physical attributes of the building. Had he included some scales such as new-old, much stone-little stone, (brick, steel, wood, glass), rectilinear-curvilinear, and suited to purpose-unsuited to purpose, the relation of such scales to the connotative aspects would have been more helpful to architects.

His panel of seven Ph.D. architecture students arrived at thirty scales. Among these are: (whether the respondent thinks the slide of the building shown is) good-bad; rational-intuitive; rugged-deliberate; exciting-calming; and spacious-confined.

A range of styles and ages were represented in the slides of buildings selected. Most of the buildings were from the University of Pennsylvania campus, in order that respondents might have personally experienced them. A few others, such as Buckminster Fuller's American Pavilion at the

World's Fair, were of international fame. However, all of the buildings, judging from the xeroxed photos, appeared to be rather good, and visually interesting architectural pieces. There were no examples of ugly factories, bland apartment houses, or atrocious hamburger drive-ins. Thus, it seems that the discrimination was forced between good and fair architecture, rather than between good and bad architecture. Quite possibly the study would have found more agreement between laymens' and architects' preferences if some obviously bad examples had been included. "Over half of the judgments of architects and laymen were significantly different and half of these were in opposite directions! Approximately thirty percent of the time Penn architects judged a building as good, pleasing, beautiful, interesting, unique; the non-architects judged it as bad, annoying, ugly, boring, and common."

Four groups responded to the slides. They were: graduating University of Pennsylvania architects, average age twenty-five years; pre-architects at the University of Pennsylvania, average age nineteen years; Drexel University architecture students, average age twenty-eight years; and non-architecture University of Pennsylvania students, average age twenty-four years, often referred to in the study as laymen.

However, in a study in which the major conclusions deal with the contrast of laymens' and architects' preferences, it would seem desirable to actually have a randomly selected group of laymen. Most laymen are not university educated, nor do they represent the culturally select group which attends the University of Pennsylvania.

As one would expect, the Pennsylvania and Drexel architects' judgments were similar, and more homogenous than the pre-architects' judgments. The pre-architects' judgments were, in turn, more homogeneous than those of the laymen. Pre-architects' and laymens' affective-evaluative judgments were more influenced by mere largeness and spaciousness. On the other hand, sophisticated architects, i.e., professionally educated, placed more value on a building's rugged powerfulness, or "potency", to use the author's term.

The factor analytic technique, employing orthogonal and non-orthogonal rotations, found two types of factors. The factors that were independent (or orthogonal) related to the architectural appearance of the building--its spaciousness, rugged powerfulness, and organization. The factors that were dependent (or non-orthogonal) related to a building's affective-evaluative qualities, its pleasantness or aesthetic quality, and its novelty and excitement.

In my opinion his first factor should not be called just Pleasantness as he titled it, but rather Aesthetic Quality. Had he been familiar with other factor analytic studies in the arts this would have been clear. Also he would not have confused his Novelty-Excitement with his Aesthetic category labels. The Novelty-Excitement factor in architecture probably parallels a similar Novelty or Ideational Openness factor found in other art preference studies and might even relate to the Harshness factor found in olfactory preference studies or the Brightness factor found in color preference studies. Architects and laymen were able to agree on a building's ruggedness, powerfulness, and spaciousness. Less agreement was found regarding a

building's organization. Perhaps this was because the Organization factor contained several scales which, although closely related, could be interpreted differently. These scales were controlled, considered, ordered, rational, and straight-forward.

However, the main differences between architects' and laymens' judgments were on the affective-evaluative factors. Forms which architects found exciting and good were often not found to be so by laymen. Architects were excited by exteriors judged powerful, rugged, and permanent. Laymen were less excited by the powerfulness of an exterior and more excited by its mere spaciousness. Separate results are given for building's entrances, interiors, and exteriors. Data is also included on each group's responses for each factor to each of the specific buildings. This information could be especially useful in predictions and further studies of laymens' and architects' responses.

Hershberger chose an important problem, and the study is carefully written. The statistical treatment in which he was assisted by Sagi and Tannenbaum was most carefully executed and should serve as a model for other investigations. The University of Pennsylvania is to be commended for its program in this important area, and Hershberger for an ambitious study well carried out.

REVIEWER

ROBERT D. CLEMENTS *Address:* University of Georgia, Athens, Georgia *Title:* Associate Professor of Art *Degrees:* M.A., Ph.D. Pennsylvania State University *Specialization:* Environmental Psychology and Education

ART EDUCATION AND EKISTICS: A SYNTHESIS OF AESTHETICS AND SOCIAL CONCEPTS IN THE SHAPING OF ENVIRONMENT

Amalia Cecile Pearlman
New York University, 1970

This dissertation investigates the relationship between aesthetics and concepts of the social studies viewed as dynamic process. It makes a synthesis of aesthetic and social concepts with city planning principles and relates this synthesis to developmental drives in children, to make a broad basis for curriculum in art education in the field of ekistics, the design of human settlements. A ten lesson working curriculum for art classes on the eighth grade level is drawn from the basis of the mutually reinforcing disciplines and demonstrated under controlled experimental conditions using the technique of analysis of covariance to equate three groups of subjects.

Measurements of the difference in perception of urban stimuli between the experimental group and the control groups indicate a significant difference at the .01 level of confidence as evidenced by terminal drawings in response to a tachistoscopic presentation of urban stimuli at subliminal speeds.

The hypotheses of the study, which are that the group exposed to the experimental effect of the demonstrated curriculum unit in ekistics will show a greater ability to relate form and function in urban design, and will also evidence the ability to defend their urban redevelopment solutions to an identical final problem with broader reference to aesthetic, social and planning principles than the control groups, are upheld by a jury consisting of an art educator, an architect, and an urban planner.

The underlying synthesis which forms the basis of the demonstrated eighth grade curriculum is equally capable of application to other grade levels in the form of new curriculum which can be composed by art teachers at various levels from kindergarten through grade twelve, utilizing the particular abilities and needs of their various classes in conjunction with the concepts of aesthetics, social studies, and planning described in the dissertation.

Another application of the study lies in its interdisciplinary application, since the visual and tactile methods of the art class also express principles basic to history, geography and economics, and yet are within the reach of students who may not have good reading skills.

REVIEWER: H. James Marshall
University of Illinois, Urbana

This thesis represents a rather formidable effort to provide the background and rationale by which an art education curriculum based on knowledge of environmental design and the development of human settlements can be utilized early in the educational program of young students. The argument which the investigator builds for visual and environmental education during the formative age is (purportedly) drawn from a broad range of disciplines, extracting concepts from the areas of revised social studies, art theory, urban design and planning principles, art education, and developmental drives in children. "These five areas provided the common denominator of the concept of continuous change."(1) The conglomerate of ideas and concepts were synthesized in order to develop a curriculum which could be experimentally demonstrated at the eighth grade level. Using an experimental group and two control groups, the curriculum unit was adapted to an existing school situation in New York City and was applied through a series of

field experiences, visual design activities, and model constructions. Three measurement and evaluative instruments were administered which revealed that the curriculum implemented produced a significant difference in the quality of performance by the experimental group as compared to the performance of the control groups.

Judging by the current controversy and great attention to the state of American urbanization and the multitudiness forms of environmental pollution, the topic of this research is popular. Consequently, it does not appear that one would find much argument, especially among educators, in opposition to a viewpoint which supports developing concepts about human ecology throughout the education of youths as well as that of adults. Thus, the study is timely and may be of particular interest to those who are seeking information about possible solutions or approaches to building curriculum for environmental studies which will most directly effect the preservation of natural resources and ultimately, bring about positive change in the quality of human life and habitation. Whether or not this is most appropriately a prime responsibility of the art educator and artist, any more than it is the responsibility of other professional areas, is questionable; and it appears that this issue has yet to be given serious consideration.

To many readers the term *ekistics* may be unfamiliar and therefore the operational definition for this study must be given: "Ekistics is the science of human settlements. The term is derived from the Greek verb *OIKO*, meaning settling down, and demonstrates the existence

of an overall science of human settlements conditioned by man and influenced by economics, social, political, technical, and administrative sciences, and the disciplines relating to art."(2) The name ekistics was coined by Constantine A. Doxiadis, the Greek city planner, in 1964.(3) How useful this term is to the study herein examined is important because the author claims there is an "aesthetic dimension of ekistics" whereby concepts for art education can be derived. (4)

The introductory chapter presents a defense for the improvement of human environment and the solution of urbanization problems which can be effectively achieved by the artist and art educator. Namely, that they can address themselves to the public and to the youth of our schools for whom visual literacy and the ability to understand the influences which shape human conditions must be changed in order to bring about critical awareness and knowledge for leadership in urban planning. Simplistically stated, the investigator takes a psychological point of view, and believes that the highest level of perception is learning to see (seeing with understanding) whereby one acquires universal concepts of ekistical significance and with which he will affect change in the future. The idea of concept formation appears to fit in with most psychological theories of learning (concept formation is paramount); however, the notion of attaining the highest level of perception, it would appear, must include a very broad interpretation of seeing which incorporates all modes of sensory intake. It should have been clearly shown in this study that the concerns for environmental conditions are not singularly of a visual nature.

In Chapter Two the study proposed three subordinate

tasks in the general statement of the problem:

1) To formulate concepts for art education in the aesthetic dimension of ekistics, including the perception of environmental form in towns and cities, understanding the art or urban design and developing a capability for democratic participation in the urban planning process with aesthetic awareness.

2) To develop and demonstrate a working curriculum from the findings of subordinate problem one.

3) To evaluate the findings of subordinate problem two in terms of a measurable increase in the perception of urban form, evidence of understanding the art of urban design and evidence of developing capability for democratic participation in the urban planning process, with aesthetic awareness. (5)

Two basic assumptions were stated by the investigator which permitted her to claim that: 1) relationships can be made between aesthetic concepts and concepts of social studies (as defined); and 2) such "relationships can serve as a guide to curriculum dealing with the interplay of form and function in the environmental design of towns and cities." (6)

Accordingly, it was hypothesized that:

1) Students in the group exposed to the experimental curriculum will demonstrate an ability to relate form to function, from a wider frame of reference, including elements of planning theory as well as aesthetics of urban design, according

to the judgment of a qualified jury.

2) Students in the group exposed to the experimental curriculum will demonstrate a greater ability to defend their design solutions than students in the control groups, according to the judgment of the jury. (7)

Chapter Two, covering the statement of the problem, is the most succinct and clear part of the thesis. However, the investigator delimited the definition of terms to such an extent that considerable difficulty arises when one attempts to correlate the profusion of concepts presented in the research rationale, theoretical basis, with the precise meanings which such concepts should have for the research problem. For example, one cannot assume there is universal understanding about what is art, what is aesthetic, or that the act (process) of urban planning is an artistic act. Even though there may be an aesthetic dimension of art and of ekistics, how does one equate the act or purpose of one to another? Unless concepts of the artistic and the aesthetic are correspondingly defined, they cannot be construed to have the same logical thought processes required for solving urban problems of an ekistic nature. Both problem solving and ekistics are defined as scientific thought, but thought of an artistic nature does not serve the same purpose as science, nor does it have the same procedural structure.

A second operational definition would have provided a better understanding of the procedure by which philosophical assumptions and concepts from the various areas were related to art theory, particularly in reference to the synthesis of concepts made for formulating the proposed curriculum. (8)

Here the use of theory and theory development were instrumental to the objectives of the study. Often concepts which characterize one field of knowledge may similarly characterize another field. But, the process of theory construction (such as conceptions of models) requires a process of transformation to reveal the conceptual structure and pattern of the theory being devised rather than simply transferring a conceptual statement from one model or field to another. Such a procedure for theorizing was not evident in this study.

The related research in the study, which forms a basis for the concepts synthesized in the proposed curriculum, is an impressive body of information (over 170 pages) and indicates the investigator's major interests. The range of concepts expressed in order to characterize the nature of the problem (that is, what goes into urban design or ekistics and how such considerations can fit with a curriculum program) is complex. The concepts drawn from social studies, art theory, urban design and so on, are intricately interwoven and heavily dependent on direct statements from well known authorities in the various fields. However, the meshing of these concepts to form a clear cut theoretical foundation is often obtuse and rambling. The historical concepts appear to serve more as vehicles for illustrating past events in art and architectural design rather than revealing the kind of structure or logic which the concept of history requires. One must appreciate the investigator's involvement and achievement in gathering knowledge, but in this study a quantity of sterile educational cliches and verbose assumptions imperil the argument. A more laconic approach is

convincing and preferable to abounding vignettes of ideas. Also, the lack of a flowing writing style and a systematic thesis format were obvious impediments to the research material.

Although an experimental design was devised to measure the effect of the proposed curriculum, the empirical evidence gathered is primarily that of a pilot study effort. Only the experimental group was exposed to the curriculum consisting of ten lessons, each ninety minutes in duration. The final lesson was administered to both the experimental group and the two control groups. The treatment (in the final lesson) was identical for all three groups and was designed to provide data which would support the hypotheses of the study: 1) the experimental group would be more apt to relate form to function than the control groups, and 2) the experimental group would tend to defend their proposals from a wider frame of reference than the control groups.

Three evaluative instruments were used. First, scores from Metropolitan Achievement Tests in reading and arithmetic skills were used to provide evidence for a measure of control of individual differences. Second, a jury composed of an art educator, an architect, and a city planner made observational judgments on the subjects' performance. The third instrument was a tachistoscopic presentation of urban stimuli.

Evaluation by the judges was based on the Ss' performance which was observed during the treatment (the final curriculum lesson). The judges scores indicated a significantly higher level of performance for the experimental group than for the two control groups. The tachistoscopic scores included

nine dependent variables which measured density of observation, saturation time, and pictorial responses to visual stimuli depicting urban subject matter. The data analysis for four of these variables indicated no significance, the other five variables were recorded at either .01 or .05 level of significance.

It is noted here that the investigator did not use the tachistoscopic findings for testing the hypotheses, but the positive support was concluded on the basis of jury opinion. Though the investigator recognized the tachistoscopic data as only tentatively informative, the validity is questionable. There are several criticisms, one being that the sample population was extremely small; no random sampling was attempted. The number of dependent variables tested was limited, particularly in relation to the treatment time length and to the varied kinds of performance demanded of the Ss. This suggests that there were many factors deleted which would have strengthened the instrument. Also, no pretests were given to either experimental or control groups, nor was a content analysis made between the normal behavior of the control groups and the behavior expected of the experimental group.

Reviewers commentary. Recommendations are made by the investigator for follow-up studies which are directed toward implementing the proposed curriculum; particular value is given to relating concepts from the various fields (developed in Chapter III). There is little doubt that much study and curriculum development in the areas of visual education and urban design must be continued. Optimistically, this study represents only an introduction, it points to

the need for change and improvement but any attempt to replicate the approach taken in this study would require considerable modification and clarification of the objectives. The research topic is tremendously broad in scope, and therefore, not suitable for a doctoral thesis. But before it can be dealt with, the "idea" of ekistics in art education needs to be contrasted with the "idea" (a definition) of art education. Then, perhaps, one can focus on tangible, precise understandings and behaviors which relate the two ideas and which have empirical possibilities.

NOTES

1. Amalia Cecile Pearlman, *Art Education and Ekistics: A Synthesis of Aesthetic and Social Concepts in the Shaping of Environment,* (Unpublished doctoral thesis, New York University, 1970), p. 17.
2. Ibid., p. 12.
3. Ibid.
4. Ibid., pp. 12, 17.
5. Ibid., pp. 11-12.
6. Ibid., p. 15.
7. Ibid., p. 260.
8. Ibid., Chapter IV, pp. 189-233.

REVIEWER

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THE EFFECTS OF PHYSICAL DESIGN VARIABLES ON RESIDENTS' SOCIAL INTERACTION IN HOMOGENEOUS COMMUNITIES

M. A. Fikry
University of Michigan, 1970

This thesis is concerned with the determination of the effects of building-types and site layouts on the residents' social interaction through an analysis of buildings and site layouts' design characteristics. Social factors also affect the residents' interaction, therefore an attempt is made to hold those constant while the effects of the physical variables on the residents' interaction are examined. This is achieved by the use of homogeneous communities in the analysis of design variables in building types and site layouts. The analysis is based on previous studies made in this field and on established theories of interaction. The physical variables which are considered are density; dwelling unit layout in terms of distances and relationships between the units and circulation elements on the site, such as streets, parking lots, driveways, pathways and trails; dwelling unit type in terms of elevator apartments and low rise walk-up apartment buildings, row houses and single family units; and the nature and layout of the site with regard to open spaces in a residential area.

The results and conclusions specify which building types and site layouts are most conducive to social interaction in addition to pointing out how the various design variables mentioned above are likely to affect interaction separately.

Recommendations are provided which are applicable where interaction is thought to be a desirable social goal. These include general suggestions to designers and sociologists regarding the problem of collaboration; specific suggestions that would be conducive to more intensive interaction between the residents in each of the building types and site layouts; and a diagramatic concept of a residential unit which attempts to combine some of the specific suggestions given, and thus serves as an example or possibility of how these could be applied jointly.

REVIEWER: Claude A. Winkelhake
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Reviewer's commentary. This study planned to relate behavior (social interaction) to environment (physical determinants). Considering that research in landscape architecture has been lopsidedly environmental, when it has been at all, i.e., all grass and trees but no human behavior, this is an important and timely topic for study. However, the best laid plans often go astray.

Definitions are set forth early in the study after a very brief history of urban design and the social sciences. The definitions mark the turning point at which the plan of the study starts to go astray. For instance, Fikry makes repeated reference to the concept of neighborhood. His statements on the neighborhood, however, do not specify clearcut social facts connectable to clearcut physical facts (factors, dimensions, variables, or determinants). Single and multi-story dwellings (such as houses and apartment buildings) are not studied at exact sizes and particular places, spaced in

precise ways, in direct connection with particular and well-defined social groups, and their exact occasions and behavioral events.

No use is made of operational units, such as: Barker's behavioral setting; Watson's activity-system; and so forth. Rather, the author attempts to define the neighborhood (in non-operational terms) through the use of general statements about the shortcomings of other general statements made by other authors who have advocated a variety of non-usable constructs called the "neighborhood." The author hopes "the relationship between the physical variables in a residential unit and the social interaction of the residents...which will be investigated here will be of use in the implementation of the social unit or any other neighborhood concept where social interaction is desirable" (p. 31). At the same time he says he wishes to avoid an attempt to provide a solution to the neighborhood controversy.

Perhaps, quite innocently, the major fault with Fikry's attempt to define the neighborhood is inadvertently notational. His social interaction patterns are expressed in so many words and his physical layouts are expressed in numerous drawings. His failure to connect a particular social interaction pattern (words) and a particular physical layout (drawing) to each other with precision and clarity leaves the whole promise as well as the problem and question of the relationship between behavior and environment in the study unspecified. A key reason for this failure is simply the incomparability of the components of the behavior-environment relationship from a notational standpoint.

This study, then, is in the beginning a brief historical document. A lot of "noise" is carefully added in the form of "social" words and "physical" drawings. General statements about social interaction disconnected from the exact physical context in which that interaction takes place are frequent. Drawings of physical layouts devoid of the exact social interaction that takes place within them are also frequent.

Social interaction and physical layout in this doctoral dissertation are neatly set forth in total and complete isolation from each other: 1) they are each expressed in a generalized way; and 2) they are each expressed in a different mode of communication.

What a pity that an old-fashioned communication habit kept this dissertation from putting its two most important components together in an understandable, meaningful, and usable way. Fikry hoped his investigation of the relationship between the physical variables in a residential unit and the social interaction of the residents would be useful. I see no way that his results can be used "in the implementation of the social unit or any other neighborhood concept where social interaction is desirable."

The dissertation is a fat one, the drawings are neat, and the words are readable. To sum up, it is an old habit to "talk" about behavior in verbal abstractions, and, at the same time, to "draw" about environment in visual concretions. It's time for students and faculty as well as practitioners in environmental planning and design to get rid of their vague thought-processes and their old habits of notation. Purification rituals in

architecture, urban planning, and landscape architecture are antagonistic to the serious business of generating solid information and communicating it in a meaningful and useful way through doctoral dissertations.

REVIEWER

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