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# Review of Research in Visual Arts Education

# EDITORIAL CONSULTANTS

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_no.11, no.13_

which is/are unavailable.

# EDITORIAL CONSULTANTS

# Review of Research in Visual Arts Education

EDITORIAL ASSISTANT

LORI GOLDSMITH

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ENHANCING THE SELF CONCEPT THROUGH THE USE
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## EDITORIAL

This issue marks the end of our first year as a paid subscription publication. The level of support received to date has been most gratifying. We hope that the *Review* has been of sufficient professional value to encourage you to subscribe once again. To that end, subscription materials for next year are enclosed. It is worth noting that approximately 20% of our readers have taken advantage of the savings offered by a two-year subscription. We encourage you to take advantage of this savings. If you have already entered your subscription for next year, please pass the enclosed materials on to a colleague. We look forward to your continued support.

In consultation with various members of the editorial board, we have broadened our professional advisory group by inviting a number of individuals to serve as editorial consultants for the *Review*. Names of consultants are listed on the inside cover page of this issue. We appreciate the support of those who have agreed to serve as editorial consultants and plan to make good use of their skills. In addition to providing the opportunity for much needed dialogue among doctoral advisers and principal researchers in the field, the editors will ask consultants to make periodic contributions to the *Review* in the following areas:

1. identifying broad theoretical issues for integrative reviews;
2. suggesting topics for invited papers;
3. overseeing the quality of documents published in the *Review*;
4. examining guidelines for reviewing research documents;
5. recommending documents for review;
6. identifying new reviewers;
7. submitting titles of approved dissertations in progress.

In order to facilitate additional dialogue among researchers and advisers in visual arts education, we hope to formally organize a Doctoral Advisers Round Table in conjunction with the 1978 NAEA convention in Houston. More information relative to the Round Table will follow.

Given the recent expression of professional interest in computer information search and retrieval systems, this issue provides the reader with a carefully prepared paper by Sandra Rouse which describes seven publicly available data bases relevant to researchers in the arts. After having used DATRIX for the past two years in preparing the Dissertations Reported section which appears as a regular feature in the *Review* and having had the opportunity to recently use PATEL to generate a comprehensive bibliographic search for our personal research, the editors are well aware of the great service such systems offer researchers in art education. Later this summer we will make available to interested researchers a 10-year

bibliographic listing of 1000 titles and abstracts of empirical research related to aesthetic growth. We invite suggestions about topics for other comprehensive searches.

Considering the frequency with which our readers have suggested that we enlarge the scope of the materials published in the *Review*, and given that only a limited number of professional journals are appropriate for publishing research in art education, beginning with the next issue, the *Review* will publish unsolicited manuscripts dealing with substantive issues related to research in the visual arts. An original and three copies of each manuscript should be submitted to the editorial office and should follow the policies outlined in the *Publication Manual* of the American Psychological Association, 2nd edition. All manuscripts received by the editorial office will be submitted to three editorial consultants for review purposes before any action is taken by the editors. We look forward to your response.

Finally, we have received a great deal of positive commentary about the Arts Review Summary section included in our last issue. The next issue will include an overview of empirical research in theatre.

# COMPUTER RETRIEVAL OF BIBLIOGRAPHIC REFERENCES RELATED TO THE ARTS

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Most of technological twentieth century society is familiar with the recent computer applications to business transactions (e.g., airline reservation systems, medical record keeping, bank accounts, and more recently, the recreational challenge of playing ping-pong on television screens). Computer applications in the arts and humanities have been reviewed by Raben and Widmann (7) and recently a special issue of the *Bulletin of the American Society for Information Science* was devoted to information problems in the arts (2,4,8,10).

Some specific examples of non-bibliographic applications of computers within the arts will be mentioned very briefly before discussing the literature retrieval applications. The Museum Computer Network management information system called GRIPHOS, is described as a system which will help museums to identify the content of their own collections as well as other museum collections. The standardization of data elements and flexibility of the retrieval functions of GRIPHOS should contribute to useful exchange of museum collection data for prospective researchers (10,11). At the University of California at Santa Barbara Art Library a computerized index to 20,000 exhibition catalogs provides a useful retrieval tool (9). In the area of music, one project is underway which uses both the digital and analog computer to generate music from coded musical scores and claims to produce music of equal quality to a human performance (8). Another study is reported in which the computer is used as an aid in understanding the perception of sound (6). Computer readable data structures for Labanotation, the graphic language used by choreographers, anthropologists, medical specialists, guidance counselors, and psychologists has received some recent attention and progress is reported by Lunin (4) and Brown and Smoliar (1). As a final note to this brief introduction to some of the non-bibliographic computer applications in the arts, Cohen cautions the information scientist about finding solutions which overlook the artists' information needs related to the senses (e.g., the sculptor's sensitivity to physical material and weight, and the dancer's need to experience three-dimensional displacement [2]).

While applications of the computer in the arts are diverse, this paper will focus on computer applications in literature retrieval and identify some of the search services related to the arts. More specifically, it will address the characteristics of the publicly available online literature

search services provided by abstracting and indexing data bases. Record keeping systems related to library catalogs, circulation or serial control systems, or data banks providing indexes to physical data are excluded from this discussion.

This paper will begin with some common definitions and general characteristics of online literature searching. This background material will also include some perspective on the size and growth of computer search services and mention some of the advantages of online literature searching. A brief example will be used to illustrate the general characteristics of an online search from the requestor's viewpoint. The last section will identify the major processors of online search systems and describe the publicly available online data bases related to the arts.

## Online Literature Searching: Definitions

Before describing the general characteristics of an online search, the following related topics will be discussed: (a) computer readable data bases; (b) commercial processors of data bases; (c) brokers of information services; and (d) online mode of operation.

During the late 1960's and early 1970's many producers began to produce data bases as by-products of the automated photocomposition and typesetting production of the paper copy journals (14). These computer readable tapes contain the bibliographic information (e.g., author name, title of item, journal title, year, pages, thesaurus terms and abstract, if available) in addition to the special print characters, punctuation codes, and information related to the producer's internal processing. The tapes are usually processed again to eliminate some of the print production information before they are distributed to the processors of data bases.

The computer readable data bases are made available by the data base producers on a lease or license agreement to the data base processors. The primary function of the processors is to manipulate the data bases into a compatible format for information search and retrieval purposes. The search software, which is usually developed by the processor, is the interface between the public (i.e., the requestor) and the data bases. The software system enables the requestor to translate the desired search topic into conventions acceptable to the system for search and retrieval of the bibliographic references.

Requestors of computer literature searches can be described as either end users or brokers of information services. For discussion purposes in this paper, end users will be defined as the researchers who will eventually integrate the information obtained from the retrieved literature into related research and development efforts. The brokers of information

services are the individuals, usually called information or search specialists, who serve as intermediaries for the end user by communicating directly with multiple search software systems and data bases. Broker services may be organized as private companies, or in an academic environment, they are usually associated with library services. The long range goal of allowing the end user to directly communicate a request (i.e., avoid the intermediary) to the appropriate software system and data base has not yet been realized. It is generally recognized that given the current state of online bibliographic information retrieval, the best online literature searches are conducted by information specialists in the presence of the end user (12). Our discussion will use information specialist when referring to the activities of the intermediary, and refer to the end user when discussing the topical issues or subject matter of the literature search.

Thus far this paper has described a setting which involves computer readable data bases made commercially available for literature searching by the processors' hardware/software systems. Communicating with the search systems in an online mode is a relatively new application in computer literature searching. Wide scale availability of literature search services relevant to most subject areas has been provided since approximately 1974. The main feature about the online mode of communication is that the dialogue between the requestor and the computer provides immediate feedback. The time delay to process the input is relatively small. In fact, the human usually requires more time to process information (e.g., output received at the terminal) than the computer requires to search for a given term or combine groups of terms specified by the searcher. Operating in an online mode, the requestor will have immediate feedback which he can use to judge the usefulness of the search strategy.

## Characteristics of an Online Search

Online literature searching can be useful for identifying a specific bibliographic citation for which the user has incomplete information. For example, the user might know that John Smith at Midwest University wrote a journal article on the usefulness of IQ scores as related to general design requirements for children's toys. It would be possible to identify the exact citation in an online search, given that the journal in which Smith published his article is covered by the appropriate abstracting and indexing journal.

The more conventional use of online literature search systems relates to the generation of a bibliography for a problem area defined by the end user. Before describing the process of communicating the specific subject request to the search system, some of the technological components of on-

line literature searching will briefly be mentioned. The subject request will then be discussed in terms of search strategy which generally involves concept/term generation, logical combination of concepts and terms, and alternative search strategies which may narrow or broaden the retrieval.

Users of online search systems communicate with the computer through a terminal which functions in many ways like a typewriter, but is capable of transferring responses between the computer and requestor. Terminals may be remotely located, requiring some intermediate communication system to link them to the processor's computer. Direct line terminals are hardwired to a particular computer system and avoid any intermediate communication system or network.

The major processors of online literature services each maintain a central computer which is accessed by terminals from a wide geographical area, including searchers in the U.S., Canada, and parts of Europe and Great Britain. This geographical dispersion of users is supported by the telecommunication services of switching networks such as Telenet and Tymshare, Inc. The link these networks provide between the remote user and the processor's computer is available through the telephone receiver which is inserted in the terminal to transfer communication between the searcher and processor's computer. The possibility of remote access to the processor's computer increases the availability of online search systems over a wider geographical area, and thus increases overall usage of these services for literature searching.

The information specialist is responsible for knowing the appropriate protocols required for accessing the intermediate telecommunication networks and the processors' software search systems. Each search system has its own set of commands, specifications, and features which must be used to communicate the subject request to the system. The basic commands include: (a) specifying the terms which will be used to retrieve potentially relevant references; (b) combining sets of terms or phrases into appropriate relationships determined by the end user; and (c) either typing references online at the terminal or offline at a later time when the computer processes a batch of print requests at one time.

Users at the terminal will judge the output of the search in terms of what they expect to receive for a bibliography. In order to facilitate their judgment, they need to be informed to a certain extent about the logistics of the search system and the nature of their problem area. The end user who cannot identify a relevant reference is less likely to produce a useful search than the user who is familiar with the publications in the field and can define criteria for identifying relevant references.

Before the searcher can communicate the subject request to the search system, a strategy must be developed. It is usually suggested that the topic

be expressed in terms of concepts which must be represented by the references retrieved in the search. For each concept, the user generates synonyms based on his knowledge of the field, authors' use of terms, and data base producer vocabulary aids. Some alternative combination of concepts and terms should be outlined (before the actual search) to provide a guide while online and faced with some undesirable results, such as the retrieval of too few or too many references.

In addition to some of the functional characteristics about online literature searching, the magnitude of online searching will be briefly mentioned. Decreasing costs in computer technology and increased reliability of communications networks to facilitate access by remote terminals have allowed the market for computer readable data bases to expand within the past 10 years (14). Reviewers of the online bibliographic searching field have reported that the total number of unique bibliographic records in 1975 available through online search services was over 12 million (5). The number of online searches conducted in Canada and the U.S. has grown from .5 million in 1974 to 1.2 million in 1976, which is in itself an increase of over 15% since 1975 (13). From data collected for a recent directory of publicly available computer readable bibliographic data bases, the compilers identified 301 data bases covering the publications of nearly all subject areas, with the sciences and medical areas receiving the greatest coverage in terms of number of data bases and number of bibliographic references (15). Based on data from the Directory, it is estimated that 33 million records or bibliograhic references were available for online searching by the end of 1976 (13).

### Advantages of Online Literature Searching

Before discussing a brief example of search, some of the advantages of online literature searching will be mentioned. The speed and accuracy of the computer in performing repetitive tasks cannot be matched by the human's ability to process information. With an efficient retrieval system, the computer can identify thousands of references across multiple years of the data base containing a specified term or subject code, usually in a matter of seconds.

The growth rate of scientific publications has increased to the extent that it is no longer feasible to manually search 10 years' worth of the paper copy abstracting and indexing journals. Psychological Abstracts, for example, produces approximately 25,000 references per year. With the capabilities of online searching and multiple years of the abstracting journals available online (many covering from 5-10 years), the user can avoid the fatigue and tedium associated with matching index terms with abstract numbers.

Some research areas are multidisciplinary and require multiple data base searches. For example, a search on agriculture or plant physiology in space satellites would probably require searches of the biological and chemical literature, namely both Biological Abstracts and Chemical Abstracts.

Particularly in the case of new research areas, it may not be obvious that indexes will include the relevant publications, or if included, appropriate index terms may not exist in the current thesaurus. The computer search lends itself to searching author generated terms in addition to index terms and can help to overcome the problem of outdated thesauri. Because the computer readable data base precedes the paper copy production, the data base is usually available for online searching before the paper copy reaches the library shelves.

Probably the most important advantage of online literature searching is the immediate response given to the requestor. The end user and the searcher work together in controlling the direction of the literature search based on frequency of term occurrences in the data base, frequency of combinations of terms, making judgments about the references retrieved, and adjusting the search strategy to produce a more accurate representation of the subject.

In summary, some of the common terms related to online literature searching have been defined, the general characteristics of an online search have been discussed, and some indication of the size of the bibliographic computer readable data base area has been provided. Some of the major advantages of online literature searching covered:

1. speed and accuracy of the computer in performing repetitive tasks;
2. availability of multiple years of abstracting and indexing journals;
3. availability of multiple subject data bases for multidisciplinary topics;
4. currency of data base versus availability of paper copy counterpart;
5. interactive mode of online searching facilitates the user's control over the search.

### Example Search

The purpose of this example search is to give the reader, unfamiliar with online literature searching, some information about the process the end user encounters during the search. A topic and data base which should also provide relevant context for readers of this journal has been chosen.

A request was made by the editors of this *Review* for a relatively broad subject search, a review of the psychology literature relevant to the visual arts. The most appropriate data base available online was considered

Psychological Abstracts, or PATELL which is the name of the online data base and is the acronym for Psychological Abstracts Tape Editions Lease License. Coverage of publications indexed by PATELL are dated from 1967.

Before the online session begins the requestor is encouraged by the information specialist to express the subject request in terms of concepts and synonyms. Specifically, this request requires that each reference retrieved in the search must have a term related to some psychological concepts and also art or painting. In an online search of PATELL, the terms specified by the searcher will be located by the computer in the title, abstract, or index terms of the bibliographic record.

Using the Thesaurus of Psychological Index Terms (3), a specific phrase which could be used in a narrow strategy to retrieve the potentially relevant references was identified. The narrow or most specific strategy required the occurrence of the index term "aesthetic preference," and at least one of the following terms had to occur in the author's title, abstract, or index terms: "art(s)," "drawing(s)," or "painting(s)."

The user was asked to consider some alternative strategies in the event that the specific strategy resulted in either too many or too few references. Since the user felt that the most likely problem to be encountered would be too few references, a broader approach to the topic was developed. It was decided that three concepts had to be represented in each reference retrieved by the broader strategy. The following combination of terms were chosen and at least one term from each of the three concepts had to occur in the title, abstract, or index term of the references retrieved in the online search:

| aesthetic(s) | creativity | art(s) |
|--------------|------------|--------------|
| esthetic | cognitive | painting(s) |
| | cognition | drawing(s) |
| | preference | |

This second strategy is considered more general than the first, and it should be noted that the references retrieved by the first strategy will also be included in the broader search. The same "art" terms are used in both cases. The terms "aesthetic" and "preference" also occur in both strategies and thus all references retrieved by the specific strategy will also occur in the set of references retrieved by the broader strategy.

During the online session, the user found that 80 references were retrieved using the more specific strategy. After looking at some sample references from that group, the user decided to compare the results with the broader strategy. The broader approach yielded more than ten times the number of references (actually 915) and upon reading some of the titles, the user decided that the broader coverage justified the additional cost for printing the bibliography with abstracts.

In a short time, the user was able to judge relatively narrow and broad searches of Psychological Abstracts, covering ten years' worth of psychology publications related to the visual arts. Even though the user must read over 900 titles and abstracts, the time it would have taken in a manual search to identify this group of references was avoided. The user is also likely to find that not all references are directly relevant to the topic. With a broad approach such as this search, the user can identify those related but not directly relevant references which will probably be useful in the future.

## Availability of Online Literature Search Services

Currently there exist over 70 bibliographic data bases which are publicly available through four major processors of online literature search services. (See Appendix for list of processors and addresses to contact for further information.)

This section will describe some of the bibliographic data bases relevant to the arts that are publicly available online through at least one of the major processors. For each of the seven data bases general information is provided about the size and production as well as an indication of the subject material relevant to the arts.

Coverage of publications in the field of modern art and design in the period of 1800 to the present is available online through Artbibliographies Modern. This data base is produced in England by Clio Press Ltd., and also produces the corresponding paper copy abstracting journal with the same title. The data base covers publications from mid-1973 to the present and through 1976 there were approximately 21,000 bibliographic references in the data base. An average of 7,000 references are added per year. Most of the coverage in the data base includes journal articles and approximately 500 journals are reviewed for input. In addition to the journal coverage, some monographs and exhibition catalogs provide input for the data base. Students and scholars in the visual arts, design and architectural history will find this data base useful for providing subject bibliographies. An example of some of the subject areas covered include painting, sculpture, surrealism, and conceptual art. These are just a few of the specific subject categories available and the user can also access articles devoted to individual artists, as well as names of museums and galleries as locations of exhibitions covered by the data base.

Publications in the areas related to psychology are primarily indexed and abstracted in Psychological Abstracts, or PATELL which is the acronym for the online data base. The data base is produced by the American Psychological Association and provides international coverage of the literature since 1967. Through 1976 there were over 200,000 refer-

ences available online in the data base which grows at an average of 25,000 references annually. Over 850 journals are reviewed for input and while journals comprise the largest percentage of references in the data base, monographs, dissertations, government reports, and conference papers are also covered. Some of the areas relevant to the arts in the psychological and behavioral sciences include material pertinent to art education, art therapy, architecture, drama, dance, drawing, music, photographic art, and sculpture.

One data base covers dissertations exclusively. The Comprehensive Dissertation Index produced by Xerox University Microfilms, indexes dissertations from all academic doctoral degree granting institutions in the U.S. and over 125 non-U.S. educational institutions. The user may find it convenient that over 55% of all the dissertations indexed in the data base may be obtained from the producer in paper or microfiche. The data base coverage extends from 1861, and through 1976 there were approximately 560,000 references available online with an annual growth rate of 39,000 bibliographic records. Some of the subject categories used to index dissertations that are relevant to the arts include architecture, art education, cinema, fine arts, music, and music education.

In the general discipline of education, the journal and report literature is covered by the Educational Resources Information Center (ERIC) data base which is produced by the publisher with the same name as the online data base. Actually the data base is composed of two separate data bases, Current Index to Journals in Education (CIJE) and Resources in Education (RIE). The titles of the corresponding paper copy indexing tools are the same as the component data bases. CIJE covers the journal literature of education and curriculum materials from 1969, and through 1976 provided access to approximately 140,000 references, with an annual growth rate of 20,000 bibliographic citations. The reports covered by RIE are usually the reports filed by contractors and grantees on the results of funded educational research and curriculum materials. Other types of literature include educational legislation, U.N. documents, statistical compilations, bibliographies, project descriptions, theses, and annual reports. Education oriented areas which might be of interest to researchers and students in the arts include, for example, aesthetic education, art appreciation, art education, fine arts, music techniques, music theory, painting, sculpture, and visual literacy.

A fifth data base of interest to those in the arts is the Social Science Citation Index (SSCI) which is produced by the Institute for Scientific Information. The paper copy counterpart is produced with the same title as the data base. The time span covered by the data base is from 1971, but the online availability of the data base provides access from 1972 to the present. Through 1976 SSCI provided approximately 125,000 references

with an average growth rate of 5-10% per year. Journal literature in the social sciences is covered by every article in 1,500 unique journals, and an additional 2,400 natural and physical sciences journals are reviewed for social science articles. One of the main features of this data base is the citation indexing that is made possible by the inclusion of bibliographies cited by the source author articles. The philosophy behind citation indexing is that there is a subject relationship between the cited reference and the paper citing the reference. For example, if John Smith wrote a key article or book in 1940 on the use of IQ scores in the design of children's toys, we could identify the journal articles from 1972 to the present citing that publication. Some of the diverse social science areas of interest to researchers in the arts include education, education psychology, social psychology, and humanities. Such journals as Journal of Aesthetic Education, Journal of Research in Music Education, Computers and the Humanities, and Art Psychotherapy are given complete coverage in the data base.

A data base of ongoing research projects is produced by the Smithsonian Science Information Exchange, Inc., and the online data base is referred to as SSIE. The items covered by the data base are not bibliographic references but rather technical summaries of current research projects, along with names of investigators, institution where the work is conducted, and funding agency. All disciplines are covered and summaries are submitted voluntarily by the funding agencies, which are primarily the Federal government, but also include some major foundations and fund-raising organizations, universities, state and local governments, industrial and foreign organizations. Since the data base is an index of current research projects, its coverage extends over the most recent two Government fiscal years. An average of 200,000 current research projects are accessible from SSIE, of which approximately 125,000 projects are new and updated projects reported per year. Some of the following subject terms may indicate potential areas relevant to researchers in the arts: art and society, art education, arts and architecture, graphic arts, music and art therapy, music education, and plastic arts.

Another type of literature coverage that might be of interest to those working in the arts is the news coverage provided by the Information Bank which is a subsidiary of the New York Times Company. This data base covers all news and editorials from the New York Times and covers selected items from 60 other publications. Coverage of the arts includes all reviews of art exhibits, performances, any biographical material concerning artists, and timely information regarding such topics as construction of fine arts buildings, and finance and funding of the arts in general. The Information Bank provides coverage from 1973, and through 1976 this

data base provided access to over 1.3 million news and journal articles. The data base has an annual growth rate of approximately 100,000 references.

The purpose of this section was to provide researchers in the arts with a brief overview of the relevant bibliographic data bases currently available online through the major data base processors. These data bases were selected because they appeared to cover publications pertinent to the various fields within the arts. In the case of some research areas, it may appear that none of the data bases selected for this paper are relevant. This does not imply that appropriate data bases are unavailable. Potential users of online bibliographic search services are encouraged to discuss their literature search problems with local search specialists or by contacting one of the major data base processors.

## SUMMARY

In conclusion, some basic characteristics of the major bibliographic information retrieval systems have been discussed from the user's viewpoint. An example search of PATELL, done for the editors of this *Review*, served to illustrate the type of interaction the user of online search systems can expect. Some of the advantages of computerized literature searching were also mentioned. The immediacy of the computer's response enables the requestor to control the direction of the search by specifying search terms, logical combinations of terms, reviewing sample references online, and reformulating the search strategy until the user is satisfied. Specific reference was made to the coverage of seven publicly available online data bases relevant to the arts. In most disciplines, identification of publications related to particular problem areas no longer requires manual searching of volumes of abstracting and indexing journals. The availability of online literature search services can provide the researcher (within minutes) with a bibliography of references identified by some desirable and consistent criteria defined by the end user. In this way the computer enables the researcher to avoid clerical tasks, and thereby enables him to pursue the creative aspects of the topic more quickly and more thoroughly.

## APPENDIX

For readers who may want information regarding online literature search services available in their area, contact one of the major bibliographic data base processors:

Bibliographic Cetrieval Services, Inc. (BRS)
1462 Erie Boulevard
Schenectady, NY 12305
telephone: (518)374-5011

Lockheed Information Systems (LIS)
Dept. 52-08 Bldg. 201
3251 Hanover Street
Palo Alto, CA 94304
telephone: (800) 227-1960

The Information Bank
New York Times Company
Mt. Pleasant Office Park
1719A Route 10
Parsippany, NJ 07054
telephone: (201) 539-5850

System Development Corporation (SDC)
On-Line Bibliographic Search Service
2500 Colorado Avenue
Santa Monica, CA 90406
telephone: (800) 421-7229

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# SELECTIVE ATTENTION THEORY AND ITS APPLICATION TO VISUAL ARTS RESEARCH: A REVIEW OF THEORY AND SUPPORTING RESEARCH

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In attempts to better understand the changes undergone by children as they grow, researchers have conducted studies which have tried to search out the cognitive and physical differences between children of various ages. The understanding gained so far has led to better educational theory, better curriculum development, and better evaluative methods. Educators have gained much through past research. Fortunately, though, these same educators and researchers are not satisfied that all questions have been answered. It is with this thought in mind that research continues in the areas of cognitive development, physical and sensory development, and many others.

The specific purposes of this paper are to review four different explanations of selective attention phenomena, to describe research supportive of those explanations, and to propose some uses of selective attention theory for research in the visual arts.

Research using visual arts stimuli have primarily sought preferential responses. Whereas the studies have been a tremendous help in understanding what children tend to prefer at their various age levels, they generally fail to explain how or how well children perceive. Some of the difficulties with developmental research into the visual arts are: (a) the complexity of the arts, (b) the affective values attached to art content, (c) the expressive values embodied in the arts by artists, and (d) the variety of media and processes. If a researcher attempts a study in visual arts areas, he should consider the above difficulties along with those idiosyncratic problems common in most research.

An approach that might help explain children's responses to the visual arts is one that focuses on selective attention. To attend selectively, one's approach is by choice or by limitations to only specific items from the range of possible items available. Basic to selective attention theories is the proposal that an individual can only process a limited number of items of information at one time. Also according to the theories, attention is controlled by one's limited sensory capabilities and/or one's limited ability to analyze sensory inputs efficiently.

## Selective Attention

One of the most widely referenced and respected theories of selective attention was introduced by Broadbent in 1958. His "filter theory" sought to explain how and where one processes sensory information. Since, as Broadbent said, ". . . in non-verbal situations . . . a man will receive a series of stimuli and then produce an appropriate response" the assumption is that visual channels operate similar to his auditory channels. Although the following examples typify auditory channels of sensory reception, the theoretical concept is considered transferable to visual, tactile, olfactory, etc., sensory channels with minimal deviation in informative processing.

To begin with, Broadbent identified two main stages through which sensory information is processed. The designation, 'S,' is what Broadbent used for the stage which accepts simultaneous information. Broadbent (1957c) explored the capabilities of subjects to report simultaneous stimuli. He delivered 6 digits to one ear and 2 digits to the other ear at the same time and found that when the 2 digits were given near the end of the 6 digits, performance was very good. He also found that the second of the 2 digits was recalled more efficiently. These findings served to illustrate that sensory information has a short life in the 'S' stage. This point was also made by Norman (1968) wherein he stated that the unattended memory trace dissipates rapidly.

According to Broadbent (1958) ". . . experiments with different sensory channels show that the junction of 'S' (stage accepting of simultaneous information) and "P" (later stage capable of successive passage of information only) does not lie in some specific sense organ; . . ." (p. 216). Sensory information is received simultaneously by 'S' and then appropriate information is passed on to 'P' for further processing and attention. It is this concept of simultaneous reception of sensory data and successive further processing that typifies Broadbent's 'filter theory.' To alleviate misunderstanding of the symbol 'P,' Broadbent indicated that ". . . the word perception includes immediate memory, so that he labeled the box 'P' for perception, 'S' for storage" (p. 224). Another interpretation of his theory of a filter mechanism suggests that the information received by 'S' (storage) is excess information that 'P' cannot process yet and that by the time the excess enters 'P' it has probably been preceded by part of the same information. Therefore 'S' becomes a storage mechansim for information until the 'P' system can attend to it.

To help clarify the location of the processing mechanism, Broadbent (1958) reported using a method which mixed words (sounds) between two questions which arrived at the ears by allowing one word of the first ques-

tion to be spaced to arrive between two words of the other question. Broadbent proposed that the failure of the subjects to use this type of information and the successful use of the previous independent simultaneous questions indicates that the difficulty with the masking is within the central nervous system. The above result is most clearly illustrated by considering one's ability to selectively attend to or listen to a certain source to the exclusion of others. How many times has the reader been the receptor of two, three, or perhaps four different auditory messages and been capable of attending to (understanding) one in particular. That certain message probably included a cue to identify it as a target message worthy of attention or processing. Referencing studies by Webster and Thompson (1953, 1954) and Poulton (1956), Broadbent concluded accordingly that when one increases the amount of information, he decreases the listener's efficiency. Efficiency is maintained, for example, if two messages contain little information, but as information increases it interferes with the limited capacity of one's processing mechanism. Poulton (1956) also reported that as the amount of information increased, spatial separation of sources was helpful. Broadbent (1958) concluded that ". . . it is more helpful the more nearly the situation approaches that of the listener ignoring one channel and responding to another." But, "the effect may be less marked when the situation approaches that of the listener dealing with two channels simultaneously" (p. 25). Essentially Broadbent questioned, Why do we attend best to only relevant information? His answer referred to the conclusion that little information is conveyed by the sensory receptor and that that passage of information through the receptor to perceptual attention does not involve a complex mechanism. He also claimed that the identification of the particular convenient channel which passes information probably does not require a complex mechanism. However, Broadbent did claim that within the above mechanism for an auditory channel

> . . . each sound is first analyzed for pitch, localization, or other similar qualities, and only sounds possessing certain qualities are passed on for further analysis.
>
> We may call this general point of view the "Filter Theory," since it supposes a filter at the entrance to the nervous system which will pass some classes of stimuli but not others (p. 42).

Broadbent (1958) concluded his chapter on "Shifting of Attention" with

> . . . the conception is that information is held in a short-term store with a very limited time span. From this store it may be passed selectively by a filter through some mechanism of limited capacity from which it is returned to store; this furnishes a method of indefinitely long storage as long as no response to other stimuli is required (p. 242).

With information-flow described as above, Broadbent expanded his original proposal to now include an influence exerted by memory of conditional probabilities of past events. This function serves as an aid to selectivity based on a drive state produced by memory of past conditional probabilities. Using a stimulus-response concept as an example, Broadbent predicted that such memory will act as a control to guide the organism to behavior resulting in ". . . the highest probability of terminating in the primary reinforcement for that drive" (p. 298).

To further explain his long-term storage development, Broadbent stated that information is processed selectively by the 'filter' at the period of maximum attention strength and thus passed to the limited capacity channel (P system). At this stage of perception, information which is considered to be in immediate memory, is passed back to the short-term storage stage whereupon it acquires the status of long-term storage. The only limitation caused by long-term storage is a decrease of the short-term storage ". . . means for adjusting the internal coding to the probabilities of external events; so that the limit on the channel is an informational one and not simply one of a number of simultaneous stimuli" (pp. 298-299).

Thus, Broadbent described an information processing system located at the entrance to the nervous system rather than at the sensory reception sites. He stated further that this system which he refers to as a selective filter is effected by short-term storage, long-term storage, and a store of conditional probabilities of past events. With this filter theory there is a mechanism which, if operationally sound, provides some understanding of how one might selectively attend to many stimuli or to an individual stimulus.

Howard Egeth (1967) provided a review of selective attention theory and supporting research which sought to identify those mechanisms which enable one to selectively process relevant information in our environment while ignoring irrelevant information. Multidimensional stimuli available for a short time were observed to be a source for successively processed dimensional information. A capability to change relative values of stimuli was discovered to also change the examination order. This was also found by Harris & Haber (1963) when incentive values were employed to induce attentional behavior. When a task requires that dimensional subsets of multidimensional stimuli be quickly attended to, results indicate that difficulties are encountered by some attention to irrelevant dimensional information. Egeth stated that previously relevant dimensions are especially difficult to ignore. Hodge (1959) reported similar results in a study concerned with discriminative capabilities of subjects when amounts of irrelevant information is increased. His results suggest that irrelevant dimensions are confusing.

Recognition in visual and auditory dimensions is the product of a hierarchy of tests employed to process sensory inputs (Egeth, 1967). Egeth also stated that the tests used to process sensory inputs can be adjusted to recognize only certain features or combinations of features of multidimensional stimulus. While Egeth's hierarchy of tests might denote seriation processing, he also stated that elementary tests may be conducted simultaneously.

The similarities between Egeth (1967) and Broadbent (1958) are in the manner in which sensory inputs are thought to be initially processed and then selectively passed on to a perceptual system. Broadbent, as you may recall, proposed that in the procedure of information-processing for attention, information is ". . . analyzed for pitch, localization, or other similar qualities, and only sounds possessing certain qualities are passed on for further analysis" (p. 42). This process is equivalent to Egeth's hierarchy of tests.

We see again the necessity of a processing system to expedite the best use of available sensory information. As indicated by Broadbent's filter theory, Egeth's theory of selectivity of attention requires that one must code or otherwise process inputs to maintain relevant inputs in primary attention roles and to defer irrelevant inputs as not requiring immediate attention. The dominant concept evident in the above theories imply a cognitive function whereby sensory inputs are processed according to their strengths and the organism's needs or wishes.

These theoretical concepts serve to explain various sensory/cognitive functions. An application of selective attention research for the arts is a better understanding of the developmental limitations of children's perceptual capabilities. Viktor Lowenfeld has provided a categorization of children's visual art products, but are children's *perceptions* of visual and tactile phenomena significantly different from adults or do they simply direct their attention to different dimensions? Can selective attention theory classify our conceptual understanding of developmental trends?

Many studies have been undertaken to clarify the validity of selective attention theory. Broadbent (1958) presented some initial supporting research based on direction, complexity, and sequence of input, to name a few.

An exemplary selective attention theory was presented by Norman (1968). His theory is evidently developed from Broadbent's 'filter theory,' but Norman offers an especially noteworthy explanation of memory effect on attention. He proposed a (speculative) theory of attention which allows for what he called the apparent limited capacity of man to process information. Basically his thesis is that sensory data, as Broadbent (1958) also proposed, are received simultaneously as input and then successively processed for further use.

Unique to Norman's sensory processing system is a measure called 'pertinence.' As sensory information is received, it is processed and acted upon according to the strength of sensory activation and pertinence. As Norman stated:

> . . . we would like the selection mechanism to analyze arriving signals well enough to allow for efficient selection among them without using any of the limited processing of the attention mechanism itself. . . . When we say that a signal has been interpreted, presumably we mean that the physical characteristics of the signal have been matched with those of some representation which is stored in memory . . . , pertinence (p. 523).

The strength of sensory activation (inputs) initiates excitement of their representations in storage (memory). This excitement of representations, 'pertinence,' ". . . is based on the expectations of future inputs and the properties of the presently attended channel of information" (p. 526). The influence exerted by pertinence is also illustrated by the employment of primary or secondary storage of an input. Primary storage is described as the appearance of temporary traces which, unless acted upon begin to fade, and secondary storage, although consisting of traces, ". . . is passive and permanent . . ." (p. 525).

If the pertinence measure is strong and the sensory activation is also high, the particular input takes precedence over other inputs and is selected for further processing. The establishment of pertinence is a cognitive process rather than sensory. This distinction places his selective attention theory in a category of cognition rather than simple sensory receptor/inputs reaction. Norman's supposition, that past inputs activate expectations which influence present inputs, is clearly cognitive by virtue of the use of memory.

After informational inputs have passed through the initial stages of processing and the secondary stage of 'pertinence' measurement, it (input having the strongest measure of pertinence and sensory activation) is then selected for further processing by an attention mechanism. Norman's attention mechanism is only described as a level of further processing. Some guidelines offered to further explain his theory are that: (a) no relationship is needed between stimulus intensity and strength of pertinence or strength of sensory inputs; (b) if one increases pertinence strength, the corresponding threshold for the sensory input is matched with its representation in storage; (c) immediate knowledge of all information related to that stimulus is not implied; (d) accessibility of pertinence and sensory inputs to memory storage ". . . does not necessarily mean that they themselves are permanently stored" (p. 528); and (e) if unattended, sensory inputs are assumed to ". . . remain only partially interpreted" (p. 528).

Norman admitted his theory was speculative, but he is thorough and basically sound as he explains attention processes and their relationship to one's memory. Normally one responds only infrequently to sensory information totally foreign to previous experience. For this reason, he proposed that pertinence (activation of some representation of the stimulus input in memory) plays an important role in attention selectivity. When there is pertinence and sensory activity, selectivity is a cognitive process separate from sensory receptors.

Treisman (1969) postulated that "like physical stimuli, our percepts appear to vary along a number of independent dimensions, such as color, size, and loudness, although these are not usually perfectly correlated with single physical dimensions . . ." (p. 283). She explained further, that because attention can be defined as ". . . the selective aspect of perception and-response" (p. 283), there are perceptual analyzers functioning, which are probably numerous, and perform mutually exclusive judgments on specific values of dimensions. The exclusive nature of the organism's perceptual apparatus probably involves hierarchy, serial, and parallel sets of analyzers which, while performing different judgmental tasks, could act in conjunction with, prior to, or after the judgmental acts of other analyzers. The location of the above analyzers, if compared to Broadbent's (1958) filter theory, probably occur in the 'selective filter' stage.

Treisman (1969) described four activities that determine selective attentional behavior. First, there must be a selection of 'inputs.' Analyzation of the class of all possible 'inputs' results in a selection of 'analyzers' which actually determine the specific dimensions or properties of stimuli to analyze. After the 'analyzers' are chosen, certain 'targets' of the dimensions to be analyzed are singled out for 'tests' to further determine acceptability of the dimensions for becoming inputs. This differs from input selection in that there are limitations given by instructions to follow for use of 'tests' to find 'targets' which require us to look for some particular dimension. On the other hand, ". . . input selection selects one set of sensory data to analyze, using the results of an earlier test or set of tests to label the selected class" (p. 285). Finally, 'outputs' are the result of input selection, analyzation, target choice, and test application. Outputs, according to Treisman's model are the product of ". . . full analysis of all inputs by all analyzers" (p. 284). The model also assumes there are response (output) limitations, storage limitations, and that there is competition among concurrent outputs ". . . for access to the limited capacity motor systems and memory" (p. 284).

Research in various fields of study have provided helpful information which has assisted understanding of the selective attention process. Among these research studies, some of the more relevant variables are complexity, dimensional interference, cue effects, and alternatives.

## Stimulus Complexity

One of the primary variables in the selection of inputs of diverse relationships is stimulus complexity. For example, complexity has been found to elicit more looking time at more visually complex patterns (Berlyne & Crozier, 1971). When many encodable elements are included, viewing time is increased (Berlyne, 1958; Faw & Nunnally, 1967 and 1960; Wohwill, 1975). Moderate levels of complexity are preferred over more or less complexity (Munsinger & Kessen, 1964; Wohwill, 1975).

The above is only a brief indication of the characteristic traits of stimulus complexity. Complexity has been a common variable in both preference and attentional research. For example, Dember & Earl (1957) stated that some conditions of attention are aroused by temporal change and spatial dishomogeneity, both of which increase environmental complexity by providing a discrepancy in the organism's expectancy. Also, Berlyne & Ditkofsky (1976) reported that stimuli characterized by novelty and/or oddity in a visual field have an advantage, but that this advantage does not spread to adjacent stimuli. Contrary to this finding, Brussell (1973) suggested that ". . . increasing the area of the portion of a visual field which captures the attention will result in a greater effect on the brightness of all parts of the visual field." Attention to the above portion of the visual field and surrounding annulus was found to be enhanced with a white spot, but opposite effects were observed with a black spot.

An important finding about complexity was reported in Nunnally & Lemond's (1973) research which led to a prediction that viewing time is an increasing monotonic function of stimulus complexity.

Thus, complexity has become an important variable related to preference with a monotonic increasing relationship with looking time consistently found. If complex stimuli results in longer looking time, to what does one attribute the need for more time. Some possible reasons are the previously mentioned limitation attached to one's perceptual analyzers (Treisman, 1969) or the time for determination of pertinence relationships (Norman, 1968) or extra time needed if one can attend to inputs only successively (Broadbent, 1958). If many dimensions strongly compete for attention, the resulting behavior would probably include more looking time, response latency, and higher galvanic skin response possibly caused by increased tension.

Still other research indicates that there is a tendency to more easily identify simple stimuli than complex stimuli (Lappin, 1967). According to Von Wright (1968), selection appears to be difficult when more complex information is needed concerning the stimuli. Finally, Eriksen & Colgate (1971) used capital letters in varying physical arrangements (with indi-

:ators before, during, and after initial exposure of the letters) to investigate whether selective attention and serial processing were implemented in processing briefly displayed stimuli. They found that when there is increased complexity of the field, accuracy of reporting the correct letter is decreased. This result is also evident as instructional complexity increases, therefore lending support to a serial processing hypothesis and possibly selective attention theory. Having to attend to certain parts of the stimulus before attending to the 'target' stimulus requires more time, and therefore results in the serial or successive processing conclusion.

In concluding, stimulus complexity is probably a significant difficulty to be overcome in most stimulus exposure conditions, but, while complexity provides one of the primary conditions of variability confronted by subjects in stimulus exposure situations, it is by no means the only one.

### Dimensional Interference

Similar to stimulus complexity, dimensional interference is described as a condition wherein stimuli compete for input dominance. Stroop (1935) explored a dimensional condition using color, names of color, and color names in black. Stroop investigated the interference of naturally occurring associative bonds between the stimuli and the desired responses. Rather than artificially producing bonds by experimentally induced methods, Stroop used the above stimuli by exposing the subject in two ways: (a) to names of colors printed in ink different from the named color, and (b) to names of colors printed in black ink. The subjects were timed as they read aloud the series of words. Errors made and time used to read the words were obtained. From this data Stroop concluded that the interference was slight and not significant, but when subjects were asked to name the color where a word is present which names another color, the interference was substantial. Effects found for practice on the task were: (a) a decrease of interference; (b) increased variability of the group; (c) shortened reaction time to colors presented in squares; and (d) increased interference of color stimuli upon reading words. While most individuals do not purposefully practice stimulus response situations, this condition could in some ways be paralleled to repeated experience with a stimulus or repeated exposure to a stimulus.

The Stroop effect was also investigated by Murray, Mastronardi, & Duncan (1972) to see if color or animal words would have an interference effect on subjects' accuracy in reporting a desired response. They found that reading out the words was significantly faster than reading out the colors of the words, but in keeping with Stroop's (1935) finding, it was harder to read out the color of colored words when printed in different

colors than it was to read out the color of the animal words. The significance of these results to selective attention is in the interference occurring when a color is presented in an inordinate context. This is especially noteworthy if one is concerned with responses to color in visual arts stimuli because color use in the visual arts ranges from extremely natural to extremely unnatural. Therefore, how might one respond differentially to the various uses of color or to stimuli which include color within its dimensions?

Smith (1962) also studied color coding and visual search relationships when the color of a target was known prior to exposure. He found that search time was less than when the color was unknown. Elsewhere, Hodge (1959) investigated the influence of irrelevancy on complex visual information. He used geometric figures varying along 10 dimensions as stimuli. Primary dimensions, form and size, were used versus kind and number of markings, kind and brightness of border, etc., which were the secondary dimensions. Whereas only the primary dimensions were present in all figures, the complexity of the secondary dimension should have influenced the subjects' performance. Hodge found that as irrelevant information increases, discrimination of that information decreases. Another factor seemed to be the sometimes relevant/irrelevant nature of the secondary dimensions, thus confusing the subject. Again the nature of the visual arts, as multi-dimensional works with focal points and artist controlled visual presentations of content and dimensions, creates contradictions between personal biases and artistic biases.

The above studies and discussion present some rather expected data on the effect of stimulus complexity and dimensional interference on looking time and accuracy of report. Overall, the results indicated predictably that as complexity increases, looking time also increases in a monotonic linear relationship and that dimensional interference negatively effects accuracy of report and looking time. The importance of the reported research is the clarification of dimensional effects on looking time and accuracy. The uncertainty propounded by complexity requires that it be studied for possible further understanding.

As the above discussion indicates, complexity and dimensional interference do effect perceptual behavior either temporally or in accuracy of attention. The next research to be reviewed concerns dimensional interference even further. The following studies involve the effect of cues before, during, and after stimulus exposure; instructional cues before and after exposure; availability of alternatives; and incentives.

## Cue Effects

Cues can be given in short statements spoken to or written out for subjects. Cues can be audible, visual, or tactile according to the needs of the particular study. The type of cue is important but the timing of the cue is generally equally as important. The effects cues have on stimulus-response conditions are also important. In order to explore these effects, Chapman (1932) varied cue instructions and found that when subjects are given specific cue instructions before exposure to stimuli, accuracy in counting, locating, and naming groups of 4-8 stimuli was much higher than when cues were given after exposure. Therefore, the predetermination of the subject by cue heightens perception of the phenomenal field while postexposure cues are less effective in aiding the subjects' restructuring of the "surrogative mass" with its coexistent aspects (Chapman, 1932). This study also indicates the need for guarding against response biasing effects of image decay of stimuli.

Davis (1967) studied the effect of time interval/cue/date relationships to investigate selective attention. He found that when a cue signal (color relevant or number relevant) is given after a data signal (signal containing "one of two alternative values along each of two dimensions") with a controlled time interval, selective attention was occurring in the form of sequential processing. But when the cue came after the data signal, results were not consistent. Apparently irrelevant information from the data signal has to be attended to before the subject can attend to the relevant information.

Brown (1960) researched cue effects, but he used only a prestimulus exposure and a during-stimulus exposure condition with red or black digits and consonant stimuli. His instructions indicated whether position, color, and/or class of the stimulus was to be attended. He found support for a selective process operating during perception when stimulus conditions of class, color, position (Condition I: black consonants and red digits), and class only (Condition II: all stimuli black), were given before exposure. He did not find support when only conditions of position or color were given prior to exposure. Therefore it was only tentatively indicated that the preexposure condition enhances the perceptual process of class (digits versus consonants), color, and position. This condition indicates that there is a need to process information successively as Broadbent (1958), Norman (1968), and Egeth (1966) proposed.

Von Wright (1968) also studied the effects of prestimulus exposure versus during-stimulus exposure cues. He had subjects perform two tasks, the first was to select from ". . . sensory or pre-perceptual storage . . ." (p. 62), a part of the stimulus field according to specified instructions.

Second, the subjects were asked "to report certain characteristics of the selected material" (p. 62). Von Wright found significant results for the selection of letters from a stimulus array by location, chormatic color, size, and partial significance for achromatic color. As a result some support was illustrated for 'partial report' ("information that the subject has available when the selection signal has been processed . . ." (p. 62)) versus 'whole report' ("the number of items the subject can report in a traditional immediate-memory test" (p. 62)). This result was reported to have occurred while selection by orientation and selection by achromatic color were not significantly different or only weakly so. This indicates that when a prestimulus exposure instruction condition over a during-stimulus exposure condition exists, serial processing of information occurs and is pertinent to understanding the perceptual process.

Cues are, as described, valuable aids in processing stimulus information if provided prior to stimulus exposure. Another condition to effect stimulus processing is the availability of alternative stimuli. Alternatives assign processing complexity because one must attend to the relevancy or irrelevancy of other stimulus dimensions.

## ALTERNATIVES

Lawrence & Coles (1954) found equal results for pre- and postconditions. They used distinct and similar alternatives in order to explore their effects on subjects' accuracy of recognition. The alternatives were presented before or after exposure to a stimulus. Results showed that, inconsistent with earlier findings, alternatives had an equal effect on accuracy of recognition regardless of pre- or poststimulus presentation. Results also indicated that there was a stronger facilitation effect of the distinct alternatives at all exposure times, and therefore alternatives effect "the memory trace or response aspects of the recognition process" (p. 214). This study is unusual because of the equal effect of the alternatives conditions on accuracy of recognition. The use of only four alternatives in each condition compared with more complex visual fields (Nunnally & Lemond, 1973; Smith, 1972; and Lappin, 1967) suggests that the complexity of Lawrence & Coles' (1954) alternatives were simplified by their small number, i.e., 4.

Consistent results from the before mentioned studies support the hypothesis that with simple stimuli, identification is more easily accomplished (Lappin, 1967) and that increased complexity increases search time (Smith, 1972). The memory trace aspect of the recognition process seems valid because it is considered within human capability to attend to 4 stimulus objects within the same general time span (Mowbray & Rhodes,

1959) and as Norman (1968) explained, memory plays a significant role in assigning 'pertinence.' The problem is that this was only possible with much practice (Mowbray & Rhodes, 1959). When 2 or 4 choice conditions exist, no appreciable increase in reaction time with sufficient practice (in the many hundreds) occurs. Their results were attributed to over-learning, thus negating the results as strong support for response aspects.

Davis (1964) studied response capabilities of subjects when exposed to multistimulus categories. Davis used 4 stimulus categories which were reduced to 2 response categories according to stimulus information from two sources. He found that when stimulus categories are presented simultaneously (to 35 msec) the subject can respond to the total stimulus pattern rather than using the two-stage analysis required for randomly presented stimulus categories. Thus, the former analysis is "perceptual" while the latter is an intellectural classification "consistent with the conception of the human operator as an intermittent analyzing system" (p. 332).

## Conclusions

The above research has covered many of the considerations involved in studying the effects of selective attention. First of all, complexity is clearly identified as a variable influencing looking time and accuracy of report (Nunnally & Lemond, 1973; Eriksen & Colgate, 1971). As complexity of a stimulus field increases, the amount of looking time also increases. This relationship is identified as a monotonic increasing function (Nunnally & Lemond, 1973). As complexity influences looking time, the opposite, simplicity, results in the easier identification of stimuli (Lappin, 1967). Both studies support the conclusion that an individual has difficulty attending to multidimensions. Dimensional interference has also been associated with increased errors and latency of report (Stroop, 1935), and as complexity increases (number of dimensions), errors and latency also increase. Stroop also reported a dimension of complexity which is the effect of naturally occurring associative bonds which, through experience, call for responses based on past responses.

Studies using cue conditions have described serial processing. For example, if a cue reveals target stimulus prior to stimulus exposure, the interval between cue and stimulus exposure allows the subject to analyze the cue and then respond selectively to the stimulus (Chapman, 1932; Brown, 1960; and Von Wright, 1968). This act of selectivity by subjects was predicted by Broadbent, 1958; Norman, 1968; and Treisman, 1969.

Although alternatives to target stimuli prove to be a confusing element to subjects when attending to particular stimuli, alternative stimuli appear

to require independent analyzation when processed more than 35 msec before or after target stimuli (Davis, 1964). Incentives effect clear target choices when coupled with negative values, and increased value seemed to result in more accurate recall of target stimuli (Harris & Haber, 1963).

Overall, the reviewed research gives credibility to the hypothesis that when an individual is confronted with a multidimensional stimulus, responses are structured by the ability to attend to only one, or at most two or three dimensions, at one time. The theories of selective attention state that specific attention is directed to the most important feature or those features of the stimulus which are dominant. Whether the experiments controlled for cue instructions, complexity conditions, or dimensional interference, all give evidence for the phenomenon of selective attention.

An important utilization of selective attention theory is speculated as a means to clarification of the attention behavior of children. These behaviors identified and correlated with expressive habits could generate unique insights formerly unavailable. If attention selectivity is a cognitive function (filter) located at the entrance to the nervous system and is effected by short- and long-term memory, then one should consider their probable relationships to children's responses to the visual arts. Answers to previously unresolved questions regarding why children attend to certain dimensions in the visual arts are speculated to reside within their selective attention.

The following review of developmental studies which have used the visual arts as stimuli is offered to identify those categories within which children's response behavior have been investigated.

## Developmental Effects

A more relevant area of concern for researchers in Art Education is the developmental trends observed in reference to children's preferences. As a result, preferential research results are an important source for understanding the relationship of cognitive and physical development on children's responses to the visual arts. The following review does not clarify how children might selectively attend to visual arts stimuli because the purpose of the developmental research was not to investigate whether children respond to visual arts dimensions by the use of an attentional mechanism, but whether or not they consistently respond according to a dimension at all.

Exposure to complex, multidimensional stimuli generates some perception, but how are certain dimensions singled out for perception? Why do children attend selectively to certain dimensions of stimul? [Very young children prefer color, 2.10-3.11 years, while older children prefer form

(Suchman & Trabasso, 1966); children prefer form over color (Kofsky & Osler, 1967); and young children prefer content and color while older children prefer realism (Mochotka, 1966).]

Aitken & Hutt (1975), measured subject's voluntary viewing time of a stimulus object and found incongruity of the object influences attention in a monotonic relationship. Their findings supported the hypothesis that if stimuli are novel, the subject will pay more attention (this was also reported by Berlyne & Ditkofsky, 1976). Aitken & Hutt found that even by 3 years of age, "children were able to respond differentially, in terms of attentional measures, to the incongruous and the banal . . ." (p. 85). This is interesting since these same researchers found that young children (before 5 years of age) showed no systematic preference. Some preferential improvement was observed by 5 or 6 years, although the reasons for the preferences were difficult to identify. Upon reaching age 7, the children's preferential bases were recognizable and consistent.

Developmental stages have been identified as fairly stable for color or form stimuli (Brian & Goodenough, 1929 and Melkman, Koriat, & Pardo, 1976) and most attempts to induce change in developmental stages have been unsuccessful (Galloway & Petre, 1968; Suchman & Trabasso, 1966; Tiffany & Horowitz, 1967). However, Gaines (1970) did obtain a change in selective attention of children. Using children from 4.6 to 7.6 years of age, Gaines induced changes in selective attention as a result of discrimination training. Of importance is the finding that even in the presence of a formerly dominant dimension, the children maintained the newly dominant dimension. As a result, it appears possible that children's selective attention may very well be a function of set (". . . a predisposition to make predictable responses to given stimuli, but the source of this predisposition is appropriate training and experience" (p. 980)).

As can be seen, closure has not been brought to the question of whether children's responses to visual stimuli are the result of developmental stages or set, the former being dictated by maturity while the latter is changeable by experience or training.

Machotka (1966) attempted to classify children's aesthetic responses to paintings and to equate those responses with Piaget's research on the development of intelligence. Machotka found content and color criteria evident at 6 years, a corresponding age with Piaget's preoperational thought, and at 4-7 years (rudimentary processes of relations, conservation of quantity, etc.). Machotka found realism criteria first used at age 8 and increased in use to age 11. This age was termed by Piaget as concrete operations because at 7 or 8 years to 11 or 12 years, processes are more developed, stable and "intellectual operations by which conservation is made possible become reversible" (p. 878). Finally Machotka indicated

that harmony and contrast also appear at age 7 or 8 and continues to age 12. Piaget also attributes the child with more complexity with attainment of formal operations. This occurs after 11 or 12 years of age wherein operations are "fully mentally independent of concrete illustration" (p. 878). Although the comparison between the findings of Machotka and Piaget is slight, it is apparent that they identify a maturation process of one's cognitive abilities. This maturation occurs as the child develops from the simpler preoperational thought processes to the complex age wherein formal operations are possible. In Machotka's study, one sees a theory of the developmental growth of children and how that growth might apply to children's responses to the visual arts.

Other variables that may affect children's response behavior have also been studied. Studies pertaining to dimensions within visual arts stimuli and simple non-art stimuli have complemented our knowledge of developmental trends.

## Visual Arts as Stimuli

Rump & Southgate (1967) found children influenced by other people but fairly independent about stated preferences when responding to visual arts stimuli. Children preferred paintings of objects realistically represented over abstraction, though this follows a modest steady decline with age. Compositional elements of perspective were understood, bright pictures were preferred, and whenever the interviewer stated a preference, the children (77%) concurred but seldom agreed with their teacher's stated preference. Beyond this influence on their preferences, the children quite expectedly preferred by subject matter and realism over abstraction. This result is in agreement with earlier results (Machotka, 1966). Therefore, as one considers the implications for selective attention, it is understood that the young child will probably respond first to subject matter as a dominant dimension (Lark-Horovitz, 1937; Machotka, 1966; Rump & Southgate, 1967; and Frechtling & Davidson, 1970).

Some researchers have used the strategy that one can more easily understand the effects of a complex stimulus (the visual arts?) if it is first investigated through its individual dimensions. As a result, research has been done with polygonal shapes and colored papers, etc. When using such stimuli, the researcher has control over many confounding variables. Control of these variables is attained either by choosing stimuli through carefully developed criteria which closely control selection of objects that occur naturally or they are reduced to their more basic dimensional components. As can be seen, the use of the visual arts still leave much room for secondary dimensions to bias effects of primary dimensions. In order to better

investigate dimensional effects on preference, some researchers have used simple stimuli representing particular dimensions of more complex multi-dimensional stimuli.

## Simple Stimuli

Suchman & Trabasso (1966) followed the above guidelines in selecting stimuli as they used binary values of color, form, and size to study the stability of children's preferences. Children, 4-6 years of age, were asked to indicate which two of three objects in a triad arrangement were the same. Color and form criteria were available in all triads. The children were labeled by their particular preference for color or form dimensions. Although the subjects were very close in age, differences in response were reported. The younger children (2.10-3.11 years of age) were found to respond to color over form while the older children (4.0-6.1 years of age) responded more frequently to the form dimension. Findings also indicated that with age, more children responded unidimensionally to form and that children preferring color do not increase their form preferences. The above seemed to confirm for Suchman & Trabasso that younger children's proclivity is to prefer color while older children prefer form.

In another study on developmental preferences for color, Child, Hansen, & Hornbeck (1968) found: (a) that children aged 6-18 preferred cooler colors; (b) there is a decreasing preference (by age) for higher chroma; and (c) that females prefer lighter colors. This study was conducted with 'Munsell papers,' a highly controlled form of color stimuli. Only pure examples of the range of hue, chroma, and value were used, therefore, confounding variables are kept to a minimum. While one can obtain rather clear results with pure stimuli, the unnaturalness of having subjects respond to such simple stimuli makes application to the universe of naturally occurring events extremely difficult.

The above two studies illustrate that with certain controls for stimulus and age of subjects, the results appear to indicate a decided preference by young children for color over form, and as Child, *et al.* (1968) pointed out, young subjects 6-18 years of age preferred cooler colors. While these results are not conclusive nor monumental for understanding children's response tendencies for the visual arts, they do serve to illustrate how children may respond to simple, pure stimuli. In order to further investigate the dimensional preferences of children, research has been conducted which included stimuli containing a more varied assortment of simple dimensional attributes. Borich (1970) used bordered or unbordered colored triangles and circles which might or might not contain interior lines or dots. His results with children and adults showed that children

preferred form over borders and lines over dots significantly more than adults. He also found that preschool children most preferred form when paired with color and that adults most preferred borders when paired with color. Even in his next five paired preferences by rank, children preferred form over the paired dimension. At the same time, the adults switched to form for the next three rankings (over the alternative response of color). As in the earlier study (Suchman & Trabasso, 1966), the younger children were found to prefer color and there was a more definitive response pattern for the children by increased age. Elsewhere, Offenbach, Baecher, & White (1972) used different sized and colored geometric shapes with first-graders. The results indicated that the children preferred form over color, form over size, with a tendency for color to be preferred to size. The preferences were fairly stable with 70% of the children maintaining their initial preference over a 6-month interval. These results agree with other research in that the first-graders prefer form. Kofsky & Osler (1967) obtained similar results with a study on free classification in which children responded to geometric stimuli (dimensions: color, form, number, and size). They found that although older children performed better, all children, age 5 and up, were able to sort into logical groupings. Also, there was a preference for form over color with a clear choice of color or form over size or number with the younger subjects. Another finding was that young children had great difficulty shifting from the initial criteria for sorting. The significance of this study is that young children, even with simple stimuli, have definite dimensional preferences, but even with instructions to change to a nonpreferred dimension, the young children had rather poor performance. Another study, concerned with developmental effects on selective information processing (Sabo, 1970), found young children's performance in recognition and recall tasks was unaffected by rehearsal. It was further indicated that older children (11-12) do significantly worse without rehearsal and that at this age, children use cognitive strategies better than younger children.

Other studies which used simplified stimuli have reported results similar to the above studies. For example, Harris, Schaller, & Mitler (1970) found form to be a dominant dimensional preference among preschool to third grade children. Also Kagan & Lemkin (1961) found that preferences of children, aged 3.9-8.6, were influenced by form more strongly than color or size.

The results are generally valid within the particular context of the individual testing situations. However, external validity to the less controlled real world of complex multidimensional visual arts has yet to be clearly shown.

Although the studies used very simple stimuli, they provide the begin-

nings to better understanding of what particular dimensions of complex stimuli children probably would attend to in such a situation. It is difficult, however, to predict children's response behavior to the visual arts on the basis of such research.

In conclusion, it is hoped that researchers in the area of the visual arts will seriously consider the proposed relevancy of selective attention theories for furnishing more understanding of children's attention behavior. Utilization of selective attention theory is speculated as a means to clarification of the selective behavior of children by identifying what and possibly how children attend to visual arts stimuli.

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# RESEARCH IN ART EDUCATION

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Research is often importantly characterized as getting new knowledge. More specifically, one achieves and interprets new facts, revises theories and/or applies theories in practice. Some paradigm cases are astronomical theory about the organization of the universe such that the moon's location at any moment is known, physical laws regarding thrust such that a rocket may be directed at the moon's predicted location and on long trips to outer planets, the physical principle regarding relativity that men in a rocket ship to such planets will age slower than those whom they leave behind on Earth. These cases involve basic and applied research; they link pure with applied science and with technology. They link what we know of the universe with what we aim to do with that knowledge.

But the link between what we know and what we do with that knowledge is different, say, than between two events by way of interpretation, two integers by way of a logical sign (e.g., $+$), two atoms by what we call electricity, two facts by way of a theory. That is, history, mathematics, and science generally are said to be similar in their "search for truth" but differ from their application, their use in the world, and their technology. This difference is intended to be distinguished by the two terms, empirical and normative. Roughly, empirics gets the facts and orders them in some necessary relationship about which statements are said to be true, usually by virtue of the correspondence between the way things are and what we believe have evidence for and say about how they are.

Sometimes the facts speak for themselves, for example, as when one finds himself "down in the dumps." That is, situations come about in which we find ourselves saying, "Well, now what shall we do?" or, as Laurel would put it, "Well Ollie, this is a fine situation you've gotten us into!" At times like this, when we know or believe something ought to be done, a "rule of thumb" is handy to have. When you're down in the dumps, my grandmother used to tell me, sing a song! Roughly, that situation is normative. What makes it normative is not just being down in the dumps but, given the depression, a prescription is given for what one ought to do. What makes the situation somewhat more complex is that some prescriptions, for example, the ones given by a doctor, are often not simply rules of thumb. They are suggestions for an action, based on a prediction that a certain effect will be obtained if the suggestion is followed.

This is all based on some hypothesis, such as the germ theory. When a doctor prescribes penicillin for pneumonia, he is predicting that if the prescription is taken the illness will abate. All things being equal, the prescription is effective. However, my grandmother's prescription for getting out of the dumps may be less generalizable. It may work for me if I believe in it, but as for my wife—well, she can't even carry a tune.

Now, the term research has legitimately and accurately been applied to both empirical and normative work on dimensions of human experience. What I am saying here is that when an investigator delves into what one ought to do given a certain situation and he derives a guide to action (an educational principle for example), he has conducted research equally with someone who seeks what is the case about the world. In this claim, I run contrary to some authors (e.g., implicitly, Eisner[1]) who wish not to stretch the term research to cover normative investigation. It is here, I think, that we find the heart of the problem with research in art education: confusion about what is, what ought to be, and the relation between the two. It is this about which I will discuss in what follows. I may offer little that is startlingly new, but there is some virtue in repeating important matters which may have been overlooked. Then, too, I have a faith that art educators interested in research, intuit both the problem (yet to be articulated more precisely) and its solution. I believe their intuition has moved them, albeit gropingly, in a fruitful direction which needs pointing up. In the long run, what is at stake is no more or less than whether art education is a discipline. For that matter, however, I will be only so bold as to suggest a possible answer.

### What "Is"

In the Western world, and as opposed to Hindu/Buddhist/African philosophies, the Greek philosophers set us on a course which has resulted in Everyman ordinarily thinking pragmatically as a problem solver in cause-effect terms. When his tire goes flat Everyman looks first and foremost for the nail in it rather than resign himself to the will of a spirit world in opposition to his own. This is not to say, either, that Buddhism did not develop a logic consistent in letter (if not in spirit) with its religion, or that the Judeo-Christian religion has not been influential on some concepts in Western science. It is to say that people in other large areas of the world do have difficulty thinking as problem solvers in terms of cause and effect. Possibly, this is one reason why the so-called developing nations have trouble progressing. Yet, even the Western world is not monolithic in its scientific approach to the nature of the universe. The Greeks also gave us a heritage of uncertainty about the nature of the universe. The debate

which began with the pre-Socratic, Heraclitus, whose metaphysics was founded in process, in flux and motion, and the pre-Socratic, Parmenides, whose logic led him to conclude that motion and change are illusory, in its contemporary form is still with us in science. That debate may be found between physics and biology: but rather, among philosophers of science who argue that physics and biology represent the proper metaphysical interpretation or model of what is.

In its contemporary form, the most extreme argument takes place between operationalism (e.g., physics), which views the meaning of all empirical statements as reducible to descriptions of experimental operations, and romanticism (e.g., biology), the view that, ". . . mathematical analyses distort the intellectual processes by which reasoning is carried on."[2] The important difference between these two, which relates the argument to its Greek precursors, rests mainly on one point. The physical sciences imagine the world to be analyzable into separate things, each of which has its own properties that are unchanging. This mechanistic view of physics has been modified, of course, since the relativism of Einsteinian physics has become prominent. (On the mechanistic view, man's aging process is not effected by laws of physics but Einstein showed us otherwise.) On the other hand, the social sciences and biology must be concerned with relations, with the parts of an organsim in relation to the whole of it, and which must change in relation to change in other parts of the whole. The significance of endangered species could not have assumed its immense importance without the theorizing and understanding of ecosystems. Whitehead's work, in part, by starting with events (as opposed to things), showed how a substitution of relations for qualities could logically be made as the constitutive characteristics of nature. Thus, time takes on increasing significance over space.

Within the stronger, more prominent metaphysical assumptions which the operationists represent, however, there is some basic argument about how theory functions. Between operationsim and romanticism stands Poincare's "commodisme" on which view theory is a function of convention such that the laws of nature are not truths but agreements about "what is" among men. In a sense, he anticipated Wittgenstein's later work[3] which argued for language as a public, intersubjective system wherein facts cannot be qualitative characteristics of sense impressions (although something sensory still can be communicated).

Within operationism, two important views about theory have been held. Reductionism evolved from J. S. Mill's antitheoretical and inductionist views through the logical positivism of the Vienna Circle to mean that a statement is its method of verification such that the power of theory is denigrated in favor of logically ordered structures of empirical concepts.

This hypothetico-deductive, atomistic conception of the world, with its accompanying epistemology of coherence, is seen by Hayek as having been one of the most dominant factors toward the promulgation of Socialism, fostered by Russell,[4] and seen today probably as paradigmatic in America as Skinner's behaviorism. On the other hand, it is commonly accepted today that realism employs theory in a sense as description, explanation and prediction of phenomena. Norman R. Campbell argued that to do its three-fold job, theory must have four distinct parts: (a) empirical generalizations; (b) a dictionary; (c) the hypothesis each of which is comprised of statements; and, finally, (d) the analogy. The latter feature of theory allows one to see that the relations between theoretical concepts are like the relation between empirical concepts. Campbell did not, however, subscribe to a fully developed realist epistemology of correspondence between what we say and is reality. In terms of this dimension, he probably is closer to Poincare and Wittgenstein than to traditional philosophical realists. Yet his view has problems because, clearly, it fails to address situations confronted, as for example, Bohr & Heisenberg in the dilemma between a particle and wave theory of light. Either one of these theories will function as the analogy as long as they are not applied together in the solution of some problem.

Science's advancing front is further fractionated by some parochialism exemplified in science's several methods of gathering knowledge (as opposed to its metaphysical assumptions about knowledge). For example, a basic split is evident between the approach taken by Jean Piaget and the one taken by K. S. Lashley which could be said to characterize the difference between clinical and experimental psychology respectively. The difference in method may be stated as the quality of certainty derived respectively from basically logical deduction through observation of a few sample cases and probability derived from using large numbers of cases in which variables are statistically controlled. This is not to say that Piaget is not behavioristic enough to employ statistics nor that Lashley was not caught in metaphysical presuppositions. Instead, it is to claim that some behaviorists accept a mind-body dualism and others treat behavior only as dictating methodological experimental procedure or phenomenalistic positivism as opposed to radical operationism.[5]

Now, this rather scant foray into the philosophy of science does show us two things of importance. First, the traditional philosophic conception of reality, either as cohering or as corresponding, is seriously tempered by science. In effect, scientists of both persuasions are somewhat leery of talking about what "is" because they understand the problems encountered in taking a dogmatic position. It is true that we must proceed to understand the world, but we cannot proceed "full speed ahead." There

are enough basic qualifications to both views that certainty, in the ultimate sense, is highly questionable. Second, the fact that there is a schism in basic beliefs held by members of the scientific community has in no way appeared to hamper the acquisition of knowledge, however tentatively it may be held. To the contrary, the fact that debate on such fundamental points has been rigorous seems to have fostered rather than retarded research. These points ought not to be lost on art educators timid in their efforts to gain knowledge.

There is a further point to be made here specific to our field. Eisner[6] has held that when investigation is carried on by an art educator who seeks to discover what is and his efforts are in the traditional research arenas (e.g., history, social science or physiology), his work can only be measured by the canons of investigation specific to the discipline in which the art educator is carrying on research. But, if within the scientific community there is at least implicit agreement on the part of debating parties that the nature of reality is not entirely clear, then to assume an "is" to be discovered may be presumptuous. The point here rests on the fact that the scientific community is somewhat at odds about what should be their canons of inquiry. Again, this is not to say that scientists do not have ways of going about their business or that information which allows us to get to the moon does not result. Obviously, progress in this sense is made. However, for example, as controversial as the results of employing a statistical procedure about economics to the writing of history about slavery might be, the scientific community will entertain the possibility and the method both to understand what the case might be or might have been. When the scientific community accepts and employs, as a matter of course, two different theories about approximately the same phenomenon, one must question the concept "canons of inquiry." When biographies of scientists allow us the insight into their thinking, that many of them claim to have no method of science, one must hesitate before accepting "THE" canons of inquiry as the *sine qua non* of disciplined research. This by no means implies that research is a completely individualistic enterprise. The act of calling some group a "community" of (scientific) investigators must have some meaning. But, it might well mean what some philosophers of science think it means—a group which, in essence, has come to use a common jargon and way of thinking. If this conclusion has some merit beyond a simple truth, then art educators who hire mercenaries to do their thinking for them or who become disciplined in a traditional subject matter in order to apply that specific way of thinking to art education, may be two groups of art educators who might do well to reconsider. If art education is unique or if it can become understood as unique, if it can be a discipline, then canons of inquiry as a universe of discourse among and specific to art educators,

while at the same time sharing some commonalities with other kinds of investigators, might favorably change the face of art education. But, what ought to be the case is another matter; one to be considered next.

In contrast with the first topic discussed, "What Ought" has an odd incomplete sound. As a question, What is? stands by itself. But, What ought? requires something else for the completion of a sentence; What ought to be? What ought one to do? The sense of unfulfilled action implicit in What ought? is in contrast to the stability and unchangelessness of What is? Here we find the other important dimension of the debate begun so long ago. As we have seen, the certainty of "what is" is problematic and, so must the future and past be at least as problematic in respect to the lawfulness of things, events and people, of nature and of human nature. Even more problematic, however, is the certainty of what clearly results from convention, from the normative dimensions of experience; from ethics, aesthetics, and politics. Just as the central question for the empiricist is epistemological, so it is for the ethicist. How may we know what is right and proper and best to do even though its relation to what is, to metaphysics, cannot be ignored?

For Plato, ethics was the highest form of knowledge but the most difficult to attain. In the *Republic*, Plato refers to knowledge of the good only metaphorically, although one concludes from his ascending order of the dialectic that knowledge of the good is achieved, at best, in an orderly manner from knowing what is true. It was left to Aristotle to systematize a way (logic) of knowing the good. That way, of course, is related to what he said in *Organon* about the syllogism, a well-formed argument, and in *Ethics*, his model of the human act as it is expressed in the "practical syllogism" based on the syllogism. Accordingly, what one ought to do (an action to be taken) is an imperative, informed by reason, drawn to some final cause rather, as we have it today, by virtue of the will and the dominance of science than being shoved by antecedent cause in some direction. But, as Robert Mulvaney argues, "Moral argument cannot be reduced to a finite set of premises. We therefore always act in a degree of darkness . . ." and with ". . . disquietude over the adequacy of one's moral analysis, and over the possibility of massive and unexpected future consequences."[7] What is at issue here, in regard to the normative dimension of experience, is rationality itself.

It should be fairly obvious that in the Western world we have come to think of inanimate things as having no will of their own and subject to the laws of nature, which are unchanging and discoverable. But living things,

specifically man, is held to exert a certain kind of power over himself and the rest of the world. This power allows us to act in ways not always expected of us, not always rationally, not always predictably. In this we see the sharply drawn problem most basic to research, especially as it involves living things. If men can change their minds, then what we discover about them today may be untrue tomorrow, unlike the motion of the stars which we say always has been and will be constant.

Psychologists and sociologists both, of course, have employed mechanistic views of humans who, as subjects of empirical investigation, have been considered less amenable to research than things. Freud's impact on understanding future human action as subject to certain antecedents has been enormous. Probably one of the most important concepts provided by sociology has been that of social stratification. What is reified in that concept is the principle that large groups of people will be formed of classes cut in any of several ways. But the principles of human action and interaction seem of another order of necessity than the laws of nature such that the difference between physics and psychology is often distinguished with the names "hard" and "soft" science respectively. Still, we move progressively and almost inevitably toward social engineering a la Skinner. If not, at least the struggle between humanistic psychology, *et al.*, and those who apply hard scientific methods to soft science entities (creature populations) is a heated one. Education is a major battleground. In 1964, of all the sociologists employed, 80% were absorbed in educational institutions.[8]

Not only is the philosophic problem of attempting to be descriptive of allegedly discoverable human traits an horrendous one, but some believe the difficulty of linking what is (may be) the case about human action to what ought to be the case is even greater. In few human institutions is this problem more apparent than in Education, for Education's aim has been held to be overwhelmingly, and perhaps logically, the improvement of people in a rather specific way, namely, to become educated. John Wilson holds that, ". . . research in Education is thus research into the processes that are supposed to produce such improvement, and is ultimately undertaken with a view to finding processes which are quicker and more efficient."[9] For Wilson, then, fundamental to research in Education are descriptions of improved states and of "getting the right assessments,"[10] and these two activities are performed by philosophers conjointly with others. The role of the philosopher in education is clear for Wilson who, as a British philosopher of education, represents mainline, contemporary philosophy which is called variously linguistic, logical or conceptual analysis. In Wilson's words, the meaning of this is that, ". . . the logical limits of a concept may be the same as the limits to the range of meaning of a particular word. . . ."[11] The significance of this claim is that

philosophy, the enterprise which has been considered by some as a systematically normative matter—perhaps the only realm in which methodological thought has been given to ethical questions—has come to be regarded as merely descriptive of our thought about important questions rather than being able to suggest some reasonable course of action as a function of metaphysical presuppositions, among which would be involved the use of the practical syllogism. Who is to tell us what to do? Wilson says, in effect, that the philosopher of education can say in clear language what people mean when they say what they want to do, and can show logical confusions those people may engage in when they say what they want to do. But this is not the same as telling us, or speculating upon, what we ought to do. Although, as G. J. Warnock says with a sigh, ". . . I believe that philosophy has not yet been accepted as a subject which its practitioners should be left to practice" and ". . . I am inclined to think that they need to feel strongly hostile to contemporary philosophy who have cause to fear or to dislike a clear intellectual air and a low temperature of argument."[12] In effect, then, contemporary philosophy, too, claims at least to want to be descriptive, as the other disciplines claim (with caution) to be, and its research is in the same sense toward the same ends, to tell us what is.

## From Description to Values

This is not to say there are not plenty of people willing to tell us how we ought to act (e.g., on the pornography·issue) because they believe they know the way we are, our deficiencies, how we fall short. The institution we call Education is very good at that—it has to be. But, this is to say that the connection between is and ought is problematic in terms of some logical, causal, valid, reasonable, certain way of knowing how to move from the former to the latter. Research is probably most needed in this arena, but also it has probably been seen as most futile. Still, attempts are being made.

Following Piaget, Lawrence Kohlberg has constructed a theory about morality which is genetic and hierarchical (developmental). The applicability of this theory to schooling is too obvious and so educators have leapt to its implementation. This leap has created a flurry of criticism. For example, Betty Sichel says, "If Kohlberg had merely carved out moral development as one portion of psychology to study, he might be on fairly safe theoretical grounds. However, once he trampled over the boundaries of moral psychology into the realms of moral philosophy and moral education, other theoretical dimensions require consideration."[13] And, in criticism she says, "Without explicit modification of the Socratic theory or

some other solution, Kohlberg has avoided the problem of the relationship between moral judgement and moral behavior."[14] But, as we have seen, Sichel is in the middle of a dilemma. If she is doing contemporary philosophy, then all she can hope for is to clear up Kohlberg's conceptual confusion (if any), which may not address Kohlberg's metaphysics (science). If she is doing philosophy in the traditional sense, then all she can offer is some version of the practical syllogism, which has its problems. For example, Mulvaney says, addressing the same kind of issue, ". . . however possible it may be to alter, modify or enlarge the premises of a student's practical argument, it is never possible to complete them."[15]

Thus far, the reader who has not dropped off may wonder why such devotion to ethics when the topic is supposed to be in regard to art education. I will later suggest a bridge between the two. Certainly, as that enterprise is involved in education, it is obvious that art education is committed to the concept improvement; that because some people are called pupils there must be something wrong with them (ignorance, at least) which art education is intended to rectify despite the apparent reluctance or ambivalence by many art teachers to accept this as given. This lack, which pupils have, suggests that it be rectified and in turn, it suggests some end toward which corrective action is taken, and this, in turn, suggests choosing one end over another or valuing (e.g., between liberal and vocational education).

The most obvious efforts made in the direction of relating what is the case with what ought to be the case, have been in Education; more specifically in curriculum theory and construction. In the 1920s, Franklin Bobbitt did educational research which assayed what people did at the time so that educators would know what they ought to do in schools with children, premised on the belief that children ought to learn to do in schools what they will do as adults.[16] The problem was, of course, that as times change so do the kinds of activities in which people engage. One current direction in curriculum construction is to value not what adults engage in as vocations, but what experts say about the ways in which adults ought to be able to think and what they ought to know about certain dimensions of experience. Barkan's "Aesthetic Education Project" is one such effort. Unfortunately, it confused an Experimentalist with a Realist (use the experts) philosophical point of view, which makes some difficulty in its implementation. More recently, further criticism of Barkan's project has been made.[17]

The Biological Sciences Curriculum Study is another such effort. Interestingly, it took an experimental attitude by formulating four possible directions, based on the several ways in which biology has been traditionally conceived and taught. Yet they say, "Science has no necessary

connections with efforts to improve the circumstances of human life."[18] But, this begs the question of why they took an experimental stance to what ought to be taught. On their own grounds, finding out that the Green Version "turns pupils on" to ecology more than the Blue Version "turns them on" to chemistry is no good reason in itself to employ the Green Version thereafter. Then, too, the criticism has been raised that while the experts may know more about what is the case in their fields, they know no more than Everyman about what ought to be taught in schools. One dimension of the "Brownsville matter" involved parents' desires to have their values expressed regardless of WASP knowledge.

Even more recently, educational philosophers have sought some return to the older sense of educational theory. This sense of the term is nominally like the scientific use. However, it does not employ prediction in the strict sense. Nor does it operate on scientific law, but derives principles in their place. Principles are used to move from an "is" situation to an "ought" (as, for example, when my grandmother says, "Sing!"). Traditionally, educational philosophy was the extension of straight systematic philosophical thinking into the realm of Education. For example, Herman Horne (in the 1930s and '40s) would outline philosophical Idealism and then show its implications for education, saying that "The learner should really be thought of as a finite personality growing into the likeness of an infinite ideal."[19] This was considered then as one principle of an educational theory. But, as philosophy changed, educational theory fell into disrepute in favor of philosophy (e.g., conceptual analysis) taught toward their own ends in colleges of education. Philosophy of education today attempts to get future teachers to think clearly about what they say, especially in that descriptive sense mentioned earlier. Criticism of this mode of educational philosophy is sometimes in regard to its possible lack of relevance to what teachers will do in schools, but perhaps more importantly, its lack of inspiration for teachers of the nobility of their profession and its lack of attention to the derivation of educational principles upon which teachers might formulate their plans, strategies, and mind-set toward pupils.[20]

The relatively recent moves to return to educational theory have stemmed from both England and Germany. The British are solidly steeped in the Oxford/Cambridge philosophical modes which represent mainstream philosophy. These are represented most intelligently and contemporaneously by R. S. Peters and Paul Hirst.[21] In Germany, Martin Heidigger and Otto Bollnow who, together, seem to represent some sort of unification of Existentialism/Phenomenology with philosophical anthropology or hermeneutics of human life. The latter is, of course, more metaphysically inclined as a philosophic mode than the British. Most con-

temporary American philosophers of education are inclined toward the British thought; if not, they certainly understand the foundational thought and methods used.

Of the small cadre of American Existential-oriented philosophers of education (a dozen or so in authorship), Donald Vandenberg probably has been the most *avant-garde.* His work, about which I am sure we shall continue to hear more (if for no other reason than his being young), seeks some unification of both British and German thought with what might be called "pedagogic wisdom" in a complex network of understandings which is to result in principles of education toward that unification of "is" with "ought."[22]

Closer to home, Beittel rejects the traditional disciplines (like psychology) as modes of knowing and moves in an interdisciplinary direction as the fruitful and unique way of doing research in art education, although it is inclined toward Existentialism/Phenomenology. His "Roshomon effect" is the name of and acquiescence to an highly individualistic way of knowing. It assumes the importance of differences among perspectives which each individual brings to seeing the world, and de-emphasizes categories as ". . . pale reflections almost out of touch with man's artistic life, and under a world view of objective-mindedness they tend to be reductive of man's artistic life itself. Hence the need for alternatives."[23] But, sadly enough, this effort comes to a world necessarily taken with *communitas,* to a social world, to a world in which behavioral objectives become more and more a way of life, to schools as bureaucracies, to a world governed increasingly by the "categorical imperative" which simply cannot be ignored because it may go away, or because each of us can live in our own little world. That is no longer possible. Beittel's research, while it reflects a deep concern with mankind and with art, does not offer the needed principles which guide action in any other way than to be one's self or, in the conditional, as Beittel puts it, "If this effort of mine extensionalizes our knowledge and wonder before the making of art, its aim is well fulfilled. If it increases the quality of experience in the very artistic events it studies, or in those that follow it, its ethics is supportable."[24] These are very big "ifs" which education has for many centuries attempted, relatively unsuccessfully, to meet and master. The movement from an "is" to an "ought" by way of an "if" simply is not good enough for an institution like education which seems to need at least some modicum of certainty.

Beittel's kind of research is, in contrast, somewhat less modest and conservative, but because it is "alternative," it is related to a kind of research emphasizing a case-study approach to situations and employing an observer-participant (o.p. or p.o.) methodology which, ". . . allows each

person to establish individual standards of acceptance; for there is no pre-supposed best, right, or wrong—only that which works for the person."[25] The o.p. method cited here, although in its reported references there is no mention of it, very likely derives from some anthropological mode of investigation as used, for example, in Ethnomethodology. The purpose of this manner of investigation is to arrive at truth (there is some right or wrong) acknowledging the belief that, "No single reality contains more of the truth than any other. From the perspective of Western everyday life, Western everyday life will appear paramount. . . . But from the perspec-tive of scientific theorizing or dreaming, or mediating, each of these realities will appear just as paramount. Because every reality exhibits the absolutist tendency I mentioned earlier, there is no way to look from the window of one reality at others without seeing yourself."[26] This method of gathering knowledge owes its debt to Wittgenstein's discussion of games. In this it acknowledges subjectivity but still attempts to be descriptive and not at all prescriptive. How it is to function in the task for art education is not clear.

The more traditional research in art education employs the usual disci-plines (very often psychology and more specifically, developmental psychology) in some effort to describe more rigorously what is, especially in regard to precision of measurement, generalizability of settings, and for maximum control. For example, Janet Szeto concludes, after a statistically experimental effort at having students judge lengths of the Muller-Lyer figure, "The relation between exposure to perspective cues and geometric illusions needs further clarification. A possible direction to clarify this relationship is to study the susceptibility to illusions like the Muller-Lyer of artists and non-artists, and the effects of perspective training upon susceptibility to geometric illusions."[27] The odd thing about this study is its apparent ignorance of Piaget's work in the same arena. As Piaget says, "The famous Muller-Lyer illusion is nothing more than the outcome of a double trapezium effect. . . . It is strange that of all the many attempted explanations of this illusion none has been offered in terms of an analysis of its elementary component, the trapezium itself."[28] Artists may or may not be less subject to the illusion than other mortals, but Piaget shows that even in the ordinary course of events Everyman learns to adapt to the illu-sion and to make more accurate judgments (perhaps even despite nominal attempts in schools by teachers who have pupils make perspective draw-ings). One would have expected Piaget's work on centration at least to have been acknowledged, if for no other reason than for Szeto to say how her work would break with his. However, what we may see here implicitly is the antipathy between American statistically-oriented experimental science and continental science as practiced, for example, by Piaget. I

would think, however, that art education can ill afford to engage in such parochialism. Nonetheless, if one were to discover that having learned perspective enhances one's ability to judge more accurately lengths subject to illusions, then ostensibly, one has an implicit prescription about what ought to be taught. This, I believe, is how research in art education generally may justify itself—at least in the traditionally oriented research. But, as it has been shown, a value choice is still necessary. The choice implies some principle which requires a move from a discovered is to what ought to be done. Arriving at and using principles has been problematic in the several ways discussed. It may be that art educators simply wish to ignore the problem or they may, for some reason or other, not see it as a problem, regardless of who else might (such as the Brownsville people).

Or

There may be other ways of making that shift which allow principles to be subjective and at the same time be generalized. Let me suggest just the barest bones of one way. But first, some introductory comments are in order.

Science recently has been used as a political tool. The newest and most innocuous example of this claim deals in our national concern with and neurotic fright about cancer. Currently, there are two sweeteners on the market; sugar and saccharine (given that cyclamates have now been taken off the market). We are all aware of the prescriptions for using non-sugar substitutes in order to meet the national "weight problem" and, of course, for diabetics. However, a Canadian study has just shown that saccharine causes cancer of the bladder in laboratory animals. The FDA proposes to take saccharine off the market, leaving sugar (and honey) as the only sweetener—despite the fact that medical cases of cancer of the bladder in humans have not been associated with the use of saccharine. For diabetics and dieters, who have used saccharine as their sweetener, the choice is a forced one unless, of course, the hue and cry from the people is as great as it was concerning the danger of smoking. The government will find out how importantly people in America—and the two groups constitute a large number of the population—value sweeteners over the prospect of losing their lives to cancer. In this way the government, especially the FDA, can get itself off the hook if it warns people about scientific findings, but leaves the choice ultimately of what to do up to each person. Science has been used to provoke a forced choice situation as a guideline for bureaucratic legislative action, to move from a description to a value decision based on subjective, individual rationality. We know how people have opted in regard to smoking. Now we shall discover their pleasure in

respect to sweeteners. Choices made in these two cases by the people, based on that kind of evidence, most likely will aid the government in making other decisions without having to go to the people. Even if this claim were not true, if the situation were to have been set forth as the machinations of a paranoid mind, it would still be an interesting way of moving from an is to an ought while retaining the value of subjectivity inherent in our highly individualized democracy.

In an age and a country in which individualism and personal freedom of expression are increasingly paramount, concurrent with the increased need for social order due to the decreased life-space with which we are confronted, knowing how to legislate for optimal choice-potential is mandatory. To do this is difficult enough in itself. But it is even more difficult to place in proper perspective an institution of the importance and stature of science, an institution which, because of its fundamental premises is deterministic, is antithetical to the concept of individualism. This is the basic problem, I believe, which faces all institutions in freedom-loving America. It faces art education no less. This is the important context in which research in art education must be seen. It has not been the case, however.

First, research in art education has been seen rather simply and within the relatively narrow confines of public school settings, with children as the primary population of investigation. With the increasing importance of lifelong learning, many other populations, especially the aged, cry out to be studied by art educators. The concept "education" has been taken in much too narrow a sense by art educators by limiting themselves to schools and therefore, to children. If principles of art education are sought they ought to be sought on a wider basis than they are currently. This implies that some research in art education ought to be philosophical if the notion of research is to pattern itself on the traditional conception of theory in education. Even if art education research must limit itself to descriptive efforts, these ought to be more broadly based for no other reason than the lifelong learning argument. Even the move toward teacher preparation in the area of aesthetics, unfortunately, limits itself to the schools and in doing so, runs even greater risks of eliminating art education as an enterprise. A broader, bolder vision could serve to ensure art education as a value to the culture.

Second, with a few exceptions, art education research has limited itself to traditional metaphysical conceptions of the world. As we have seen, there are numerous problems with those conceptions, problems which hard science, in the main, has attempted to solve rather conservatively and which philosophy and soft science have tried to solve by being scientific. If the art educator has anything of value, it ought certainly to be his intuition

that individualism must be accounted for in our conception of how the world fits together. Not to account for it in some rational way acceptable to rationalists, denigrates mankind and certainly the artist, and therefore, culture.

Third, by approaching research in art education from the philosopher's point of view, our advice has come largely from outside the field; from those who, like Donald Arnstine[29] and Harry Broudy,[30] do not have the investment in the field that art educators do. This is not to cast aspersions on these scholarly gentlemen, but simply to suggest that art educators ought to do their own homework because they ought best to know what the problems really are. Broudy's traditional philosophical Realism represents a grand but increasingly vestigial view of education in the face of what appears to be a resurgence of a Jacksonian conception of the democratic ideal and the impact upon and absorption into society of a Dewian pragmatigm via the educational system of basically common schooling. But Dewey's impact on education, as expressed by Arnstine, must be to place science in the forefront of problem solving, while at the same time having been misinterpreted as "THE" expression of individualism, thus accentuating the rift between object and subject rather than to resolve it. This rift has made the search for principles of moving from is to ought more important but even more difficult to achieve. All these factors have tended to militate against and confuse art educators' understanding the role of research in art education which is unique and specific to art education. If art education is a discipline, it should soon understand how it is a discipline and toward what ends it ought to be working. In this context, then, I suggest a way out of the dilemma. At this point it is less argued and more intuitive, perhaps, than it ought to be.

Traditional disciplines have some central concept which, generally speaking, maps out their terrain of exploration; physics takes matter and energy, chemistry takes transformation of substance, sociology takes groups of creatures, psychology takes individuals and history takes the past. In a similar sense, art education can deal in imagination, for no other discipline takes that concept as its central focus for study. This is not to say that other realms of study do not employ imagination. Of course mathematicians are creative, but their task is not to reflect upon the creative use of imagination as exemplified in mathematics, for that would be only one aspect of a meta-mathematics. Even artists, the paradigms of those who exercise imagination, do not take that as their central focus. That, again, would be meta-art. But art education is the prime candidate for accepting the responsibility of dealing clearly with imagination.

The other hallmark of a discipline is a method by which information is gathered. Whether or not disciplines do in fact have methods in the sense

of canons of inquiry, as we have seen, is problematic. Certainly the several sciences and history employ theory in the ordinary sense referred to earlier and thus, they have a format in which predictions (or, in the case of history, retrodictions) may be made toward the end of more accurate description. Philosophy, the area of study which traditionally has dealt with the world normatively, has moved in the direction of giving descriptive accounts of the concepts employed in language. The interesting thing is that it has been able to do this in the face of opinion that philosophy is a normative affair. However, it is true that logic, philosophy's method, has been available to it for quite some time, and it is not theoretical in the sense of science. Philosophy's theory has been in the sense of metaphysics, which is precisely that from which philosophy has moved in order not to be considered normative. These two conditions, a central concept and a method, are the necessary conditions of disciplined attempts to know the world and to describe it. So far, art education could qualify on one of these criteria of a discipline were it to accept imagination as its central focus.

Now, institutions like education are in the awkward position of needing more than descriptions in order to do their appointed tasks; they need also to know what they ought to do. Philosophy of education usually parallels what is done in general philosophy and thus, in denying theory, it renounces its normative role. Quite recently, philosophers of education have recognized the problem for education by so denying normatives, and they have posed two directions as solutions: lending language analysis to prescription in some way not yet clearly understood; and returning to some theoretical way of deriving principles of education to be used in the practical syllogism or some version of it. Since art education has been seen by its practitioners as part of education, it has been subject to these moves in a relatively passive way. At the same time, it has, in regard to research, attempted to emulate the disciplines methods toward description, albeit perhaps with little understanding of needing a central concept to explore. I suspect they too often have confused method as description and central concept as prescription. It would be possible to acquiesce to current moves made by educational philosophy toward the end of discovering principles of art education for use in the practical syllogism in order to say what ought to be done in art education. But it would also be possible to see art education as a purely descriptive affair, given some method of exploring its central concept, imagination, and thus to expand out from and perhaps even to move away from education as the institution in which it must operate. Could there be some such method, especially one unique to art education?

First, it is important to understand that the methods of science are bent primarily toward and are governed by the desire to be objective; to

eliminate observer-subjectivity. Thus, we see a Piagetian or continental method which stresses logical deductions from the observation of a few cases. We also see an Anglo-American method which emphasizes statistical probability based on very many cases, separable from experimental design and significant when, e.g., ". . . the obtained difference rises above the fluctuations to be expected in cases of no true difference for samples of that size."[31] Both of these, in bold outline, are major research methods which differ in emphasis. But the creativity of individual experimenters has been the well from which more specific methods have been drawn toward objectivity. The double-blind experiment and the Flander's Interaction Analysis are two examples of this general desire for and expression of objectivity. They came about from the efforts of experimental practitioners engaging in research enough to be able to understand what methods of objectivity are needed to meet specific kinds of research situations and to invent one's alleging to fill the bill. Replication by others tests the results as well as a proposed method. But, a great deal of research must be done by multitudes of researchers in order to make an impact and to advance in this direction. Beittel, Morris, and others in art education may be attempting this, but they seem to be only a few voices in the wilderness. What I am suggesting is that method unique to a discipline is illusory. No discipline employs a method of which some version cannot be used by some other discipline. The fact that history has employed statistics to draw conclusions about slavery in America ought to demonstrate this. But, whatever method is used to be descriptive must be used toward objectivity, which certainly entails replicability, at least. However, this is a conservative suggestion regarding another way in which art education might move in regard to research. Let me suggest a less conservative move, one which might bring together both the descriptive and the normative dimensions faced by art education in its exploration of imagination.

I assume that in the performance of the artist we find the most moral member of society; the one who can describe with greatest objectivity the way we are morally as a people. What the artist does in his work is what he thinks as a moral person. I will not expand on this further nor argue it here but, if this claim is true, then the discovery of what he does leads to a description of morality. The description may be of principles used by the artist in his work as the moral mirror of society. In this, both scientific and normative dimensions of human experience are treated in one act, an act which usually is performed by two separate bodies, the scientist and the ethicist, between whose works the rather artificial linkage called the practical syllogism has been placed to make a rational connection. This is the direction in which I believe Beittel, for example, has searched, but possibly without understanding how to make the link between description and

prescription. He does not see, I think, that imagination as exercised by the artist is morality in action, leaving behind him his trail of reality to be counted. The first step to be taken in this possible direction would be to understand more of the imagination, especially philosophically.

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# A THEORETICAL FRAMEWORK FOR THE PREPARATION OF ELEMENTARY TEACHERS IN AESTHETIC EDUCATION

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## ABSTRACT

*The purpose of this study was to formulate a theoretical framework for the preparation of elementary education teachers in aesthetic education. The author identified five sub-problems relating to the main topic of the study:*

*1. What are the philosophical and pedagogical reasons and justification for using Harry S. Broudy's theory as a basis for the study?*

*2. What values, principles and goals for aesthetic education can be identified in Broudy's philosophical and theoretical positions for the formulation of broad program aims and instructional objectives for the theoretical framework?*

*3. What standards and criteria are evident in Broudy's writings which apply to the selection of content, e.g., exemplars, concepts and skills to be taught which may be applied in the theoretical framework?*

*4. What principles for the selection and organization of instruction and activities and for the formulation of pedagogical strategies to promote insight and mastery on the part of the learner may be used within the framework established by Broudy?*

*5. What principles for the selection of formative evaluation procedures may be used within the framework established by Broudy which would be congruent with the perceptual approach to aesthetic education?*

*In order to answer these sub-problems the author read and analyzed relevant Broudy writings for values and direction for objectives, content, methodology and evaluation which would apply to the theoretical framework for teacher education in aesthetic education.*

*The author decided to explore Broudy's position because of his criticism of the present arts education programs and because of his view that aesthetic education is part of general education as a dimension of value education. Based on his arguments for the justification of aesthetic education as a dimension of value education, necessary for the cultivation of the "good life" for all students, a rationale was developed for the teaching of aesthetic education in the elementary school by the regular classroom teacher and a plan was outlined for the training of elementary education teachers using Broudy's approach.*

*The author argued the feasibility of the perceptual approach for the preparation of the generalist teacher and its advantages over traditional methods courses include the following:*

*1. Learning to perceive as an artist is different from learning to perform as an artist and is within the scope of a program for the education of the nonspecialist teacher.*

*2. Learning to perceive as an artist can generate confidence in the classroom teacher; without confidence there is little hope for adding aesthetic education to elementary school curricula.*

*3. The aesthetic vocabulary lends itself to establishing a mutually supportive relationship between the arts specialists and the general classroom teacher, via "aesthetic discourse."*

*4. The four perceptual categories which Broudy distinguishes offer a structure for learning in aesthetic education, both for teacher education and for instruction in the elementary school.*

*5. The perceptual approach offers the opportunity for the arts to be integrated into the regular classroom by a teacher using the aesthetic dimension of experience and "aesthetic discourse" as avenues to this end.*

*The argument was made that aesthetic education has two functions in the school: the first is to improve the student's perception of the sensory, formal, technical and expressive elements in works of serious art and the second is to enrich the imagic store and alter the value schemata of students in the aesthetic dimension of value education through the perception of value import or aesthetic images.*

*The study concluded that the perceptual approach of Broudy is feasible for teacher education in aesthetic education and, thus, may further the goal of promoting growth in the aesthetic dimension of value education for all children.*

## REVIEW

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How should elementary classroom teachers be trained in aesthetic education? Holden seeks to answer this question by presenting the theory of aesthetic education proposed by Harry S. Broudy in his many published essays and presentations between 1960-1973. Recognizing that Broudy stops short of formulating adequate instructional objectives, teaching methodology, and procedures for evaluation, Holden offers her own extensions of Broudy's theory in these areas, but otherwise she limits herself to articulating the implications of Broudy's theory in the form of specific recommendations. She does this with full awareness of the assumptions on which the theory rests, consciously embracing the notions that "the goals of general edulcation include the development of the aesthetic capacities of all students rather than the select few" (p. 8), and the corollary that "it is possible to improve perception, sensitivity and taste through deliberate instruction" (p. 38). She also accepts the argument made by Broudy and others that neither the performance-production approach, nor the appreciation approach to education in the arts has succeeded in developing the aesthetic capabilities of the general public.

Holden's treatment of her question has its advantages and disadvantages. On the positive side, she has performed a valuable service in clarifying and filling-in the contours of Broudy's theory so that its applications are clear to curriculum developers. Her account of Broudy's thought is accurate and just. The work of one scholar is likely to have a coherence not found in works by diverse hands, and there is merit in building an academic program on a coherent theory. Since programs in aesthetic education are likely to embody positions regarding the definition of art, the nature of aesthetic experience and artistic creativity, the place of criticism in aesthetic education, and the function of art in the lives of individuals and in culture, Holden's summary of Broudy's position on these issues should encourage more conscious articulation in curriculum

development. Finally, Holden makes several excellent suggestions about setting instructional objectives, deciding on strategies to facilitate learning, and evaluating both students and programs. Her work goes a step beyond Manuel Barkan's widely used report on the "Aesthetic Education Program at the Ohio State University" (E.R.I.C. # ED 018 819, August 1967) in specificity and in sophistication. These are no small achievements, and I wish to highlight them for the benefit of those who may want to read the dissertation before I express my reservations about the design of her work.

The theoretical framework Holden establishes is based on Broudy's argument that aesthetic education should be developed for elementary classroom teachers, an argument which is grounded in democratic values. Broudy believes that since all of us possess the capability for aesthetic experience, aesthetic education should not be restricted to a few talented students who can become practitioners of particular arts. Therefore, he proposes a perceptual approach, based on the notion that although not everyone can create great art, potential teachers and their students can benefit from deliberate instruction in perception. He sees the development of perception as part of the larger process of developing "authenticity" and living a "good life" (pp. 61-68). Broudy's perceptual approach involves offering instruction designed to develop the student's ability to perceive the sensory (visual, aural, tactile), formal (pattern, design, theme, balance, proportion), technical (skillfulness, craftmanship), and expressive dimensions of works of art in various media. The expressive dimension is the most difficult to teach, because it must be seen in the object itself, be interpreted imaginatively, be conveyed through metaphor, and be seen with an appropriate amount of "psychic distance" (pp. 72-74). Broudy would have us focus attention on works of art in teaching aesthetic perception because works of art are more likely to be appropriate stimuli for aesthetic experience than other aspects of the environment. He recommends that we accept the current definitions of art and good art offered by the critics who should serve as our models for aesthetic expertise, which he terms "enlightened cherishing" (pp. 58-61). Although aesthetic education should involve the attainment of skills in impression or perception primarily, it should also encourage experimentation with different expressive media, not for the sake of creating artistic products, but for the resulting increase in perceptual skill. Such an increase should be demonstrable in the student's statements about works of art. Additional outcomes should be the enrichment of the student's store of images and an alteration in his/her values.

According to Broudy, then, the general classroom teacher needs a course in the history of one art and a course in formal aesthetics or

philosophy of art because aesthetics is the source of a vocabulary for criticism in the arts. These courses would be offered in departments of fine arts or philosophy. Students would receive the remainder of their aesthetic education in a department of education where students would draw on theory from aesthetics, from various disciplines of the arts, learning theory, and educational philosophy to construct "large-scale cognitive maps as a context for solving problems" (p. 230). A laboratory experience would be designed to give the students a chance to master concepts and skills of perception and expression in a "contrived or controlled setting" (p. 150). Students would then gain clinical experience in the study of exemplary works of art under the guidance of master teachers. An internship would allow the student to work with children under supervision but with some autonomy, in order to learn how to teach the children to perceive and how to evaluate their expressive work.

Broudy recognizes the need for some specialists in the field to serve as curriculum planners in the schools, and he recommends that they receive the same education as the generalists with the additional requirement of proficiency in the performance of one art, and of sufficient knowledge of the arts to make them candidates for the labels critic and connoisseur.

Holden sees several implications of this position for the organization of a curriculum to facilitate learning. Whereas specialists in the arts may need to learn a great deal of information which they can use replicatively and may need to learn skills involved in applying knowledge to new problems or situations, the general classroom teacher does not. Instead, the aim of aesthetic education for generalists is to increase the student's store of images so that it will function in associative and interpretive ways, to increase the student's recognition repertoire and to give orientation and perspective in subsequent encounters with works of art.

Because Broudy's perceptual approach places a heavy emphasis on learning which is useful in the associative and interpretive senses, "the specification of behavioral objectives may be contra-indicated" (p. 143). Holden formulates an alternative continuum called descriptive objectives, one end of which has no set parameters, and the other has parameters within which there is complete freedom for solution. Holden's examples of behavioral and descriptive objectives are among her most useful original contributions.

The most important recommendations about the selection of content for courses in aesthetic education concern the selection of exemplars, or classic works of serious art chosen by critics to meet high technical, formal, and expressive standards. Broudy thinks that we should choose abstract works in several media to insure the proper psychic distance, and that we should choose from the accepted canon rather than from the

frontiers of the arts, since only avant-garde artists know what is going on there.

In treating the methodology of aesthetic education (organization and sequence in the design of instructional activities), Holden looks to the work of Hull, Gestalt psychology, and philosopher Polanyi (in addition to Broudy) for guidance. Hull's notion that learning consists of strengthening a member of a family of responses that already exist in the learner's repertoire, has significant ramifications at all levels of aesthetic education. If "everyone who has the necessary sense organs and neural equipment can be taught to perceive 'aesthetically'" (p. 202), then it should be feasible for educators to proceed by simply adding appropriate members to each student's habit family hierarchy by presenting diverse ideas and opportunities. This is done in accord with the students' motivation—that is, their general interest in self-development, their readiness to assume the aesthetic attitude, and their receptivity to secondary reinforcement. Holden proposes that most of the learning on the University level should be designed heuristically, to "promote thinking and discovery of principles on the part of the students" (p. 217), instead of didactically. She recommends that instructors allow ample time and support for trial responses on the way toward the achievement of insight or full apprehension of an expressive image, and then sufficient time for the incorporation of insight into habit or mastery before testing occurs.

In the area of curriculum evaluation, Holden favors instructional research undertaken in classrooms to assess the effects of the process of instruction, rather than assessments of outcomes or products created by students. She recommends that evaluators focus not only on the prospective teachers' skills in perception, their use of an aesthetic vocabulary, and their level of confidence, but also on the total picture of the curriculum, as in Stake's responsive evaluation approach or in Eisner's approach. In judging the progress prospective teachers make on various continuums of aesthetic education (e.g., from naive to sophisticated perception, minimum to maximum cognition, low to high confidence, uncritical taste to skilled judgment, evaluators should test the teacher's ability to use knowledge in several ways, to point out perceptual qualities in works of art, to take various attitudes toward familiar objects, to give demonstrations of exemplars, to discuss aesthetic values. Evaluation of expressive skills for non-specialists should focus on the extent to which the creative work exhibits aesthetic understanding rather than on the creator's technical expertise.

In the last few pages of her dissertation, Holden recognizes several practical constraints on her theoretical framework and acknowledges that she encountered several problems in using Broudy's perceptual approach.

Nevertheless, she affirms the approach, presumably on the basis of her experience with it, saying that it is within the scope of general education, that it does generate confidence in the teacher, that it leads to supportive relationships between arts specialists and classroom teachers, and so on. I think the dissertation would be greatly strengthened had she devoted more time to these issues. This observation brings me directly to my major reservations about her work.

Holden's choice of structure for her dissertation and her decision to proceed prescriptively from Broudy's premises are extremely costly. In keeping with current practices in Education, she treats theoretical issues, program objectives, procedures for content selection, teaching methods and curlriculum evaluation in separate chapters, and within each chapter she treats each issue as it occurs in two phases and four stages of aesthetic education for teachers. This strategy involves too much repetition and it prevents her from treating any of the stages or phases in satisfying depth. Although she says that some of her recommendations are based on her classroom experience at the University of Illinois, her relentless parallel structure affords her no opportunity to show us the interpenetration of theory and practice. She reports that she has "found the perceptual approach feasible in all stages of teacher education, except the internship, where direct instruction was not attempted" (p. 257), but then goes on to list some extremely significant modifications in Broudy's recommendations that seemed to be indicated by her experience. For example, she found that her use of some avant-garde exemplars, photography, and popular art strengthened rather than weakened the effectiveness of her teaching. Surely these findings are more important to curriculum developers than the incessant repetition of Broudy's stages. Surely, Broudy himself would want us to discuss the various ways in which his perceptual approach might be implemented.

Perhaps Holden's design for the dissertation creates a more rigidly prescriptive impression than she intended; certainly the effect of the repeated chapter sub-headings regarding "the theoretical stage," "the laboratory stage," "the clinical stage," and "the internship stage" is to canonize Broudy's structural suggestions for aesthetic education. This fact limits the usefulness of the dissertation unnecessarily to curriculum developers in large Universities with a School of Education already predisposed toward doing aesthetic education. Since Holden and Broudy acknowledge the need for specialists as well as generalists in aesthetic education, I think that neither would want to preclude the development of a program for specialists housed in a School of Fine Arts or in an interdisciplinary unit in the arts or the humanities with appropriate ancillary work in a Department of Education. Surely one can be

systematic in articulating the principles on which a field of study ought to be developed without restricting the forms the field can take.

## REVIEWER

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# EFFECTS OF AGGRESSIVE ART MOTIVATIONS ON THE OVERALL AESTHETIC QUALITY, IDENTIFICATION/INVOLVEMENT, AND CREATIVENESS OF DRAWING

Carlin John Kielcheski, Ed.D.
Arizona State University, 1974

## ABSTRACT

This study investigated the effects of aggressive versus passive art motivations on the overall aesthetic quality, identification/involvement, and creativeness of drawings by selected college students. The researcher conducted a $2 \times 2 \times 2$ factorial design (four treatment levels) with 270 student subjects, primarily elementary and art education majors, to test the effect of (a) aggressive versus passive verbal content variables, and (b) open (less information) versus closed (more information) variables, (c) role played or non-role played variables on the visual qualities of pencil drawings resulting from the experimental art task. The visual qualities of overall aesthetic quality, identification/involvement, and creativeness were assigned independent ratings by five art judges using a Gestalt Judgment Scale. Significant statistical differences in the visual qualities of drawings resulted from aggressive motivation ($p < .001$), open motivation ($p < .006$), and role play motivation ($p < .034$) and no interaction effects were revealed.

The findings indicated that aggressive art motivations allowed for the perception of greater novelty and elaboration of detail but not of harmonious visual arrangement, apparently supporting the contention that a disposition for originality tolerated discord and disorder. Open art motivations allowed for more novelty and harmonious arrangement but not for elaboration of detail, indicating that identification/involvement might be related to suggestivity. Role-played art motivations, like aggressive ones, allowed for greater novelty and elaboration of detail, but not for harmonious arrangement, indicating that spontaneity was possibly more conducive to originality than to aesthetic organizing.

It was concluded that aggressive art motivations resulted in more creative student drawings. Open art motivations resulted in more creative and aesthetically pleasing student drawings. Role-played art motivations resulted in more creative student drawings. No particular combination of art motivations affected creativity more than any other combination.

The Rogerian hypothesis that symbolic destruction of objects might be freeing in a manner conducive to creativity was apparently supported by the study. College students could be helped to discover their creative potential through appropriately planned, intense aggressive experiences that also insured maximum safety from physical and psychological threat. It was recommended that further research concentrated on (a) the effects of suppression versus symbolic expression of aggression on performance with art tasks, (b) the effects of aggressive art motivations on different age groups, and (c) the effects of aggressive art motivations on selected groups identified as to (1) high or low creativeness, (2) aggressive or nonaggressive personality structures, and (3) sex.

## REVIEW

Barry E. Moore
Illinois State University

*Statement of the problem.* Kielcheski attends to a problem that is central to education. That is, the concept that externally manipulated stimuli, frequently referred to as motivations, influence changes in students' behavior. While this is not a new idea, one is hard pressed to find many current empirical studies related to motivation and art production. Kielcheski states that "The purpose of the study was to provide opportunities for learning through art activities in which aggressive or passive, open or closed, and role-play or non-role-play are motivation variables could be systematically varied and observations made of their effects on the overall aesthetic quality, identification/involvement, and creativeness of drawings by selected college students" (p. 2).

A basic premise of the study is that aggression, even to the point of destruction, is a positive motivating factor in creative behavior. Kielcheski cites May, Lorenz, Storr, and Rogers, among others, to support this assumption. The other two independent variables, open or closed motivations, and role-play or non-role-play, were included in the design of the study providing eight possible combinations of these three dichotomous independent variables.

*Related research.* Chapter II, "Review of the Literature," was divided into four sections in addition to the "Summary." The first section dealt with the concept of motivation. Various psychological theorists, social philosophers, aestheticians, and art educators were cited to support a phenomenological view of motivation for the purpose of this study.

Part II of this chapter reviewed theories, research, and evaluation of creative behavior and creative products. In the middle of this section Kielcheski developed the rationale for generating his own *Gestalt Judgment Scale.* Gestalt judgment was defined as the subjective evaluation of art products by experts. He proceeded to explain the scale used to train judges, and how the results of a one to five ordinal ranking could provide interval data for this study (pp. 27-28).

The reviewer found this information important and central to the study, but it is out of place in the Review of Literature chapter. It would be appropriately presented in a section dealing with the design of the study, or a separate chapter dealing with the development of a Gestalt instrument.

The third section in this chapter reviewed writings on aggressive behavior, motivation for aggression, aggression related to creative

behavior and a phenomenological view of aggression. Basically aggression was defined as "an act involving injury or destruction of something" (p. 33).

The fourth section, entitled "A Phenomenological Model to Study the Effects of Aggressive Art Motivation on Creative Behavior," advances an unusual mixture of rationale statements with supportive citations, personal points of view, a detailed explanation of the independent and dependent variables used in the study, and an additional review of the literature concerning role-play (pp. 38-64).

This reviewer does not hold to an inflexible stand concerning dissertation format, but Kielcheski proceeds to use this chapter to advance personal opinion rather than a considered summation of the related literature.

*Research objectives.* One best determines the purpose of the study through the three null hypotheses stated in Chapter I:

1) There is no significant difference in the performance on all dependent variables taken together (overall aesthetic quality-OAQ, identification/involvement-I/I; and creativeness-CR) resulting from A [Aggressive motivation] and the performance on all dependent variables taken together resulting from P [Passive motivation].

2) There is no significant difference in the performance on all dependent variables taken together resulting from O [Open motivations] and the performance on all dependent variables taken together resulting from C [Closed motivations].

3) There is no significant difference in the performance on all dependent variables taken together resulting from R [Role-playing] and the performance on all dependent variables taken together resulting from N [Non-role-playing motivations] (pp. 3-4).

*Methodology.* Chapter III, "Design of the Study," includes some of the information one would expect to find in this chapter, but as mentioned previously, some crucial information was difficult to find because of its placement in the text. For instance, a clear statement of the hypotheses, and a thorough explanation of the instrument would help clarify this chapter.

1. *Population and sample.* The population for this study was 270 college students, mainly juniors, who were randomly assigned to one of nine sections of art courses taken by students preparing to be elementary teachers and art teachers. Eight of these sections were assigned experimental treatments. The ninth section was used as a control group.

2. *Experimental treatment.* Each one of the treatment groups was assigned a different type of motivation. For instance, one group would receive an Aggressive, open, role-playing type of motivation; another group would receive a Passive, open, role-playing motivation and so on. The

three dichotomous independent variables produced the eight different types of treatment for the experimental groups. Each section was given four treatments of the same type of motivation, and after each treatment they were asked to draw their impressions of their experience using soft lead pencils and 12″ × 18″ white paper. Each treatment session was approximately 30 minutes long and all four treatments were presented over a four-week period.

The presentation of the motivations were all in the same format. A short passage was read to the students, then they listened to the same passage on audio-tape. Kielcheski explained that the taped presentation would provide standardization, leading one to ask the question, why include a reading? If the students were not assigned to role-play the experience, they would proceed to draw their impressions of the story. If, however, they were in one of the classes designated as a role-playing section, they proceeded to act out the experience, with some props, then draw their impressions of the experience.

Keilcheski includes a complete list of the motivations in the appendix. An example of an aggressive-open motivation is the story about throwing unknown objects at an unknown assailant. An Aggressive-closed version of the story verbally describes throwing beer cans at a drunken attacker in an alley. The students who were to role-play acted out the story by smashing beer cans filled with plaster against a concrete block wall specifically constructed for this study. An example of a Passive-closed motivation describes Grandma making cookies.

The above-mentioned motivations illustrate how literally Kielcheski defined aggression as "an act involving injury or destruction of something." Kielcheski compares resisting an attacker with physical violence to watching Grandma make cookies. These are two entirely different realms of experience. The experimenter should have held to different approaches to the same situation.

3. *Control group treatment.* For the purposes of this study, a control group was not essential. Kielcheski reported the data on the control group although no null hypothesis relevant to such a group was posited in Chapter I or Chapter III. A control group was inferred in the research question #4 (p. 3). The control group "designated for a laissez-faire treatment, were simply given the same paper and pencils and asked to draw anything that interested them" (p. 68).

4. *The instrument.* This section of the chapter listed the three dependent variables: creativeness, identification/involvement, and aesthetic quality. As mentioned before, most of the information about this instrument is found in various places throughout the study. Kielcheski used this section of Chapter III to describe the method of training the

judges in the use of his *Gestalt Judgment Scale.* He reports the inter-judge coefficients of correlation for the training sessions: .896 on aesthetic quality; .695 on identification/involvement; and .741 on creativeness (p. 69). In Chapter IV, however, he reports the inter-judge coefficients of correlation on the actual data judging: .58 on aesthetic quality; .45 on identification/involvement; and .42 on creativeness (p. 87). This sharp drop in the coefficients of correlation, which were initially acceptable but not high, raises questions about the interpretation of the data collected. Kielcheski recognized this drop, but considered the later figures acceptable.

Many investigators would have considered this drop in inter-judge correlations a disastrous blow to the study and would have considered any conclusions derived from the data in jeopardy. These statistics should have signaled a need for the researcher to take a long hard look at his newly developed instrument. Without higher inter-judge coefficients of correlations, it is questionable if further analysis of the data had any validity.

5. *Statistical design and analysis.* The researcher used a $2 \times 2 \times 2$ factorial design, post test only (four treatments for each group). A multivariate analysis of variance was used to test the null hypotheses. The .05 level of significance was set for this study.

*Results.* The researcher rejected all three null hypotheses listed above. He found the criterion variable of overall aesthetic quality (OAQ) was significantly affected by open motivations. The criterion variable of identification involvement (I/I) was significantly affected by motivations involving aggression and role-play. The criterion variable of creativeness was significantly affected by motivations involving aggression, openness, and role-play.

*Reviewer's commentary.* The reviewer feels that this area of investigation is an important one for our field. However, he has found it necessary to expend considerable effort in clarifying the study. This effort was needed mainly because of the unique design format and inconsistent reporting procedures. In the final chapter, Kielcheski points to several areas of the study that need to be refined, such as the criterion measures. The reviewer supports those recommendations, and further recommends that the motivations should have been variations of the same, or similar themes rather than the abruptly different themes used in this study.

It would be difficult to replicate this study because of confounding influences such as the oral reading of the stories, and the elaborate props used in role-playing situations. If one is to enthusiastically accept the conclusions of the researcher, you are still left with the problem of applying these motivational strategies in your own classroom environment with or without the props.

One of the stated limitations of the study was the description of the 270 college students registering for a specific type of art course. If, however, intact public school classrooms were used, the implications for the profession would have been far reaching.

Kielcheski has conducted one of the few studies dealing with the affects of various motivations on art production. It is hoped that his effort will encourage others to refine and conduct similar studies.

## REVIEWER

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# STAFF INVOLVEMENT THROUGH AN IN-SERVICE PROGRAM IN THE DESIGN OF A BEHAVIORALLY ORIENTED VISUAL ARTS CURRICULUM

Delbert Lee Dace, Ph.D.
St. Louis University, 1973

## ABSTRACT

*This research study was designed to test the effects of an inservice program on a visual arts education staff as it attempted to construct a behaviorally oriented curriculum in visual arts education for both the cognitive and affective domains of learning.*

*The participants in the in-service program were the twenty-one art instructors responsible for the visual arts education of the students from kindergarten through twelfth grade in the Ladue School District, St. Louis County, Missouri.*

*The staff was given a self-analysis test before and after the in-service program to assess their comprehension of some of the concepts and vernacular used in behavioral curriculum design. The pre-test and post-test included items about the cognitive and affective domains of learning, the construction of behaviorally written objectives, the hierarchy of learning conditions, and conceptualizing programs. Before and after the in-service training each member of the staff was given an opinion survey in which he stated his feelings, aspirations, and desires concerning the direction of the Ladue Visual Arts Education Program.*

*The pre-test and post-test results indicated that there was a positive gain, which was significant at the .05 level of confidence, in skills, knowledge, and background needed in curriculum development as a result of the in-service program. The opinion survey results served as the foundation on which the visual arts education program was designed.*

## REVIEW

Gilbert A. Clark
Indiana University

*Statement of the problem.* The stated problem of this project was to ". . . test the effects of an inservice program on a visual arts education staff as they attempt to design a behaviorally oriented curriculum in visual arts (K-12), with consideration for both the cognitive and affective domains of learning." Further problems referred to in the introduction, body of the report, and conclusions and implications were: a "description and evaluation of an in-service program," "to improve the skills, knowledge and background of the visual arts education staff . . . ," and "to provide a forum for sharing their ideas, opinions, feelings, aspirations, and desires about the purpose, the objectives, the description, the direction, and the evaluation for the visual arts education program (K-12)."

This project attempted to improve the image and status of art education in a specific district. Based on the assumption that, "Most art programs

have been concerned with cognitive development . . . and have paid little or no attention to affective development . . . ," one purpose was to incorporate and operationalize affective objectives as part of the curriculum. A third related purpose of the project was to have pupils attain "a positive artistic self concept. . . ." This outcome was never defined, nor was it ever established to be intrinsic to an art education program.

Obviously, the writer addressed many problems. None are addressed experimentally, and none are resolved.

This reviewer referred to the reported work as a project. It was so described because the reported work is not a research study. The writer, Dace, obviously coordinated an ambitious curriculum development project involving twenty-one teachers in a school district. The (commendable) outcome was the creation of a behaviorally oriented, K-12, visual arts curriculum, and a supportive staff willing to implement the curriculum. It has been done before and since. The work reported does not seem, in the opinion of this reviewer, to be a legitimate basis for a dissertation, especially not under the guise of research.

*Related research.* In the largest portion of this report (36 of 60 pages), the writer attempted to establish a foundation for the project. The foundation was built upon three major components. The review of literature discusses: (a) in-service education; (b) behavioral objectives; and (c) the cognitive and affective *Taxonomy of Educational Objectives* handbooks edited by Bloom and Krathwohl.

Each of these three components are reported from a position of advocacy rather than objectivity. Further, they are reported as they will contribute to the desired outcomes of the project, rather than as operational means to desired ends. The three components lack specific relationship to visual arts education or any other subject matter. Yet writers in the visual arts who have dealt with the components are strangely lacking. No reports of specific in-service education in the visual arts are reported or reviewed. No speculation or discussion of behavioral objectives by leaders in visual arts education is reported or reviewed. Eisner and Wilson are referenced on the last page of the project report as suggestions for further research, although their writings are not reviewed in the discussion of related literature.

Dace attempts to characterize the categories or divisions in both the cognitive and affective domains as they might be expressed for visual arts education. He paraphrases the original authors' descriptions of each division and then offers examples as behavioral descriptions. Following this, he lists related verbs to be used in further expression of the concepts. There are some grave errors committed both in the paraphrasing and in the visual arts examples. For instance, the cognitive division of "Applica-

tion'' is paraphrased as, "The ability to use material in new and unique ways'' and is exemplified as, "Draws selected objects in a still life." The highest level of the affective domain, "Characterization," is paraphrased as, "The individual has a value system which has controlled his behavior long enough for him to have developed a characteristic life style," and this is exemplified as, "Practices careful following of 'how-to' instructions."

The lack of accord to visual arts education as a specific discipline, body of knowledge, or established professional field is a serious lack in the related literature of this project report. When art is mentioned, it is mentioned as an instrumental means to other outcomes. There are advocates of an instrumental arts focus for art education, but there are no arguments given either for or against this position. It appears a grave fault, to this reviewer, that no theoretical or declarative arguments are given or discussed as a rationale for content in the curriculum developed. A more serious fault is that no theoretical or declarative argument for art-specific content is given. The curriculum goals are identified as "self-concepts," "children's awareness in all subjects . . . ," "a more versatile personality . . . ," "high staff morale," and similar claims. There is no formulation of sequenced art content. In fact, it is claimed that, ". . . the process of education . . . (should) help the student acquire a particular collection of behaviors, rather than a particular collection of content."

*Methodology.* Though this dissertation is structured as an experimental research, the work reported is not. For instance, a null hypothesis is first stated in the chapter on "Analysis of Data." It is stated, "There is no significant improvement in skills, knowledge, and background needed for curriculum design and development of the visual arts staff after their participation in an in-service program." Why this hypothesis occurs in this place is never explained. Why the hypothesis restates, in a null form, the "generaly purpose of the study" from page 5 rather than restating the "problem" found on page 5 is never explained.

Methodologically, the project description outlined the steps taken, and the schedule, of an in-service education project with twenty-one visual arts educators in a single school district. There were no control, or alternate method groups involved. "The staff was given a locally created self analysis test before and after the in-service program." In addition, "Each member of the visual arts staff was given an opinion survey to assess his opinions, feelings, aspirations and desires concerning the direction of the . . . art program." This last survey was taken home to be filled out at each participant's leisure. The rest of the methodology reported, and most of the appendices, dealt with procedures and content for the in-service work sessions.

There is no accession to any extant models of research methodology,

evaluation procedures, or objective observation procedures. The instruments used were never pretested or evaluated and were never administered to any other group than to the participants of the project.

*Conclusions and implications.* In argument for the use of behavioral objectives (page 17 of the dissertation), there is a list of words to avoid because these words are, "Open to Many Interpretations," and listed as, "to know, to understand, to appreciate, and to believe." The general conclusions drawn from this project were, "The visual arts staff appreciated the in-service program . . . ," "They appreciated the total support structure . . . ," "They saw a need for a defined program of study . . . ," "The art staff appreciated being asked to participate . . . ," they, ". . . were pleased to have the opportunity to voice their opinions . . . ," etc. Such claims are questionable outcomes and totally lack precision or validity of any kind. It is the business of research to establish new facts and to relate these to one another or to extant knowledge in a field. The pre- and post-test administrations are reported as Wilcoxon Matched Sign Rank Test gain scores. On this basis, the null hypothesis was rejected, "at the .05 level of confidence . . ." (neither the statistic nor the significance levels were mentioned earlier) and it was pointed out that, "in fact it was significant at the .01 level of confidence. . . ."

This kind of *ex post facto* claim, lacking any prediction or establishment of procedures prior to the research is denounced in every major research or measurement text. In fact, such procedures have been questioned by the editors of this publication.

It is also inappropriate to claim, as is claimed here, that, ". . . it would appear that a behaviorally oriented program of visual arts education could be designed and implemented in the schools *as long as the art staff responsible for its implementation was involved in the design*" (reviewer's italics). What other model was tested? A vague reference to ineffective implementation of Hubbard and Rouse curriculum materials reported earlier in the dissertation is the only referent to the underlined claim. The claim is not justified by the character, methodology, or execution of this project. Science staffs, reading staffs, language arts staffs, and almost every subject matter staff of the schools are constantly implementing curricula written by others. The S.W.R.L. Elementary Arts Program, an effective visual arts curriculum, has been implemented by many classroom teachers who were not, "responsible for its . . . design." The claim is an unfortunate one.

*Reviewer's commentary.* A number of recent reviewers for this publication, as well as the editors, have commented on inappropriate applications, or the lack, of correct research methodology in art education research. This reviewer reiterates this criticism in reference to this project report.

Dace has compounded a number of conceptual errors in this report. He arbitrarily chose a set of conceptual constructs as the basis of his project. He did not report a critical examination or objective rationale for these choices. He confounded the conceptual, affective, and psychomotor domains, and he paid no heed to criticism of the separation of these domains. Also, he laid claim to unsubstantiable and vague cognitive and affective outcomes for the project reported that are totally aside from the stated purpose of the project.

It has often been demonstrated that people learn what you set out to teach them. But this is not a basis for claiming "a contribution to the field." Obviously, people need to do the kind of work that was reported here. Implementation of ideas is our purpose. However, implementation of poorly structured, poorly directed, or weak ideas is not an achievement. Art education, as a field, and art educators, as a body of professionals, should be concerned with the implementation of important constructs about the arts. Art education programs should be built with conceptual integrity; art education curricula should be directed toward mastery of art making and knowledge about the arts. Objectives, activities, and outcomes for students participating in visual art programs need to be formulated with the most effective means of achieving knowledge about the arts.

## REVIEWER

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# A STUDY OF THE RELATIONSHIP BETWEEN COLOR, FORM, AND FUNCTION PREFERENCES AND SORTING FLEXIBILITY OF PRESCHOOL CHILDREN

Arline Kahn Julius, Ed.D.
Columbia University, 1974

## ABSTRACT

The purpose of this investigation was to study flexibility in the use of different criteria for sorting and to relate this ability to different strengths of preference for these criteria, to specific dimensions preferred, to age, and to gender. The dimensions selected for classification by preschool and kindergarten children were those of form, color and function.

The subjects were 89 economically disadvantaged children: 42 boys and 47 girls, aged three and one-half to five and one-half, from three preschools in New York City.

Two sets of semi-structured, non-verbal tasks, made up of common objects, were constructed and refined, through pilot studies, to measure both preference strength and shift ability. The relevant dimensions for one task were form and function; for the other task they were color and function. The subjects were divided into four age groups of an approximately equal number of boys and girls and then randomly assigned to the two orders of task presentation.

It was hypothesized that a strong preference for any one dimension, such as color or form, would make the shift to a second category more difficult, and that this relationship would not vary within the age group studied.

Calculations were made separately for each task. Most of the children tested could be classified into extreme, moderate or inconsistent preference strength groups. Shift scores for subjects in each preference strength category were analyzed using the General Linear Hypothesis Method of Analysis of Variance.

The findings substantiated the hypothesis concerning preference strength and shift ability in the color-function task. Strength of preference affected ability to shift criteria for sorting. Children who had extreme preferences had lower shift scores. Two-thirds of the children, that is, those who exhibited moderate preferences or had no preference, had higher shift scores than the extreme preferrers. Analysis of variance on shift scores by preferred dimension as well as preference strength revealed that when preferences were extreme for the function dimension, scores were the lowest. The children who had the lowest shift scores were older than those who scored higher, although there was, on the average, a gain in shift scores with age. Age, however, did not affect scores as much as strength of preference.

Neither preference strength, preferred dimension nor age had any affect on shift scores in the form-function task.

There was a trend for girls to have higher shift scores in the form-function task. There were no sex differences in the color-function task.

The number of form preferences increased with age and preference strengths also increased with age, especially for the color-function task.

The findings indicated that individual differences in preference strength can be the most influential factor with regard to sorting flexibility. This influence, however, varies with the kinds of dimensions used as well as their context.

It was suggested that it would not be advisable for preschools to emphasize attention training to any one characteristic of an object, such as its color or function, because these dimensions can be potent distractors and may prevent responses to other attributes. Stress on the

*qualities of form, however, may not inhibit response to the dimension of meaning or function, since the attitude engendered by form sorting does not have a narrowing effect. This latter finding may have implications for the teaching of reading.*

## REVIEW

Elizabeth J. Sacca
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In a dissertation written at Columbia University, Arline K. Julius has reported a study of lower socio-economic-status children's flexibility in matching objects according to their color, form, and function, and the relationship of this flexibility to the frequency with which individual qualities are chosen.

The report of the study is organized in the following chapters:

INTRODUCTION (14 pages) defines concepts studied, their interpretation on socio-economic terms, describes hypotheses and research questions.

*Section Headings:* The concept of flexibility and shift in sorting, development of sorting preferences, flexibility and preferences, socio-economic variables, salient issues, definition of terms, statement of hypotheses, research questions.

METHOD (16 pages) describes the selection of sample, assignment of treatments, logic and development of testing materials, and procedures.

*Section Headings:* Subjects, assignment of subjects, materials and apparatus, procedures, scoring procedures.

RESULTS (30 pages) reports findings in relation to hypotheses, research questions and related points.

*Section Headings:* Hypotheses and research questions, supplementary analysis, summary of results.

DISCUSSION (31 pages) presents findings and discusses possible explanations and relationships to findings of other studies.

*Section Headings:* Strength of preference and shift ability on the color-function task; strength of preference, preferred dimension and shift ability on the color-function task; the form-function task; shift ability and age; preference change and age; strength of preference and age; task order and preference, sex differences, educational implications, summary.

Related literature (49 pages) appears as Appendix A; Appendix Q describes briefly the pilot studies on which the development of the test and procedures is based.

The most crucial aspects of this dissertation are the definition of the basic concepts and the development of the apparatus and procedures to reflect the qualities intended. Where the term preference generally includes an element of taste or liking, here it is used to mean the frequency with which a choice is made where the instructions are to match, "Put this (standard) with the one it goes with" (p. 150). There is no reason to assume that such a selection would be caused by preference.

In its final form, the test consists of two sets of tasks each of which includes one practice array and trials on eleven other arrays. Each array is composed of one standard object and four options. The two types of arrays are one in which the standard matches one option in color and another in function and a second array in which the standard matches one option in form and another in function. Each array contains two other objects which are considered irrelevant. The choice of one of these is called random.

The development of apparatus and procedures presents the next most significant problem. A list of the objects in the arrays with their appropriate matches is provided, but it is not possible to make a thorough evaluation because one does not know how they have been changed or what they look like. Several examples appear at different points in the text and these illustrate some problems. In the acknowledgements, the author thanks an artist for fulfilling "such way-out requests as painting a hair brush to match a blue balloon" (p. ii). The more the qualities of the objects are manipulated and the more their selection is predetermined by the types of choices children make, the less the stimuli can be said to represent the assigned qualities as they occur in realistic situations. Each manipulation reduces the generalizability from the stimulus objects to objects in the world.

In the case of the painted hair brush, an unusual surface treatment introduces incongruity, a confounding variable which could influence selections. Also, one is not told whether the whole object is painted (the problem of lack of realism would be greater) or if the object has two colors (number of colors in an object would be another variable).

Some examples of arrays with their correct matches in the form-function and in the color-function tasks follow:

| STANDARD | FORM | FUNCTION | OTHER | OTHER |
|----------|------|----------|-------|-------|
| round plate | puff | fork | tie | flag |
| oblong cigarette | chalk | matches | brillo | scissors |
| drumstick | lollypop | drum | envelope | scrub brush |
| | | | | (p. 24) |

| STANDARD | COLOR | FUNCTION | OTHER | OTHER |
|----------|-------|----------|-------|-------|
| gold present | toothbrush | party hat | pipe | shovel |
| lilac straw | paper punch | milk container | padlock | book |
| olive sneaker | napkin | glove | playing card | juice can |
| | | | | (p. 25) |

Another problem emerges in the testing and selection of arrays. There is an effort to eliminate qualities of objects which are considered to be distractors; that is, all the other qualities of the object that are not encompassed by the prescribed dimensions of color, form and function. The

author states, "options which were not related but attracted too many of the high scoring subjects or were appealing in an unforeseen manner. These objects were replaced or altered" (p. 179). This was based on trial runs with children, but the details of the procedure and the extent of this selection process are not described. It seems that this aspect of the study could have provided important descriptive information on the nature of children's attention.

The fact that there may be multiple bases for a given response is discussed, but its implications in terms of the basic approach and design of the study are not fully realized. "When the explanation for what was originally thought to be an irrelevant sorting seemed to have some logic, the array was changed" (p. 180).

Arrays were also selected on the basis of their ability to differentiate between children with high and low shift scores. In doing this, the stimuli are further restricted. We have objects which have been altered and selected to meet a series of criteria, and the test's relation to realistic color, form or function preference or ability to shift criteria becomes more problematic. Also, the data are distorted toward more extreme shift scores.

Because of the fixed number of trials interpreted for the two different types of findings, it is only possible for a child making the maximum number of possible choices on color, for example, to be low on measured shift. The confounding of these two measures invalidates findings based on their comparison. This includes the basic hypothesis, "A strong preference for any one dimension, such as color or form, would make the shift to a second category more difficult . . ." (Abstract, p. 2).

The construction of the test materials is also intended to satisfy the questions of cultural bias and difficulties with verbal communication. In discussing studies on "economically disadvantaged children" the author lists the cited inadequacies of these children: "less flexible than middle class," "deficiencies," "do not have the ability to control reactions," "perseveration and rigidity," "compulsive color sorte" and "less capable of impulse control" (p. 8).

This is followed by a statement which takes at face value challengers of these interpretations, but these criticisms have not tempered the points of view cited in the discussion. "Other researchers, however, have contended that the alleged superiority of middle class groups in flexibility tasks may be due to the cultural relevance of the tests used, or to the differing motivational and reinforcer hierarchies . . ." (p. 10).

The author continues, "Because of these problems real objects were used for the tasks . . . and instructions as well as scoring require a minimum of verbalization" (p. 11). In the abstract, it is called a non-verbal task. This is not an accurate description. The detailed instructions are in-

cluded in Appendix B (pp. 150-157). The instructions direct the child to select a match for the standard object, "Put this (the standard) with the one it goes with" (p. 27).

The following is the procedure for the practice trial:

> After a first choice, the experimenter explained the relationship involved. The standard was then replaced to its original position and the child was told: "Show me what else it goes with."
>
> Whether or not the child made a second choice, the experimenter explained the second relationship. Both explanations were then repeated. For example, for the form-function series, where the lock is the standard object:
>> You see, the key goes with the lock because you open the lock with the key and it also goes with the wheel because they are both round. You see, it goes here and it goes here. . . .
>
> The next two practice trials were presented with four choice objects. In these trials, however, if an irrelevant choice was made, the experimenter moved the standard to the relevant object and continued the explanation. The procedure was the same for the second choice. The two explanations were then repeated, as in the following color-function example:
>> You see, the brush goes with the comb because you use the brush on your hair and you use the comb on your hair. And it also goes with the balloon because they are both the same color. You see, it goes here and it goes here (moving the standard to each object in turn). It does not go here or here (pointing to the irrelevant objects, but not moving the standard). Now you show me again where it goes (p. 28).

Even if verbal communication were eliminated, why would one assume that non-verbal communication is not culturally bound?

Because of the problems with the construction of the test, the results cannot be directly interpreted. Nevertheless, they are listed briefly for the readers' information:

*Hypothesis 1* "predicted a greater ability to shift from one classifying mode to another when preferences for color or function dimensions are moderate or inconsistent rather than extreme"; it was supported (p. 31).

*The second part of Hypothesis I* "predicted a greater ability to shift from one classifying mode to another when preferences for form or function dimensions are moderate or inconsistent rather than extreme"; it was not substantiated (p. 33).

*Hypothesis II* "predicted that there will be no difference in the relationship of shift scores to preference strengths for color and function or for form and function for younger compared to older children"; it was not substantiated for color function (p. 38) but was substantiated for form-function (p. 39).

*Question 1* "concerns the difference in ability to shift categories when the dimensional preference as well as strength of preference varies for

color and function and for form and function, and the relationship to this ability to the ages of the children"; a relationship is reported between strength of preference, preference dimension and age (p. 40).

*Question 2* "do preferences for color vs. function, and form vs. function vary with age?" Only the number of form preferences showed a significant change and increased with age (p. 48).

In the discussion chapter, the findings are related to the conclusions of other studies. On a number of points, the implications of the study are drawn more broadly than can be justified by the data. For example, in discussing children with random preferences and low shift scores, the interpretation broadens: "Perhaps these children, lacking any personal orientation, were least capable of the inhibition necessary for the type of thoughtfulness required by this task" (p. 64).

The work of Bortner and Birch is discussed, but its insights are not applied to the development of this study. The author uses the terms strength of preference and flexibility as though they referred to fixed abilities within a child which are reflected equally in testing situations. Contrary to this Bortner and Birch are quoted on the influence of the content of the task and set in selectively drawing on a child's possessed capacities (p. 72).

In the final section, Educational Implications, the conclusions are drawn more broadly than a strict interpretation of the findings would allow.

> In general, however, one might say that an environment with too many highly salient cues would be more likely to be distracting. If the number of high salience cues are reduced, the child might be more predisposed to attend to the less salient features of objects, and subsequently to the inferred or abstract qualities (p. 86).

Placing the following paragraph in this section implies it has developed from the study, but the study does not provide such a basis:

> The preclusion of certain kinds of preschool materials, e.g., brightly colored objects, that would encourage a child to focus on highly salient stimuli might be advisable. On the other hand, a forced, alternate selection of stimulus dimensions might be necessary for initial training of observation of the multi-dimensions of objects. More emphasis on descriptive, perhaps aesthetic qualities, might be beneficial to children who find retrieval of concrete characteristics, such as color, difficult (p. 87).

In this section, the following assumptions appear that color preference is more primitive than, and precedes, form preference; that what follows in a developmental sequence is more desirable; that it is teachable and should be taught; and that a preference for one quality would diminish responsiveness to others.

The educational implications conclude with a position statement by the author, "There is a need to outline specific programs and the conditions necessary for specific end results, with varied measures for individual progress" (p. 89).

## REVIEWER

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# ENHANCING THE SELF CONCEPT THROUGH THE USE OF PHOTOGRAPHY AS AFFECTIVE CURRICULAR EXPERIENCES

Mary Ellen Wandel, Ph.D.
University of Pittsburgh, 1974

## ABSTRACT

*This study was to investigate and evaluate the effect on self concept of students' planning and producing photographic and non-photographic projects, and the effects of presenting or not presenting these projects to significant others. A secondary purpose was to glean information which could be used as guidelines for designing curricular experiences which might enhance self concept.*

*Students in the sixth, seventh, and eighth grades of Frick Summer School, Pittsburgh, Pennsylvania were randomly assigned to one of four treatment groups. Students in one of the groups used cameras, took slides, and presented the slides in a show in the auditorium for their peers. Students in another group used cameras to take slides but did not show them for their peers. Students assigned to a third group made non-photographic projects and put them on display. Students in the fourth grade made non-photographic projects but had no opportunity to display them.*

*The Piers-Harris Children's Self Concept Scale was administered as a post-test. The raw scores of 83 students, 22 per cell, were subjected to a 2 × 2 analysis of variance. The results were evaluated to find evidence of a significant difference at the .05 level and to discover if there was interaction. It was found that there was a significant difference between the groups that used cameras and took photographic slides and those that did not. There was no significant difference between those who made a presentation whether slides or graphic projects, and those who did not. The results of the statistical analysis did not disclose interaction between the independent variables.*

*The findings suggest that an experience with photography has more of a positive effect on self concept than one with non-photographic media. Therefore, teachers and educators should provide opportunities for all students to engage in experiences using cameras. Indeed, camera activities and photographic experiences should become an integral part of graphic projects.*

*The finding of no significant difference between the groups presenting and not presenting projects indicates that presentation in the environment of the study was not quite as important in building self concept as had been hypothesized. Teachers should feel free and be encouraged to involve students in media-centered activities without the constraints of planning and executing a formal presentation. The results seem to emphasize the fact that the process, including the taking of pictures, interacting with others, and being trusted with equipment is more important than the end-product. The enhancement of self concept along with other curricular outcomes is an end in itself.*

*There are five recommendations for Curricular Experiences:*

*1. Students should be encouraged to use a camera and take pictures.*

*2. There should be some basic instruction on the use of the camera and photography in general. Procedures for selecting goals and objectives should be included in the instruction.*

*3. Students should be encouraged to be creative.*

*4. Students should use as wide a variety of equipment and materials as is possible.*

*5. Teachers and students should take advantage of the Audio/Visual Services available to*

*their school system, and the equipment available in elementary schools, and in middle schools.*

*It is further recommended that the educator have some background in the basic tenets of self concept, be aware of and sensitive to the student's needs in the affective domain, especially self concept, and meet these needs with alternatives and options. Among these alternatives and options is the use of cameras and photographic equipment which students handle themselves with a minimum amount of guidance.*

## REVIEW

Diane Korzenik
Massachusetts College of Art

*Statement of the problem.* Self concept is dealt with quite incidently in classrooms despite its importance as discussed regarding school achievement research literature. Attempts to deal with students' problems in school have centered on changing curriculum and/or school organization with few strategies that directly addressed self concept. The purpose of this study is to examine one educational strategy directly addressed to self-concept; this strategy happens to be an "art" experience, i.e., planning, producing and presenting a photographic slide show. The author's criteria for the strategy are that it provide opportunities to meet what she calls basic human needs; the need to belong, to be a contributing member of a group, to be admired and to have feelings of satisfaction.

*Related research.* Historical, cross-disciplinary use of concept of self is traced, beginning with Descartes in 1644 in his *Principles of Philosophy.* This review of the relevant literature helps the reader identify key issues that Wandel chose to weave into her research design.

Self-concept has evolved and gained new facets in time: (a) the nature of the acquisition of concept of self; (b) the function of idealized images in coping with anxiety and differentiating primary areas wherein success will be critical; and (c) the demand for consistency of self-concept by the self, within a framework of a dynamically changing person.

The psychological literature is reviewed as distinct from the educational literature. Wandel uses the latter to focus upon the function of the school.

The author reports on research which shows that positive self-concept is a necessary but not sufficient factor of school achievement. Brookover (1962, 1965, 1967), Hamacheck (1971). Further review of the literature, demanded a third category, media and self concept, distinct from general psychological treatment of self concept and the function of schools on self concept. This section would have gained substantially by a broader definition of media. Wandel defined media as video, film and photography, and as such, is weak. For theoretical purposes, media might have been

examined as vehicles for symbolization, including the visual, graphic media which concern art educators. The active visual selection process demanded by photography is hardly unique to photography. The experience of one's self as the cause has been labelled "artistic causality." (Beittel, 1973, p. 1) Beittel considers "artistic causality" an essential condition for making all art in which the maker "feels like an origin and not a pawn."

Theoretical resources in art education were regretfully neglected. The author's search ignored the work already done in art education research. The omission of art education research is especially unfortunate since one of the non-photographic groups in the research design was asked to depict summer school experience in posters, murals, amongst other documenta.

In reviewing Wandel's selections, her choice of relevant research is puzzling. She reviews literature in terms of the dependent variable, whereas she neglects to investigate the literature on the independent variable. She neglects the literature that investigates what is unique and essential to her study. Her study, after all, is on the effects of photography.

*Research objectives.* The primary purpose of the study is to investigate and evaluate effect on self-concept of a specific classroom activity, i.e., planning, production and presentation of a slide show. The secondary purpose is to gain information that would be useful in development of a curriculum where the objective is improving self-concept.

*Methodology and analysis of data.* Wandel sets important methodological boundaries on her study by making a distinction regarding students' self-reports, and between students' actual self-concept and what they are willing and able to say. This distinction is identical to that so necessary regarding diagnosis or analysis of drawings wherein children's representations of themselves are too readily equated with their concept of self. The function and limitations imposed by the medium and performer's skill in the medium is as true regarding language and verbal reports as it is in drawing and graphic representation.

The significance of this clarification becomes greater since the author deliberately provided no experience wherein students would learn about either self-concept per se; or verbalizing and analyzing their own concept of self.

The chosen instrument for measuring self-concept is the PIERS-HARRIS *Children's Self-Concept Scale* (1969). The design is the randomized control group posttest only design, chosen to avoid pretest interaction on the measuring instrument.

The reseacher embedded the research design in a summer learning experience entitled "Improved Communications for Better Human Relations." Though the self-concept content was deliberately omitted from the

title, it is possible that both improved and better are labels that suggest inadequacy.

The sampled population were attending summer school, supposedly for gifted children yet the I-Q's ranged from 87-167. Because all volunteers were actually accepted into the program, it would seem desirable to have more than the posttest scores to inform us of the nature of the change in the students.

Wandel serves the purposes of her study through a 2 × 2 factorial design, indicating the mean score within each cell for photography/non-photography and presentation/non-presentation groups. The differences between the means were subjected to analysis of variance which yielded results that enabled her to conclude that there was a significant difference between mean scores of those who took photographic slides and those who did not. Whereas the scores of those who presented their slides were not found to be significantly different from those who did not present.

The design of the research is a logical outgrowth of the primary purpose of the study. Inclusion of other, perhaps even informal data sources, i.e., interviews, might have made her findings richer and more useful.

*Reviewer's commentary.* In her discussion of the significantly higher scores from photographic over non-photographic media, Wandel falls into traps resulting from omissions in her earlier review of the literature. Suggestions, such as that photography demands "less creativity," seem weak. How is she conceiving of creativity? The researcher speculates that the difference demonstrated by her findings may result from inherent characteristics of photography, but she barely examined the literature on these characteristics and their differences from other art-making, and/or verbal documentation.

Wandel speculates that perhaps the positive effect of the use of photographic processes is a function of student's perception of his own worth, evidenced by trust with valued equipment. Had these speculations been considered before hand, they might have been controlled for in the research design.

One speculation that is especially interesting is that photography involved focussing upon one another, maximizing group interaction. This dynamic did not occur for the non-photographic group. (Of course, it *could* have; such art education strategies certainly exist and could therefore have been controlled.)

Upon reflection, the variable of presentation of the slide show was believed to be less important as a means of getting feedback and interchange. The lack of statistically significant findings here does not cause Wandel to conclude that the presentation factor is not important. Rather she proposes that with photography there is continuous presentation and

feedback that is not restricted to a single, specific presentation event.

The secondary purpose of the study was to provide guidelines for curriculum to enhance self-concept. The findings regarding the lesser importance of final presentation of work, lead Wandel to the discussion of process vs. product. To her, the critical features of process seem to be: taking of pictures; interacting with others; and being trusted with equipment. She concludes that teachers "do not necessarily have to be concerned with the time, effort and quality of a product necessary for a show."

Wandel here seems to have slipped into the dilemma that exhibitions must present work with adult sophistication or there should be no show at all! Pre-adolescent photography, like pre-adolescent drawing is powerful as art because of the way the skill of the individual is made articulate. The limitations of skill become a fact with which the student creates. It lends the work strength and requires no apology.

Amongst the author's recommendations for future research, she mentions the need to replicate this study with lower grade children. I would add the need to replicate also with older adolescents and with adults. Peer interaction serves quite different needs at different ages. A shift in the impact of drawing for a peer was found to be a function of the shift from egocentric to socialized thought between the ages of five and seven. The younger children barely modified their image to communicate to their peers, whereas the older children were stimulated to analyze the effects of their drawing and to draw significant cues for their peers (Korzenik, 1974). Peer interest is a developmental phenomenon and the nature of that interest is a function of cognitive and affective stages of the individual. This study lacked a developmental framework, which might have lent even greater strength to these findings.

## REVIEWER

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# DISSERTATIONS REPORTED: Additional Listings for 1975

Allen, E.V.H. A survey of Texas public school art teachers to determine the emphasis placed upon product and process in evaluating the work of art students. p. 7817.

Anderson, O. K. The comparative effectiveness of different instructional and motivational strategies on aesthetic and visual perceptual attainment. p. 4980.

Barron, W., Jr. Improvisation and related concepts in aesthetic education. p. 5903.

Bendel, D. V. An experimental study of single and double process ceramics: Visual and haptic attitudes. p. 3173-A.

Boodhoo, I. U. A curriculum model in art education for the primary schools of Trinidad and Tobago. p. 668-A.

Brunner, C. Aesthetic judgment: Criteria used to evaluate representational art at different ages. p. 1400.

Burn, E. E. The effects of two tracing treatments upon the representational drawing of sixth-grade students. p. 7134.

Condello, R. A. Effects of sequencing on meaningful learning. p. 3105-A.

Correro, G. C. The effect of visual art training upon visual perception measures of certain first-grade children. p. 5801.

Craven, S. J. Predicting student success in a studio arts curriculum. p. 6389.

DeFurio, A. G. A contextualistic interpretation of aesthetic response: The contribution of the experiential domain and idiosyncratic meaning. p. 1249-A.

Degge, R. M. A case study and theoretical analysis of the teaching practices in one junior high art class. p. 5750.

DiBlasio, M. K. Proposals for the critical examination of belief claims in art education: A conceptual analysis of belief applied to foundational issues in art education. p. 3338-A.

Elsie, L. J. Personality factors related to learning patterns: Conceptual tempos and visual perception. p. 681-A.

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Finer, N. B. Mexican culture: A senior high school elective course using art and social studies. p. 2588.

Floyd, J. R. The federal muse: a study of executive initiative in federal participation in the arts, 1933-1943. p. 8253.

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King, J. M. The role of context, imagery and detail in recognition memory for pictorial material. p. 848-A.

Koh, J. C. Art appreciation as an education objective. p. 5910.

Krevolin, H. L. A dissemination model for implementing individualized learning in art. p. 1290-A.

Lakota, R. A. The efficacy of three visitor learning support systems in producing cognitive and affective outcomes in an art musuem. p. 2078.

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McCulley, C. E. A descriptive study of the status of selected art departments in higher education. p. 7020.

Menendez, M. P. A survey to determine the essential art teaching competencies required for elementary classroom teachers. p. 5752.

Meredith, K. R. A descriptive study of the art and art education chairman's role in state supported four-year colleges and universities in the United States. p. 5872.

Minihan, J. O. The nationalization of culture: The development of state subsidies to art in Great Britain. p. 3047.

Miller, M. C. Art education faculties' attitudinal differences of administrative leadership. p. 7021.

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Otton, W. G. The relationship between color-formed pictorial space and image content and its ramifications for studio instruction at the university level. p. 7022.

Pack, R. H. Goals of art education for disadvantaged youth, based on perceptions of high school teachers of art and college professors in art education. p. 1984.

Popowicz, L. A. Interdisciplinary approach to biology integrated with art: A vehicle for changing attitudes toward science. p. 7143.

Reilly, C. A. The effect of experientially based learning packages on facilitating the study of art products of typical and atypical populations. p. 3595.

Sapp, E. M. The effects of participation in an affective education program on selected aspects of creativity. p. 3392-A.

Scamell, E. V. Some personality characteristics and value interests of elementary art teachers. p. 234-A.

Scarcelli, J. T. A descriptive and analytical study of the role and impact of certain theories of art on the value theory of twentieth-century art education in America. p. 7135.

Semerjian, H. Integrated-creative-arts: A rationale, method and content for an elemental, experiential, aesthetic education. p. 3907.

Smith, D. F. A study of the middle school arts program as perceived by middle school experts and middle school arts teachers. p. 855.

Smith, J. W. Art attitudes of preservice elementary teachers as affected by a modular program in art. p. 838-A.

Sontag, D. G. Effects of selected learning conditions on aesthetic differences of molten handformed blown glass art objects. p. 3181.

Srubek, J. J. The art education episode: A viewpoint of art education for the facilitation of of the art experience. p. 7172.

Szekely, G. E. A system for training art teachers in the use of nonverbal classroom communication and interaction methods for nes children. p. 4967.

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Vallance, E. J. Aesthetic criticism and curriculum description. p. 5795.

Whitsitt, J. E. A model of elementary art instruction based upon curiosity as motivation. p. 5753.

Wittnebert, L. D. An aesthetic approach to non-representational video. p. 5641.

Zwinger, S. The multi-arts celebration and its application to educational institutions. p. 7135.

NOTES

## INSTRUCTIONS FOR AUTHORS

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