

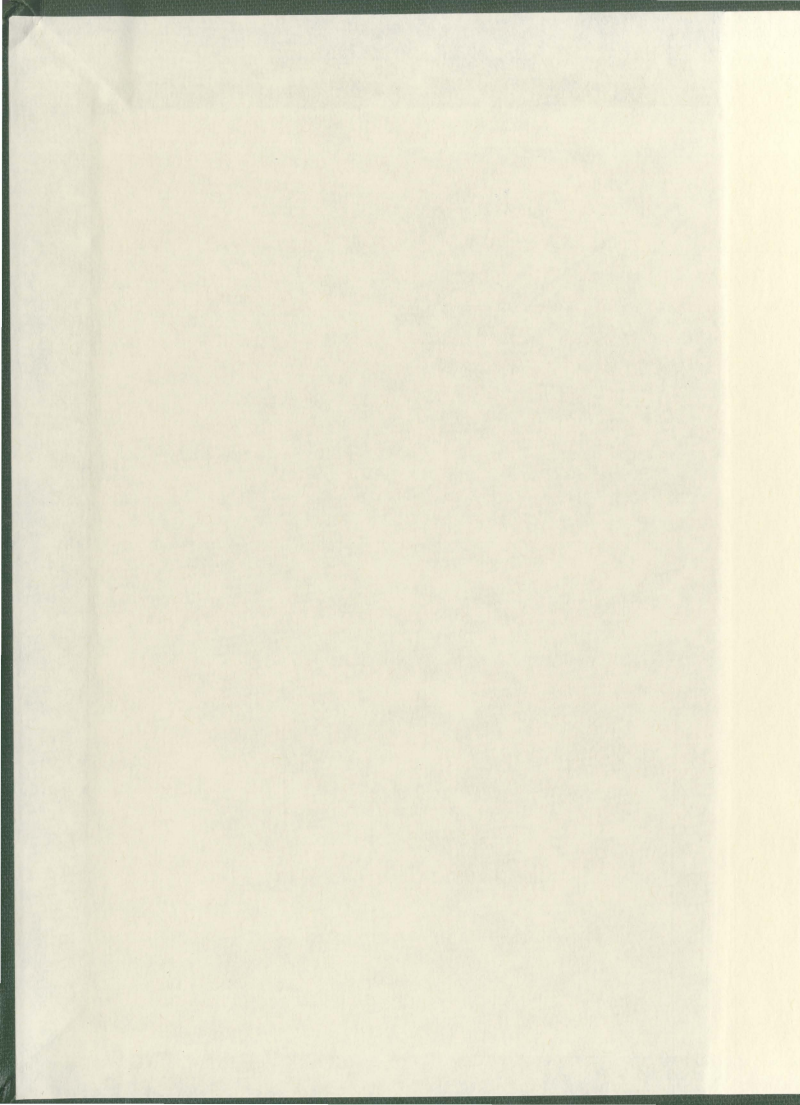
THE DEVELOPMENT AND EVALUATION OF
INSTRUCTIONAL MATERIALS ENTITLED
"CATEGORIES OF PHOTOGRAPHS: A GUIDE TO
INTERPRETING PHOTOGRAPHS"

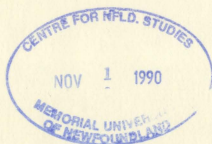
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DENISE A. MARTIN





The Development and Evaluation of
Instructional Materials Entitled
"Categories of Photographs:
A Guide to Interpreting Photographs"

by



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A project report submitted to The School of
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ABSTRACT

The purpose of this study was to develop instructional material on interpretation of photographic art. It was the developer's contention that the curriculum did not adequately allow for the achievement of art critical goals in photography, even though these were stressed as an important part of the high-school art curriculum.

Through an instructional systems development approach, an instructional package entitled Categories of Photographs: A Guide to Interpreting Photographs was produced. A needs assessment revealed that no suitable materials existed for instruction in interpreting photographs. In defining the instructional goal, a learner analysis and concept analysis were conducted. A learning hierarchy and a set of behavioural objectives were then developed. These items served as the basis for the design and evaluation of the instructional package.

Qualitative evaluation was carried out by expert appraisers, including teachers, content specialists, media specialists and student users.

Quantitative evaluation consisted of two pilot tests of the materials, hereinafter referred to as the formative

and summative evaluations of the product.

The formative evaluation results indicated that the mean on the pre-test was 0%, while the post-test mean was 63.3%. An analysis of the formative evaluation results led to a number of revisions in the instructional package.

Results on the summative evaluation showed a pre-test mean of 19.1% and a post-test mean of 69.1%. The summative evaluation led to revisions in the printed materials accompanying the package.

In summary, the instructional package was effective in attaining the terminal objectives specified, including: increasing the time spent viewing photographs and increasing the number and types of responses to photographs. The effectiveness of the package in attaining the enabling objectives of the package appeared to be related to the abstraction levels of the categories tested, the cognitive levels of the objectives, and the academic abilities of the target population. Written test results for verbal and visual discrimination tasks conflicted with observed discriminative skills during group discussions of photographs, indicating a need for more refined experimental conditions.

Additional refinement of the programme was recommended and carried out. The instructional programme was disseminated to Brother Rice High School, St. John's, and Mount Carmel High School, St. Mary's Bay, for final validation testing. Final packaging and diffusion of the materials will proceed upon assessment of the results of the final validation testing procedures.

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Instructional Package

CHAPTER I

INTRODUCTION

Photography, since its development in the mid-nineteenth century, has steadily gained acceptance as a unique art form. Today, art galleries and museums worldwide have established departments of photography committed to the collection, exhibition and preservation of photographic works of art. Notable among these are the Museum of Modern Art, the International Museum of Photography at the George Eastman House, and the Canadian Centre for Photography and Film.

Widespread endorsement of photography as a medium of artistic expression led schools, colleges and universities concerned with art education to enlarge the scope of their art curricula to include the study of the art of photography.

Madega (1980) summed up this trend:

The art curriculum for the forties ignored photographs as possible "works of art" and made no mention of photographers as artists or cameras and the photographic process as tools for making art. Now photography is accepted as an art form; the photographer is viewed as an artist; and the art curriculum, at least in more progressive programs, includes photography. (p. 25).

Statement of the Problem

Although many art educators recognize the importance of including the study of photography in the art curriculum (Chapman, 1978; Feldman, 1981; Kay, 1973; Lanier, 1980, 1982, 1984; Lansing, 1971; Linderman, 1971, 1980; Lowenfeld & Brittain, 1975; Madega, 1980; Wickiser, 1957), the classroom art teacher in Newfoundland is faced with a number of problems when attempting to implement a unit of instruction on photography.

Many educators fail to offer photography in the school art curriculum because of lack of darkroom facilities (McDole, 1983). McDole also points out that "when a darkroom is present, continued use is required to justify its existence. Pressure is present to include darkroom experiences in the curriculum whether appropriate or not." (p. 1).

Spoerner (1978) stated that "photography remains one of the least understood and investigated communication mediums." (p. 1). According to Craven (1975), "photographic instruction has no standardized content" and even basic introductory courses in photography "differ

markedly in objectives, content, and means of evaluation." (p. 250).

Siegel (1983) found that "photographic appreciation is devoted to the technical aspect of camera usage, the negative and the print." (p. 361A). Desmond and Koroscik (1984) stated that "few [educators] have designed programmes that educate students' understanding of photography beyond its technical dimensions." (p. 1).

The findings noted above are especially crucial since the emerging approach to art education places equal emphasis on the acquisition of art skills which fall into four major domains: technique, history, aesthetics and criticism. (Barkan, 1962; Clark and Zimmerman, 1983; Eisner, 1984; Feldman, 1981; Greer, 1984; Grieg, 1984; Grigor, 1982).

Due to lack of standardized content and the emphasis on darkroom procedures, many students, if exposed to photography at all in the curriculum, learn only the technical aspects of photography, while other aspects of photography, such as history, aesthetics, cultural appreciation and criticism, are ignored in the classroom, even though these may be stressed as important content in the art curriculum guidelines.

Desmond (1981) found that the area of photographic criticism was an especially neglected area within the field of photographic instruction.

In Newfoundland, the problem of teaching photographic art criticism is compounded by lack of available art teacher training programmes (Emerson, 1984b), unequal access to the arts (Hall & Goodridge, 1980), few opportunities for studying photography in all its aspects, and poor art critical skills in general. (Gratton, 1986).

The problem appears to be to find ways in which photography can be taught without undue emphasis on the mechanical processes such as camera usage and darkroom work. McDole (1983) stated that "alternative curriculum strategies can be used to conduct an effective photography programme without the expense usually associated with a darkroom." (p. 1). The developer felt that McDole's reasoning could be extended to include the neglected area of photographic instruction -- photographic art criticism.

Purpose of the Study

This project was designed to develop instructional materials on photography that would meet four important criteria: (1) darkroom facilities would not be required, (2) materials would stress the critical aspects of photography, i.e. the analysis and interpretation of photographs, (3) requisite teacher and student knowledge of the technical aspects of photography would be minimum, and (4) materials developed would be easily incorporated into the current curriculum.

A review of the literature in the fields of art education, photography, and instructional systems design was undertaken to develop an instructional package to meet the criteria outlined above.

Procedure

A needs assessment was carried out to determine the discrepancies which existed between the present state of instruction in photography at the high-school level in Newfoundland schools and the expected state of instruction

as stated by the objectives in the Art and Design Teaching Guide for Grades VII-XII (Division of Instruction, 1980).

A number of research strategies were employed in this assessment. The state of art education in general in Newfoundland was examined to determine areas of neglect. The Newfoundland and Labrador curriculum was examined for content relating to photography. Government and school agency reports were examined for references to the need for materials on photographic instruction.

A bibliographic search was conducted for materials relating to photography. This search included a survey of the holdings of the National Film Board of Canada, the Canadian Film Institute, the Department of Education's Instructional Materials Centre and the catalogues of the following centres at Memorial University: The Division of Continuing Studies and Extension, the Centre for Audio Visual Education, the Resources Clearing House, the Educational Technology Centre, and the Library Audio Visual Resource Centre.

Computer searches of ERIC, AV On-Line and Dissertation Abstracts International were also conducted. Finally, a survey was conducted of Newfoundland art teachers and

photographers, and a series of interviews was held with the Department of Education's Art Consultant to determine the need for development of materials.

Based upon the results of the needs assessment, a need for the development of materials on the critical aspects of photographic instruction was identified. Thiagarajan, Semmel, and Semmel's (1974) model for the development of instructional materials was chosen for solving the problem. This model includes four stages: (1) Definition of the problem, (2) Designing instructional materials, (3) Developing materials, and (4) Disseminating the materials.

Needs Assessment

Art Education in Newfoundland

Art education in Newfoundland is viewed and treated with considerable differences throughout the many levels of education available in the Province. The report, Comin' to Our Senses: the Report of the Newfoundland and Labrador Task Force on the Arts in Education (1980), characterizes arts education in Newfoundland as in a state of "benign neglect" (Hall & Goodridge, p. iv). Social,

economic, and political factors were cited as the major contributors to this situation.

Hall and Goodridge (1980), in comparing art community and educational institutional growth in the arts stated that:

arts education, for the general public or for the school student, has not kept pace [with art community growth] and lags significantly behind in both the status it enjoys and the priority it is given by educators. (p. iv).

This suggests that little change has occurred since Warren (1967) noted that educators were slow to integrate the arts into general education in Newfoundland. Crocker and Riggs (1979), in discussing school programmes, emphasized that "the arts have received less attention than one would expect. Art, music, sculpture, and other aesthetic subjects are still receiving very little attention in our high schools...." (p. 103).

Teacher training. At present there are no opportunities for obtaining art teacher training and certification in Newfoundland. Memorial University offers three optional undergraduate level courses in art education, and there is only one qualified art teacher on staff at the Faculty of Education at the University. The three courses offered are primarily directed toward the primary and elementary

teacher. (Emerson, 1984). In addition, an Art History course is available as an optional course for general graduation purposes.

The Bay St. George Community College, in Stephenville, Newfoundland, offers a two-year applied arts diploma.

"The diploma which the College presents does not provide for teacher certification." (Mackie, 1986b, p. 15).

The Cabot Institute of Applied Arts and Technology offers a one-year training programme in commercial art, and again the courses offered cannot be used toward teacher certification.

The Craft School, at the Arts and Culture Centre in St. John's, offers a one-year training course in crafts.

Finally, Memorial University's Division of Continuing Studies and Extension offers a variety of arts classes in various studio type activities but none of these are recognized as credit courses for the purposes of teacher certification. Since 1986, the Division of Continuing Studies and Extension has offered a summer school credit course for classroom teachers involved in teaching the Art and Design programme.

There are no courses available within the area of art criticism in the Province.

Hall and Goodridge (1980) stated that "the lack of teacher education in the arts thus emerges as one of the most crucial problems uncovered by the Task Force..." (p. 6). It is apparent that opportunities for teacher training in art education are almost nonexistent in the Province and those wishing to train as art specialists must go to other parts of Canada or abroad for art teacher training. This training would in all likelihood have a major emphasis on studio-based orientations to art education (Parker, 1978) and thus it is unlikely that the problem of teaching art critical skills in photography could be solved with the present state of art teacher training in the Province.

Photography study. Opportunities for learning photography are also quite limited in the Province. Courses in basic camera handling and darkroom techniques may be obtained through Memorial University's School of Continuing Studies and Extension, and also through the YM/YWCA.

Commercially-oriented studio photography is available through the Newfoundland Career Academy, and some courses in photography are offered as part of the commercial art programme at the Cabot Institute of Applied Arts and Technology

Basic and advanced camera handling and darkroom techniques as well as aesthetics of photography are available through the photography options offered at the Bay St. George Community College in Stephenville. The only other opportunity for learning basic photography technical skills are three media courses offered through the Division of Learning Resources at Memorial University.

These basic, introductory courses are largely technical in orientation and none are accepted as credit courses toward any teaching certificate, with the exception of the three credit courses available through the Division of Learning Resources. Thus, opportunities for learning photography are mainly available as part of adult and continuing education in Newfoundland, with the emphasis on the technical, as opposed to the critical, aspects of photography.

There are no opportunities for studying photographic art criticism in the Province. An analysis of the Directory of Canadian Universities, 1984-1985 (Downham, 1984) revealed that only nine of the seventy-two universities listed offered photography training. Five of these nine programmes were offered in conjunction with art but no

specific courses on photographic art criticism were located.

Secondary school art education. At the present time, art is offered as an optional credit subject at the secondary level. The programme has three levels, including Art 1200, Art and Design 2200, Art and Design 3200. A fourth subject, Art History 3202, is also offered. The courses provide practical studio activities in a variety of arts and also emphasize theoretical, historical, and critical aspects of art. The philosophy of art education at this level promotes a problem-solving orientation to the arts. (Division of Instruction, 1980).

The availability of trained art specialists in the Province limits the number of schools that do provide art as an optional credit in the high-school programme. When the researcher began this study, an analysis of a list of all specialists teaching art in the Province indicated that only seventeen high schools in the Province offered art programmes conducted by specialist teachers. (H. Moore, personal communication, September, 1986).

Hall and Goodridge (1980) noted that "certainly, it appears that the availability of art at this level is not

tied to finances or region but rather to commitment on the part of the board or school administration." (p. 32). In many cases, the arts are treated as "a frill, unintellectual and unnecessary." (p. 3). The authors found that art was offered in "less than 25% of the secondary schools in the Province." (p. 38).

In conclusion, Hall and Goodridge noted that "the arts are not all represented in the secondary school experience and those which are, are not available to all students in the Province." (p. 4).

The major problem facing secondary art education in the Province appears to be accessibility to art education in general and accessibility to all of the arts as opposed to a few. Teacher education opportunities and commitment to the arts magnify the problem of unequal access to arts education for the secondary student.

Summary. The study of photography in all its aspects by high-school students is limited by a number of factors. The major factors cited included: (1) inadequate teacher training programmes, (2) confinement of available photography course content to the technical aspects of photography, (3) unequal access to the arts, and (4) lack

of commitment to the arts. These factors are prohibitive to the implementation of art critical goals in photography units in the high-school art curriculum.

Survey of Curriculum Materials

The Programme of Studies 1987-1988 (Department of Education, 1987) prescribes the courses and materials required for art instruction in Newfoundland schools. It is supplemented with course description handbooks and teaching guides for the primary, elementary, junior and senior high-school levels. The Art and Design Teaching Guide for Grades VII-XII (Division of Instruction, 1980) outlines the philosophy, objectives, course content, and compulsory and optional units of study for art instruction at both the junior and senior high-school level.

Goals of the art curriculum. The need for the development of critical abilities in the high-school student is stressed throughout the listing of objectives for the various art units offered in the Art and Design programme. Examples of this stress on critical abilities include the following statements:

- (1) "To sharpen critical abilities and to enable students to

objectively judge the visual communications aimed at him..."

(Division of Instruction, 1977, Communication Arts, p. 3);

(2) "To develop student's ability to analyze works of art for content and/or intent." (Division of Instruction, 1983b; 1983c, p. 3);

(3) "To encourage students to look at Other People's Art as a visual statement or expression and to look for meaning in art." (Division of Instruction, 1977, Other People's Art, p. 3);

(4) "To encourage active participation in the process of viewing art." (Division of Instruction, 1983d, p. 3).

While historical/theoretical and practical/productive approaches are also encompassed in the list of goals, the Division of Instruction (1980) states that these objectives "are the broad and defining objectives of art education and may be viewed as the guiding principles of content selection and of instructional methodology." (p. 4).

The Division of Instruction (1980) thus emphasizes a balanced approach to art education, including an emphasis on critical skills. They advocate Feldman's (1970) approach to art criticism, which involves the steps of description, analysis, interpretation and judgement.

Gratton (1986), in discussing the inability of the general public to critically appraise art, suggests that art critical goals are not being achieved in schools. She stated that: "we've never learned that art can be complicated as well as interesting, that it takes time to unwrap its multiple meanings, nor have we been given, in school, the tools to do so." (p. 14). Gratton's comment emphasizes the need for more attention to the critical aspects of art in the schools in general. Mackie (1986a) agreed that the schools are not providing students with training in critically appraising art.

Photography in the art curriculum. References to photography in the curriculum were located in only two sources. Lane (1983) described the advantages of cameras in the curriculum in general, with an emphasis on the development of visual literacy skills.

The Division of Instruction (1980) cited photography as an optional unit of study in the high-school art programme. A summary of the course offerings at the high-school level is provided in Table 1.

Table 1

Instructional units in art in Newfoundland high schools

<u>Course</u>	<u>Units of Instruction</u>	
	<u>Core</u>	<u>Optional</u>
<u>Art 1200</u>	Drawing	Photography
	Painting	Nfld. Art & Artists
	Design	Crafts & Craftspeople
	3-Dimensional Art	Film-making
Art and Design 2200	Communication Arts	Photography
	Sculpture & Construction	Nfld. Art & Artists
	Graphics & Print-making	Crafts & Craftspeople
		Film-making
		Environmental Arts
	<u>Other People's Art</u>	Textile & Fabric Arts
Art and Design 3200	Drawing	Ceramics Pottery
	Painting	Applied Design
	Design	
	Other People's Art	

Note. The same set of optional courses exist for both Art and Design 2200 and Art and Design 3200.

An examination of Table 1 indicates that photography is offered as an optional unit of study in the three courses offered in the high-school programme. Consideration for the choice to offer a unit on photography is limited by the following statements:

1. "Photography may be chosen as a topic for enrichment and extension ONCE THE BASIC TOPICS HAVE BEEN THOROUGHLY EXPLORED." (Division of Instruction, 1983a, p. 13).
2. "The optional units should be selected with consideration of student needs, teacher abilities, and school facilities and budget." (Division of Instruction, 1983b, p. 6).
3. "The units chosen at this level [Level 3] should be different from those studied the previous year. This will provide students with the greatest possible variety in the two years of the senior high-school programme." (Division of Instruction, 1983c, p. 5).

In effect, the Programme of Studies, 1987-1988 (Department of Education, 1987) allows the teaching of photography during two of the three years of art education studies, depending upon student needs, teacher abilities, and budget constraints. The actual class time spent on photography is approximately eighteen 40-minute periods per unit of study.

The Art and Design Teaching Guide for Grades VII-XII (Division of Instruction, 1980) includes separate unit handbooks for all of the compulsory units of study at both the junior and senior high school levels of instruction but, to date, many of the optional units of study, including photography, have not been developed. Thus, specific course content, teaching methodologies, learning activities, and objectives for photography are left to the discretion of individual teachers.

The Art and Design 2200 Course Description (Division of Instruction, 1983b) states the following general goal for teachers who wish to implement the photography unit of study:

This unit will develop looking and seeing abilities, sensitivity to composition problems, skills in visual communication, and awareness of photography as an art form related to other art forms. Students should have the opportunity to experience both the technical and aesthetic aspects of photographic image-making. In the technical area, students should learn about equipment, materials, and techniques. These would include the camera and lens, film, and the developing and printing processes. (p. 10).

The statement of the general goal for the optional unit of study on photography can be interpreted in many ways by the individual art teacher, especially with respect to art critical skills. A lack of specified core content and specific objectives could result in discrepancies in the treatment of the unit and this in turn could lead to discrepancies in student achievement in photography.

Since 10% of the public exam in art is devoted to photography, achievement on public exams could also show marked variability depending on the extent to which the various aspects of photography had been covered by the teacher, and the extent to which these aspects were represented on the final public school examination.

An analysis of questions on the public exams over the last ten years was conducted to determine the types of questions being asked. A summary of the types of questions asked is presented in Table 2.

Table 2

Content analysis of public exams (photography section)

<u>Number of questions in each content area</u>				
<u>Year</u>	<u>Technical</u>	<u>Aesthetic</u>	<u>Critical</u>	<u>Historical</u>
1975	4	1	0	0
1976	5	0	0	0
1977	1	0	0	0
1978	1	0	0	0
1979	3	0	0	0
1980	3	0	0	0
1981	2	0	0	0
1982	1	0	0	0
1983	4	1	0	0
1984	0	1	0	0
1985	2	0	0	0
1986	4	1	0	0
1987	1	0	0	0
<hr/>				
TOTAL:	31	4	0	0
<hr/>				
%	89	11	0	0

Note. The total number of questions for each year is valued at 10% of the total art and design exam value.

Table 2 clearly shows that 89% of the 35 questions asked in the photography unit were technical in nature. Eleven percent (11%) of the questions concerned aesthetic areas such as composition and selectivity. There were no questions asked concerning the history or criticism of photography. The Division of Instruction (1983c), however, stresses that evaluation "must be based on the objectives of the course" (p. 18) and that the objectives for all units of instruction include "critical thinking skills". (p. 3).

While it cannot be concluded definitively, the developer felt that the heavy emphasis given to the technical aspects of photography on the public exams was indicative of the type of instruction being offered students in photography -- namely, a technical orientation to photography due to the lack of specific guidelines in other areas.

Summary. The examination of the Programme of Studies, public exams, course descriptions, and teaching guides pointed to the need for the development of specific objectives for the unit on photography so that some degree of core treatment of the topic would be achieved. In addition, the perusal of these materials revealed a need for the development of suggested teaching methodologies, learning activities and resources related to photography.

Survey of Recommended Resources

Following the examination of the teaching guide, public exams, course descriptions, and the Programme of Studies, an examination was made of the recommended teacher resources and student texts to determine the extent to which photography was covered in these materials. A summary of these texts and their coverage of photography is presented in Table 3.

Student resources. Of the three student texts recommended, only Preble (1978) covered photography as an art form. However, his treatment of the topic was rather limited in that he made use of scattered references to photographs when discussing the elements and principles of design (p. 145-151). The major discussion on photography in the text focussed on photography in relation to the other arts, specifically its effect on painting (p. 287-307).

Table 3

Content analysis of photography in recommended resources

	<u>Number of pages in each content area</u>			
	<u>T</u>	<u>A</u>	<u>H</u>	<u>C</u>
<u>Student Resources</u>				
Brommer & Horn, 1977	0	0	0	0
Janson, 1971	0	0	0	0
Preble, 1978	0	12	2	0
	0	12	2	0
<u>Teacher Resources</u>				
Ocvirk et al, 1985	0	0	8	0
Godsell, 1976	0	0	0	0
Division of Instruction, 1983e	0	0	0	0
Gatto et al, 1978	0	0	0	0
Baker, 1979	17	0	0	0
Feldman, 1981	0	22	11	8
Gombrich, 1985	0	0	1	0
Morman, 1978	0	0	0	0
Brommer, 1978	1	0	0	0
	18	22	20	8

Note. T = Technical; A = Aesthetic; H = Historical;
C = Critical.

Teacher resources. Of the nine resources listed for teacher use, only five presented some coverage of photography.

Brommer (1978) made a few brief references to the use of photographs as sources of ideas for quick sketching. He suggested that students might try to find new ways of using photographs by "sketching, simplifying, working with values, dropping out grey areas, or other exciting possibilities." (p. 131).

Baker (1979) covered the materials, tools and equipment needed for photography. He also suggested basic darkroom introductory experiences, and devoted a brief section to the picture-taking process, including suitable subjects, composng and focussing. (Chap. 16, p. 298 - 315).

Gombrich's (1985) text mentioned the impact that the invention of photography had on painting in taking over the function of pictorial art, and in changing the position of art and artists in society. (p. 262). Ocvirck, Bone, Stinson, and Wigg (1985) treated the topic in much the same way as Gombrich, i.e. by describing photography's effect on painting. (pp. 14, 17-18, 20, 85, 86, 195, 231). Thus, the little information given in these two texts was limited to the historical aspects of photography.

Feldman (1981) devoted an entire chapter to photography in his text Varieties of Visual Experience. (Chap. 14, pp. 417 - 432). The author discussed the evolution of photography as an art, the effect of photography on painting, the popularization of photography, photojournalism, framing, abstraction in photography, the photographer as an artist, and photographic criticism.

While Feldman did discuss one approach to the criticism of photographs, his bipolar criteria for judging photographs were found to be somewhat confusing in places, leaving the teacher with the problem of locating appropriate photographs to lead a discussion using these criteria. In addition, Feldman's approach puts an emphasis on the judgement stage of the critical process, and it has been questioned by some educators whether the high-school student is capable of judgement without an adequate familiarity with major artists in the field. (Adams, 1985).

Finally, one must take into account that the teacher texts are recommended resources and not all teachers would necessarily possess each and every one of them. In addition, since the Programme of Studies (Department of Education, 1987) does not specify the publication date of its recommended

resources, teachers may in fact be using Feldman's (1967) first edition text as opposed to the 1981 third edition. In this case, the only truly valuable recommended teacher resource for photography may not be in use by teachers. A brief check with art teachers in the St. John's area indicated that one out of four teachers surveyed used Feldman's 1967 text, while the other three did not use either of Feldman's texts. (H. Moore; B. Rowe; R. Steele; M. Wotherspoon; personal communications, January, 1987).

Summary. The survey of recommended student and teacher resources pointed to a need for the development of a resource list that would be more comprehensive in its coverage of photography as an art form. It was apparent from the survey that references to photography were scattered, brief, and in need of collation. Treatment of the critical aspects of photography was quite limited.

Survey of Art Teachers and Photographers in Newfoundland

A survey of art teachers and photographers in the province was carried out to determine the need for the development of instructional materials on photography.

Survey methodology. A list of art specialists teaching in the province was obtained from Heather Moore, the art consultant with the Department of Education in Newfoundland. Also, Doug Townsend, the visiting photography curator at the Arts and Culture Centre in St. John's was approached for a list of all photographers who had submitted works to the Centre for the "Newfoundland Photography Survey". The two lists were used as sample populations to be surveyed. (H. Moore; D. Townsend; personal communications, March, 1986).

The sample art teacher population consisted of 17 teachers, while the photographer population consisted of 34 photographers. Of the 17 teachers surveyed, 10 responses were received, while 18 of the 34 photographers responded to the survey. The teachers' survey questionnaire is presented in Appendix A, while the photographers' questionnaire is presented in Appendix B.

Obstacles to photography instruction. Of the 10 teachers responding to the survey, 3 had offered photography in the 1985-86 school year, while 6 planned to offer it in the 1986-87 school year. Both photographers and teachers were asked to indicate their perceptions as to why photographic instruction would not be offered in the high school. The following facts

emerged regarding perceived obstacles: (a) lack of darkroom facilities - 86%; (b) lack of teacher knowledge of photography - 86%; (c) lack of prescribed core content - 82%. Eighty percent (80%) of the teachers cited lack of resources as a major obstacle. The remaining statistics for this question are presented in Table 4.

Table 4

Obstacles to photographic instruction

<u>Obstacles</u>	<u>Group Responses %</u>		
	<u>Teachers</u>	<u>Photographers</u>	<u>Combined</u>
Facilities	90	83	86
Content	60	94	82
Teacher Knowledge	70	94	86
Student Interest	0	6	4
Class Size	90	28	50
Expenses	50	44	46
Chemical Danger	10	0	4
Class Time	70	28	43
Evaluation	0	11	7
Objectives	20	50	39
Resources	80	61	68
Other	20	0	7
Unit Time	10	0	4
Processing Time	10	0	4
	<u>N = 10</u>	<u>N = 18</u>	<u>N = 28</u>

Content for photography instruction. Both photographers and teachers were asked to indicate the specific content they felt should be included in the high-school unit on photography. A summary of the results of this question are presented in Table 5. The summary indicated that there was considerable difference of opinion with respect to the core content and enrichment content areas. Overall, however, both groups indicated that all of the content areas listed should be taught at some time during the high-school experience.

Table 5

Photography topics identifiedGroup Responses %

<u>Topic</u>	<u>Teacher</u>			<u>Photographer</u>			<u>Total</u>		
	<u>C</u>	<u>E</u>	<u>O</u>	<u>C</u>	<u>E</u>	<u>O</u>	<u>C</u>	<u>E</u>	<u>O</u>
Camera Types	100	0	0	61	33	6	75	21	4
Black/white	80	20	0	83	11	6	82	14	4
Colour Negative	10	30	60	28	39	33	21	36	43
Colour Slides Pos.	10	20	70	17	61	22	14	46	40
Pinhole	80	10	10	33	44	23	50	32	18
Photograms	80	20	0	22	61	17	43	46	11
Flash	30	30	40	39	50	12	36	43	21
Basic Printing	60	30	10	39	18	12	61	29	11
Advanced Printing	0	30	70	11	72	12	7	57	36
Film Types	60	30	10	78	17	6	71	21	8
Camera Parts	90	10	0	72	22	6	79	18	4
Careers	20	40	40	6	78	17	11	64	25
Studio Lighting	20	50	30	22	67	11	21	61	18

Table 5 (continued)

Photography topics identified

<u>Topic</u>	<u>Group Responses %</u>								
	<u>Teacher</u>			<u>Photographer</u>			<u>Total</u>		
	<u>C</u>	<u>E</u>	<u>O</u>	<u>C</u>	<u>E</u>	<u>O</u>	<u>C</u>	<u>E</u>	<u>O</u>
Exposure	70	20	10	83	6	11	79	11	11
Lens Types	30	50	20	72	28	0	57	36	7
Movement	50	40	10	61	33	6	57	36	7
Photo Essays	0	80	20	22	78	0	14	79	7
Judging Photos	30	60	10	61	33	6	30	46	8
Appreciation	70	30	0	61	33	6	66	32	2
Interpretation	60	40	0	39	56	6	50	47	3
History	50	20	30	22	72	6	32	54	15
Leaders	30	60	10	22	61	17	25	61	15
Canadian	20	50	30	17	83	0	18	71	11
Newfoundland	20	60	20	17	83	0	18	75	7
Design	80	10	10	89	0	11	86	4	11
Composition	90	0	10	78	11	12	82	7	11
Display	40	40	20	39	56	6	39	50	11

Note. C = Core; E = Enrichment Topic; O = Other

Need for materials. One hundred percent (100%) of the teachers said they would like to see materials on photography developed, while ninety percent (90%) of the photographers believed there was a need for the development of instructional materials on photography. Respondents were also asked to specify the types of instructional materials they felt were most needed. A summary of responses to this question is presented in Table 6.

Table 6

Types of instructional materials needed

<u>Content Area</u>	<u>Group Responses (%)</u>		
	<u>Teachers</u>	<u>Photographers</u>	<u>Total</u>
Technical Areas	95	100	97
Aesthetic Areas	92	96	94
Critical Areas	78	64	71
Historical Areas	62	54	58

Table 6 indicates that both teachers and photographers saw a need for the development of materials in all areas: technical, aesthetic, historical, and critical. The greatest needs were perceived to be for development of materials on the technical and aesthetic aspects of photography.

Based upon these perceived needs for the development of materials, it was decided to survey the available materials to determine whether these needs were in fact due to a lack of materials or a lack of awareness of available materials.

Survey of Available Materials

Survey methodology. The materials search involved a survey of the holdings of the following centres at Memorial University: Division of Continuing Studies and Extension, the Educational Technology Centre, the Queen Elizabeth II Library, the A. C. Hunter Library, the Centre for Newfoundland Studies, and the Curriculum Materials Centre. Computer searches of ERIC documents and A-V On-Line were conducted. Finally, a survey of the holdings of the National Film Board of Canada, the Canadian Film Institute, and the Department of Education's Instructional Materials Centre was carried out.

Due to the vast amount of both print and non-print resources available on the topic of photography, a checklist procedure was employed to facilitate the examination of available materials. The checklist is presented in Appendix C. It examined the scope of treatment of the topic of photography as well as general selection criteria as recommended by Brown (1977), Van Orden (1982), Sive (1983), and Prostano and Prostano (1982).

The selection criteria included such considerations as accurateness, technical quality, authoritativeness, age level appropriateness, time, cost, recommended use, scope of treatment, and ease of use. These criteria are normally employed by school library personnel when considering acquisition of materials for school and district libraries. In addition, the basic philosophy of instruction as stated by the Division of Instruction (1977) was borne in mind during the search of available materials. This philosophy states that "the teaching emphasis should be on questioning, presenting problems and providing students with the means to find their own answers, rather than the presentation of 'right' answers." (p. 5).

Two hundred and twenty-eight (228) items were surveyed

by the developer. Content analysis of available materials was condensed into four major categories: technical, aesthetic, historical and critical treatment of the topic. These four categories were chosen from the four major areas of study identified in art education literature.

Definition of terms. Technical content refers to materials dealing with camera parts and functions, accessories, and developing, enlarging, and printing techniques.

Aesthetic content was deemed to include discussions of composition, design elements and principles, and subject-matter approaches such as documentary, portrait, nature, and landscape photography.

Historical content involved items dealing with major developments in equipment, approaches to photography, and past leaders of photography.

Critical content refers to those items dealing with describing, analyzing, interpreting, and judging pictures, as well as philosophical theories of photography.

Technical treatment of photography. Of the 228 items surveyed, 88% of the print materials and 85.7% of the non-print materials dealt with technical matters of photography.

The text most often recommended for use at the high-school level was Jacob and Korda's (1981) photography in Focus: A Basic Text. This text develops a practical and comprehensive course in photography at the high-school level and is also accompanied by a Curriculum Guide for Photographers, meant for teacher use. The book is easily read by the average high-school student and is activity oriented.

Of the non-print resources available in the technical area, Photo-Course for Public Schools (International Photocourse, 1982) is a comprehensive slide-tape package dealing with all technical aspects. This multi-media package was found to be suitable for the high-school level student, although excessive cost might be an inhibiting factor for some schools.

The vast amount of materials available in the technical area pointed to a need for recommendations concerning the most appropriate material to choose rather than development of new materials on this aspect of photography.

Aesthetic treatment of photography. The following items were included under the area labelled aesthetics: composition, design elements and principles, and subject-matter approaches to photography such as portrait, nature, documentary,

still-life, and abstract photography.

Sixty-two percent (62%) of the available print materials and sixty-four point two percent (64.2%) of the non-print materials dealt with aesthetic aspects of photography. Patterson's (1979) Photography and the Art of Seeing deals with the topics of the design elements and principles, composition, the unique properties of photography, and also suggests exercises for learning to observe, imagine, and express oneself through photography. It is written at a level comprehensible to the high-school student and would also be a valuable resource for the art teacher in need of activities to improve students' visual awareness.

Also of value in the aesthetic area would be the texts Photographic Composition (Clements & Rosenfeld, 1979) and Markowski's (1984) The Art of Photography: Image and Illusion, for their discussions of the elements and principles of design as applied to photography. Images of Man, 2: The Concerned Photographer's Program (Scholastic Magazines, 1973), was the non-print resource most often recommended by selection tools employed in the checklist procedure. It presents a collection of some of the most critically acclaimed photographs ever taken.

Again, the amount of material available on the aesthetic aspects of photography points to a need for selection of the most appropriate material on this aspect of photography rather than development of new materials. A recommended resource list would solve this problem.

Historical treatment of photography. Twenty-one point five percent (21.5%) of the print materials surveyed dealt with historical content, such as major developments in equipment, approaches to photography, and past leaders in photography. Although this represents a small proportion in comparison with the technical and aesthetic aspects of photography, the range of materials in terms of age level appropriateness was found to be satisfactory.

Particularly recommended was Chiarmonte's (1983) The Story of Photography: An Illustrated History. It is written in sixty (60) two-page spreads, each with photographs and drawings accompanying concise essays on the historical developments in photography. The book would be especially appropriate for a high-school level course since its layout and design would allow teachers to direct students' attention to specific historical information without having to do extended research on the topic.

Seven point one percent (7.1%) of the non-print materials dealt with the historical aspects of photography; however, the National Film Board of Canada's (1973) The Time Machine, a 16 mm film, was highly recommended for use at the high-school level.

Critical treatment of photography. Less than 3% of the materials surveyed dealt with aspects of criticism of photography. This finding is supported by Feldman's (1981) statement that:

The criticism of photography is largely undeveloped for three reasons. First, in its perfected form the medium is only about two-thirds of a century old - hardly long enough to have developed a sophisticated body of aesthetic theory. Second, most scholarly writing about photography deals either with the technical questions or the history of photography, that is, the history of camera equipment and developing processes and the biographies of famous photographers. Third, in its struggle to emancipate itself from the parent art of painting, photographic criticism has tended to avoid the aesthetic theories developed in connection with the older fine arts. (p. 432).

Craven (1975) discussed responding to photographs by placing them into one of three categories: symbolist, reportorial, or direct approaches to photography.

Hattersly (1981) used terms such as like-dislike, good-bad, effective-ineffective in his section on judging pictures and asks viewers to answer the question "why" when making statements of this kind. The only criteria actually laid

down concerning evaluation of photographs, however, were technical criteria for print quality.

Feininger (1978) listed the criteria of stopping power, impact, meaning, graphic qualities, and the test of time for judging photographs. The problem with this text, however, is that it is not suitable for most high-school students in terms of vocabulary. Also, the presence of other extraneous content concerning advanced technical aspects of photography would make it unsuitable for an introductory course in photography.

Thinking Photography (Burgin, 1982) is a theoretical discussion of photography and representation. The language level, however, is quite difficult and a background in semiotics theory would be necessary to comprehend the theories put forth by the contributing authors of the text. The book Photographers on Photography (Lyons, 1966) is a collection of critical source material by photographers on photography. The depth of discussion and the advanced language level would make the text inappropriate for the high-school student.

There were no non-print resources located dealing with the topic of photographic criticism.

Summary. Table 7 presents a summary of the findings of the materials search.

Table 7

Content analysis of available photography materials

<u>Content Area</u>	<u>Print</u>		<u>Non-print</u>		<u>Total</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Technical	176	88.0	24	85.7	200	87.6
Aesthetic	124	62.0	18	64.2	142	62.2
Historical	43	21.5	2	7.1	45	19.7
Critical	6	3.0	0	0.0	6	2.6
	N = 200		N = 28		N = 228	

Note. The figures in Table 7 represent rough estimates of the treatment in each area, based upon the number of pages in each item devoted to the specific area. Some print materials were very broad in their treatment of the topic.

The figures in Table 7 indicate that teachers' and photographers' perceived needs for the development of materials on the technical and aesthetic aspects of photography can be satisfied with the combination of available materials and a recommended resource list for

these areas, rather than with the development of new materials. Although the percentage of materials dealing with historical aspects is small, it was found that suitable materials do exist for this aspect of photography.

Table 7 does point to a need for the development of materials on the critical aspects of photography. The small percentage of materials available was found to be inadequate in terms of language level, lack of visuals and extraneous content.

Statement of Needs

Needs Identified

The needs assessment that was carried out identified the following needs:

1. The need for the development of standardized course content and objectives for a unit of photography at the high-school level.
2. The need for the development of recommended resource lists for the technical, aesthetic, historical, and critical aspects of photography.

3. The need for materials dealing with the critical aspects of photography.
4. The need for improved art teacher training programmes.
5. The need for improved accessibility to all of the arts for high-school students, including photography.

Discussion

Core content. The first need, the development of standardized content and objectives, is now in the process of being remedied, since the Department of Education is presently engaged in the development of unit handbooks for the optional units of the Art and Design Curriculum, including photography. The revised handbook would include critical skills objectives. (H. Moore, personal communication, 1986). A Delphi technique as recommended by Gordon and Ament (1977) could be employed to speed up the development of core course content and objectives.

Resources. Both teachers and photographers identified a second need: the need for suitable resources on all aspects of photography. It was found from the survey of available materials that suitable resources do exist to meet perceived instructional needs in the historical, aesthetic, and technical areas of photography. If teachers were unfamiliar

with the existence of these materials, the researcher felt that the development of an annotated recommended resource list would solve this problem.

Teacher education. With regard to teacher education there is little that can be achieved until government agencies institute some of the recommendations already proposed to meet these needs. These proposed solutions include the expansion of Memorial University's arts education programme to respond to the needs of Primary-Elementary and Secondary teachers, and the sponsorship of summer institutes in art education for both levels. (Hall & Goodridge, 1980, p. 37). It has also been recommended that Memorial should "change the status of their non-credit courses in the visual arts to credit courses and investigate other means of expanding the opportunities for formal education in the visual arts." (Hall & Goodridge, 1980, p. 37).

Accessibility to the arts. Hall (1980) emphasized that "programmes will have to be developed for the secondary teacher with little or no background in art, or art education, if students throughout the Province are to have equal access to art education." (p. 66).

Hall (1980) suggested that the problem of equal access may be solved in part through the use of programme development, inservice training, increased utilization of community resources, and educational communications technology. Hall cited the use of educational communications technology as a delivery system that could "offer practical solutions to a Province whose geographic and economic structure prohibits the full-scale enrichment of the educational system through specialist placement." (p. 68).

Critical aspects of photography. The need for the development of materials dealing with the critical aspects of photography was also identified in the needs assessment. Few materials exist which deal specifically with this area and those that do exist are much too advanced in theory for those unacquainted with the technical and historical areas of photography. It was felt that this need could be met within a reasonable period of time. Thus, the need for the development of materials dealing with the critical aspects of photography was chosen for development in this project.

Summary

The field of photography poses problems for inclusion in the high-school curriculum. Neglect of art education in general, inadequate teacher training programmes, unequal access to the arts, and commitment to the arts are problems facing art education in Newfoundland.

These factors, combined with lack of darkroom facilities, budget constraints, and misunderstanding concerning the scope of photography to be taught, have caused the exclusion of photography from many high-school art curricula. Where photography is included, emphasis is placed on the technical aspects of photography.

It was stated that teachers must have available to them a wider variety of resources if they are to meet the objectives of their art programmes concerning the critical aspects of photography. The needs assessment revealed that recommended student and teacher texts are inadequate in their treatment of the critical aspects of photography. The vast majority of materials available on photography concern the technical aspects. Perceived needs for the development of materials on all aspects of photography could be met with the development of recommended resource lists in the technical, aesthetic,

and historical areas.

A need was identified for the development of materials on criticism of photographs that would be suitable for use by the high-school student. Thiagarajan, Semmel and Semmel's (1974) model of instructional development was chosen to facilitate the development of an instructional package on the critical aspects of photography.

Literature in the areas of art education, photography, and instructional systems design facilitated the development of the materials. Chapter II presents a review of the literature in these areas.

CHAPTER II

REVIEW OF THE LITERATURE

With the acceptance of photography as an art form in its own right and the introduction of photography to many art curricula, a lack of materials dealing with the critical aspects of photography has been a problem for both the art critic (Coleman, 1974; Feldman, 1981; Beard & Hedgepath, 1978), and the classroom teacher faced with teaching photography (Feldman, 1981; Desmond, 1981).

Desmond (1981) stated that "within the area of photographic education, there has been no record of attempts to identify, let alone alleviate, the confusion associated with the teaching and learning of photographic criticism." (p. 41).

The neglected area of photographic criticism becomes a major concern as art education theorists continue to stress the need for the coverage of the critical aspects of art in the secondary school. (Barkan, 1966; Chapman, 1978; Clark & Zimmerman, 1983; Eisner, 1984; Feldman, 1981; Hurwitz & Madega, 1977; Mittler, 1980).

This chapter reviews the literature relevant to the development of materials on the critical aspects of photography. The major areas of concern were determined to be: (1) Art Education, (2) Art Criticism, (3) Photography, (4) Photographic Criticism, and (5) Instructional Systems Design.

Art Education

The literature in the field of art education was extensive. The review of the literature revealed a wide diversity in the philosophies of, and models for, art education. While the terms used to describe models in art education varied, six major models for art education emerged from current literature on art education.

Models in Art Education

The creativity model. Lowenfeld (1970) espoused the view that art education should foster the creative development of the child. Art production by students was viewed as the major content of the curriculum. Teachers acted mainly as provisors of the materials and tools needed for production. Evaluation of children's creative and mental growth was

then based upon teacher assessment of the products of the children's art.

The cultural model. Art education for social and cultural awareness is supported by leading art educators such as Chalmers (1974, 1984), Lanier (1981), and McFee and Degge (1977). This view of art education stresses the need for students to develop an awareness of their own and other cultures, past and present. The cultural model also stresses the major intended outcomes of the visual literacy movement, such as understanding why and how images are produced.

The design and craft models. Both the design model and the craft model for art education use the aesthetician as a model for student learning. Both models place an emphasis on the production of aesthetically pleasing art products. The models differ in the selection of art forms used to reach the goal of development of aesthetic concepts. Design orientations stress a problem-solving approach, with environmental studies, packaging design, and advertising media serving as major content areas.

The craft orientation, often associated with the leisure time rationale for art education, selects activities based

upon functionality. Some of the functional arts included for study are jewellery, ceramics, pottery, and weaving.

The historical model. The historical model for art education uses the art historian as a model for student learning. This approach is theoretically oriented, with the study of existing art objects being the major content of the curriculum. Questions centre around determining "what works of art exist and how did they get to be the way they are?" (Lanier, 1983, p. 36).

The studio model. Studio approaches to art education expose students to a wide variety of the visual arts in the belief that students will develop an understanding of and appreciation for art as a result of this exposure.

Wachowiack (1977) was major advocate of this approach which uses the artist as a model for student learning. Learning activities centre around questions of what art products can be made, and what materials and techniques are needed for production.

The DBAE model. DBAE, or discipline-based art education, is aimed at developing students along the role models of art critic, art historian, artist, and aesthetician. (Barkan, 1962, 1966; Broudy, 1985; Clark

& Zimmerman, 1978; Efland, 1984; Eisner, 1984; Greer, 1984).

This theory of art education places equal emphasis on the study of studio production, art history, art criticism, and aesthetic perception, and the abilities needed in each area. As such, discipline-based art education may be seen as a synthesis of developments in and approaches to art education over the last twenty years.

Summary. The specific rationale adhered to by educators affects the goals, content, and teaching methodologies of art education as practiced in the schools. (Irvine, 1984; Eisner, 1984). The emphasis placed on each of the models for art education depended upon social, political, and economic factors in society in general. Over the last decade there has been a subtle shift toward a more balanced approach to art education, i.e. toward discipline-based art education. The inclusion of the art critic as a model for student learning has placed an emphasis on response to art, in addition to the production of art. In critically appraising works of art, students are expected to describe, analyze, interpret, and judge art objects. (Feldman, 1981).

Current Concerns in Art Education

In 1977, the American Council for the Arts in Education stated that "few high-schools offer courses in art criticism and - despite recent encouragement to incorporate art criticism and history into the studio format - few high-school teachers use this approach." (p. 101). Many authors have agreed with the assessment that the art studio approach is the orientation most widely adhered to in schools and have advocated changes in the curriculum. (Adams, 1985; Desmond, 1981; Durkee, 1977; Eisner, 1984; Lanier, 1983; Madega, 1980; Packard, 1984).

As a result, debate exists in art education circles concerning the most effective approach to the teaching of art. The debate revolves mainly around questions of documented research; however, teacher training and curriculum materials were also cited as major concerns.

Research questions. Many art educators have questioned the belief that studio approaches to art can develop appreciative and critical understandings of art.

Eisner (1984) stated that the main reason for the continued use of the studio orientation was an unfounded "belief that art studio activities, by their nature, develop critical skills, that art studio activities are

the most powerful for developing an understanding of art, and that the artistic process is engaged when students make visual forms..." (p. 261).

Chapman (1978) pointed out that typical studio-oriented programmes of instruction provide meager factual information about the subject of art and have little influence on student attitudes toward it.

Mittler (1980) stated that "knowledge and skills in studio performance do not teach the individual to respond to the content of works of art." (p. 17).

Eisner (1982b), Efland (1976), Feldman (1981), Lanier (1980, 1981), Hodson (1985) and Hurwitz & Madega (1977) also criticized educators' beliefs concerning the effectiveness of art studio approaches in the development of critical skills and called for more documented research in the art education field.

Teacher training and curriculum materials. Other reasons cited for the continued use of studio approaches to art education include a lack of teacher training (Chapman, 1978; Dorn, 1981; Eisner, 1984; Hodson, 1985; Lovano-Kerr, 1985; Mittler, 1980; Packard, 1980; Zimmerman, 1984), lack of curriculum guides (Chapman, 1978; Hodson,

1985; Mittler, 1980), and lack of teaching materials (Chapman, 1978; Dorn, 1981; Durkee, 1977).

Eisner (1984) stated that "the professional training most art teachers receive heavily emphasizes studio courses. Courses in art criticism are almost nonexistent in most American universities and art history is, at best, a minor adjunct to most art education programs." (p. 262).

Mittler (1980) stated that "most art teachers want to involve greater numbers of their students in the appreciation aspects of art but teacher training and curriculum guides leave them without the necessary special skills." (p. 17).

Chapman (1978) stated that "among the barriers to the successful realization of appreciation goals are inadequate teacher preparation and the lack of curriculum guides and teaching materials to assist teachers." (p. 29).

Miller (1983) stated that "at the present time, these [teacher training] programs place little emphasis on teaching about the cultural or critical domain in art." (p. 36).

Madega (1980), in discussing the gap between theory and practice, stated that "the predominant source of curricular ideas still seems to be magazines and other publications

which provide a project-of-the-week or art-for-the-holidays approach." (p. 24). The author felt that these sources were a contributing factor to the continued use of studio approaches to art.

Dorn (1981) perceived the major obstacle to the acceptance of discipline-based art education to be the domain distinctions created by this orientation and he advocated that an integrated domain approach would solve efforts to change attitudes of classroom teachers in the field.

Feldman (1981) cited the lack of a "systematic foundation for practising art criticism" as a major problem in the field. (p. 475).

Summary. Lack of documented research findings concerning the effects of art production activities on the development of art critical skills has contributed to on-going debate between advocates of studio-based art education and advocates of discipline-based art education. In addition, a lack of curriculum materials and inadequate teacher training programmes have acted as major hindrances to the actual implementation of discipline-based art education in the schools. This in turn has resulted in a neglect of the

teaching of art critical skills at the secondary level.
(Logan, 1975).

Canadian Art Education

The major rationales for art education outlined previously have also been used as the foundation for building the art curriculum in Canada. (Carter, 1982; Grieg, 1984; Grigor, 1982; MacGregor, 1980, 1985b, 1985c).

MacGregor (1985c), in discussing Day's (1972) rationales for art education stated that "it is therefore not surprising that the art curriculum guides of any one decade tend to be rooted in rather similar concepts: each guide could be used anywhere in North America." (p. 45).

Grieg (1984) stated that "much of what eventually becomes policy in Canadian schools has had its genesis in the United States." (p. 54).

The debate concerning studio-based and discipline-based art education is also on-going in Canada. (Grieg, 1984; Jagodzinski & Pearse, 1982; MacGregor, 1985b). Reliance on studio approaches to art education in Canada is still widespread (Andrews, 1981; Birdsall, 1977; Grieg, 1984; Jagodzinski & Pearse, 1982).

Jagodzinski and Pearse (1982) stated that the aims of most secondary teachers in the country were "appreciation of art through an understanding of an ability to manipulate these formal qualities and elements of art", (p. 16), an aim promoted by studio, design and craft orientations to art education.

Grieg (1984) explored "a new approach to art education originating in the United States and gradually becoming accepted in Canada" which places greater emphasis on art appreciation. He stated that "art criticism, art history and aesthetics will become important components in this new approach which may affect the climate of art education in our schools in the future." (p. 53).

The heavy emphasis on studio production in teacher training programmes was cited as one reason for the continued use of the studio orientation in Canada. (Gaitskill, 1969; MacGregor, 1985b; Parker, 1978; Schafer, 1973). MacGregor (1985b) cited lack of documented research on the results of studio approaches to art education, while Parker (1978) cited a lack of resource materials as a contributing factor.

MacGregor (1985a), in discussing discipline-based art education, cited "the lack of translation from theory into

practice that transforms a theoretical model into a teaching tool" as a major factor inhibiting the growth of discipline-based art education in Canada. (p. 9).

Jagodzinski and Pearse (1982) cited a reliance on the formalist paradigm, which places an emphasis on the elements and principles of design, as a major factor contributing to continued use of studio approaches in art education in Canada.

An analysis of the Directory of Canadian Universities, 1984-1985 (Downham, 1984) revealed that of the 72 universities listed in the Directory, 13 offered art teacher training. Only 5 of these 13 offered courses in art criticism.

The findings noted above concerning art teacher training in Canada are supported by Parker (1978) who stated that: "the art teacher in the classroom will rely on the most familiar model. And the most often provided by teacher training institutions is that of the artist. And so it is understandable that art education has anchored its curricula in relationship to the artist." (p. 82).

Summary. There is little doubt that art criticism will occupy a more prominent part of the art curriculum of the

future in Canada. (Grieg, 1984). Criticism leveled at the traditional studio approach to art education, as well as demands for accountability, declining student enrollments, and budget constraints have all influenced current thought on the art skills to be learned in the schools. (Birdsall, 1977).

The major factors inhibiting the implementation of art critical objectives in Canada were found to be teacher training programmes, curriculum materials, and lack of research on the effects of the various teaching models in art education.

Art Criticism

The need for the development of art critical skills has been repeatedly stated. (Barkan, 1962; Broudy, 1977; Burton, 1984; Chapman, 1978; Clark and Zimmerman, 1983; Conant, 1968; Desmond, 1981; Doerr, 1984; Eisner, 1984; Feldman, 1981; Hamblen, 1983; Hurwitz and Madega, 1977; Lanier, 1981; Madega, 1980; McFee, 1970; MacGregor, 1985a; Mittler, 1982; Montague, 1979; Sasowsky, 1983; Smith, 1968, 1973; Tawney, 1981; Zimmerman, 1984).

This section reviews the literature in the field of art criticism including the following: purposes of art criticism, criteria for art criticism, approaches to art criticism, strategies for improving art critical skills, and developmental differences in response to art.

Purposes of Criticism

Feinstein (1983) stated that "the purpose of criticism, to paraphrase John Dewey, is to 're-educate perception' of works of art. Criticism, then, should not be understood in a pejorative sense but as a way to inform and expand perceptions, thus enabling you to construct meanings in visual forms." (p. 32).

Lanier (1983) stated that "the art critic inquires: what can be said about this art work, and how can it be judged?" (p. 36).

Feldman (1981) considered criticism to be "talk about art." (p. 451). Feldman reviewed the major goals of art criticism and summarized them to include the following: (1) understanding art, (2) delight or pleasure in the art object, (3) the sharing of discoveries about art, (4) the establishment of standards for the creation of art, and

(5) making statements about the worth of art objects.
(p. 457-458).

Taunton (1983) stated that "the aim of criticism is to clarify the meaning of and to share discoveries about art. As such, criticism as process allows for multiple interpretations of art and various judgemental criteria" (p. 40).

Greer (1984) stated that "acquiring the skills and knowledge of the art critic means that educated adults can make and defend judgements about works of art." (p. 216).

Clark and Zimmerman (1978), described critical thinking as evolving from a naive, entering state, when students make subjective, uninformed judgements about a work of art, to sophisticated exiting states, when students have the ability to make objective, interpretive, public commentary.

Criteria for Art Criticism

The criteria for art criticism vary with the type of criticism performed. Feldman (1981) identified the major types of criticism as expressivism, instrumentalism, and formalism.

Expressivist criticism concentrates on the criteria of "originality, relevance, and cognitive validity of the ideas expressed." (Feldman, 1981, p. 465).

Formalist criticism, on the other hand, places primary emphasis on the formal organization of the visual elements, with unity and technical craftsmanship the major criteria for judging works.

Instrumentalist approaches to art criticism place an emphasis on the social, moral, or civic purposes served by the art product. The major criteria for evaluation of art using this procedure is the degree to which the intended purposes were successful.

Tsugwa (1967) described three types of art criticism: impressionistic or responsive; contextual, in which biographical and social analysis provide the major types of information concerning the work; and rhetorical, whereby the form and the structure of the work provide the major criteria for criticism.

Lang (1975) identified three modes of criticism as syntactic, reflective, and qualitative; or, who is it, what is it, and how is it.

Stolnitz (1960) identified five kinds: criticism by rule, which requires criteria for valuing; contextual, which includes the criteria of the circumstances in which the work originated and which explores the historical, social and psychological contexts of the work; impressionist, whereby criteria include the ideas, images, moods and emotions aroused by the work; intentionalist, or the psychological and aesthetic intentions of the artist; and intrinsic, which resembles formalism with its emphasis on what is intrinsic in the work.

Chapman (1978) identified the major philosophical positions in art criticism as expressiveness and originality, utility and communication, formal restraint and moral value, and representational accuracy and organic form. (p. 76-79). Chapman's criteria for judging work, such as design, subject, materials, and function of the work, received more or less emphasis depending upon the philosophical position advanced.

Beardsley (1971) identified three classes of criteria: unity, complexity, and intensity. He suggested that three kinds of statements could be made about a work of art: the intention of the artist, the effects of the work on the audience, and descriptions and interpretations of the work.

Mittler (1982) identified imitationalism, with emphasis on realism, formalism, and emotionalism (expressiveness) as the major types of criticism.

In summary, art criticism concerns itself with what to look for in an art object and how to look for it. Mittler (1982) pointed out that "relying on a single theory tends to limit the search for information to those qualities favoured by one theory." (p. 39)

Feldman (1967) noted that "the kinds and purposes of art are so varied that no single critical theory is likely to be adequate for the evaluation of all works." (p. 465).

Chapman (1978) stated that "knowledge of varied concepts of art and criteria for judging visual forms is a point of departure for developing independent judgements of merit." (p. 90).

Finally, Pepper (1958) pointed out that: "A sound judgement is based on well-confirmed facts. The greater the range of relevant facts taken into account, the more adequate the judgement is likely to be." (p. 272).

The Process of Art Criticism

Feldman (1981) described the four stages of the critical process as (1) description, or taking inventory of what

can be seen in a work of art, (2) formal analysis, or the discovering of relationships among what is seen, (3) interpretation, or the statement of a large idea or concept that seems to sum up or unify the traits of the work, and (4) judgement, or the ranking of the art object in relation to other art objects of its type. (p. 471-488).

Variations of Feldman's stages of the critical performance are numerous. (Adams, 1985; Chapman, 1978; Feinstein, 1983; Hamblen, 1983; Johansen, 1979, 1982; Pistolesi, 1986). For example, Johansen (1982), in an attempt to incorporate both affective and cognitive domains in the critical act, included the categories of impression (prehension/description), expression (comprehension/interpretation), and commitment (appreciation/evaluation).

Feinstein (1983) described five phases of art criticism: description, analysis of form, metaphoric interpretation, evaluation, and preference.

Adams (1985) proposed a model for discussing art that included sensuousness and expression, description, and formal analysis.

Chapman (1978) described the stages of perceiving obvious and subtle qualities, interpreting perceived

qualities as sources of feeling and meaning, and judging the significance of our experience. (p. 67-76).

Lankford (1984) proposed a phenomenological method of art criticism consisting of receptiveness, orienting, bracketing, interpretive analysis, and synthesis.

In summary, the terms used to identify the stages in the process of art criticism varied; however most art criticism formats allowed for some type of description, and analysis/interpretation, with the critical act terminated by an evaluation or judgement. (Chapman, 1978; Clark & Zimmerman, 1978; Feldman, 1981; Hamblen, 1986; Johansen, 1979, 1982; Mittler, 1982; Smith, 1968, 1971).

Current Concerns in Art Criticism

It is obvious from the variations in models offered for approaching art criticism that there is some debate concerning the importance of each of the stages of the critical act, and the ordering of the stages. Debate also arises over the importance of the affective versus the cognitive domains. With regard to the cognitive domain, Clements (1979) emphasized the necessity to move toward levels beyond mere description: "the task for art criticism

methodology will be to focus not on the mundane and common but on the more highly developed abilities required." (p. 70).

Greer (1984) stated that criticism should "move beyond the description and interpretation of works of art" (p. 216), thus emphasizing the judgement stage as the most important.

Feldman (1981) stated that interpretation "is certainly the most important part of the critical enterprise" (p. 476), and that judging "may be unnecessary if a satisfying interpretation has been carried out." (p. 483).

Adams (1985) contended that "it is the domain of professional critics to judge works of art." (p. 14).

Johansen (1979, 1982) criticized the emphasis on the cognitive domain in most art criticism formats and favoured a more balanced approach that would incorporate both the cognitive and affective domains.

MacGregor (1985a) proposed three kinds of responses, including affective, interpretive, and structural. Aesthetic, socio-historical, cultural, and cognitive considerations could be included with each of the response categories in MacGregor's matrix system of art criticism.

Strategies for Improving Art Critical Skills

While the majority of the literature in the area of art criticism was devoted to theoretical discussion and philosophy, some guidelines were noted for improving responses to art objects.

Ecker (1973) noted that "talk of children may diverge so widely that aesthetically irrelevant ideas, associations, and conclusions may result from inquiry that is undisciplined." (p. 71).

Shoemaker (1984) stated that "adolescents need assignments which require their interaction with a work of art." (p. 26).

Demery (1984) stated that a major problem of art criticism is directing students' attention to the works of art.

Discussion techniques. Chapman (1978) outlined four methods of approaching the process of art criticism including the empathic approach, the deductive method, the inductive method, and the interactive approach. (Chapter 4, pp. 64-91).

Inductive methods involve taking an inventory of the visual elements in the work, describing relationships among those elements, and summarizing the ideas to give meaning to

the work. Inductive methods were supported by Feldman (1981) and Clements (1979).

Interactive approaches to art criticism are a "means of seeking, through discussion and debate, group agreement about the most likely meaning of a work." (Chapman, 1978, p. 87). The approach relies upon the formation of possible hypotheses concerning the meaning of the work, with the group pointing out features that support or reject the various hypotheses stated.

Deductive methods involve deciding on criteria to be used and then examining the work for evidence that the criteria are or are not met. Lanier (1982) supported an interactive/deductive approach to criticism.

Empathic approaches to art criticism put a major emphasis on the expressive qualities of the work of art. Thus formal qualities such as line, texture, shape and movement would be examined for their potential expressive meaning.

Questioning strategies. While large group discussion is supported by many authors (Lanier, 1983; Chapman, 1978; Doerr, 1984; Feldman, 1981), the group discussion method has been cited as lacking in its effect upon the types of

responses elicited from students. (Hamblen, 1984; Taunton, 1983).

Questioning strategy approaches to art criticism are based upon research findings which indicate that often students are primarily being asked to operate on the memory level of cognition. (Davis, Morse, Rogers and Tinsley, 1969; Sanders, 1966).

Hamblen (1984) and Taunton (1983) emphasized that discussion techniques tend to centre around description of what can be seen in a work of art, and that higher levels of critical thinking were not being developed by the dialogue approach. The authors also indicated that one reason for this lack of development of higher level critical thinking could be traced to the types of questions asked by teachers in leading group discussions of art.

Adams (1985) stressed the need for more divergent questions during the interpretive stage of criticism and more convergent type questions during the analysis stage.

Hurwitz and Madega (1977) and Lansing (1971) supported the use of Valentine's (1962) categories of responses in leading group discussions in order to improve the number and types of responses obtained. Valentine's (1962) response

categories were based on observations of the types of responses children made to art. The categories included associative, subjective, character, and objective responses.

Associative responses involved statements of personal preference by the viewer, while subjective responses involved references to feelings. Character responses involved the use of adjectives to describe the work, while objective responses involved descriptions of formal qualities in the work. Questions could be devised around the four types of responses to elicit a greater variety of responses (Hurwitz & Madega, 1977; Lansing, 1971).

Feinstein (1983) emphasized the use of clustering strategies and referential adequacy as part of the interpretive process. The author described referential adequacy as a response that involved three important qualifications:

the visual qualities prompting the response must be evident in the art object, these qualities must be referred to by the student, and the qualities, their connotations, and the work itself must be within the range of congruent correspondence.
(p. 31).

The art criticism teacher was to ask questions which would elicit from students responses that would meet these qualifications.

Hamblen (1984) proposed that "the formulation of art criticism questions within the hierarchal category of Bloom's taxonomy offers a much-needed methodological specificity that also promotes student interest and the development of analytical skills." (p. 41).

Taunton (1983) described four categories of questions that could be used: cognitive memory, convergent, divergent, and evaluative questions. The author also promoted the use of Orme's (1970) probing techniques, such as clarification, critical awareness, refocussing, and prompts to elicit more specific types of responses from students. Taunton (1983) stated that "research indicates that teachers who ask higher-level cognitive questions can affect the way children answer questions and solve various types of problems." (p. 41).

Study sheets and rating scales. Strategies for improving individual student responses to art included study sheets (Zeller, 1984) and rating scales (Demery, (1984).

Zeller (1984) stated that:

a study sheet approach is an active, participatory method of involving students with works of art ... Study sheets hold students in front of a work of art long enough to contemplate the complex relationships of the subject matter, technique, and sensuous and formal qualities. They also help students sharpen their skills of analysis, interpretation, and articulation. (p. 29).

Demery (1984) used Likert-type rating scales as the teaching-learning strategy to improve students' thinking about art. The major purpose of the use of the scales was to increase the time spent viewing art and to give students some focus for responses to art.

Developmental Differences in Responses to Art

Some research has been carried out on developmental differences in responses to art; however, the majority of descriptions of developmental differences have been documented with descriptive research methods such as Valentine's (1962) categories of responses.

Rosentiel, Morrison, Silverman, and Gardner (1978) investigated developmental differences in children's ability to respond critically to works of art. They found that there was a greater variety of responses with increasing age and that the types of questions asked influenced the responses given. Their findings are supported by Moore (1973) and Parsons, Johnson and Durham (1983) who concluded that evaluative criteria do change developmentally.

Summary

The literature on the topic of art criticism was expansive. The review of the literature in this area revealed the following major areas of concern: (1) definitions of art criticism, (2) the objectives of art criticism, (3) criteria for art criticism, (4) methods of approaching art criticism, (5) strategies for improving art critical abilities, and (6) research findings concerning developmental differences in critical thinking skills.

The following objectives of art criticism were identified: (1) the need to increase the time spent viewing art, (2) the need to increase the number and types of responses to art, (3) the need to acquaint students with a variety of methods of approaching art criticism, (4) the need to make students aware of the variety of criteria that can be employed in the art critical act, (5) the need to increase the range of facts taken into account when viewing art, and (6) the need to develop "referential adequacy" (Feinstein, 1983). When these objectives of art criticism are met, the student will be better able to make informed objective acts of judgement, interpretation, analysis, and description as opposed to uninformed subjective responses such as "I like it" or "It's great" -- responses not backed up with adequate reasons. (Mollica, 1985).

However, as Hamblen (1984) noted:

Art criticism remains essentially an art education proposal, rather than classroom practice. The goals are recognized and instructional methods are discussed; however, specific prescriptions for implementation are often absent. It appears that if discovery learning, critical thinking, and problem solving are not to remain confined to artistic performance, more specific art criticism guidelines and methodologies need to be introduced. (p. 41).

The review of the literature supported the contention by the developer that art critical skills should be developed. The literature review also indicated that there are a variety of approaches to, and criteria for, art criticism, as well as strategies for improving art critical skills.

Photography

The literature on photography was extensive, as indicated by Haaften's (1984) Photographica: a subject catalog of books on photography. The instructional developer surveyed four main categories of the treatment of photography in carrying out the needs assessment for this project: technical aspects, the history of photography, and critical and aesthetic aspects of photography. It was found that 87.6% of the available materials covered the

technical aspects of photography. Sixty-two point two percent (62.2%) of the available resources covered aesthetic aspects of photography. Finally, 19.7% of the available materials covered photographic history, while less than 3% concerned itself with photographic criticism.

This section will focus on photography in the art curriculum and criticism of photography.

The Place of Photography in the Art Curriculum

Many art educators have recognized the importance of including the study of photography in the art curriculum. Lansing (1971) stated that:

In fact, several art educators maintain that photography is the art form of the twentieth century. They believe it is the one art form that young people naturally appreciate because it is familiar to everyone. We agree with the appraisal and believe that art educators should take advantage of such widespread appreciation. Hence, photography might be taught as an art form, and it might be used to build sensitivity to other art forms. (p. 520-521).

Lowenfeld and Brittain (1975) considered photography to be a necessary skill in the art repertoire of students due to the decision-making processes involved.

Wickiser (1957) stated that "photography is an excellent medium for educating the eye to observe and discriminate..." (p. 317).

Chapman (1978) considered photography an important avenue of personal expression.

It was felt by Schwartz (1970) that "photography is one of the most dynamic art forms of our time and that, of the creative media, photography has probably reached more people than any other in the arts." (p. 225). Schwartz stated that "the inability to use a camera in today's world amounts to a kind of visual illiteracy." (p. 225).

Cooke (1973) recommended photography because of its widespread appeal, and suggested that photography was capable of sharpening observation and discrimination skills. He saw photography as "a way to create visually." (p. 8).

Kepes (1961) cited the use of photography as presenting new ways of seeing.

Spoerner (1978) concluded that photography could be singled out as a potentially viable method for stimulating visual awareness in children.

Lanier (1970) stated that:

if we support the view that the photographic arts are acceptable partners in the family of the visual arts we provide not only an additional expressive, exciting and thoroughly contemporary art production medium for school art, but also a vast source of material which is capable of provoking aesthetic response. (p. 300).

Summary. The review of the literature revealed that emphasis has been placed on photography as an important component in the art curriculum. Its wide appeal, its use as an expressive medium, and its function in stimulating and developing perceptual skills have been cited as major reasons for incorporating photography into the art curriculum.

Photography in Teacher Education Texts

A review of the leading art education textbooks used in teacher training revealed that by far the major percentage of any extended writing on the topic of photography in the art curriculum was devoted to descriptions of the materials and processes needed to "do" photography.

Baker (1979) covered the materials and equipment needed for photography, basic darkroom procedures, and the factors involved in the picture-taking process. (Chap. 16, pp. 298-315).

Lanier (1982) gave a brief description of how the process of photography works and some of the major purposes of taking photographs such as commercial and practical functions. (p. 66-68).

Linderman (1980) included a section of photography in his text Teaching Secondary School Art that described the materials needed, and film development and printing procedures.

Chapman (1978) included a full chapter on photography and the film arts in her text Approaches to Art Education. The chapter discussed the technical aspects of camera control, pointed out various possibilities for subject matter, and suggested activities for taking pictures. (Chapter 16, p. 264-284).

Kay's (1973) text Photography in Art Teaching covered basic technical information such as camera types, darkroom equipment, processing and enlarging. The second part of the book emphasized ideas and projects to use and thus was largely studio-oriented.

Lowenfeld (1970) offered an outline for a curriculum in making photographs. (p. 303-322).

References to approaches other than the technical, studio-oriented approach to photography in art teacher education texts tended to be isolated and brief statements made while discussing art in general. For example, Gombrich (1974), while discussing the impact of photography on painting, claimed that "interpreting photographs is an important skill that must be learned by all who have to deal with this medium of communication." (p. 262). He made no suggestions concerning the implementation or achievement of this goal.

Ocvirck et al (1985, p. 85-86, 17-18) and Brommer (1981, p. 358, 425, 501) also made passing references to photography in their discussions of the history of painting, noting how the invention of photography influenced painters such as Degas, and changed the direction of painting as an art form.

Lanier (1982), in discussing some of the factors that influence how we look at art, stated that:

the appearance of these new art forms - such as advertising and photographic media... - has not only widened the range of objects we make and look at as art, but has also raised questions about what we believe art to be. (p. 39).

Wickiser (1957) proposed encouragement and development of skills in photography through discussion of photographs

in terms of their design quality and content. Thus, formal aspects of the photographic image were emphasized by the author, while specific guidelines for discussion were not included.

Lowenfeld and Brittain (1975) considered "the processing and enlarging of negatives or the editing of films" as activities that stimulate the decision-making process, indicating a belief in the transfer of learning from skill domains to cognitive domains. (p. 71).

Feldman (1981) was the only author to discuss photography in an extended way, without emphasis on the technical aspects of photography. Feldman discussed the evolution of photography as an art form, the effect of photography on painting, the popularization of photography, framing and selectivity on the part of the photographer, abstraction in photography, the photographer as an artist, and photojournalism. The author also pointed out reasons for the lack of materials on photographic criticism and offered a bipolar scale for use in judging photographic works of art. The scale involved polar adjectives such as singular/typical, part/whole, pattern/idea. The scale puts a major emphasis on evaluation of photographs, while

specific guidelines for other stages in the critical process, as applied to photography, tend to be ignored. (Chapter 14, pp. 417-439).

Summary. The authors of art teacher education texts, while advocating the inclusion of photography in the art curriculum, tended to be primarily concerned with the technical aspects of photography with the exception of Feldman (1981). Where historical, critical, and aesthetic aspects of photography were mentioned, references tended to be short, one sentence statements, made while discussing art in general, especially drawing and painting. No specific guidelines for implementation of critical goals were stated.

Photography in Art Education Journals

The major art education journals available to teachers, including Art Education, Art Teacher, and School Arts, feature articles devoted to photography in most issues. Table 8 presents a summary of the number of articles dealing with photography in these journals over the last twelve years.

Table 8

Content analysis of journal articles on photography

<u>Year</u>	<u>Number of articles in each content area</u>			
	<u>Technical</u>	<u>Aesthetic</u>	<u>Historical</u>	<u>Critical</u>
1975	5	0	0	0
1976	2	1	0	0
1977	4	1	0	0
1978	2	1	0	0
1979	3	1	0	0
1980	3	0	0	0
1981	3	1	0	0
1982	4	0	0	0
1983	2	1	0	0
1984	6	2	0	0
1985	3	1	0	1
1986	2	2	0	3
1987	6	2	0	0
TOTAL:	45	13	0	4
%	73.8	21.3	0	6.5

Analysis of Table 8 indicates that by far the greatest percentage of articles dealt with "how to" approaches to photography.

Barrett (1986b,c,d) and Barrett and Desmond (1985) were the only authors to discuss critical aspects of photography. Barrett (1986b,c,d), in a three-part series of articles, dealt with the interpretation of photographs, while Barrett and Desmond (1985) described discussion techniques for use with photography.

Photography in Existing Art Curricula

A survey of existing, available art curricula in the United States and Canada was conducted to assess the treatment of photography in available curricula. The majority of these curricula were obtained as ERIC documents.

Smith-Malek (1979) developed a basic curriculum for teaching photography at the junior high level, for use by teachers who had no previous experience in teaching photography. The author developed activities centred on the technical as well as creative aspects of photography. In the creative realm the activities included: depicting mood, creating a picture story, taking pictures of subjects

that illustrated the major elements of design, and photo collages.

Eaton and Weatherford (1983) described a two-week introductory course in photography that included the basics of camera operation and darkroom procedures.

The Montgomery County Public Schools (1980) described a studio-based programme that included camera types, darkroom procedures, and criteria for selection of subject-matter and composition.

The Idaho State Department of Education (1978) described a programme in photography that involved a brief history of photography, composition principles, and camera handling and darkroom procedures.

Other similar programmes were described by Farnsworth and Beckman (1971), the New York State Education Department (1974), Heard (1984), McDole (1983), Pistone (1978), and the Frederic County Public Schools (1981).

Examination of provincial art education guidelines for the provinces in Canada revealed that photography was offered in only four of the provinces - British Columbia, Ontario, New Brunswick and Newfoundland. In each case the unit on photography was optional. In each of the four

Provinces offering photography, the approach was a studio-oriented programme with emphasis on the technical aspects of picture-taking and darkroom procedures. Where aesthetic aspects were mentioned, they involved the use of the elements and principles of design in the picture-taking and print-making processes. Brief historical information was covered but neither curriculum mentioned the critical aspects of photography.

Summary. The review of the literature on the treatment of photography in leading art teacher education texts and journals, as well as in existing curricula, revealed an emphasis on the studio approach to photography. This finding is supported by Barrett (1986a,b,c,d), Barrett and Linehan (1977), Desmond (1981) and Siegel (1983).

It is the contention of this researcher that teachers will teach photography based upon the ways in which they have been taught and that new ideas filter into the teaching process if they are readily available and easy to use. The heavy emphasis on the studio-oriented approach to photography in materials available to teachers would seem to be a major factor inhibiting other approaches to

photography, such as historical, critical, or aesthetic appreciation models for teaching.

Based on this assessment of the treatment of photography, further research was conducted to determine the extent to which photography had been investigated in research fields.

Research on Photography

Visual literacy studies. The major concentration of research on photography in the curriculum involved that dealing with the visual literacy movement, first promoted by Debes (1969). This movement is aimed at developing in individuals the abilities to "read and understand visuals while also acquiring skills to generate visuals." (Debes, 1969, p. 27).

Some of the major findings in this area have indicated that photography can be used as a tool for: (1) motivating students (Ross, 1972); (2) increasing self-concepts in students (Hedges, 1972; Nicoletti, 1971); (3) increasing verbal literacy (Diamond, 1968); (4) improving cognitive skills, such as ordering of ideas (Seels, 1979); (5) reaching the disadvantaged (Fransecky, 1969; Parker 1969); (6) increasing visual skills (Ferguson, 1972);

(7) reaching subject goals (Lasser, 1975); and (8) increasing visual awareness (Barley, 1969; Fransecky, 1972; Villa, 1973).

Lanier (1972), in discussing the visual literacy movement and its emphasis on still photography, summarized the findings noted above with his statement that:

indeed the curriculum of photographic art education has changed little over the years; conceptions of benefits to be derived from that curriculum have varied with seeming heedlessness. (p. 15).

The majority of visual literacy projects, however, concentrate on the doing of photography as opposed to the reading of visuals even though this aspect is proposed by the movement. The book Cameras in the Curriculum: A Challenge to Teacher Creativity (National Art Education Association and Eastman Kodak, 1985) provides a summary of some of the major visual literacy projects carried out in the 1983-1984 school year in the United States. The projects described cover all areas of the curriculum and support the effects of introducing photography into the curriculum as noted above.

The projects described in the text which were specifically concerned with art education in particular involved the

following: (1) increasing avenues of personal expression (Feola, 1985), (2) stimulating interest in other art areas (Feola, 1985), (3) learning the elements of art through photography (Kuntz, 1985), (4) improving drawing abilities through photography (Caldwell & Cannon, 1985; Crowe, 1985; Hildebrandt, 1985), (5) increasing awareness of the elements of architecture through photography (Phelps & Rosenkranz, 1985), (6) increasing perceptual abilities (Anderson, 1985; Forti, 1985), and (7) improving knowledge and practice of composition in photography (Gaydos, 1985).

Other projects in the text were specifically geared to the study of photography. The projects in this section involved (1) the use of open flash to create unique images (Hamai, 1985), (2) photography in student yearbooks (Rickard, 1985), and (3) teacher education in the instructional uses of photography (Shepardson, 1985).

Of the 150 projects described in Cameras in the Curriculum, only two are concerned with analyzing and interpreting photographs. Desmond (1985) developed a project to enhance understanding of the form and content in photographs through contextual study. Barrett (1985) developed a project to increase student awareness of the variety of uses of photography.

Perceptual studies. Another major area of research concerning photography deals with perceptual skills and abilities.

Siegel (1983) concluded that "photographic appreciation is devoted to the technical aspects of camera usage, the negative, and the print" (p. 361A). Siegel developed a set of instructional strategies and visual resources for facilitating the perceptual exploration of photographs.

Spoerner (1978), concluded that "photography remains one of the least understood and investigated communication mediums." (p. 1). The author developed a curriculum in photography for the elementary level based on a taxonomy of visual perception skills. The activities included perception of form, perception of space, perception of movement and events, perception of illusions, and perception of representations.

Tawney (1981) studied the effects of visual concepts training and photographic slide production and selection on the aesthetic visual perception of elementary children. She concluded that "both art reproductions and slide art photography forms of intact slide tape instruction, combining repeated experience with an adapted concept attainment model,

are effective methods for improving aesthetic visual perception and aesthetic judgement." (p. 509A).

Dunn (1978) employed photography as a facilitator of visual problem-solving tasks and found that the effect between the two activities resulted in increases in visual perceptual performance.

McLeod (1979) used photographic experiences as a measure of visual aesthetic perception and recommended repeated experience with the camera and editing by students as more accurate measures of perceptual gain.

Appreciative and critical studies. Very few references to the appreciative and critical aspects of photography could be found in the research literature.

Dyer (1981) examined the relationship of instruction in photographic form and process to college students' feelings about the emotional attachments to photographic images. She found that following instruction, students' valuing changed toward both formal and informal aspects of art. The author concluded that different value aspects were used by students in responding to their own photographs as opposed to others' photographs because of emotional attachments.

Desmond (1981) developed a model for teaching photographic art criticism. The model identified five criteria for photographic art criticism including photographic technique, representation of nature, aesthetics, affective response, and historical/critical perspective. The model also included the criteria of developing strategies for teaching critical thinking about photographic art and understanding and evaluation of the photographic art critical performance.

Desmond and Koroscik (1984) investigated the effects of verbal contextual information on the categorization of photographs. They found that "the abstraction level of photographs and the nature of contextual information does influence viewers' categorizations." (p. 1).

Koroscik, Desmond and Brandon (1985) found that interpretation of photographs "was subject to the level of abstraction that characterized each artwork and to the type of contextual information (descriptive or interpretive) given at presentation." (p. 22).

Barrett (1980) developed a framework for appreciating differences among photographs through interpretive thought and talk. Barrett's structure emphasized the use of three

types of information. The first area included commonalities of photographs including selectivity, instantaneousness, and credibility. The second area dealt with categories of differences among photographs including descriptions, explanations, interpretations, ethical evaluations, aesthetic evaluations, and theoretical photographs. The third area concentrated on the various contexts that influence understanding and appreciation including original, external, and internal contexts.

Barrett and Desmond (1983) used the category method of interpreting photographs as a curricular model for teaching photography as a studio activity and found that it could be used successfully with college-level students.

Dunn (1978) developed a photographic rating scale to quantify both the emotional and analytical criteria that are present in the evaluation of visual images. The scale included: (a) Initial visual response, and (b) Visual principles of visual balance, visual emphasis, visual proportion, visual unity, and originality/inventiveness. Dunn's rating scale thus emphasized the formalist approach to art criticism, with evaluation of the photograph as a major objective.

Tawney (1981) used a modification of Dunn's scale creating three categories instead of two in rating the photographic activity of children.

Summary. Research on photography in an educational context has focussed mainly on increasing perceptual gains as indicated by studies such as Spoerner (1978), Tawney (1981), Dunn (1978), and Siegel (1983). Visual literacy projects have also been concerned with increasing perceptual skills and with developing and improving camera-handling, as studies by Ferguson (1972), Fransecky (1972), Villa (1972), and Barley (1969) indicated.

Of the literature available to the researcher, the work of Desmond (1981), Desmond and Koroscik (1984), Barrett (1980, 1985a, 1985b, 1986a,b,c,d), and Dunn (1978) seemed to be of most value concerning the development of critical goals in classroom photography. Perceptual studies were seen by the researcher to be of value in improving describing and analyzing skills, since the student would necessarily have to perceive the details of a photograph in order to describe and analyze them.

Photographic Art Criticism

Very few references could be found concerning critical aspects of photography. Beard and Hedgepath (1978) stated that "a major problem still facing the fine art of photography is the lack of intelligent and sustained criticism in all its facets." (p. 49).

Desmond (1981) stated that "within the area of photographic education, there has been no record of attempts to identify, let alone alleviate, the confusion associated with the teaching and learning of photographic criticism." (p. 4).

Problems in Photographic Criticism

Reasons cited for the lack of development of photographic art criticism included: (1) the early rejection of photography as an art form by art critics (Desmond, 1981; Feldman, 1981; Lanier, 1982), (2) the relatively young age of photography (Feldman, 1981), (3) the emphasis by scholars on the history of photography (Feldman, 1981), (4) the struggle of photography to emancipate itself from painting (Feldman, 1981; Rosenblum, 1984), and (5) the emphasis on

the photographer as artist in teacher training programmes.
(Coleman, 1979).

Need for Photographic Criticism

The need for the criticism of photographs, however, was evident. Desmond (1981) defined photographic art criticism as "the analysis of the qualities that describe, interpret, and evaluate the aesthetic worth of photographic art, in order for understanding to take place." (p. 11-12).

Gombrich (1974) claimed that "interpreting photographs is an important skill that must be learned by all who have to deal with this medium of communication." (p. 262).

Desmond (1981) stated that: "the study of photographic art is concerned with the ability to decipher and interpret, redefine and reinterpret, the photographic messages encountered in society. Through the critical study of photographic art, individuals can acquire a far more profound understanding of how to describe and interpret everyday images." (p. 13). Desmond emphasized that without the development of critical methods of approaching photography, "understanding of the multi-level comprehension of photography will not take place." (p. 15).

Barrett (1986a) discussed the importance of differentiating between art and non-art photographs and stated that "if these non-art photographs are merely conflated [sic] with other aesthetic objects, their contributions to knowledge and values are lost." (p. 52).

Barrett and Linehan (1977) stated that "criticism provides a process for engaging students in qualitative thought and talk about photography leading to a greater understanding of photography, the creative process they are engaged in, and aids them in clarifying their personal aesthetic criteria." (p. 27). They emphasized that "students may use the technical aspects of their art-making as significant or sole criteria for evaluating their work. Too often in photography the print quality of a photograph becomes more important than its intended statement." (p. 27). Thus, Barrett and Linehan saw photographic art criticism as a means of extending knowledge of photography beyond its technical aspects.

Traditional Approaches to Photographic Art Criticism

The historic positions in photographic art criticism include the purist model, the pictorialist model,

intentionalism, and reading. (Barrett, 1986a; Desmond, 1981).

Pictorialism. Pictorialist photographers allowed the use of techniques such as hand-touching, multiple exposures, and brushing. The pictorialists emphasized rules such as a dramatic centre of interest, spatial flow, depth to forms, and asymmetrical balance in their compositions and felt that the same criteria that were applied to other pictorial art could be used to judge photographs. (Rosenblum, 1984; Ward, 1970).

Purism. The purist model disallowed manipulations of the negative and relied on the claimed intrinsic characteristic of photography, objective recording of reality, to produce "pure" pictures. Anything that distorted reality created a poor picture. (Newhall, 1981; Ward, 1970). The pictorialist and purist divisions of photographs later became associated with the terms "manipulated" and "straight" respectively. (Barrett, 1986a; Newhall, 1984; Rosenblum, 1984).

Intentionalism. White and Chappell (1957) proposed an intentionalist theory for experiencing photographs, emphasizing that the criteria for judging the success of a photograph was the purpose of the photographer. "Reading" photographs became an important approach to criticizing the

photograph and part of this approach involved placing a photograph into one of four categories: documentary, pictorial, informational and the equivalent. (Barrett, 1977). This approach to photographic criticism became popularized by Aperture Magazine and Exposure: the Journal of the Society for Photographic Education. (Barrett, 1977).

Category methods. In addition to the category method identified by White and Chappell (1957) and Barrett (1977), other authors proposed different category methods.

Newhall (1964) identified four approaches to photography: straight, formalist, documentary, and the equivalent.

Kozloff (1968) suggested two approaches to organizing photographs: "The one format assumes as its theme successive approaches to subject-matter; the other, variety in the functions and handling of the medium itself." (p. 288).

Time-Life Editors (1970) popularized the subject approach to photographs with categories such as nude, landscape, portrait and nature photography.

Emerging Approaches to Photographic Criticism

Category methods. Bayer (1977) suggested nine categories for looking at photographs: time, symbol, organization of

the picture, abstraction and ambiguity of space, surrealism, sequences, light, view of the city, view of humanity. His set of categories was meant to elicit questions that viewers must learn to answer for themselves.

Coleman (1979) noted five categories for discussing photographs: autobiographical, directional, serial, grotesque, and academic. These were seen as trends in contemporary photography and important to the critic as background information. Coleman outlined the critical process as description of the work, interpretation of the work, and evaluation, a simplification of the Feldman (1967) model of art criticism.

Barrett (1986a) criticized the traditional and popular approaches to criticizing photographs for a variety of reasons. He stated that the traditional categories reinforce the "notion that a photograph can be 'unmanipulated'." (p. 52). He also emphasized that the traditional categories collapse into two categories: science versus art, thus renewing the age-old dispute concerning photography as art. Barrett also criticized the popular approaches for their failure to stimulate critical thinking about photographs beyond naming type responses.

Barrett and Linehan (1977) outlined the photographic art criticism act as consisting of the stages of description, explanation (interpretation), evaluation, and theory.

Barrett (1980) created a new category system that encompasses both the old categories of photographs and popular approaches to categorizing photographs. The category system was seen to be a needed method of approaching photography with an emphasis on reasoned interpretations rather than naming responses.

Scaling methods. Feldman (1981) offered a Likert-type scale for use in discussing photographic works of art. The scales included: (1) from surface to depth, (2) from optical to tactile, (3) from pattern to idea, (4) from part to whole, (5) from singular to typical, and (6) from copy to original. (p. 433).

In discussing the scale, Feldman stated that:

the first three scales are meant to consider technical qualities to the extent that they are seen as vehicles of the formal, cognitive or expressive value. The last three scales are meant to suggest the larger, conceptual considerations which enter into the evaluation of a photograph that meets our technical requirements. (p. 433).

The first pole in Feldman's scale indicated a lack of the quality while the second indicated a plentitude. Thus a photograph that ranked high on many of the scales would be considered a masterpiece of photography.

Summary.

The review of the literature in the area of photography in the art curriculum indicated that the most prevalent approach to the teaching of photography was a technical, studio-oriented approach. (Siegel, 1983; Desmond, 1981).

Most research on photography in the curriculum has concentrated on reaching general educational goals through photography (Lane, 1983; Lanier, 1972), and on improving perceptual gains. (Tawney, 1981; Dunn, 1978).

Photographic art criticism was an area conspicuously absent in the literature. Discussions of criteria for evaluating photographs and methods of criticism in photography were scattered and brief. Barrett and Linehan (1977) outlined the process of photographic art criticism. Barrett's (1980, 1985, 1986) theoretical framework for interpreting photographs, and Desmond's (1981) model for photographic art criticism were the only literature

materials dealing specifically with criteria for photographic criticism outside the technical domain.

Coleman (1979) stated that "photography as a pictographic language is used for many purposes. To apply only the traditional methods of art criticism to it, is to ignore the total impact of the medium." (n.p.). Ward (1970), Desmond (1981) and Barrett (1986a) also emphasized the need for the critical assessment of photographs to be different from the traditional criticism in the visual arts. Ward (1970) stated that "although the basic task of all art critics is the same, the kinds of knowledge required of a critic will vary from medium to medium, from style to style, and from work to work." (p. 27).

The review of the literature on photography lends support to the need for the development of materials dealing with the critical aspects of photography for the high-school curriculum.

Instructional Systems Design

Design Models

A variety of models exist for instructional development, most of which employ the common procedures of analysis, design, and evaluation. (Logan, 1982; Twelker, Urbach & Buck, 1972).

Kaufman's (1972) model involved two major areas:

(1) problem identification, including the steps of identifying the problem through a needs assessment and determining solution requirements and alternatives; and
(2) problem resolution, including the steps of selecting solution strategies, implementing selected strategies, determining performance objectives, and revising as required.

Gagne and Briggs (1974) designed a twelve-step procedure for instructional development that included the following stages: analysis and identification of needs, definition of goals and objectives, identification of solutions, designing system components, analysis of resources and constraints, constraint removal actions, selection or development of instructional materials,

field testing, formative and summative evaluation, adjustments and further evaluation, and operational installation.

Davis, Alexander, and Yelon (1974) developed a model for instructional development that included the stages of analysis, design and evaluation. The analysis stage involved specifying goals and the current state of the system; the design stage involved the use of selecting alternatives and implementing a system; the evaluation stage involved comparing planned and actual performances and redesigning where necessary.

Coger (1975) listed the stages of instructional development as: defining the instructional problem, determining student characteristics, developing learning objectives, specifying subject content, developing learning activities, selecting media, evaluating the system, and analyzing feedback.

Thiagarajan, Semmel, and Semmel's (1974) model for instructional development involved the following stages: Define, Design, Develop and Disseminate. Definition of the problem included procedures for completing a front-end analysis, learner analysis, task analysis, concept analysis,

and specification of objectives. The design stage involved the construction of a criterion-referenced test, media and format selection, and initial design considerations such as sequencing. The development stage involved the use of expert appraisals and developmental testing of prototype materials so that formative evaluation of the product could be used to revise and modify the prototype materials. The dissemination stage involved validation testing, final packaging, diffusion of the materials, and adoption or rejection of designed materials based upon summative evaluation of the product.

Rationale for Model Choice

The researcher chose Thiagarajan, Semmel and Semmel's (1974) model for instructional development mainly because it was the most familiar and also because the model was product-development oriented.

In addition, Stolovitch (1975) proposed an inverted model of media selection which was developed based upon a modification of Thiagarajan and others' (1974) model. Stolovitch's revised model allowed for the initial selection of media and the author stated that this would contribute

to increased specificity in the product development stage.

This feature was seen as an important consideration to the developer due to financial considerations, the nature of the objectives involved in the materials proposed for development, available equipment in schools involved in the pilot testing situation and future distribution considerations.

Summary

The review of the literature revealed that art education is moving away from a production-oriented approach to art education to a more balanced curriculum emphasizing four major areas - art history, aesthetics, art production, and art criticism. (Efland, 1984; Eisner, 1984; Emerson, 1984b; Grigor, 1982). In addition, the literature review indicated that art educators have stressed the need for inclusion of photography and other technologically-based media in the art curriculum. (Chapman, 1978; Lanier, 1981, 1982; Madega, 1980).

The needs assessment indicated that a broad number of suitable resources on photography existed in the areas of photography production, aesthetics of photography and

history of photography. However, the teacher wishing to implement critical goals within a unit of instruction on photography is faced with a lack of literature and resources dealing with the critical aspects of photography (Desmond, 1981), in addition to a general lack of training in art criticism. (Lovano-Kerr, 1985; Miller, 1983).

In Newfoundland, these problems are compounded by lack of qualified art teachers, student-teacher allocations, and school board policy toward hiring of specialists. (Hall, 1980). Problems of unequal access to the arts, lack of opportunities for studying photography and art criticism, and budget constraints also contribute to discrepancies between stated critical goals of instruction and actual achievement of these goals in photography units.

Where teachers have some training in photography, it is highly unlikely that they have covered courses in photographic art criticism. Where teachers do not have training in photography, they lack both the technical and critical skills to introduce photography, in all its aspects, to their students. Where photography is taught, students are exposed to the technical and picture-taking skills of photography, while other areas are ignored.

Finally, while there are many approaches to the teaching of art criticism in general, it has been emphasized that the traditional criteria for art criticism are not particularly suited to the criticism of photography. (Barrett, 1986; Coleman, 1979; Desmond, 1981; Ward, 1970).

The needs assessment and the review of the literature pointed to a need for the development of materials on the critical aspects of photography. The few print materials that were located were found to be inadequate in terms of language level, visuals to accompany the text discussions, and extraneous content.

The use of educational communications technology was cited as a delivery system that could "offer practical solutions to a Province whose geographic and economic structure prohibits the full-scale enrichment of the educational system through specialist placement." (Hall, 1980, p. 68).

The review of the literature revealed that a model for teaching photographic art criticism does exist. (Desmond, 1981). Also, a theoretical framework for interpreting photographs (Barrett, 1980) was located.

It was the developer's contention that the combination of educational technology and the development of materials based upon Desmond's model for photographic art criticism, would alleviate, if not solve, the problems confronting the classroom teacher trying to implement art critical goals in photography.

Chapter III reviews the front-end analysis carried out for the present study. The major steps involved in this process included a learner analysis, task analysis, concept analysis, and the statement of objectives for the project.

CHAPTER III

FRONT-END ANALYSIS

Thiagarajan, Semmel, and Semmel's (1974) model was chosen to facilitate the development of instructional materials entitled *Categories of Photographs: A Guide to Interpreting Photographs*. The four stages of this model, along with the component steps in each stage, are summarized in Figure 1.

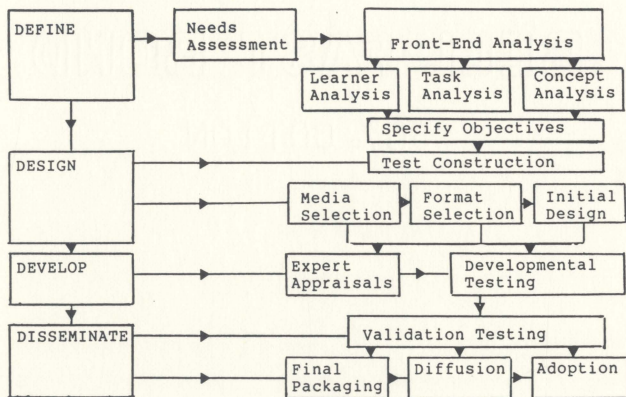


Figure 1. Thiagarajan, Semmel, and Semmel's (1974) instructional development model.

The needs assessment carried out in the define stage of the developmental model revealed that no suitable materials existed for the teaching and learning of the critical aspects of photography.

The review of the literature in the fields of art education and photography supported the perceived need for the development of materials on the critical aspects of photography. (Desmond, 1981; Barrett, 1980, 1986). The review of the literature also provided the instructional developer with a model for teaching photographic art criticism. (Desmond, 1981).

After assessing the need to develop increased photographic critical skills, it was necessary to further investigate the goal and bring it into perspective with a specific population in mind.

Instructional Requirements

Learner Analysis

School description. The target population considered in the learner analysis was a group of high-school boys enrolled in the Art and Design 3200 course at Brother Rice Regional High School in St. John's, Newfoundland. The school has a

total enrollment of approximately 500 male students and houses classes from grade ten to grade twelve. The school acts as a receiver school for many of the elementary and junior high schools in St. John's and the surrounding area.

Facilities of the school. Facilities in the school related to the art programme included an art classroom, darkroom, printing room, and resource centre. Resources available in the school included a video-tape recorder, 16 mm movie projector, overhead projectors, filmstrip projectors, slide projectors and tape recorders.

Class description. The class considered was the Art and Design 3200 class which consisted of an homogenous group of 13 boys, none of whom were physically or mentally handicapped. The average age of the class was eighteen. Socio-economic backgrounds varied from low-income families to high-income families.

Attitudes of the class. The class was characterized by their teacher as being highly interested in art in general. Skills varied greatly; however, the students were seen as highly motivated with regard to achievement in art studio activities. It was also noted that the students were quite concerned about their performance on their up-coming public

exams. Discipline was considered a problem for two of the students in the class.

Skills of the class. Variance in the academic achievement of the class existed. The academic averages of students ranged from 50% to 75%, with a mean class average of 64%. Students indicated that they enjoyed watching any type of audio-visual presentation. The art teacher, however, indicated that abilities to listen carefully and derive information from audio-visual presentations varied.

Subject-matter competence of the class. All students in the class had completed Art 1200 and Art and Design 2200. The students were familiar with Feldman's (1981) model of art criticism and were knowledgeable of the terms description, analysis, interpretation and judgement. The students also exhibited a knowledge of the elements and principles of design including such terms as light, shape, line, form, texture, movement, harmony, unity, composition, and selectivity.

Students in the class had completed an optional unit on photography during the previous school year but had no exposure to photography during the 1986-87 school year. The exposure to photography was limited to camera-handling

and darkroom procedures, with some emphasis on composition, lighting, and the elements and principles of design. A basic background of the history of photographic technology had also been acquired.

Students had never been exposed to photographic art criticism, except in terms of the knowledge and vocabulary to evaluate print quality. Thus, they were familiar with terms like contrast, grain, and density. Knowledge of affective response to photographs was limited to vocabulary such as landscape, scientific, documentary, portrait and artistic.

Tool skills. All students felt comfortable in the handling of cameras, darkroom equipment, slide projectors, filmstrip projectors and tape recorders.

Conclusion. The learner analysis provided the information needed to assess the entering level of the students in the class as well as an idea of the limits that might be set concerning the intended instructional goal.

Concept Analysis

A concept analysis of the instructional goal based on the characteristics of the target population was carried out.

A "concept analysis is used when the acquisition of knowledge is the goal." (Thiagarajan et al, 1974, p. 43). The completion of the concept analysis led to the development of a learning hierarchy and the specification of performance objectives for the instructional package.

Rationale for learning hierarchy. The learning hierarchy was developed by analyzing the instructional goal of teaching photographic art critical skills until the logical analysis of the goal reached a point which, as assessed in the learner analysis, was the point corresponding to the entering level of the students in the class.

Desmond's (1981) model for photographic art criticism was used by the developer to assess the entering behaviour of the target population, which in turn affected the final learning hierarchy which was developed. Desmond's model included: (1) criteria for photographic art criticism including: technique, representation of nature, aesthetic comprehension, affective response, and historical/critical perspectives; and (2) criteria for teaching photographic art criticism including: understanding and evaluation of the art critical performance. (p. 118).

The learner analysis revealed that students had some knowledge of technique, history and aesthetics of photography. Students also had a limited awareness of some of the leaders in the history of photography, and of the representational nature of photography. Students exhibited a very limited vocabulary for the affective response criteria in Desmond's (1981) model.

Desmond, in discussing the criteria of affective response stated that "this means that the viewer is provided with a vocabulary with which to describe perceptions, feelings, and ideas about the photographic image." (p. 82). The target population students were found to be lacking in a vocabulary to discuss intended or suggested meanings expressed in a photograph. Discussion by students tended to be limited to stating whether a photograph was documentary, landscape or portrait.

Students had an understanding of the art critical performance, Desmond's second criteria for photographic art criticism. In other words students were familiar with the steps of description, analysis, interpretation and judgement.

Based upon this assessment of the entering behaviour of students in the target population, the project developer

assessed the major need of the students at this time to be the learning of a vocabulary to describe, analyze, interpret and judge intended meanings of a photograph.

Barrett's (1980, 1986) framework for interpreting photographs was seen by the developer as an appropriate model for teaching the knowledge and vocabulary necessary to arrive at conclusions concerning the meaning of a photograph.

It was felt that the learning of this vocabulary would make a contribution to the achievement of some of the major goals of art criticism including: (1) an increase in the number of responses to photographs, (2) an increase in the types of responses to photographs, and (3) an increase in the time spent viewing photographs.

The next problem in constructing the learning hierarchy involved determining the organization of the hierarchy levels. It was felt that the use of Bloom's (1956) taxonomy would contribute to a logical sequence of learning. The levels of learning in Bloom's taxonomy include knowledge, comprehension, application, analysis, synthesis, and evaluation. "According to Bloom, this hierarchy is both sequential and causal, with each higher stage predicated on mastery of previous stages." (Hamblen, 1984, p. 42).

Learning hierarchy. The learning hierarchy that was developed as a result of this logical analysis of the goals of art criticism, Desmond's (1981) model for photographic art criticism, Barrett's (1980) framework for interpreting photographs, Bloom's (1956) taxonomy, and the entering behaviour of students is presented in Figure 2.

The hierarchy is arranged in three levels. Level I corresponds to the vocabulary for affective response that is to be learned. Level II corresponds to cognitive levels of thinking associated with this vocabulary. Finally, Level III corresponds to the expected outcome of achievement on each of the lower levels in the hierarchy.

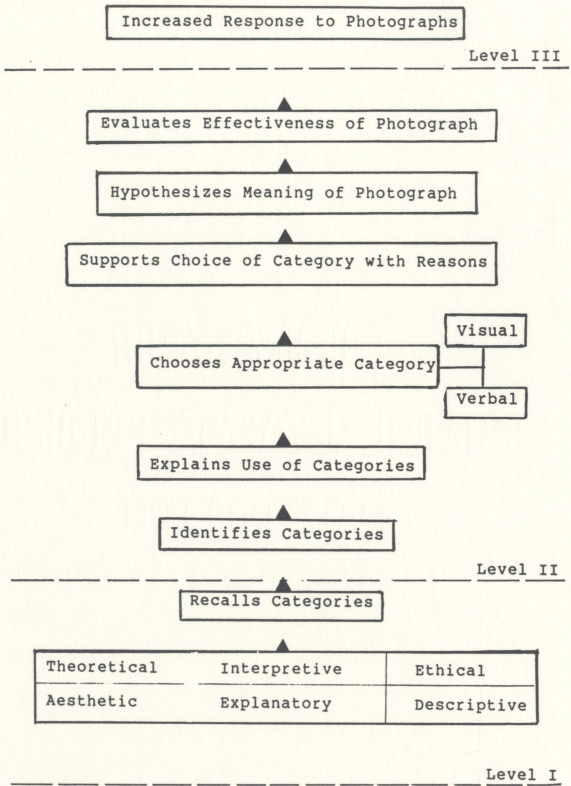


Figure 2. Learning hierarchy.

Behavioural Objectives

The behavioural objectives stated were derived as a result of the logical examination of the requirements for instruction depicted in the learning hierarchy items. The objectives were divided into two groups. The terminal objectives (Group A objectives), correspond to Level III in the learning hierarchy, which relates to improving responses to photographs. The enabling objectives (Group B objectives) correspond to Levels I and II in the learning hierarchy, which relates to the vocabulary for affective response to photographs and the cognitive levels of use of this vocabulary.

Terminal objectives. The major objectives of the instructional programme included:

- A-1. The class of students will show an increase in the time spent viewing photographs, by using the category method of interpreting photographs.
- A-2. The class of students will show an increase in the number of responses made to photographs, by using the category method of interpreting photographs.
- A-3. The class of students will show an increase in the types of responses made to photographs, using the category method of interpreting photographs.

Enabling objectives. The subset of objectives enabling attainment of the major objectives were determined to be:

B-1. The student states, in writing, six categories of functions of photographs.

B-2. The student states, in writing, one reason for using categories when looking at photographs.

B-3. Given a definition, the student classifies, by naming, each of the following categories of photographs:

- a. descriptive
- b. ethically evaluative
- c. aesthetically evaluative
- d. explanatory
- e. interpretive
- f. theoretical

B-4. Given a verbally stated example, in writing, the student discriminates, by naming, each of the following categories of photographs:

- a. descriptive
- b. ethically evaluative
- c. aesthetically evaluative
- d. explanatory
- e. interpretive
- f. theoretical

- B-5. Given a projected slide, and verbal information cues, the student discriminates, by naming, each of the following categories of photographs:
- a. descriptive
 - b. ethically evaluative
 - c. aesthetically evaluative
 - d. explanatory
 - e. interpretive
 - f. theoretical
- B-6. Given a projected slide and verbal information cues concerning the slide, the student identifies the correct category for the photograph and supports the choice of category with reasons derived from the photograph and information cues.
- B-7. Given a projected slide, along with the title and verbal information cues concerning the slide, the student interprets the meaning of a photograph, using the category method interpretation.
- B-8. Given a projected slide and verbal information cues concerning the slide, the student judges the effectiveness of a photograph, using the category method of interpretation.

Summary

The steps involved in the front-end analysis stage of the developmental process determined the instructional requirements for the prototype materials. The learner analysis resulted in a narrowing of the instructional goal to that of teaching the vocabulary for affective response to photographs, i.e. the vocabulary for interpreting photographs.

The concept analysis resulted in the construction of a learning hierarchy and the specification of behavioural objectives based upon the entering behaviour of the target population.

Chapter IV reviews the steps carried out during the design phase of the project. These steps included construction of a criterion-referenced test, selection of media and format, and the initial design plans for the project.

CHAPTER IV

DESIGN OF THE PROJECT

The design stage of Thiagarajan and others (1974) instructional development model includes four steps: test construction, media selection, format selection and initial design.

Criterion-referenced Test

Based on the performance objectives stated, a criterion-referenced test was constructed so that each of the performance objectives could be evaluated in terms of student achievement of the objectives. For each objective, a corresponding test item was constructed.

The final criterion-referenced test involved two parts, a written test and a group discussion. The written test was designed to test achievement of the enabling objectives concerned with the recall, identification, and verbal and visual discrimination of the categories. (Objectives B-1, B-3, B-4, and B-5). The written test was also used to measure achievement of the enabling objective concerned with

comprehension of the use of the category system. (Objective B-2).

The discussion portion of the test situation was designed to measure achievement of the enabling objectives concerned with analysis, interpretation, and evaluation of the categories of photographs. (Objectives B-6, B-7, and B-8). In addition, the discussion section was used to measure the terminal objectives of the package, which were concerned with increased response to photographs. (Objectives A-1, A-2, and A-3).

The final criterion-referenced test is presented in Appendix D. The test slides used for the visual discrimination items and the group discussion section are presented in Appendix E along with the verbal information cues accompanying the visual portion of the test.

To facilitate accurate measurements for the group discussion portion of the test, it was planned to record the discussion on audiocassette. An observational checklist was also devised to help tabulate the responses made to the test slide while the discussion progressed. The observational checklist is presented in Appendix F.

Instructional Strategy

Choice of Media

Review of the literature. Student preference of media other than print materials has been repeatedly documented. (Allen, 1971, 1975; Copeland, 1983; Moldstad, 1974; Schlack & Kofel, 1975).

Thiagarajan and others (1974) stated that "study after study has shown no significant differences among media." (p. 68). Gagne (1970), Stolovitch (1975), and Brown, Lewis, and Harclerod (1977) indicated that no single medium performs all instructional functions.

Thiagarajan and others (1974) emphasized that the important question to be answered when choosing media was "What attributes will help my students attain the instructional objectives?" (p. 68). They suggested examining media attributes in relation to learner characteristics and instructional objectives and basing the choice of media on the combination that incorporated these attributes.

Allen (1966) matched the capabilities of various media with the potential of the media to attain various types of learning objectives. He proposed that the choice of media

be made based upon the type of objectives involved. Bretz (1971), Kemp (1980), and Brown and others (1977) also stressed the importance of taking into consideration the types of instructional goals when making media selection decisions.

Stolovitch (1975) suggested determining learner, task, production, and distribution requirements and basing the selection of media on the media attribute combination that would best meet these requirements. He found that "the combination of print, audiocassettes, and filmstrip possess all desirable media attributes except motion and three-dimensionality." (p. 59).

Rationale for choice of media. The media chosen for this project was a combination of slide, print, and audiocassette. The choice of medium combination was based upon a number of factors. The learner analysis revealed that students enjoyed multi-media presentations and that, where visual presentations were concerned, learners needed some type of direction in order to gain the most from the visual presentation. Feedback and attention-directing cues were thus seen as attributes required for the programme. The print medium was determined to be suitable for meeting these learner requirements.

A task analysis of the objectives revealed that verbal and visual identification and discrimination skills were involved. A method of providing examples of photographs and comparisons of examples was thus seen as a necessary attribute of the medium chosen. Slides and half-tone prints were determined to be suitable for meeting the visual task requirements of the instructional package.

Production constraints imposed on the project were time, cost, simplicity of production and quality of reproduction of selected visual examples.

Distribution considerations required that the package be self-contained, easily reproduced, and easily used. Equipment availability in the schools and grouping flexibility were also seen as necessary characteristics of the package.

Based upon these required attributes, a logical analysis of Stolovitch's (1975) table of media attributes revealed that the combination of print, slide and audio-cassette would satisfy all of the attributes required for instruction.

Format Selection

The format for presentation of the vocabulary related to the categories of photographs was based upon a logical

consideration of the selected media, teaching strategy research, and sequencing of the instructional events.

Copeland (1983) indicated that learning packages in art should be developed around objectives concerned with one major concept and that all components of learning packages should contribute to the learning of that one concept. The concept for instruction in the instructional package was content-oriented, i.e. related to the vocabulary for interpreting photographs. The package was designed to teach this vocabulary and also to instruct in various cognitive levels of use of this vocabulary.

Since Bloom's (1956) taxonomy of cognitive skills had been used to develop the learning hierarchy, an inverted sequence of the learning hierarchy was determined to be the most logical choice for the sequencing of the instructional content. In theory, achievement on the lower cognitive levels would contribute to mastery of each of the higher levels.

Once the sequencing of events was completed, the developer matched the capabilities of the selected media to each of the events of instruction. Allen (1966) stated that slides and print were suitable media for the learning

of objectives related to factual information and principles, concepts and rules. Allen also cited slides as having a high potential for attaining objectives related to visual identification tasks.

It was decided that the slide-tape portion of the package would be suitable for presenting the six categories of photographs, including verbal explanations of the categories and visual and verbal examples of each of the categories. The print medium would be used to alert the students to the objectives of the package, provide students with instructions, and also to extend the knowledge presented in the slide-tape portion of the instructional programme.

Based upon the sequencing of events chosen and the media selected to present these events, a search for appropriate teaching/learning strategies was conducted so that these strategies could be matched to the selected media and stated objectives.

Joyce and Weil (1976) provided an overview of various teaching/learning strategies, while some strategies had been specifically cited in art education literature as appropriate for the types of cognitive skills intended by the instruction.

Dayton (1976) found that "the use of post-questions (either inserted or grouped) significantly increased intentional learning over that resulting from the no-question treatment." (p. 4792A). It was felt that the use of inserted questions during the slide-tape presentation would contribute to achievement of the objectives intended by the slide-tape programme.

Discussion techniques were cited as suitable teaching strategies for art critical skills, including description, analysis, interpretation and judgement (Chapman, 1978; Hurwitz & Madega, 1977; Johansen, 1982; Lanier, 1982). Other authors cited questioning strategies (Armstrong & Armstrong, 1977; Hamblen, 1983, 1984, 1986; Taunton, 1983) and study sheets (Zeller, 1984) as appropriate teaching strategies for the higher order cognitive skills associated with art criticism, i.e. analysis, interpretation and judgement.

It was decided that these teaching strategies would be incorporated into the printed student and teacher booklets, along with the use of half-tone prints which would act as focal points for the questions and discussions.

Based upon the sequencing of instructional events stated, and the media and teaching/learning strategies selected, the instructional developer proceeded with the design of the prototype materials.

Design Constraints

The initial design for the instructional package was limited by a number of constraints imposed upon the developer. The major constraints related to production facilities, cost, time, and target population availability.

Availability of target population. Only one intact group of students enrolled in an Art and Design programme was available for developmental testing of the prototype materials. This group of students was available for two instructional periods in June, 1987. The availability of an appropriate target population created problems for formative evaluation of the product. It was decided that an intact group of beginning photography students enrolled at the Division of Continuing Studies and Extension, Memorial University of Newfoundland, could be used to determine faults and limitations of the proposed materials. The summative evaluation could then be carried out on the

group of high-school students for which the materials had been proposed.

Time constraints. It was apparent that not all of the proposed package could be pre-tested, presented for instruction and then post-tested in the time available to the developer for the summative evaluation. It was decided that the formative evaluation would determine what instructional materials could be presented in the time available for the summative evaluation.

Production constraints. The cost of off-set printing was a factor considered during the design phase of the project. It had been hoped that high quality photographic reproductions might be included in the proposed student and teacher booklets for follow-up and discussion activities. Due to the high cost involved and the technical problems associated with making reproductions from available photographs, it was decided to use Xerox reproductions in a mock-up of the proposed booklets for the formative evaluation of the package. The mock-up materials would be developed further when some indication of the effectiveness of the mock-up materials could be obtained from the formative evaluation.

Another technical problem arose with the plan to include composite visuals and detailed close-ups in the slide show. It was felt that composite visuals would enhance the comparing and contrasting of categories and also contribute to review capabilities of the slide show. Detailed close-ups of portions of certain slides were planned to enhance the differences between ambiguous examples of categories.

Due to the quality of the photographs being copied and the limited production facilities available, these design plans could be accommodated only marginally well in terms of the technical quality of the slides that resulted. It was decided to use mock-ups of the proposed composite slides for the formative testing of the materials. Further development of these materials would proceed if results on the formative evaluation of the product indicated that the effectiveness of the materials warranted the cost associated with production.

Based upon the format and media choices made and the design constraints imposed upon the developer, a script for the slide-tape programme was developed and appropriate visuals were chosen to accompany the script. The final script for the slide tape programme is presented in Appendix G.

The final version of the instructional package is included in the Appendix, under separate cover.

Design Analysis

As each stage in the design phase of the developmental process was deemed completed, a critical analysis was carried out to determine if any discrepancies existed in the correlation of the objectives, hierarchy items, criterion test items, and instructional items. Figure 3 depicts the relationship between the objectives, hierarchy items, and criterion test items, while Table 9 depicts the relationship between the instructional items and the objectives.

Examination of Figure 3 and Table 9 reveals that for each objective there corresponds at least one of each of the following types of items: hierarchy item, instructional item and test item. This process of analysis ensured that all items of the instructional package could be accounted for. Where discrepancies were noted, items were changed, deleted or added, until the logical examination indicated consistency between each of the items.

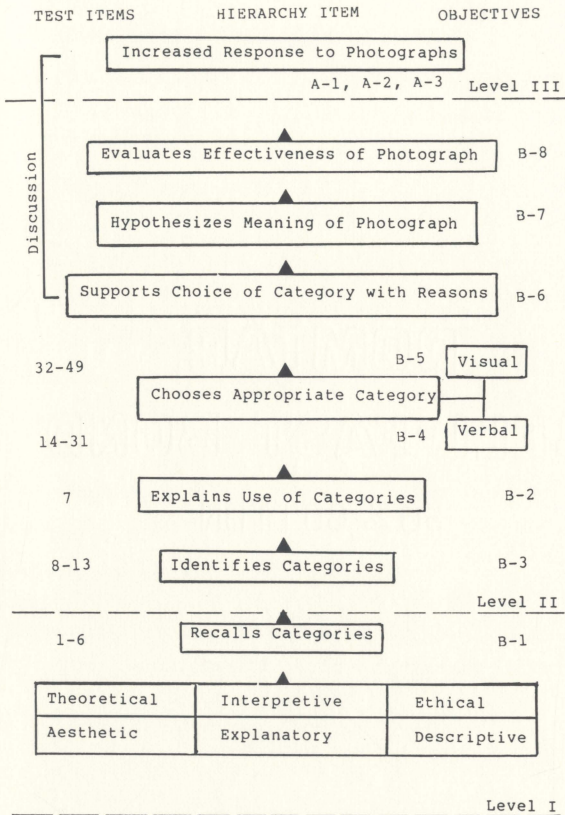


Figure 3. Relationship between objectives, hierarchy items and test items.

Table 9

Relationship between instructional items and objectives

<u>Instructional Items</u>	<u>Objectives</u>										
	<u>Group A</u>			<u>Group B</u>							
	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
Student Booklet											
Introduction	-	-	-	-	+	-	-	-	-	-	-
Objectives	-	-	-	-	-	-	-	-	-	-	-
Slide-tape Programme	-	-	-	+	-	+	+	+	-	-	-
Student Booklet											
Extended Activity	+	+	+	+	-	-	+	+	+	-	-
Discussion	-	-	-	-	+	-	-	-	-	-	-
Group Discussion	+	+	+	-	+	-	+	+	+	+	+
Projects	+	+	+	-	+	-	-	-	+	+	+
Books to Read	+	+	+	-	-	-	-	-	-	-	-
Review	-	-	-	+	-	+	-	-	-	-	-

Note. (+) = instructional item was intended to contribute to objective achievement; (-) = item not specifically intended for achievement of objective.

Summary

The design phase of the project involved the construction of a criterion-referenced test, the selection of media and format, and initial design considerations. The criterion-referenced test consisted of a group discussion section and a written response section. A combination of print, slide and audiocassette was chosen as the medium for presentation of the categories of photographs. The format selected for presentation of the instructional materials was based upon consideration of an appropriate sequence of learning events, and appropriate teaching/learning strategies that could be used in conjunction with the selected media to obtain the objectives stated for the instructional package. The major design constraints related to time, cost and production facilities.

The final design was logically analyzed to determine discrepancies between the hierarchy items, objectives, test items and instructional items. Upon completion of the design of the instructional materials within the imposed constraints, the instructional materials were subjected to developmental testing.

Chapter V presents a summary of the qualitative and quantitative evaluation of the instructional materials.

CHAPTER V

EVALUATION

Evaluation of the instructional materials consisted of two field tests of the materials, referred to as the formative and summative evaluations of the product. The design for both evaluations was a one-group pre-test, instruction, post-test design. The test situation for both field tests involved a written test and a group discussion. Both the written test results and the group discussion results were analyzed to determine whether the objectives of the package were achieved.

The maximum time allotted for the group discussion was ten minutes. All instructions for the group discussion section were given in print format. The instructional developer led all group discussions by redirecting students to the requirements for the discussion whenever necessitated.

Group discussion results were measured by tape-recording the group discussion and employing an observational checklist to tabulate the numbers and types of responses by individual students.

The actual sequence of events for the formative and summative evaluations was:

1. Pre-test: Group Discussion
: Written Test
2. Instruction
3. Post-test: Written Test
: Group Discussion
4. Qualitative Evaluations

The reversal of the order of events for the pre-test and post-test was designed so that the effects of the instructional package itself could be isolated. It was felt that having the group discussion first in the post-test situation would create problems of confounding in the analysis of written test results obtained. For the pre-test situation, it was felt that completion of the written test first might likewise confound results obtained for the group discussion. Thus, it was hoped that the design sequence for the test situation would isolate the instructional effectiveness of the programme itself and also contribute to the validity of the results obtained for each of the test sections.

Formative Evaluation

The formative evaluation was carried out in March, 1987. Fifteen students enrolled in a beginner photography course at Memorial University's Division of Continuing Studies and Extension were tested. Students had no formal training in photography or art and ranged in age from 16 to 34 years. Of the fifteen students enrolled, thirteen were considered in the final tabulation of results, since two students were eliminated for missing part of the instructional programme.

Instruction for the formative evaluation consisted of: (1) student booklet items, including objectives and instructions; and (2) the slide-tape programme. Time constraints prohibited the completion of the remaining sections of the student booklet; however these sections were subjected to qualitative evaluation.

Group Discussion Results

The actual time spent discussing the test slide Soldiers was two (2) minutes for the pre-test, while ten (10) minutes was spent discussing the photograph for the post-test. Four (4) responses were recorded during the pre-test, while twenty-nine (29) responses occurred during the post-test.

Two subject-type responses were recorded during the pre-test, including the statements - "It's a bunch of men" and "What is it? It's nothing". The second type of response recorded during the pre-test was classified as an unsupported preference statement. The student making this response stated - "I don't like it". Finally, one reference to technique-type of response was recorded - "How did he do that? It's all squished". No further responses could be obtained from students after approximately two minutes and the discussion was terminated.

During the post-test five students classified the slide into a specific category. All categories included in the instruction were named with the exception of the aesthetic category. Sixteen responses were tabulated in the area of choosing a category and supporting or rejecting the choice with reasons. Examples of these types of responses included: (1) "It can't be descriptive - it doesn't state facts because people aren't really out of proportion like the photographer makes them in this picture"; (2) "If he was trying to just explain war, he would have done a more straightforward shot. This picture doesn't explain war but it says something else, so it can't be explanatory"; (3) "It must be ethical because

of the way he has bunched all the men together and made their faces all kind of disappear ... he's trying to say that there's something wrong about war".

Six interpretive-type responses were recorded during the post-test including the following examples: (1) "I think he's trying to condemn war because . . ."; (2) "No, it's not really war he's commenting on. It's more like he's trying to tell us something about armies . . . how you can lose your personality just by entering the army . . .".

When the post-test discussion was terminated by the developer, the group had narrowed their discussion to two categories: interpretive and ethical. Students were beginning to make judgement-type statements in defense of their choice of category. For example, one student stated: "I think that if he had intended to make a moral statement about war, he could have done the shot a better way . . . he might have shown the dead and dying and all the destruction a war brings . . . then it would be better as an ethical shot. That's why I think it must be more interpretive than ethical".

Table 10 presents a summary of the number and types of responses made during the formative evaluation group discussion.

Table 10

Responses to discussion test slide (formative evaluation)

<u>Response Type</u>	<u>Student Responses (N)</u>													<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	
<u>Pre-test</u>														
States category	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Defends choice	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rejects choice	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interprets	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Judges	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other:														
Subject	0	0	1	0	0	0	1	0	0	0	0	0	0	2
Technique	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Preference	0	0	0	0	0	0	0	1	0	0	0	0	0	1
<u>Total</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>4</u>
<u>Post-test</u>														
States category	0	1	1	0	0	0	2	0	0	1	0	0	0	5
Defends choice	0	1	0	0	0	1	1	0	0	1	0	0	0	4
Rejects choice	1	1	0	1	0	1	1	1	1	2	1	1	1	12
Interprets	0	1	0	0	1	0	1	1	1	1	0	0	0	6
Judges	0	0	0	0	0	0	1	0	0	1	0	0	0	2
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Total</u>	<u>1</u>	<u>4</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>6</u>	<u>2</u>	<u>2</u>	<u>6</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>29</u>

Analysis of results. Examination of Table 10 and reference to the response examples previously described, indicates that the terminal objectives of the instructional package were achieved. The time spent viewing the test slide Soldiers increased by eight minutes. The number of responses increased by 25 following instruction in the categories of photographs.

Finally, the results for the group discussion indicate that the terminal objective of increasing the types of responses and the enabling objectives concerned with analysis, interpretation and judgement, were also achieved.

During the pre-test, one unsupported preference statement and three naming-type responses were recorded. Not one analytical, interpretive or judgement response was noted. During the post-test, sixteen (16) analytical responses were recorded as students defended or rejected category choices. Six (6) interpretive-type responses and two (2) reasoned judgement type responses were also recorded. These results indicated a marked shift away from the naming-type responses recorded during the pre-test to more sophisticated and varied responses during the post-test.

The responses for the group discussion also pointed toward achievement of the enabling objectives concerned with

verbal and visual discrimination of the categories. It was observed that students used definitions of the categories and details from the instructional and test slides to make distinctions between each of the six categories of photographs discussed.

Written Test Results

An item analysis of the formative evaluation written test results is presented in Appendix H, Tables H-1 to H-5.

Student achievement. A summary of individual student achievement on the written test is presented in Table 11.

Examination of Table 11 shows that the mean for the pre-test was 0% while the mean on the post-test was 63.3%. The post-test median was 60.8%, while scores on the post-test ranged from 26% to 86.9%, with a standard deviation of 15.26. The average gain was 63.3%.

Table 11

Individual student achievement (formative evaluation)

<u>Student</u>	<u>Score (%)</u>	
	<u>Pre-test</u>	<u>Post-test</u>
1	0	26.0
2	0	86.9
3	0	56.5
4	0	58.6
5	0	60.8
6	0	69.5
7	0	86.9
8	0	69.5
9	0	65.2
10	0	76.0
11	0	60.8
12	0	52.1
13	0	54.3
<u>Total</u>	0	823.1
<u>Mean</u>	0	63.3
<u>SD</u>	0	15.26

Figure 4 presents a graphic display of individual student achievement on the pre-test and post-test for the formative evaluation.

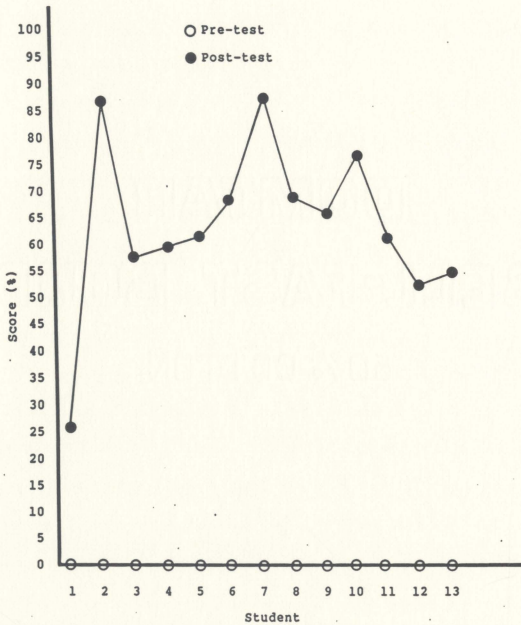


Figure 4. Individual student achievement (formative evaluation)

Examination of Figure 4 indicates that all students made positive gains as a result of the instruction; however, a multi-modal distribution of scores resulted on the post-test as indicated by the number of peaks in the graphic display.

Objective achievement. The mean score for comprehension of the use of the category system was 0% on the pre-test, while the post-test mean was 38.4%. This particular result indicated that the objective of comprehension of the use of the category system was not achieved.

The remaining objectives measured by the written test were analyzed in terms of achievement by cognitive skill required for each of the six categories of photographs. Knowledge of each category was tested in the following areas: recall of the category names, identification of the category definitions, and visual and verbal discrimination of examples of each of the categories. Table 12 presents a summary of achievement of the objectives classified by cognitive skill required for each of the six categories of photographs.

Examination of Table 12 indicates that positive gains were made for all six categories and for all cognitive levels tested in each of the categories. The average gain across all categories and cognitive levels was 64%.

Table 12

Objective achievement (formative evaluation)

Mean Score (%)										
Cognitive Skill										
Category	Discriminate									
	Recall		Identify		Verbal		Visual		Mean	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Descriptive	0	92	0	77	0	62	0	31	0	59
Explanatory	0	92	0	92	0	64	0	67	0	72
Interpretive	0	92	0	77	0	44	0	49	0	56
Ethical	0	100	0	92	0	44	0	85	0	72
Aesthetic	0	92	0	77	0	59	0	69	0	69
Theoretical	0	85	0	77	0	51	0	46	0	58
Mean	0	92	0	82	0	54	0	58	0	64

Note. T1 = Pre-test; T2 = Post-test.

Recall of the categories showed a mean gain of 92%, while identification of the categories showed a mean gain of 82%. Visual and verbal discrimination of the categories showed mean gains of 58% and 54% respectively.

Figure 5 presents a graphic display of achievement of objectives classified by category.

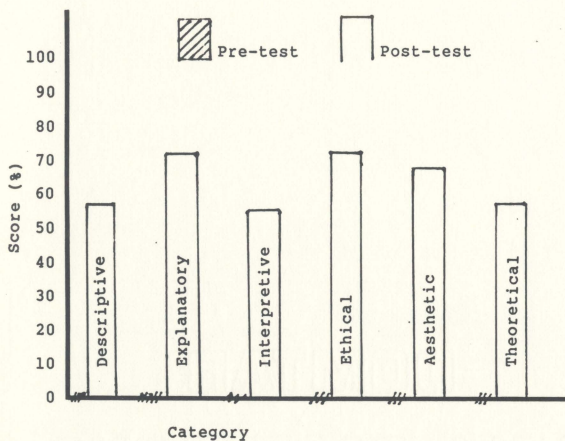


Figure 5. Category achievement (formative evaluation)

Examination of Figure 5 clearly shows that, while positive gains were made for all categories, achievement was greatest for the explanatory, ethical and aesthetic categories than for the descriptive, interpretive or theoretical categories.

A graphic display of achievement of objectives classified by cognitive skill required for each of the categories is presented in Figure 6.

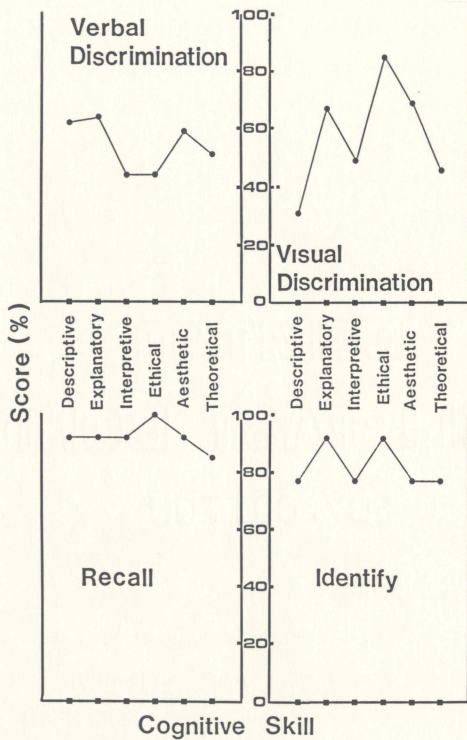


Figure 6. Cognitive skill achievement (formative evaluation)

Examination of Figure 6 reveals that improvements did occur for all cognitive levels across all of the categories. The irregularity of the graphs, however, indicates the variance of results for each of the categories. Recall of the categories showed the least variance, as indicated by the fairly smooth graph in comparison to the graphs for the other cognitive skills tested. Variance was greatest for visual discrimination of the categories.

Student Appraisal

A student attitude questionnaire was administered to examine student reactions to the instructional programme. The questionnaire, along with the tabulated results, is presented in Appendix I-1, while a summary of the results obtained from the questionnaire follows.

Students indicated that they found the language of the programme easy to understand, although they noted that some categories were easier to understand than others. They felt a slide show was the best way to learn about the category system. Students also indicated that they felt they had learned a lot from the programme and that they would like to see more programmes on the topic.

Students indicated that the use of questions, and presentation of answers during the slide-tape programme, helped them learn the terms involved. They pointed out that the use of the six-image composite slide was a good idea but that there seemed to be too much information and not enough detail in the composite image to make it effective for them to learn the category distinctions.

Students felt that a greater number of examples were needed for all of the categories. Students also complained of the low volume of the narrator and indicated that sometimes the sound of the slide projector drowned out the voice of the narrator.

Students examined the mock-up version of the extended activity section of the student booklet and indicated that the inclusion of this activity would definitely have made a difference in their understanding of all the categories.

In summary, students reported that they felt they knew more about what to look for in photographs than they did before completion of the instructional programme. They felt it was important to have some method of looking at photographs and indicated that they had never before been instructed in this area of photography. They felt that their

viewing skills would be improved as a result of completing the programme.

The examination and completion of the remaining sections of the student booklet, including the discussion activities, projects, related reading, and review sections, was prevented due to time constraints; however, the expert appraiser for the formative evaluation did examine these materials.

Expert Appraisal

The expert appraisal questionnaire is presented in Appendix J. The expert appraiser for the formative evaluation was Manfred Buchheit, a teacher/photographer at the Division of Continuing Studies and Extension, Memorial University of Newfoundland. Based upon his reputation as a practising photographer/artist, as well as upon his teaching experience in the field of photography, this expert appraiser was felt to have the knowledge and qualifications to act as media specialist and content specialist.

The expert appraiser found the content of the slide-tape programme to be well organized and also noted that the objectives of the programme were clearly stated. He noted that the combination of slide-tape and printed teacher/

student booklets would help facilitate the achievement of goals. He noted that the design and lay-out for the proposed teacher/student booklets was good and that the activities and resources suggested in each would contribute to the overall effectiveness of the programme.

The expert appraiser did note the following faults with the slide-tape portion of the package: (1) poor narration in terms of volume, due to the noise of the slide projector; (2) poor technical quality of certain individual slides; and (3) lack of detail, and inadequate size of the composite visuals. The expert appraiser noted that the majority of these faults could be easily corrected; however, an alternate plan for the composite visuals would have to be devised given the production facilities available.

The problems of cost and technical quality that would be associated with printing photographs in the student and teacher booklets were also discussed with the expert appraiser. It was noted that the related activity and discussion sections of the teacher/student booklets would contribute to greater understanding of the category system and the process of interpretation itself. It was recommended that these sections be further developed and tested if production facilities could be located.

In summary, the expert appraiser noted that the area of photographic art interpretation was an area that seemed to be neglected in photography courses and critical reviews. He indicated that the content of the instructional package would make a positive contribution to improvement of photographic art criticism in general.

Discussion and Conclusions

Based upon the qualitative and quantitative results obtained during the formative evaluation, it was surmised that the instructional package was effective in attaining the terminal objectives of the package, including (1) increasing viewing time, (2) increasing the number of responses to photographs, and (3) increasing the types of responses to photographs. The time spent viewing photographs increased by eight (8) minutes following instruction, while the number of responses increased by twenty-five (25). There was a marked shift away from unsupported naming type responses during the pre-test to more varied and sophisticated responses for the post-test.

The effectiveness of the programme in attaining the enabling objectives was found to be variable. The group

discussion results concerned with the enabling objectives related to analysis, interpretation, and judgement of the categories of photographs indicated that the instructional package was effective in instructing for these objectives. Not one of these types of responses was recorded for the pre-test, while 16 analytical, 6 interpretive, and 2 judgement types of responses were recorded for the post-test.

It was also concluded that achievement of objectives related to recall and identification of the categories of photographs was attained. Recall of the categories showed a mean gain of 92%, while identification of the categories improved by 82%. The majority of students recalled five of the six categories presented. Examination of the incorrect responses showed that in many cases students used the terms 'documentary' and 'scientific' for the descriptive or explanatory categories. Many students listed artistic as a category, and it was ascertained that students meant the aesthetic category. The same type of pattern emerged for the identification of the categories. This seemed to indicate that a certain amount of knowledge about other category systems was being confused with the new knowledge being presented.

It was concluded that the instructional package was not effective in instructing for the objective concerned with comprehension of the use of the category system, since only a 38.4% mean gain was obtained for this objective.

Instruction for this objective occurred in the introductory portion of the slide-tape programme and consisted of a verbal explanation accompanied by visuals not specifically related to the narration. It was felt that the visuals may have attracted more attention than the auditory information and that this may have contributed to the poor results on the comprehension objective.

The written test results on the verbal and visual discrimination objectives indicated low average gains of 54% and 58% respectively. These results seemed to conflict with the observed discrimination of the categories during the group discussion portion of the test situation. A number of factors were felt to have been involved in this discrepancy of results for the visual and verbal discrimination tasks.

The design of the test items involving these objectives was one major factor considered. The test items for these objectives did not supply students with the category names for completion of these items and students were thus expected

to both recall and discriminate for these test items. It was felt that one explanation for the poor results on the discrimination items might have been failure to recall the category names, rather than failure to discriminate.

It was also felt that the poor results for visual and verbal discrimination may have been due to ambiguity of the informational cue for each of the test items concerned with discrimination of the categories. The developer noted that certain verbal and visual examples for each of the categories tended to be consistently labelled correctly while others were consistently incorrectly labelled. It was noted during the research for the project that the type of informational cue supplied for photographs did influence placement of photographs into categories. (Desmond & Koroscik, 1984).

The instructional programme was also analyzed to determine if any of the instructional media or strategies employed had contributed to the poor results on the discrimination tasks. Failure to complete the extended activity section of the printed student booklet was considered to be a prime contributor to the poor results. In addition, the composite visual used throughout the slide programme for reviewing and questioning purposes was considered to be

another factor that could have contributed to the poor results. The developer, expert appraiser, and student users all noted that this six-image composite presented too much visual information at once, resulting in an overload of visual choices, lack of detail, and inadequate size.

The variance of results noted in achievement of objectives related to the categories themselves was concluded to have been due to the factors noted previously for the cognitive levels associated with the categories. In addition, it was felt that there may have been an abstraction factor associated with the category names and definitions since students did indicate that they found some categories easier to understand than others. Approximately the same number of examples were used to instruct in the categories, and each of the categories was tested with approximately the same number of test items.

Revisions

Based upon the qualitative and quantitative results of the formative evaluation, a number of revisions to the instructional package were indicated. A logical examination of the instructional programme resulted in the following revisions:

1. The introduction to the category system was removed from the slide-tape portion of the package and included in the printed student booklet instead. It was hoped the print medium, used in conjunction with instructional questioning and answering, would result in improved results for the comprehension objective.

2. The six-image composite intended for review purposes was reduced to two in order to improve the size and details of the images and also to reduce visual overload noted by students and the expert appraiser.

3. Slides that were found to be of a poor technical quality due to "soft appearance" were substituted for higher quality slides.

4. A new narrator was located and the volume for the tape portion of the programme was adjusted to accommodate the noise associated with the running of the slide projector.

5. Extra slides were developed and inserted for each of the categories to meet student demands for more examples of each of the categories.

6. The planned proposal for development of the print materials would be restricted until the revised mock-up versions of the print materials could be further evaluated.

Examination of the criterion-referenced test resulted in the following revisions to the test:

1. It was discovered that 4 visuals were missing from the test items concerned with visual discrimination of the categories. Appropriate visuals for the three categories involved were located and inserted into the sequence of test items.

2. Test items 8 to 49 were revised so that students were supplied with category names for completion of these items. Appropriate revisions were also made to the instructions accompanying the test.

3. Verbal statements of examples of the categories and verbal informational cues accompanying the visual test slides were revised where it was felt that the statements contained ambiguous information that could affect correct category placement.

Revision of the objectives was also contemplated due to the poor results on the verbal and visual discrimination tasks on the written test. It was felt, however, that the observed demonstration of these skills during the group discussion section of the test warranted further testing rather than revision of the objectives.

Upon completion of the recommended revisions, the revised instructional materials were subjected to another developmental test, the summative evaluation.

Summative Evaluation

The summative evaluation was carried out in June 1987. The target population consisted of a group of thirteen (13) boys enrolled in the Art and Design 3200 course at Brother Rice Regional High School in St. John's. Of these 13, only 7 were included in the final tabulation of results since 6 students were eliminated for missing the pre-test and/or the instructional session.

Instruction for the summative evaluation consisted of the following items: (1) student booklet items, including introduction, objectives, and instructions; (2) slide-tape programme; and (3) the mock-up version of the extended activity section of the student booklet.

Group Discussion Results

The actual time spent discussing the photograph "John Herdman" was one (1) minute for the pre-test and ten (10)

minutes for the post-test. Four (4) responses were made during the pre-test, while twenty-four (24) post-test responses were recorded.

The pre-test responses included one category placement: "It's a portrait". Two responses were classified as reference to technique responses. These responses included: "It's a split-image" and "It's three different pictures made into one". Finally, one student stated "It's a man"; this response was classified as a subject-type response. Not one of these pre-test responses were supported with reasons, nor did any of the students attempt higher cognitive level responses when asked to state the meaning of the photograph.

During the post-test discussion, all six categories presented during instruction were named. Fourteen (14) responses involving acceptance or rejection of categories were recorded. Examples of these types of responses included: (1) "But you know it's kind of artistic, I mean aesthetical, because those three boxes make you look into the picture more. . ."; (2) "Just because it's all divided up that way doesn't automatically make it theoretical, like the one in the show. . . he just split the picture up to make sure that we noticed all the lines and wrinkles on the man . . . That's why I think it must be interpretive."

Toward the end of the discussion, the general concensus was that the photograph was interpretive, the category assigned the photograph by the developer. Two students attempted to interpret the meaning of the photograph. Examples of these interpretive responses included: (1) "He must have meant for us to understand what work or aging does to a man. . . I think he meant work though because the bottom box shows his workboots really close-up. . ."; and (2) "Maybe he meant for us to see the kind of personality the man had. . . You know, like what a hard worker he was. . . like his eyes make you think he'd never give up no matter how old he was . . ."

Two judgement-type responses were also recorded during the post-test. One student stated "If he had just shot the face he wouldn't have been able to say as much about the man like he could by shooting his full body. . . You can see his workclothes and workboots this way too. . .He explains what he does for a living and then he makes you think more by dividing the picture up. . ."

A summary of the responses made by individual students during the summative evaluation group discussion is presented in Table 13.

Table 13

Responses to discussion test slide (summative evaluation)

	<u>Student responses (N)</u>							<u>Total</u>
<u>Response Type</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	
<u>Pre-test</u>								
States Category	0	1	0	0	0	0	0	1
Defends Choice	0	0	0	0	0	0	0	0
Rejects Choice	0	0	0	0	0	0	0	0
Interprets	0	0	0	0	0	0	0	0
Judges Photo	0	0	0	0	0	0	0	0
Other								
Subject	1	0	0	0	0	0	0	1
Technique	0	0	1	1	0	0	0	2
<u>Total</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>
<u>Post-test</u>								
States Category	0	1	1	1	1	1	1	6
Defends Choice	0	0	2	1	1	1	1	6
Rejects Choice	1	2	0	2	1	1	1	8
Interprets	0	0	1	0	0	1	0	2
Judges Photo	0	1	1	0	0	0	0	2
Other	0	0	0	0	0	0	0	0
<u>Total</u>	<u>1</u>	<u>4</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>4</u>	<u>3</u>	<u>24</u>

Analysis of results. Examination of Table 13, and of the responses previously described, indicates that the objective of increasing the time spent viewing photographs was achieved, since an increase of nine (9) minutes was noted following instruction. The results also indicate that the objective of increasing the number of responses was achieved, since the number of responses increased by twenty (20) following instruction.

The terminal objective of increasing the types of responses, and the enabling objectives related to analysis, interpretation, and judgement of photographs were also achieved. During the pre-test all responses were limited to naming-type responses, with not one analytical, interpretive or judgement type response recorded. The post-test discussion, however, indicated a marked shift away from naming-type responses to extended statements about the photograph, using supporting details and the definitions of the categories to back up the responses.

Written Test Results

An item analysis of individual student achievement and test item achievement for the summative evaluation is presented in Appendix K, Tables K-1 to K-3.

Student achievement. Table 14 presents a summary of individual student achievement on the summative evaluation.

Table 14

Individual student achievement (summative evaluation)

<u>Student</u>	<u>Score (%)</u>		
	<u>Pre-test</u>	<u>Post-test</u>	<u>Gain</u>
1	14	56	42
2	8	56	48
3	28	88	60
4	26	86	60
5	30	70	40
6	28	72	44
7	0	56	56
Total	134	484	350
Mean	19.1	69.1	50
SD	10.95	12.91	

Examination of Table 14 shows that the mean for the pre-test was 19.1% while the post-test mean was 69.1%. The scores on the pre-test ranged from 0 to 30%, with a standard

deviation of 10.95. On the post-test, scores ranged from 56% to 88%, with a standard deviation of 12.91. The median for the pre-test was 26%, while the post-test median was 72%. The average mean gain was 50%.

Figure 7 presents a graphic depiction of individual student achievement during the summative evaluation.

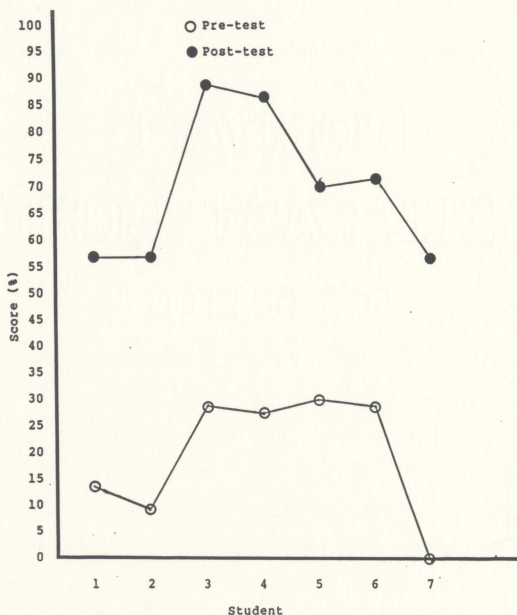


Figure 7. Individual student achievement (summative evaluation).

Examination of Figure 7 indicates that all students made positive gains from the instruction; however, the distribution of scores was multi-modal, as indicated by the irregularity of the graphs.

Objective achievement. Test item 7 measured achievement of the objective concerned with comprehension of the use of the category system. On the pre-test the mean score for this objective was 0%, while on the post-test the mean score was 100%, indicating that the objective of comprehension was achieved.

The remaining written test items on the summative evaluation were tabulated in terms of achievement of objectives classified by cognitive skill required for each of the six categories. Table 15 presents a summary of achievement of objectives for each of the six categories, classified by cognitive skill tested.

Table 15 indicates that positive gains were made for all six categories across all cognitive levels. The average gain was 48%. The aesthetic, descriptive and interpretive categories showed much greater mean gains than the other three categories, since the mean gains for these categories were greater than the average gain of 48% across all

categories. The explanatory, ethical and theoretical categories showed gains lower than the average gain for all categories.

Table 15

Objectives achievement (summative evaluation)

Mean Score (%)											
Cognitive Skill											
Category	Discriminate										
	Recall		Identify		Verbal		Visual		Mean		Gain
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
Descriptive	0	100	43	100	9	62	33	71	21	75	54
Explanatory	0	100	57	86	18	57	52	43	32	61	29
Interpretive	0	100	14	100	18	52	18	57	13	66	53
Ethical	0	100	28	86	18	48	38	48	21	59	38
Aesthetic	0	100	14	86	5	71	14	71	8	77	69
Theoretical	0	100	57	71	10	43	5	67	18	63	45
Mean	0	100	36	88	13	56	27	60	19	67	48
Gain	100		52		43		33		49		

Table 15 also indicates that the objective of recall of the categories was definitely achieved, with the mean gain of 100%. The objective related to identification of the category definitions showed a mean gain of 52%. Verbal and visual discrimination of the categories showed mean gains of 43% and 33% respectively. The average gain across all cognitive levels was 48%.

Figure 8 presents a graphic display of objective achievement based upon each of the six categories.

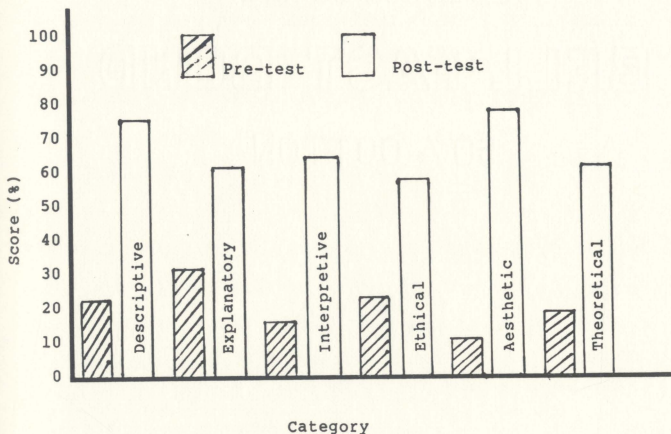


Figure 8. Category achievement (summative evaluation)

Figure 8 clearly shows that improvements did occur for all categories tested, with the greatest improvement occurring for the aesthetic category.

A visual representation of the achievement of objectives classified by cognitive skill required was also constructed to aid in the interpretation of results and is depicted in Figure 9.

Figure 9 clearly shows that improvements occurred across all cognitive levels tested for all of the categories involved, with the exception of visual discrimination of the explanatory category. The explanatory category showed a negative result of 9% following instruction.

The variance of results for each of the cognitive levels of the objectives is also indicated in Figure 9 by the irregularity of the graphs for the identification, and visual and verbal discrimination objectives. It would appear from the graphs that the variance is related to the differences in the categories themselves.

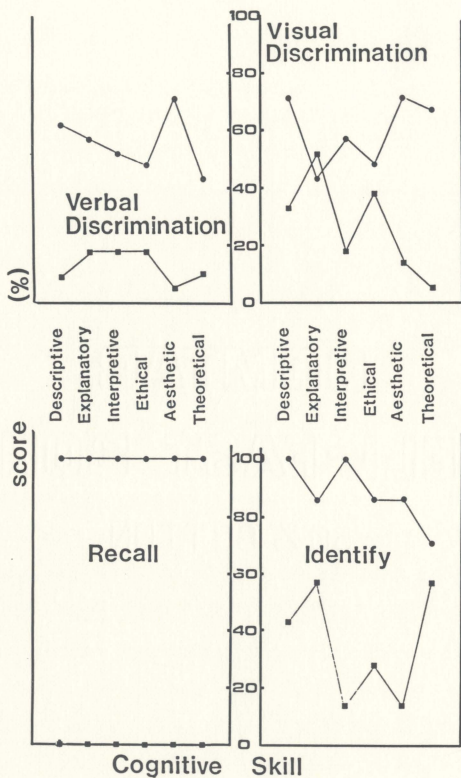


Figure 9. Cognitive skill achievement (summative evaluation)

student Appraisal

Following completion of the post-test for the summative evaluation, a student attitude questionnaire was administered to the participating students to obtain their reactions to the instructional programme. The questionnaire, along with the tabulated results, is presented in Appendix I-2. A summary of the student reactions follows.

Students indicated that the narration of the slide-tape programme was clear and distinct and that the language used in the programme was easy to understand. Students indicated that the use of questions and the supply of answers while the slide-tape programme progressed helped them learn the categories.

Students also indicated that the student booklets were well organized and that the objectives for the programme were clearly stated. They commented that having all six categories together on a centre spread sheet in the student booklet helped them learn the categories. Students also noted that they liked the idea of having to discuss things to find an answer rather than being told the answers. Many students requested that they keep the student booklets for future reference, since they had never been told before how to go about looking for meaning in a photograph. Students also

reacted positively and enthusiastically to the projects section of the student booklet.

Approximately 40% of the students felt there should have been more examples of the categories given; however, they agreed that had they had the time to complete the projects and read the books suggested for further exploration of the topic, the need for more examples would probably be satisfied.

In summary, students commented that they felt they knew more about looking at photographs as a result of participating in the instructional programme. They also felt it was important to have some method of looking at photographs and that the instructional programme gave them the information they needed to view photographs with analysis and interpretation in mind.

Expert Appraisal

The expert appraiser for the summative evaluation was an art teacher with sixteen years of experience in teaching high-school art.

The expert appraiser noted that the content of the package would make it suitable not only for a unit on

photography, but also for other units in the art programme, including Other People's Art, and Communication and Media Arts.

The art teacher commented that he felt the package would make a positive contribution to the improvement of art critical skills in general and that the area of photographic art interpretation was neglected in the art curriculum.

It was noted that the design of the student booklets would make the package suitable for small group and individualized work in photography, in addition to being useful for large group presentation. The flexibility of the slide medium was noted, since slides could be reorganized by the teacher to meet other instructional needs.

The expert appraiser noted that the design and layout for the teacher booklet was a good idea since it incorporated the student booklet. He commented that the inclusion of Barrett's (1980) article on photography would supply teachers with the necessary background knowledge related to the instructional programme. It was also noted that the discussion of Desmond's (1981) model for photographic art criticism provided a well-rounded approach to the teaching

of photography. The inclusion of an adapted set of questions based on Hamblen's (1984) questioning strategy was noted to be of help to teachers wishing to develop higher level cognitive responses in students. The list of recommended resources was also noted to be a positive feature of the teacher booklet.

The expert appraiser noted that the student booklets were well organized and that the layout and design for the booklets was good. The activities suggested were noted to be interesting and problem-solving oriented, and thus suitable for use in the Newfoundland high-school art programme.

Discussion and Conclusions

The summative evaluation results indicated that the instructional package was effective in attaining the terminal objectives of the package. The time spent viewing photographs increased by nine (9) minutes, while an increase of twenty (20) responses was noted following instruction in the categories of photographs. In addition, the summative evaluation results indicated a marked shift away from the four naming-type responses noted during the pre-test to more

varied, analytical, interpretive, and judgement-type responses during the post-test. These results indicated that the instructional package was effective in attaining the terminal objective of increased types of responses, and that the package was also effective in attaining the enabling objectives related to analysis, interpretation, and judgement of photographs.

The enabling objective concerned with comprehension of the use of the category system was also achieved during the summative evaluation. It was concluded that the decision to use the print medium to instruct in this objective accounted for the great improvement shown for this objective. The mean gain following instruction was 100%, as compared to the low 38.4% gain noted for the formative evaluation, where instruction for the objective was given through the auditory mode.

The enabling objective of recall of the categories was achieved in the summative evaluation with a mean gain of 100% noted. Attainment of this objective was also higher than the formative evaluation result of 92%. It was assumed that the major factor contributing to this result was the completion of the extended activity section of the student booklet,

since no specific revisions in the instructional or test items could be related to the improvement.

Three of the eight enabling objectives showed lower mean gains on the summative evaluation than were noted for the formative evaluation, although the post-test scores themselves were higher on the summative evaluation. These enabling objectives were related to identification of the category definitions, and verbal and visual discrimination of the categories. The major factor that seemed to account for these lower mean gains seemed to be the revision made to the written test following the formative evaluation. The summative evaluation test supplied students with the names of the categories for completion of the test items related to these objectives. This revision to the test was felt to have introduced a guessing factor, which in turn resulted in lower mean gains following instruction. This supposition is supported by the fact that 0% of the students could recall the categories on the pre-test, yet students did identify and discriminate some categories correctly on the remaining sections of the pre-test.

Academic abilities of the class in general also may have been a factor since the mean academic average for the class was 64%. In addition, the small sample size was also considered to be a factor. Glass and Stanley (1970) noted that sample size can affect mean scores.

Another factor that may have been involved in the low results for the discrimination tasks was the type of informational cue provided. A post-hoc analysis of the informational cues revealed that, while both descriptive and contextual cues were given in the test situation, there appeared to be no significant differences in results based upon type of cue. It was felt that the test situation should have been designed to account for three classes of cues for each category tested. A design incorporating no cue, descriptive cue, and contextual cue may have provided the information needed to determine if the low results were indeed due to the type of cue given.

Since the informational cues that were given to students were presented in the auditory mode for the visual discrimination tasks, low results may also have been due to the auditory method of presentation of the cues. A print method of presentation would have allowed for longer

retention of the information, and results may have been influenced favourably with a print format.

Slides were used for visual discrimination testing, with all students being required to complete the visual test items at the same time. A print format for testing, although costly, may have also influenced the visual discrimination scores positively since students would be able to determine their own pacing and visual details could be examined more closely.

Another possible explanation for the poor discrimination results may be related to the fact that non-examples of categories were presented only 12 times during the slide-tape presentation. It was felt that perhaps more emphasis on reasons for exclusion of a category might have had a positive effect on the outcome of discrimination objective achievement.

A change in the sequencing of the test situation might also have influenced achievement on discrimination-type goals. The post-test situation involved the completion of the written test first, followed by participation in the group discussion. It is suggested that the discrimination results may have been higher had the test situation been altered so that the group discussion could act not only as

an evaluation item but also as an instructional item. The problem of confounding of results, however, would then be introduced and only a more sophisticated experimental design would have allowed for investigation of the effect of sequencing on the results obtained.

While the formative evaluation group did not complete the extended activity section of the student booklet, this instructional item was completed by the summative evaluation group. Even with completion of the extended activity, the summative evaluation group did not show any major improvements over the formative evaluation group for the discrimination objectives. An analysis of the photographs used for this section of the student booklet led the developer to conclude that the choice of examples used may have been at fault. A discussion was held with two high-school art students and it was concluded that, had the same subject been used throughout all six pictures, rather than a different subject, higher achievement might have resulted for the verbal and visual discrimination tasks.

Summary. The instructional package was effective in the achievement of the terminal objectives of the programme, including increasing viewing time and increasing the number

and types of responses to photographs. It was also effective in attainment of the enabling objectives related to recall, identification, analysis, interpretation and judgement of the categories.

The effectiveness of the instructional package in achieving the enabling objectives concerned with visual and verbal discrimination of the categories was questionable. Group discussion responses indicated that verbal and visual discrimination of the categories did occur, while the written test results seemed to negate this observation. The major factors considered in explaining this discrepancy of results included guessing, academic abilities of the class, small sample size, type of informational cue given, method of presentation of informational cues and visual test items, too few non-examples, sequencing of test items, and type of subject used to illustrate the categories.

Dissemination

The positive comments made by teachers, students and content and media specialists, and the observations of the group discussion, indicated that the instructional package

was effective in instructing for the objectives specified for the package. Results indicated that the package was effective in instructing for all of the terminal objectives of the programme and that all but two of the eight enabling objectives had been attained.

Based upon these qualitative and quantitative results, further testing of the materials was indicated with controls set up for the variables that may have affected the visual and verbal discrimination tasks. It was decided to make revisions to the test items associated with verbal and visual discrimination in order to institute some control over the type of informational cue given and the method of presentation of the cues and visuals. In addition, the related activity section of the student manual was revised to include six pictures of the same subject to further illustrate the differences between the categories. Additional activities were developed for the teacher manual sections related to verbal and visual discrimination tasks.

The revised instructional product was disseminated to two schools in the St. John's area for validation testing and further investigation of the effects of sequencing and completion of instructional items.

Final packaging and diffusion was restricted until definitively positive results could be obtained for the discrimination tasks. However, it was decided that offset printing would be used for the printed materials, and that the materials would be packaged in an 8-1/2" x 11" x 3" container that would allow for easy storage and retrieval of the materials.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of the project was to develop instructional materials on interpretation of photographs. It was the developer's contention that the curriculum did not adequately allow for the achievement of art critical goals, even though these were stressed as an important part of the high-school art curriculum.

A needs assessment was carried out and it was concluded that (i) critical goals are an important part of the art curriculum, (ii) no suitable instructional materials existed on photographic art criticism, including the area of photographic interpretation, and (iii) teachers would welcome the development of materials on all aspects of photography, including interpretation of photographs.

A review of the literature in the areas of art education, photography, and instructional systems design was conducted. The review of the literature supported the developer's

contention that more attention was needed in the area of photographic criticism. A model for teaching photographic art criticism (Desmond (1981) was located and Thiagarajan, Semmel and Semmel's model for instructional development was chosen to facilitate the development of the instructional package.

In defining the instructional goal, learner and concept analyses were conducted. A learning hierarchy, based on Bloom's (1956) taxonomy and Barrett's (1980) theoretical framework for interpreting photographs, was developed. Behavioural objectives were then specified. The learning hierarchy and behavioural objectives served as the basis for the design of a criterion-referenced test and also for the design of the instructional materials.

Based upon Stolovitch's (1975) analysis of media attributes, a combination of print, slide, and audiocassette was chosen as an appropriate medium for presentation of the content of the package. The format chosen for presentation of the content was based upon a logical analysis of the capabilities of the selected media, in conjunction with the capabilities of various teaching/learning strategies. Sequencing of the events for instruction was based upon Bloom's (1956) theory of cognitive skills.

Upon completion of the design of the materials, a logical analysis was carried out to determine discrepancies between the correlation of the hierarchy items, objectives, criterion test items and instructional items. Revisions to the initial design were made as indicated by the logical analysis and the instructional materials were then subjected to formative and summative evaluations.

Evaluation of the package Categories of Photographs: A Guide to Interpreting Photographs, consisted of both qualitative and quantitative methods. Qualitative evaluation was carried out by expert appraisers, including content and media specialists, and student users of the package.

Quantitative evaluation consisted of two field tests of the package. Results on the formative evaluation indicated a mean of 0% for the pre-test and 63.3% on the post-test, with a standard deviation of 15.91 for the post-test. Based upon the qualitative and quantitative results of the formative evaluation, revisions were made to specific test items and instructional items, and the package was then subjected to summative evaluation procedures.

The summative evaluation results showed a pre-test mean of 19.1% and a post-test mean of 69.1%. The standard deviation on the pre-test was 10.95, while a post-test standard deviation of 12.91 was noted.

The results of the summative evaluation were analyzed in terms of achievement of each of the objectives specified for the instructional package. The analysis of results indicated that all but two of the eleven objectives specified for the package were achieved.

The results indicated that the instructional package was effective in achieving the terminal objectives of the package. Following instruction in the categories of photographs, it was noted that the time spent viewing photographs was increased and the number and types of responses to photographs also showed marked improvements.

Positive gains for the enabling objectives concerned with analysis, interpretation, and judgement of photographs, were also noted following instruction. Not one of these types of responses were recorded for the pre-test, while 18 critical responses were recorded for the post-test.

The mean gain for the objective related to recall of the six categories was 100%, indicating that the instructional

package was effective in instructing for recall of the categories.

Low positive gains on the objectives related to identification, and visual and verbal discrimination of the categories were noted, even though the post-test scores for these objectives were higher than the post-test scores for the formative evaluation. In addition, observations made during "test" group discussions pointed toward achievement of these enabling objectives. The discrepancy between observed achievement of these enabling objectives and written test results for the objectives, was related to a number of factors. The major factors cited included guessing, small sample size, and academic abilities of the target population. Other factors cited that may have contributed to the conflicting results for the verbal and visual discrimination of the categories included type of informational cue, auditory presentation of informational cues, and sequencing of test items.

The positive comments made by teachers, students and content and media specialists indicated that the instructional package was effective in achieving the objectives specified for the package, but that it might

have been more effective had the experimental design allowed for more controls.

Further developmental testing of the product was indicated, with the use of validation testing procedures that would account for the effect of the following variables on the classification of photographs: type of informational cue, mode of presentation of photographs and informational cues, sequencing of instructional and test items, and completion of instructional items.

Revisions were made to visual discrimination test items to incorporate cue types. Further revisions were made to the related activity sections of the teacher and student booklets.

The revised package was disseminated to two schools in the St. John's area for validation testing. Final packaging and adoption/diffusion await the outcome of the validation testing procedures.

Conclusions

The following conclusions were reached as a result of this study:

1. The needs assessment and the review of the literature led the developer to conclude that photographic art education is an area that is sadly neglected in the literature. No definitive body of work exists on the topic and there is a need for more research and writing in the area.
2. It was also concluded that the instructional package Categories of Photographs was effective in instructing for (a) the terminal objectives of the package, including increasing viewing time and increasing the number and types of responses to photographs; and (b) the enabling objectives related to recall, identification, analysis, interpretation, and judgement of the vocabulary for the categories of photographs.
3. It was concluded that the verbal and visual discrimination objectives of the instructional package required further investigation.

Recommendations

Based on the conclusions stated concerning the effectiveness of the instructional package, the instructional developer makes the following seven recommendations:

1. investigation of the effects of the following variables on the classification of photographs: (i) type of informational cue, (ii) mode of presentation of informational cues, (iii) mode of visual presentation, and (iv) abstraction levels of photographs;

2. that the effects of various teaching/learning strategies on achievement of visual and verbal learning skills be investigated. Discussion techniques, types of teacher questions, sequencing of instructional items and completion of instructional items would seem to be needed areas of research in the visual education field;

3. further research in the area of appropriate teaching/learning strategies that could be successfully employed to attain art critical goals in general and photographic art critical goals in particular;

4. that further instructional packages be developed on Barrett's (1980) theoretical framework for interpreting photographs. Development of instructional packages related to the areas of commonalities of photographs and photographic contexts would contribute to a greater understanding of the factors affecting interpretation of photographs;

5. that instructional packages be developed that would instruct students in each of the criteria for photographic criticism outlined in Desmond's (1981) model for photographic criticism. Further packages might be developed covering the areas of technique, aesthetics, and history, and representation of nature with an emphasis on the critical aspects of these areas. The development of these packages would help alleviate the problems associated with the lack of literature, materials, and research in the area of photographic criticism;

6. that original photographs be employed wherever possible in the production of instructional materials related to photography. This would not only ensure very high quality reproductions but would also result in a more unified and aesthetic product that could be used as an exemplar for discussions of photographic technique, aesthetics and affective response;

7. that a definitive body of literature be developed in the area of photographic art criticism. Collection and collation of the scattered references to criteria for criticism, methods of engaging in criticism, and types of criticism might serve as a useful starting point for the development of a distinct body of literature that would be of help to students of photography, art critics, and researchers.

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Appendix A

Teachers' Survey Questionnaire

SURVEY

Photography in the Newfoundland Art Curriculum

The Newfoundland and Labrador Programme of Studies lists photography as an optional unit of study in the reorganized high school's Art and Design program. To date, specific unit objectives have not been developed for the unit, nor has a core treatment of the topic been established.

To help in the development of materials for the unit of instruction in photography, this survey is being conducted as part of a graduate research project under the supervision of Dr. Ted Braffet, Division of Learning Resources, Faculty of Education, Memorial University of Newfoundland.

Your response to this survey will assist me greatly in the development of materials for photographic education. Any information you do provide will be held in confidence and will be used for research purposes only.

I wish to thank you in advance for your assistance with this project and look forward to receiving the completed questionnaire from you. A stamped, addressed envelope has been provided for your convenience.

Sincerely,

Denise A. Martin

Denise A. Martin
Box 4425
St. John's, Newfoundland
A1C 6C4

PART I

Name of Respondent: _____

Name of School: _____

School Board: _____

Teaching Certificate: _____

Position: _____

Degrees: _____

PART II

Please complete each of the following items by placing a check (✓) mark in the appropriate space.

1.1 What are your major teaching duties?

Art Only _____

Art + Other Subjects _____ Please Specify:

1.2 What grades do you teach?

Grade 7 _____ 8 _____ 9 _____

Level I _____ Level II _____ Level III _____

Other _____

1.3 Have you ever completed any courses in photography?

Yes _____ No _____

1.4 Do you have any experience in darkroom photography?

Yes _____ No _____

1.5 Does your school presently have darkroom facilities?

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Yes _____ No _____

1.6 Is there a photography club in your school?

Yes _____ No _____

1.7 Does your school carry subscriptions to photographic magazines?

No _____ Yes _____ Please Specify:

1.8 Have you ever offered photography as an optional unit of study in your Art Programme?

Yes _____ No _____

1.9 If you have taught photography, was there any one resource material that you found particularly useful?

No _____ Yes _____
Please Specify

2.0 Have you ever developed curriculum materials?

Yes _____ No _____

2.1 Would you work on an art curriculum developmet project?

Yes _____ No _____

2.2 Would you be interested in helping to pilot materials developed for a unit of instruction in photography?

Yes _____ No _____

- 2.3 What Art and Design courses were offered in your school last year? Which will you offer this year?

	Last Year	This Year
Art 1200	_____	_____
Art and Design 2200	_____	_____
Art and Design 3200	_____	_____
Art History 3202	_____	_____
Junior High		
Core Programme	_____	_____
Core + Options Programme	_____	_____
Core + Special Studies Programme	_____	_____

- 2.4 Which optional units of study did you offer in your programme last year? Which will you offer this year?

	Last Year	This Year
Environmental Arts	_____	_____
Textile and Fabric Arts	_____	_____
Ceramics and Pottery	_____	_____
Photography	_____	_____
Film-making	_____	_____
Applied Design	_____	_____
Crafts and Craftspeople	_____	_____
Newfoundland Art and Artists	_____	_____
Other_____ Please Specify		

2.5 What enrichment activities will you avail of this year in your Art and Design Programme?

___ The Artists Speakers Bureau

___ The Artists in the Schools Programme

___ Visits to Artists' Studios

___ Visits to Art Galleries

___ Visits to Museums

___ Films, ___ Filmstrips, ___ Slide/tape programmes

___ Videotapes

___ Magazine Subscriptions

___ Other: Please Specify:

2.6 Would you like to see a unit of instruction developed on photography?

Yes ___ No ___

2.7 In what area(s) of photography do you feel materials are most needed?

___ Technical area (camera usage, darkroom procedures, camera types)

___ Aesthetic area (composition, design, etc.)

___ Historical area

___ Critical area (describing, analyzing, interpreting, and judging photographs)

___ Cultural area (Canadian photographers, Newfoundland photographers)

___ Other: Please Specify

- 2.8 What grade level do you think a unit of instruction on photography is most suited for?

Grade 7 _____ 8 _____ 9 _____

Level I _____ II _____ III _____

- 2.9 If instructional materials were available for photography, which media format would you prefer?

Video _____ Booklet _____ Slide-tape _____

Filmstrip _____ 16 mm films _____ Audio-cassette _____

Other _____ Please Specify:

- 3.0 Would you like to see materials developed on Newfoundland Photographers?

Yes _____ No _____

- 3.1 If instructional materials were available on Newfoundland Photographers, which instructional unit do you think they would be most appropriate for?

_____ Photography

_____ Other People's Art

_____ Newfoundland Art and Artists

_____ Communication Arts

_____ Other Please Specify:

3.2 Which statements below do you feel would account for lack of instruction in the area of photography in Newfoundland schools?

- ☐ Lack of darkroom facilities.
- ☐ Lack of a prescribed core course content.
- ☐ Lack of teacher knowledge of the subject.
- ☐ Lack of student interest.
- ☐ Class sizes are too large.
- ☐ Expenses would be too great.
- ☐ Photographic chemicals pose too great a danger to student safety.
- ☐ Class periods are too short.
- ☐ Photography should not be included in the Art Curriculum.
- ☐ Evaluation of student progress would not be feasible.
- ☐ Lack of specific course objectives for photography.
- ☐ Lack of available resources :
 - ☐ student texts
 - ☐ teacher manuals
 - ☐ audio-visual resources
 - ☐ equipment and supplies
- ☐ Other Please Specify:

- 4.1 Listed below are a number of topics which might be included in a course in photography. Please circle the response which you feel best represents your opinion concerning the place of the topic in a photography course at the senior high-school level.

If the topic should be treated as "Core", check C

If the topic should be an "Enrichment" one, check E

If the topic is "Not Appropriate", check N

If you are "Undecided", check U

- | | | | | |
|---|---|---|---|---|
| a. Students should learn about the types of cameras. | C | E | N | U |
| b. Students should learn about the history of photography. | C | E | N | U |
| c. Students should learn about the leaders in photography. | C | E | N | U |
| d. Students should learn about judging photographs. | C | E | N | U |
| e. Students should learn about Canadian photographers. | C | E | N | U |
| f. Students should learn about Newfoundland photographers. | C | E | N | U |
| g. Students should study the design elements and principles in photography. | C | E | N | U |
| h. Students should study black and white film developing and printing. | C | E | N | U |
| i. Students should study color negative film developing and printing. | C | E | N | U |
| j. Students should study color positive film development and mounting. | C | E | N | U |
| k. Students should study pinhole photography. | C | E | N | U |

- | | |
|--|---------|
| l. Students should learn to appreciate photography as an art form. | C E N U |
| m. Students should study the making of photograms. | C E N U |
| n. Students should study flash photography. | C E N U |
| o. Students should learn about the basic printing controls--burning in, dodging, cropping, vignetting. | C E N U |
| p. Students should study advanced dark-room effects--Texture Screens, Sabattier effect, posterization, Reticulation. | C E N U |
| q. Students should study film types and their characteristics. | C E N U |
| r. Students should study the basic camera parts and their functions. | C E N U |
| s. Students should learn about composition principles in photography. | C E N U |
| t. Students should learn to interpret photographs. | C E N U |
| u. Students should study careers in photography. | C E N U |
| v. Students should learn about mounting, matting, and display of photographs. | C E N U |
| w. Students should study studio lighting principles. | C E N U |
| x. Students should learn about light sources and exposure problems related to the type of light source. | C E N U |
| y. Students should study lens types and their characteristics and uses. | C E N U |

- z. Students should study movement in photography-panning,blurring,freezing action.

C E N U

Other: Please Specify:

1. Students should learn about photo essays,the making of slide-tape presentations.

C E N U

- 5.0 Do you have any comments you would like to express concerning the development of instructional materials on Photography in general or Newfoundland Photography in particular?

Appendix B

Photographers' Survey Questionnaire

SURVEY

Photography in Newfoundland Schools

The Newfoundland and Labrador Programme of Studies lists photography as an optional unit of study in the Newfoundland and Labrador high school Art and Design programme. To date, a specific course outline has not been developed for the unit of instruction.

To help in the development of materials for the unit of instruction in photography, this survey is being conducted as part of a graduate research project under the supervision of Dr. Ted Braffet, Division of Learning Resources, Faculty of Education, Memorial University of Newfoundland.

I am interested in developing an instructional package on photography and your response to this survey will provide the basis for the development of such an instructional unit of study.

I wish to thank you in advance for your assistance with this project and look forward to hearing from you as soon as possible. A stamped, addressed envelope has been provided for your convenience.

As this project is not funded by any agency, please let me make it clear from the start that, as a graduate student, I am not in a position to offer any remuneration for any contributions you are able to make. Hopefully, however, student interest generated by this project will emphasize the need for greater support of the Arts and Art Education in this province.

Sincerely,

Denise A. Martin

Denise A. Martin
Box 4425
St. John's, Newfoundland
A1C 6C4

PART I

Name of Respondent: _____

Address: _____

Phone: _____

PART II

Please complete each of the following items by placing a check (✓) mark in the appropriate space.

- 1.1 Do you feel there is a need for the development of instructional materials on photography for the Newfoundland and Labrador high school curriculum?

Yes _____ No _____

- 1.2 In what area(s) do you feel materials are most needed for photography instruction?

___ Technical areas (Camera usage, darkroom procedures, etc.)

___ Aesthetic areas (Composition, design, etc.)

___ Cultural areas (Canadian photographers, Newfoundland photographers, etc.)

___ Historical areas

___ Critical areas (Describing, analyzing, interpreting, and judging photographs)

___ Other: Please Specify

- 1.3 Do you feel there is a need for the development of instructional materials on Newfoundland and Labrador photography?

Yes _____ No _____

- 2.1 Have you ever participated in a curriculum development project?

Yes _____ No _____

Please Specify:

- 2.2 Have you ever taught photography?

Yes _____ No _____

Please Specify:

- 2.3 Is it absolutely necessary to have darkroom facilities in order to offer photography as a course at the high school level?

Yes _____ No _____

- 2.4 Would you consider submitting some of your personal photographic work to be included in an instructional programme in photography?

Yes _____ No _____

- 2.5 In what media format would you allow your work to be reproduced?

____ Slides ____ Filmstrip

____ Video ____ Booklet

- 2.6 Would you make yourself available for workshops or class presentations on the subject of photography?

Yes _____ No _____

- 2.7 Are you a member of the Artists Speakers Bureau?

Yes _____ No _____

2.8 Are you listed as a participant in the Artists in the Schools Program?

Yes _____ No _____

3.0 Do you have a degree or diploma in Art?

_____ B.F.A. _____ M.F.A.

_____ Other Please Specify:

3.1 What photographic works would you have available for reproduction?

_____ Black and White Prints

_____ Color Prints

_____ Color Slides

_____ Other Please Specify

Please supply brief biographical information in the space below.

5.1 Place of Birth: _____

5.2 Date of Birth: _____

5.3 Number of years as a Newfoundland Resident: _____

5.4 Photographic Education: _____

5.5 Photographic Exhibitions:

Exhibition Name	Place	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

5.6 Articles written about you or your work

Name of Journal	Date
_____	_____
_____	_____
_____	_____

5.7 Other pertinent information

Appendix C

Available Materials Checklist

Content

- ☐ Authority
☐ Language level
☐ Accuracy
☐ Sequence
☐ Scope

Technical ☐

Aesthetic ☐

Critical ☐

Historical ☐

Medium

- ☐ Suitability
☐ Aesthetic quality
☐ Technical quality
☐ Flexibility of use
☐ Visuals

Equipment

- ☐ Ease of use
☐ Availability
☐ Versatility

☐ Cost

☐ Time

☐ Special Features

Recommendations

- ☐ Personal
☐ Teacher
☐ Selection aids

Appendix D
Criterion-Referenced Test

TEST
INSTRUCTIONS

This test is divided into two parts. When you have completed part I, you should hand in your test paper and then you will receive part II. Remember, this test is designed to test the effectiveness of the program you have just viewed.

Do your best to answer all test items.
GOOD LUCK and THANK YOU for helping to pilot test this project.

Denise A. Martin

Denise A. Martin

Project Developer

Name: _____ Test # _____

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PART I.

A. State six categories of differences in the functions of photographs.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

B. Explain why you might use the categories when looking at photographs.

7. _____

Please hand in PART I of the test and obtain PART II.

PART II

INSTRUCTIONS

There are six categories of photographs. The categories include:

Interpretive

Theoretical

Explanatory

Ethical

Aesthetic

Descriptive

Use these six category names to answer all remaining questions on this test. Place the correct category name in the space provided.

SECTION A.

Instructions: Fill in the blank space with the correct category name.

8. A photograph that implies a moral or value judgement is said to be: _____
9. A photograph which is a visual recording of the actual characteristics of a person, place or thing is said to be: _____
10. A photograph which depicts a person, place or thing as intrinsically worthy of our attention because of its visual qualities is said to be: _____
11. A photograph which illustrates an answer to a question, or which is used as a research tool is said to be: _____
12. A photograph that is the photographer's unique opinion about a phenomena that cannot be proved to be true or false is said to be: _____
13. A photograph that is directed at making some comment about art, photography, or photographs is said to be: _____

Instructions:

Below are verbally stated examples of each of the six categories of photographs. For each example, decide which category the statement represents. Write the name of the category in the space provided.

14. A photographic advertisement which attempts to persuade you to buy a certain brand of soft drink. _____

15. A picture of the contents of a jewellery box which will be used for insurance purposes. _____

16. An unlabelled picture of a microscope in a Biology textbook. _____

17. A photograph depicting reincarnation or life after death. _____

18. A picture taken to show the flight pathway of a baseball that has been hit with a bat. _____

19. A photograph depicting a dream about travelling back through time to the period of the middle ages. _____

20. A photograph taken to arouse public sympathy for the destruction of birds and sealife caused by oil spills. _____
21. A labelled photograph used to show the details of the interior structure of the heart. _____
22. A portrait photograph depicting the love between a mother and child. _____
23. A photograph of a rock that emphasizes the shape and texture of the rock. _____
24. A photograph challenging the notion that photography depicts real things. _____
25. A photograph protesting nuclear arms development. _____
26. A photograph depicting color and form as the subject of the photograph. _____
27. A passport photograph. _____
28. A newspaper photograph showing the effects of a snowstorm on city life. _____

29. A photograph that makes fun of the work of 249
documentary photographers. _____

30. A photograph criticizing the abstract art
movement. _____

31. A photograph of a landscape, emphasizing the
play of light on trees. _____

SECTION C

Instructions:

When all students are ready, you will be shown 18 slides, each of which depicts a specific category of photographs. In addition, you will be told some information about the photograph.

Listen carefully to the information given, and then decide which category the photograph best fits.

Write the name of the category in the space provided.

Turn to the next page so that you will have your answer sheet ready for this part of the test.

32. "Nude in the Sea": _____
33. "Birth Image": _____
34. "Drawing by Rodin": _____
35. "Apples": _____
36. "50 mm lens": _____
37. "Brass Bullets": _____
38. "Polish Girl": _____
39. "Soldiers": _____
40. "The figure in Motion": _____
41. "Alabama": _____
42. "Platinum Crystal": _____
43. "Camera Text or Picture": _____
44. "Tutankhamen's Mask": _____
45. "Bouncing Golf Ball": _____
46. "Rural Garbage": _____
47. "Reflections": _____
48. "Art Andrew's Portrait": _____
49. "Renaissance": _____

Please hand in your test.

Section D.

Group Discussion Section.

We will be having a group discussion of one photograph. Please try your best to participate in the group discussion and remember that your contribution to the discussion may help the group to arrive at a decision concerning the meaning of the photograph.

You will be shown one photograph which will be projected on the screen. Use the categories that you learned about in the slide-tape presentation to decide on the meaning of the photograph. Then be prepared to discuss your interpretation of the slide with the rest of the class.

In your discussion you should:

- a. State the category.
- b. State the meaning you derived from the photograph.
- c. Give reasons for your choice of category and meaning.
- d. Support your reasons with specific examples from the photograph and the information supplied about the photograph.

Appendix E

List of Test Slides and Verbal Information Cues for the Test Slides

Note: The slides used for testing of the instructional package are included under separate cover, Slide Box # 1.

32. "Nude in the Sea": _____
33. "Birth Image": _____
34. "Drawing by Rodin": _____
35. "Apples": _____
36. "50 mm lens": _____
37. "Brass Bullets": _____
38. "Polish Girl": _____
39. "Soldiers": _____
40. "The figure in Motion": _____
41. "Alabama": _____
42. "Platinum Crystal": _____
43. "Camera Text or Picture": _____
44. "Tutankhamen's Mask": _____
45. "Bouncing Golf Ball": _____
46. "Rural Garbage": _____
47. "Reflections": _____
48. "Art Andrew's Portrait": _____
49. "Renaissance": _____

Verbal Information Cues

- # 32. This slide is entitled Nude in the Sea. It was 255
taken in 1964. It is part of a series of
photographs the photographer took to express his
love of the form of the female nude. To what
category of photoraphs do you think it belongs?
- # 33. This slide is called "Birth Image". To what
category of photographs do you think it belongs?
- # 34. This is a photographic copy of one of Rodin's
paintings. To what category of photographs does it
belong?
- # 35. To what category of photographs do you think this
slide of red and gold apples belongs?
- # 36. This is a picture of a 50 mm lens. To what
category of photographs do you think it belongs.
- # 37. This picture is called "Brass Bullet's. It is part
of a series of photographs taken to investigate the
way in which bullets behave when hitting a solid
surface.

- # 38. This slide is called "Polish Girl". It was taken when the photographer was commissioned by UNESCO to show the effects of war on children. To what category of photographs does it belong?
- # 39. This photograph shows a group of Nigerian soldiers during the Nigerian war. What category would you say it fits best?
- # 40. This photograph is called Figure in Motion. In what category do you think it belongs?
- # 41. This slide is called "Alabama". It was one of a series of pictures done by the photographer to show the public the living conditions of the poor in the United States.
- # 42. This picture is called "platinum crystal". It shows the atomic make-up of the chemical platinum. To what category of photographs does it belong?
- # 43. This slide is called "Camera Text or Picture?" In what category does it fit best?

- # 44. This is an x-ray photograph of the mask of Tutankhamen. It was taken to prove that the artist who did the work constructed the mask from two pieces rather than one. To what category of photographs does it belong?
- # 45. This photograph called "Bouncing Golf Ball" shows how a golf ball slows down and loses height in its bounce the further the ball travels. To which of the six categories of photographs does the picture belong?
- # 46. This shot was taken as an entry to a photographic contest that had the theme "Trash Art".
- # 47. This slide was taken as part of a series of photographs with the theme "Reflections". What category does it best fit?
- # 48. This portrait was taken by the photographer to accompany an article on the life and work of Art Andrews.

49. This slide is called Renaissance. It is one in a series of photographs aimed at depicting the use of frames in the painting period of the Renaissance.

Appendix F

Group Discussion Observational Checklist

Appendix G

Script for the slide-tape show

"Categories of Photographs"

Photographs, just like books,
require reading for understanding
to take place.

Just how can you go about grasping
the meaning of a photograph?

One method is a category system
that asks you the viewer to place a
photograph into one of six
categories.

The six categories of photographs
are: Descriptive, Explanatory,
Interpretive, Ethical, Aesthetic
and Theoretical.

A descriptive photograph is like a
statement of fact.

Descriptive photographs function
mainly to describe the actual
characteristics of a person, place,
or thing.

A descriptive photograph may
describe the shapes and locations
of the bones and joints in the
body.

Descriptive photos may also be
used to show the details of a
work of art, such as this photo-
graph of a wire sculpture,
showing the sculpture's basic
characteristics.

1. Focus slide 262
2. Categories of Photograph
Denise Martin, 1987
3. Girl
Matthew Wolchock, 1987
4. Eye see
Denise Martin, 1987
5. Categories of photograph
Denise Martin, 1987
6. Category list
Denise Martin, 1987
7. Descriptive graphic
Denise Martin, 1987
8. Darkroom chemicals
9. x-ray
L. Zehnder, 1896
10. Alexander Calder's
The Hostess
E.M. Warburg

Or they may simply record surface features, such as this shot that shows the pot-holed surface of the moon, as seen through a telescope.

Descriptive photographs say nothing more about a subject than what is needed to identify the subject for what it is.

Now, which of these photographs is an example of a descriptive photograph?

If you chose the light meter, you are right. It shows only the characteristics of the light meter, and says nothing about how to use it or what it is for.

An explanatory photograph goes beyond the mere recording of a subject to helping you answer some question you might have concerning the subject.

The explanatory photograph most commonly answers scientific questions.

The explanatory photograph may help investigators see the location of a murder victim's body at the time of death.

Explanatory photos may even be used to settle a bet about whether a galloping horse, at any point in its stride, has all four hooves off the ground.

11. The moon
Loewy & Priseux, 1894

12. Colonel E. E. Aldrin
Apollo 11 Mission
Neil Armstrong, 1969

13. Light meter

The illuminated man
Duane Michels, 1969

14. Explanatory graphic
Denise Martin, 1987

15. Drop of milk splashing
H.E. Edgerton, 1936

16. Thermogram
Ralph Morse, LIFE

17. Galloping horse
E. J. Muybridge, 1878

Explanatory photographs may also help answer questions about how people live in society.

They may explore the effects of sickness on a family, helping to show these effects visually.

Or they may simply help answer questions about how other societies live in their own environment---how people interact with one another.

Without the details provided in explanatory photographs, a question would remain unanswered. This press photograph, for example, helps explain how an accident might have occurred.

Now, which of these two photographs is explanatory?

The shot of the balloons and tiny bullet is explanatory. It helped answer a scientific question that asked "Does a projectile slow down as it moves through space?"

So, descriptive photographs identify characteristics of a subject in a factual way, while explanatory photographs help answer questions that can perhaps be answered best with the seeing capabilities of a camera.

A third category of photographs is the interpretive photograph. An interpretive photograph is a fictitious explanation of some phenomena.

18. Joel Bruinooge:
The experience of illness
Mark L. Rosenberg, M. D.
19. The experience of illness
Mark L. Rosenberg, M. D.
20. Yawalopiti:
the festival of the dead
E. B. Viveiros de Castro,
1976
21. Bicycle accident
LIFE magazine
22. Soldiers
Romano Cagnoni, 1968

Balloons bursting
Harold Edgerton, 1959
23. Balloons bursting
Harold Edgerton, 1959
24. Light meter
Anonymous
25. Drop of milk splashing
Harold Edgerton, 1938
26. Untitled
Jerry Uelsmann

The interpretive photograph states a photographer's opinion or belief about a subject.

It may attempt to explain a person's character, with the photographer presenting his or her unique view of who that person really is inside.

The photographer chooses what aspects of the person's personality to emphasize in the interpretive photograph.

The interpretive photograph may also seek to explain inner realities, like the loneliness a person may experience when he or she goes to live in a large city.

Or the interpretive photo may attempt to portray some of the inexplicable realities of life, such as faith and despair---how they are related to one another, and yet so different from one another.

These are all phenomena that could not be proved true or false, but the photographer attempts to interpret them in his or her own way and presents his explanation for us to examine and think about.

Which of these photographs would you classify as interpretive?

27. Interpretive graphic
Denise Martin, 1987

28. Ramona
Gerald Pisarzowski

29. Albert Einstein
Philippe Halsman, 1947

30. Lonely inhabitant of
a big city
Herbert Bayer

31. Rimose meeting
R. E. Meatyard, 1962

32. The illuminated man
Duane Michels, 1969

33. Drop of milk...
H. E. Edgerton, 1938

Aldous Huxley
Cecil Beaton, 1935

The picture depicting the person behind a curtain is interpretive. When you know that this person is Aldous Huxley, the satirist writer, you immediately become aware of why the photographer has selected this portrayal of the subject, emphasizing the photographer's opinion of what Huxley is like as a person.

The fourth category of photographs is the ethically evaluative photograph.

The ethical photograph is like a moral or value judgement expressed in a visual rather than verbal way.

The ethical photograph's main function is to draw our attention to something perceived by the photographer to be in need of change.

The photographer may wish to seek reforms in schooling conditions, emphasizing the overcrowded conditions and lack of resources in a school that was supposedly founded to give more opportunities for learning to young people.

Or, the ethical photograph may depict the way the "other half" lives, emphasizing the poverty and living conditions of these people, with the hope that something can be done to improve their plight.

- 34. Aldous Huxley
Cecil Beaton, 1935

- 35. Ethical graphic
Denise Martin, 1987

- 36. Cellar dwelling
Jacob Riis, 1890

- 37. Famine in India
Werner Bischof, 1951

- 38. Vocational school...
Jacob Riis, 1890

- 39. Baxter Street
Jacob Riis, 1888

40. Millions stand
behind me
John Heartfield, 1932

The ethical photograph may also attempt to condemn war, showing the interaction of capitalism and the military, and making a comment about the negative effect of this relationship.

While the ethical photograph describes, explains, and interprets subjects, its most important function is to praise or condemn,

41. Pin boys...
Lewis Hine, 1910

imply right or wrong,

42. Spinner at frame
Lewis Hine, 1908

or suggest how things should or should not be.

43. Meatpiece
Shelley Farkas, 1975

Which of these two photographs is an ethically evaluative photograph?

The ethical photograph here is the shot of the children. The photo shows the boys who separated slate from coal while they worked in the mines. The photograph was taken to prompt enforcement of child labor laws at a time when these laws were first being written.

44. Bouncing golf ball
Harold Edgerton, 1959

Breaker boys
Lewis Hine, 1910

45. Breaker boys
Lewis Hine, 1910

The fifth category of photographs is the aesthetic photograph.

The aesthetic photograph presents something perceived by the photographer to be worthy of our attention because of its beauty, form, or interest.

46. Aesthetic graphic
Denise Martin, 1987

47. The pool
Gerald Pisarzowski

The aesthetic photograph presents for our appreciation the characteristics of the subject itself, like the interaction of shape, line, and light, as only the photographer perceives them.

Or the photographer may present his or her unique treatment of the subject for our appreciation and enjoyment, such as this shot that emphasizes the graceful sweep of a ballet dancer's movement through the use of high speed flash photography.

The aesthetic photograph usually deals with the elements and principles of design, emphasizing these for their pleasing effect.

Which of these photographs would best fit the aesthetic category of photographs?

The photograph of the two callas is aesthetic. The photograph emphasizes the elements of light and form in a visually pleasing composition.

The sixth category of photographs is the theoretical photograph. Theoretical photographs deal only with theories of art or photography and are concerned with making some comment on these theories.

For example, a photographer may wish to challenge the idea that photography is representational in nature.

48. Two leaves
Paul Caponigro, 1963

49. Nora Kaye
Gjon Mili, 1947

50. Bench
Matthew Wolchock

51. Two callas
Immogen Cunningham, 1929

Swivelling blocks
Robert F. Heineken

52. Two callas
Immogen Cunningham, 1929

53. Theoretical graphic
Denise Martin, 1987

54. Postcard or reality
Ken Josephson

Or the theoretical photo may comment on the notion that a photograph of a subject must be shot in only one frame.

Photographs that push the boundaries of photography into the other arts or that comment on art movements and practices may be said to be theoretical.

Now, which of these two photographs is theoretical?

The theoretical photograph is the photograph of the nude form on swivelling interchangeable blocks. While it is aesthetic in one sense, its main function is to challenge the idea that a photograph must be two-dimensional to be called a photograph.

The six categories of photographs ---descriptive, explanatory, interpretive, ethical, aesthetic, and theoretical---can be used as a method of looking at photographs in order to form a tentative hypothesis about the meaning of the photograph. By trying to gather information from as many sources as you can to test your initial category placement, you may be led to accept or reject your hypothesis and thus the meaning you derived from the photograph.

Let's try to use the category method a few times now to see if you understand the categories. I will present a photograph, with some added information, and you should try to place the photograph into one of the six categories, where you think it fits best.

55. 118 North Main Street
Reed Estabrook, 1969

56. The wanderer
John Reuter, 1982

57. Two callas
Imogen Cunningham, 1929

Swivelling blocks
Robert F. Heineken

58. Swivelling blocks
Robert F. Heineken

59. Category list
Denise Martin, 1987

60. Joe Price and friends
Gerald Pisarzowski

61. Untitled
Justin Hall

62. Untitled
Matthew Wolchock

Remember, the six categories are: descriptive, explanatory, interpretive, ethical, aesthetic, and theoretical.

This photograph, by the photographer Harrison Schmitt, was taken en route to the moon, during the last Apollo mission. What category do you think it best fits?

You should have placed the photo in the descriptive category, since it simply records the visible hemisphere of the earth, as seen by the astronaut as he travelled to the moon.

This photograph is called "Bird Taking Off". What category do you think it fits?

The most appropriate category was aesthetic. It is the photographer's unique treatment of the bird, a long exposure, panning techniques, and deliberate underexposure, that present this photograph as aesthetic, a picture of time and flight, of color pattern.

This picture is a hand-painted black and white photograph. It was presented in an art show that was centered on the theme "Trash". What category do you think it best fits?

You should have chosen the ethical category. The photograph comments on littering and the attitude of people toward our environment.

63. Category list
Denise Martin, 1987

64. Earthrise
Harrison Schmitt, 1968

65. Descriptive graphic
Denise Martin, 1987

66. Bird taking off
Ernst Haas, 1969

67. Aesthetic graphic
Denise Martin, 1987

68. Trash # 1
Manfred Buchheit

69. Ethical graphic
Denise Martin, 1987

What about this photograph entitled "Brian at Point Lobos"?

It is theoretical: it asks the viewer to consider the idea that a photograph must only involve one frame to be called a photograph.

Let's try again. This photograph, taken by photographer Henry Lester, is called "Blooming Rose". It is part of a considerably longer sequence of pictures on the rose. What category would you place it in?

If you chose explanatory, you are correct. The sequence shows the transformation of a rose from bud to blossom, and helps answer questions about the changes that occur during the growth of a rose.

This photograph is called "Maharishi: Concentration and Expansion". What category do you think it belongs to?

The portrait of the guru is an interpretive photograph. It presents the photographer's interpretation of what it means to be a guru, a person able to transcend the limitations of his body, through meditation. It is the use of continuous zoom that implies this meaning.

The interpretation of a photograph is no simple thing. It requires reading for understanding to take place.

70. Brian at Point Lobos
Keith Smith, 1970

71. Theoretical graphic
Denise Martin, 1987

72. Blooming rose
Henry Lester, 1943

73. Explanatory graphic
Denise Martin, 1987

74. Maharishi:
Concentration and
expansion
Philippe Halsman, 1967

75. Interpretive graphic
Denise Martin, 1987

76. Interpreting
photographs
Denise Martin, 1987

The category method can be used to note differences between photographs.

Although some photographs will have characteristics that fit each of the categories,

you can usually place a photograph in one category, where it fits best.

Each category carries with it implied meanings. Placement of a photograph will invite discussion and counter-argument about the photograph, rather than meaningless talk.

77. Narration credit
Denise Martin, 1987

78. Production credit
Denise Martin, 1987

79. Assistance credit
Division of Learning
Resources, 1987

80. End credit
Denise Martin, 1987

Appendix H

Item Analysis (Formative Evaluation Results)

Table H-1.

Item analysis (formative evaluation results)

Test	Student						
	1	2	3	4	5	6	7
Item	a b	a b	a b	a b	a b	a b	a b
1	0 1	0 1	0 1	0 1	0 0	0 1	0 1
2	0 1	0 1	0 1	0 1	0 0	0 1	0 1
3	0 1	0 1	0 1	0 1	0 0	0 1	0 1
4	0 1	0 1	0 1	0 1	0 1	0 1	0 1
5	0 1	0 1	0 1	0 1	0 0	0 1	0 1
6	0 0	0 1	0 1	0 1	0 0	0 1	0 1
7	0 0	0 2	0 2	0 0	0 0	0 2	0 2
8	0 1	0 1	0 0	0 1	0 1	0 1	0 1
9	0 0	0 1	0 1	0 1	0 0	0 1	0 1
10	0 0	0 1	0 0	0 1	0 1	0 1	0 1
11	0 1	0 1	0 1	0 1	0 1	0 1	0 1
12	0 0	0 1	0 1	0 1	0 0	0 1	0 1
13	0 0	0 1	0 0	0 1	0 1	0 1	0 1
14	0 0	0 0	0 0	0 0	0 0	0 0	0 0
15	0 0	0 1	0 0	0 0	0 1	0 1	0 1
16	0 0	0 1	0 0	0 0	0 1	0 0	0 1
17	0 0	0 1	0 1	0 1	0 0	0 1	0 1
18	0 1	0 1	0 0	0 0	0 1	0 0	0 1
19	0 0	0 1	0 1	0 0	0 1	0 0	0 1
20	0 0	0 1	0 1	0 1	0 1	0 1	0 1

Table H-2

Item analysis (formative evaluation results)

Test Item	Student						
	1	2	3	4	5	6	7
	a b	a b	a b	a b	a b	a b	a b
21	0 1	0 1	0 1	0 1	0 1	0 1	0 1
22	0 0	0 0	0 0	0 0	0 0	0 0	0 0
23	0 1	0 1	0 0	0 0	0 1	0 0	0 0
24	0 0	0 1	0 1	0 1	0 1	0 1	0 1
25	0 0	0 1	0 0	0 1	0 1	0 1	0 1
26	0 0	0 1	0 1	0 1	0 0	0 1	0 1
27	0 1	0 1	0 1	0 0	0 1	0 1	0 1
28	0 0	0 0	0 0	0 0	0 1	0 1	0 1
29	0 0	0 1	0 0	0 0	0 0	0 0	0 0
30	0 0	0 1	0 0	0 1	0 1	0 1	0 1
31	0 0	0 1	0 1	0 0	0 0	0 1	0 1
32	0 0	0 1	0 1	0 1	0 1	0 0	0 1
33	0 0	0 1	0 0	0 0	0 0	0 0	0 1
34	0 0	0 0	0 0	0 0	0 1	0 0	0 1
35	0 0	0 1	0 0	0 1	0 1	0 1	0 1
36	0 1	0 1	0 0	0 0	0 1	0 0	0 1
37	0 0	0 0	0 0	0 1	0 0	0 0	0 0
38	0 0	0 1	0 1	0 0	0 1	0 0	0 1
39	0 0	0 1	0 1	0 1	0 0	0 1	0 1
40	0 0	0 0	0 1	0 0	0 1	0 1	0 1

Table H-3

Item Analysis (formative evaluation results)

Test	Student						
	1	2	3	4	5	6	7
Item	a b	a b	a b	a b	a b	a b	a b
41	0 0	0 1	0 1	0 1	0 1	0 1	0 1
42	0 0	0 1	0 1	0 0	0 1	0 1	0 1
43	0 0	0 1	0 0	0 1	0 1	0 1	0 1
44	0 0	0 1	0 1	0 1	0 1	0 1	0 1
45	0 0	0 1	0 0	0 1	0 1	0 0	0 0
Total	0 12	0 40	0 26	0 27	0 28	0 32	0 40
%	26.0	86.9	56.5	58.6	60.8	69.5	86.9

Table H-4

Item analysis (formative evaluation results)

Test	Student											
	8		9		10		11		12		13	
Item	a	b	a	b	a	b	a	b	a	b	a	b
1	0	1	0	1	0	1	0	1	0	1	0	1
2	0	1	0	1	0	1	0	1	0	1	0	1
3	0	1	0	1	0	1	0	1	0	1	0	1
4	0	1	0	1	0	1	0	1	0	1	0	1
5	0	1	0	1	0	1	0	1	0	1	0	1
6	0	1	0	1	0	1	0	1	0	1	0	1
7	0	0	0	2	0	0	0	0	0	0	0	0
8	0	1	0	1	0	1	0	1	0	1	0	1
9	0	1	0	1	0	1	0	1	0	1	0	0
10	0	1	0	1	0	1	0	1	0	1	0	0
11	0	1	0	1	0	1	0	1	0	0	0	1
12	0	1	0	1	0	1	0	1	0	0	0	1
13	0	1	0	1	0	1	0	1	0	0	0	1
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	1	0	0	0	1	0	1	0	1	0	0
16	0	0	0	1	0	1	0	0	0	1	0	1
17	0	1	0	1	0	1	0	0	0	0	0	1
18	0	1	0	1	0	0	0	0	0	0	0	0
19	0	0	0	0	0	1	0	1	0	0	0	1
20	0	0	0	1	0	1	0	1	0	0	0	0

Item analysis (formative evaluation results)

Test	Student											
Item	8		9		10		11		12		13	
21	0	1	0	1	0	1	0	1	0	1	0	1
22	0	0	0	0	0	0	0	0	0	1	0	0
23	0	1	0	0	0	0	0	1	0	1	0	1
24	0	1	0	0	0	1	0	1	0	1	0	0
25	0	1	0	0	0	1	0	1	0	0	0	0
26	0	1	0	0	0	1	0	1	0	1	0	0
27	0	1	0	0	0	0	0	1	0	1	0	0
28	0	1	0	0	0	1	0	0	0	1	0	0
29	0	1	0	0	0	1	0	0	0	0	0	0
30	0	1	0	0	0	1	0	0	0	0	0	0
31	0	0	0	0	0	1	0	1	0	1	0	0
32	0	0	0	1	0	1	0	0	0	1	0	1
33	0	1	0	1	0	0	0	1	0	0	0	1
34	0	0	0	1	0	0	0	0	0	0	0	0
35	0	1	0	1	0	1	0	1	0	1	0	1
36	0	1	0	1	0	1	0	0	0	0	0	1
37	0	0	0	0	0	1	0	0	0	1	0	0
38	0	0	0	1	0	1	0	1	0	0	0	1
39	0	1	0	1	0	1	0	0	0	0	0	1
40	0	0	0	0	0	1	0	0	0	0	0	0

Table H-6

Item analysis (formative evaluation results)

Test	Student											
	8		9		10		11		12		13	
Item	a	b	a	b	a	b	a	b	a	b	a	b
41	0	1	0	1	0	0	0	1	0	1	0	1
42	0	1	0	1	0	1	0	1	0	1	0	1
43	0	1	0	1	0	1	0	1	0	0	0	1
44	0	1	0	1	0	1	0	0	0	0	0	1
45	0	0	0	0	0	0	0	0	0	0	0	0
Total	0 32		0 30		0 35		0 28		0 24		0 25	
Mean	69.5		65.2		76.0		60.8		52.1		54.3	

Table H-7

Item analysis (formative evaluation results)

Test	<u>Total</u>		<u>%</u>		Test	<u>Total</u>		<u>%</u>	
<u>Item</u>	a	b			<u>Item</u>	a	b	a	b
1	0	12	0	92.3	2	0	12	0	92.3
3	0	12	0	92.3	4	0	13	0	100.0
5	0	12	0	92.3	6	0	11	0	84.6
7	0	10	0	38.4	8	0	12	0	92.3
9	0	10	0	76.9	10	0	10	0	76.9
11	0	12	0	92.3	12	0	10	0	76.9
13	0	10	0	76.9	14	0	0	0	0.0
15	0	8	0	61.5	16	0	7	0	53.8
17	0	9	0	69.2	18	0	6	0	46.2
19	0	7	0	53.8	20	0	9	0	69.2
21	0	13	0	100.0	22	0	1	0	7.6
23	0	7	0	53.8	24	0	10	0	76.9

Table H-8

Item analysis (formative evaluation results)

Test	<u>Total</u>		<u>%</u>		Test	<u>Total</u>		<u>%</u>	
<u>Item</u>	a	b	a	b	<u>Item</u>	a	b	a	b
25	0	8	0	61.5	26	0	9	0	69.2
27	0	9	0	69.2	28	0	6	0	46.2
29	0	3	0	23.0	30	0	7	0	53.8
31	0	7	0	53.8	32	0	9	0	69.2
33	0	6	0	46.2	34	0	3	0	23.0
35	0	11	0	84.6	36	0	8	0	61.5
37	0	3	0	23.0	38	0	8	0	61.5
39	0	9	0	69.2	40	0	5	0	38.4
41	0	11	0	84.6	42	0	11	0	84.6
43	0	10	0	76.9	44	0	10	0	76.9
45	0	3	0	23.0					

Mean = 63.3%

Appendix I
Student Appraisal Form

Student Evaluation Form
Formative Evaluation Results

For each statement, check the box which best represents your feelings about the instructional program you have just completed.

	Yes	No
1. The language used in the program was too difficult for me to understand.	0	12
2. The program was too long.	1	11
3. There was too much material to learn in too short a time period.	8	4
4. I learned a lot from the program	8	4
5. I found the slide-tape show interesting.	10	2
6. I would like to see more programs of this type on photography.	9	3
7. The test questioned me on items that were not explained in the slide tape show.	3	9
8. I think a slide show was the best way to help me understand the categories of photographs.	10	2
9. The examples given in the show made the categories clear.	6	6
10. There were enough examples of each category to make them clear.	4	8
11. I understood all of the categories explained in the show.	6	6
12. I understood only some of the categories explained.	7	5
13. I liked the way I was asked questions during the presentation.	6	6

14. The answers to questions asked during the presentation made it clear if I was right or wrong in my answer.	8	4
15. I liked being shown a photograph and then being asked to choose a category for it because it helped me review the material being presented.	11	1
16. I liked having all six categories on the screen at the same time because it made the differences between the categories very clear.	8	4
17. I think I know more about looking at photographs now than I did before I saw the slide-tape program.	12	0
18. Now that I know the categories of photographs I will have a method of looking at photographs that I did not know before.	12	0
19. I think it is important to have some method of looking at photographs.	9	3
20. I have been told before how to go about finding meaning in a photograph.	0	12
21. I think this program will help me when I look at photographs in the future.	10	2
22. The student booklet explained what I had to learn.	?	?
23. The student booklet explained why the material was important for me to know.	?	?
24. The student booklet was valuable to me to keep for future reference.	?	?
25. The narrator of the program spoke clearly and distinctly.	12	0

Do you have any suggestions for improving this instructional package? If so, please write them in the space provided.

I think the slide show could be improved by:

- more color photos-1
- slowing down the speed of the slide presentation-3
- more time to think about questions-2

I think the accompanying cassette narration could be improved by:

- lighter, less technical tone-1
- improved diction-1
- slowing down the narration-3
- louder volume-1

I think the student booklet could be improved by:

- supplying background theory
- providing a list of categories to keep in front of you-1

Do you have any other suggestions to improve the show? If so, please explain in the space provided:

the six categories together on the screen were too hard to see-3

: Thank-you for your help in testing this package. :

Student Evaluation Form
Summative Evaluation Results

For each statement, check the box which best represents your feelings about the instructional program you have just completed.

Yes No

- | | | |
|--|---|---|
| 1. The language used in the program was too difficult for me to understand. | 0 | 7 |
| 2. The program was too long. | 0 | 7 |
| 3. There was too much material to learn in too short a time period. | 2 | 5 |
| 4. I learned a lot from the program | 5 | 2 |
| 5. I found the slide-tape show interesting. | 5 | 2 |
| 6. I would like to see more programs of this type on photography. | 5 | 2 |
| 7. The test questioned me on items that were not explained in the slide tape show. | 2 | 5 |
| 8. I think a slide show was the best way to help me understand the categories of photographs. | 6 | 1 |
| 9. The examples given in the show made the categories clear. | 5 | 2 |
| 10. There were enough examples of each category to make them clear. | 4 | 3 |
| 11. I understood all of the categories explained in the show. | 4 | 3 |
| 12. Some categories were harder to understand than others. | 5 | 2 |
| 13. I liked the way I was asked questions during the presentation. | 5 | 2 |
| 14. The answers to questions asked during the presentation made it clear if I was right or wrong in my answer. | 7 | 0 |

	Yes	No
15. I liked being shown a photograph and then being asked to choose a category for it because it helped me review the material being presented.	5	2
16. I liked having all six categories shown in the student booklet because it made the differences between the categories very clear.	7	2
17. I think I know more about looking at photographs now than I did before I saw the slide-tape program.	7	0
18. Now that I know the categories of photographs I will have a method of looking at photographs that I did not know before.	7	0
19. I think it is important to have some method of looking at photographs.	7	0
20. I have been told before how to go about finding meaning in a photograph.	1	6
21. I think this program will help me when I look at photographs in the future.	6	1
22. The student booklet explained what I had to learn.	7	0
23. The student booklet explained why the material was important for me to know.	4	3
24. The student booklet was valuable to me to keep for future reference.	6	1
25. The narrator of the program spoke clearly and distinctly.	7	0

Do you have any suggestions for improving this instructional package? If so, please write them in the space provided.

I think the slide show could be improved by:

More examples - 1

I think the accompanying cassette narration could be improved by:

slowing down the narration-1

I think the student booklet could be improved by:

Do you have any other suggestions to improve the show?
If so, please explain in the space provided:

more discussion - 1

: Thank-you for your help in testing this package. :

Appendix J
Expert Appraisal Form

Expert Appraisal

Please indicate your reaction to each statement below by checking the blank which best represents your feelings about the instructional program.

	Yes	No
1. The quality of the slides is good.	--	--
2. The material is clearly presented	--	--
3. The material is organized from concrete to abstract concepts.	--	--
4. The language used in the program is suitable for a high school student.	--	--
5. The level of difficulty encountered is suitable for a high school student.	--	--
6. The program is too long.	--	--
7. The slide-tape format used to present the material was the most appropriate media to use in the presentation of the material.	--	--
8. The definitions of the categories were clear.	--	--
9. The slides used to illustrate the categories were clear and accurate.	--	--
10. There is sufficient practice incorporated into the slide-tape program.	--	--
11. There is a need for this type of material in photography classes.	--	--
12. The program would be suitable for use in other parts of a unit on photography.	--	--

- | | | |
|---|----|----|
| 13. The cost of implementing a program of this type would be too great for the average high school. | -- | -- |
| 14. The test is appropriate for the slide-tape presentation. | -- | -- |
| 15. The test is appropriate for the objectives of the package. | -- | -- |
| 16. The package is good for large-group instruction. | -- | -- |
| 17. The package would be good for individual student use. | -- | -- |
| 18. The instructional package is effective. | -- | -- |
| 19. The objectives of the program are clearly incorporated into the slide-tape package. | -- | -- |
| 20. The slide-tape program provided for review and practice of the concepts presented. | -- | -- |
| 21. There was marked improvement in student responses to photographs after the slide-tape program had been presented. | -- | -- |
| 22. Classroom art teachers would readily adopt the program. | -- | -- |
| 23. High school students would readily accept the program. | -- | -- |
| 24. There were a sufficient number of examples given in the program. | -- | -- |
| 25. The narration accompanying the slide program was clear and well-paced. | -- | -- |

- | | | |
|---|----|----|
| 26. There is a theoretical soundness to the content of the program. | -- | -- |
| 27. The author/producer is competent to design this type of program. | -- | -- |
| 28. The program is relevant to the general goals of teaching photography to high school students. | -- | -- |
| 29. The rationale for the program and objectives was clearly stated. | -- | -- |
| 30. The style of presentation was appropriate. | -- | -- |
| 31. The teacher's manual accompanying the program was effective. | -- | -- |
| 32. The student manual was effective. | -- | -- |
| 33. Equipment needed for the program could easily be obtained. | -- | -- |
| 34. Preparation time for use of the program is minimal. | -- | -- |
| 35. Instructions for use of the program are clear and concise. | -- | -- |
| 36. The program could be used flexibly by the classroom teacher. | -- | -- |

If you have any suggestions for improvement of the instructional program, please state your suggestions in the space provided below.

Suggestions for improvement:

Additional objectives to be included:

Trivial objectives to be deleted:

Errors to be corrected:

Technical flaws to be improved:

Teacher booklet suggestions:

Student booklet suggestions:

Narration improvement:

Other suggestions:

How would you rate the package overall?

Extremely Good--

Good--

Fair--

Poor--

Not recommended--

Recommended Highly--

Appendix K

Item Analysis (Summative Evaluation Results)

Table K-1

Item analysis (summative evaluation results)

		Student													
Test		1		2		3		4		5		6		7	
Item		a	b	a	b	a	b	a	b	a	b	a	b	a	b
1		0	1	0	1	0	1	0	1	0	1	0	1	0	1
2		0	1	0	1	0	1	0	1	0	1	0	1	0	1
3		0	1	0	1	0	1	0	1	0	1	0	1	0	1
4		0	1	0	1	0	1	0	1	0	1	0	1	0	1
5		0	1	0	1	0	1	0	1	0	1	0	1	0	1
6		0	1	0	1	0	1	0	1	0	1	0	1	0	1
7		0	2	0	2	0	2	0	2	0	2	0	2	0	2
8		0	1	0	1	1	1	1	1	0	1	0	1	0	1
9		0	1	1	1	1	1	1	1	1	1	0	1	0	1
10		0	1	0	1	0	1	1	1	0	1	1	0	0	1
11		0	0	0	1	1	0	1	1	1	1	1	1	0	1
12		0	1	0	1	0	1	0	1	1	1	0	1	0	1
13		0	1	0	1	0	1	0	1	1	1	0	1	0	0
14		0	0	0	1	0	0	0	0	0	0	1	0	0	0
15		0	0	0	0	0	0	0	1	0	1	1	1	0	0
16		0	0	0	0	0	1	0	1	0	1	0	1	0	0
17		0	1	0	1	0	1	0	1	1	1	0	0	0	0
18		0	1	0	1	0	1	0	1	0	1	1	1	0	0

Table K-2

Item analysis (summative evaluation results)

	Student													
Test	1		2		3		4		5		6		7	
Item	a	b	a	b	a	b	a	b	a	b	a	b	a	b
19	0	0	0	1	0	1	0	1	1	0	1	1	0	1
20	1	1	0	1	1	0	0	1	0	0	1	1	0	0
21	1	0	0	1	1	0	0	0	0	1	0	0	0	0
22	0	0	0	0	1	1	0	0	0	0	0	0	0	0
23	0	0	0	0	0	1	0	1	0	1	0	0	0	1
24	0	0	0	0	0	1	0	0	1	1	0	0	0	1
25	0	1	0	1	0	1	0	1	0	0	0	1	0	0
26	0	1	0	1	0	1	0	1	0	0	0	1	0	1
27	0	1	0	0	1	1	0	1	0	1	0	1	0	1
28	1	1	0	1	0	1	0	0	0	1	0	0	0	1
29	0	0	0	0	0	1	0	1	0	0	1	1	0	0
30	0	0	0	0	0	1	0	1	0	0	0	1	0	0
31	0	1	0	0	0	1	1	1	0	1	0	0	0	1
32	0	0	0	1	0	1	0	1	0	0	0	1	0	0
33	1	0	0	1	0	1	1	1	1	0	0	0	0	0
34	0	0	0	0	0	1	0	1	0	1	0	1	0	1
35	0	1	0	0	0	1	1	1	0	1	0	0	0	1
36	0	1	0	0	1	1	1	1	0	1	1	1	0	0

Table K-3

Item analysis (summative evaluation results)

		Student												
Test	1		2		3		4		5		6		7	
Item	a	b	a	b	a	b	a	b	a	b	a	b	a	b
37	0	0	1	1	1	1	1	1	1	0	1	1	0	0
38	1	1	0	0	1	1	0	1	1	1	0	1	0	0
39	0	0	0	0	0	1	0	1	0	1	0	0	0	1
40	0	0	0	0	0	1	0	1	0	0	0	1	0	0
41	0	0	1	0	1	1	0	1	1	0	0	0	0	0
42	1	1	1	0	1	1	1	1	0	1	0	0	0	1
43	0	0	0	1	0	1	0	1	0	1	0	1	0	1
44	0	0	0	0	1	1	1	0	1	0	1	0	0	0
45	0	0	0	0	0	1	1	1	0	1	1	1	0	0
46	0	1	0	0	1	0	0	1	1	0	0	1	0	0
47	1	1	0	1	0	1	1	1	0	1	1	1	0	1
48	0	1	0	0	0	1	0	0	1	1	0	1	0	1
49	0	0	0	0	0	1	0	1	0	1	1	1	0	1
Total	7	28	4	28	14	44	13	43	15	35	14	36	0	28
%	14	56	8	56	28	88	26	86	30	70	28	72	0	56

Table K-4

Item analysis (summative evaluation results)

Test		Score		Test		Score	
Item	a b	a	b	Item	a b	a	b
1	0 7	0.0	100.0	2	0 7	0.0	100.0
3	0 7	0.0	100.0	4	0 7	0.0	100.0
5	0 7	0.0	100.0	6	0 7	0.0	100.0
7	0 14	0.0	100.0	8	3 7	42.8	100.0
9	4 7	57.1	100.0	10	2 6	28.5	85.7
11	4 5	57.1	71.4	12	1 7	14.2	100.0
13	1 6	14.2	85.7	14	1 1	14.2	14.2
15	1 3	14.2	42.8	16	0 4	0.0	57.1
17	1 5	14.2	71.4	18	1 6	14.2	85.7
19	2 5	28.5	71.4	20	3 4	42.8	57.1
21	2 2	28.5	28.5	22	1 1	14.2	14.2
23	0 4	0.0	57.1	24	1 3	14.2	42.8
25	0 5	0.0	71.4	26	0 6	0.0	85.7
27	1 6	14.2	85.7	28	1 5	14.2	71.4

Table K-5

Item analysis (summative evaluation results)

Test					Score				
Item					a	b	a	b	
29	1	3	14.2	42.8	30	0	3	0.0	42.8
31	1	5	14.2	71.4	32	0	4	0.0	57.1
33	3	3	42.8	42.8	34	0	5	0.0	71.4
35	1	5	14.2	71.4	36	3	5	42.8	71.4
37	5	4	71.4	57.1	38	3	5	42.8	71.4
39	0	4	0.0	57.1	40	0	3	0.0	42.8
41	3	2	42.8	28.5	42	4	5	57.1	71.4
43	0	6	0.0	85.7	44	4	1	57.1	14.2
45	2	4	28.5	57.1	46	2	3	28.5	42.8
47	3	7	42.8	100.0	48	1	5	14.2	71.4
49	1	5	14.2	71.4					
Sum 67					242				
Mean					19.1 69.1				

