DEVELOPMENT OF A BUILT ENVIRONMENT PROGRAM FOR APPLICATION

AND USE IN THE B.C. SECONDARY CURRICULUM

by

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B.Ed., The University of Victoria, 1979

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

Department of Visual and Performing Arts in Education

Faculty of Education

We accept this thesis as confirming

to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

May 1981

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ABSTRACT

The objective of this study was to develop an instructional program
based upon the built environment for possible application to the British
Columbia secondary school curriculum. In this study, the built environment
is defined as the man-made buildings and structures that play a vital role
in human activity.

Educational programs related to the study of the built environment are
well developed in Britain and the U.S.A. but little has been done to develop
programs specifically for B.C. schools. The topic is deemed important and
relevant for inclusion in the curriculum due to the important role man's en-
vironment plays in everyday life, human activities, heritage and culture.

A built environment program was developed for pilot testing based upon
the General Learning Outcomes of the B.C. secondary art curriculum and the
stated desirable behavioral objectives in education. A series of "idea mat-
rices" was developed incorporating program objectives with the matrix content
serving as a stimulus for program content. The educational program consisted
of an activity workbook entitled "Close Encounters with the Built Environment"
and containing a variety of study activity suggestions for classroom use.
The content of the workbook emphasized sensory experience and awareness of the
built environment, the study of the use of design and materials in built en-
vironment and development of critical appraisal and judgment skills by the
individual.

The activity workbook was evaluated by a six week situational testing
program in three greater Vancouver area schools and involving grades 10-12
level classes. Evaluation procedures consisted of evaluator's observations,
teacher and student questionnaires, and a quantitative test administered to
two classes involved in the study program prior to, and following exposure

to the activity workbook.

Results of situational testing revealed a highly positive teacher and student response in one test class as evidenced by the evaluator's observations, innovative output demonstrated by activity reports of students, teacher and student questionnaire response, and student reaction to the material. Implementation difficulties were identified with a second class which consisted of slow learners and students with a poor academic performance history. This group appeared to have difficulty with verbal and written responses to the material and were somewhat resistant to it. Nevertheless, quantitative analysis indicated statistically significant increases in knowledge, comprehension and judgment skills related to the built environment in both classes exposed to the material. There was no statistically significant change in performance of the control group to which the quantitative test was administered but which was not exposed to the study material.

Strengths of the program included evidence of heightened individual awareness and interest in the built environment, development of critical judgment, innovative output in terms of results produced through study activities, and positive motivation towards the subject, particularly in the moderate to fast learner test group. Problems associated with the program as tested, included difficulty experienced by some students with written material in some sections of the workbook, need for vocabulary explanation or simplification, and need for more complete instructions for teachers. In addition, difficulties in implementation were identified for slow learner groups. These concerns resulted in modification of the workbook content.

The activity workbook "Close Encounters with the Built Environment" is judged to have good potential for useful inclusion in the B.C. secondary curriculum with application to the study of art, social studies, architecture, and urban planning. Pilot testing of the program in B.C. schools over a one

year trial period is recommended.

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Acknowledgements

I should like to express my sincere appreciation for the help extended to me by a number of people in the preparation of this thesis and the workbook material. In particular, the assistance and support provided by my advisory committee is most appreciated. Dr. Graeme Chalmers gave supportive advice in selection of the topic and frequently provided assistance in the preparation of the workbook and offered suggestions for the pilot testing program. Dr. James Gray was particularly helpful with curriculim and evaluation aspects of the program and Professor Abraham Rogatnick of the School of Architecture was very helpful with his special insight into architectural matters and concerns. In addition, Dr. Walter Werner provided considerable guidance in program evaluation methodology and curriculum concepts and kindly permitted me to use a number of his evaluation approaches jointly developed with Dr. D. Massey of the University of Alberta.

I am also indebted to the teachers, students and administrators who participated in numerous ways in the pilot testing of the program. Unfortunately, those individuals must remain anonymous for purposes of this presentation. Their enthusiastic support and participation made the program possible and also enjoyable and instructive.

Lastly, my deep appreciation is expressed to my husband, John, for his patience and support throughout the work as well as his assistance with typing of draft copies of the manuscript and statistical procedures.

S.D.

Chapter 1

INTRODUCTION

Why the Built Environment?

Living creatures interact with their environment and are fundamentally
influenced by it. Man is by no means exluded from this relationship and by
his nature and intellect, has the means to alter or shape his environment
by transforming natural or man-made objects into the built form. This built
form is termed the built environment. Implicit in this relationship between
man and his environment are the influences of human emotions, feelings and
sensitivity, cultural heritage, social patterns, lifestyle, and the nature
and variety of human activity.

Man is, with few exceptions, not a solitary creature and therefore
confines himself to social groupings which may be termed tribes, societies,
ethnic groupings, etc., usually organized around some physical built arrange-
ment of structures such as camps, villages, towns, cities or large metro-
politan assemblages. As modern man is to a large extent an urban dweller,
this urban setting plays a vital and constant role in his total lifestyle.
The city and its structure is based upon man's activity and the physical
and functional aspects of the city govern and in some cases, constrain man's
activities. It is therefore apparent that the built environment is a parti-
cularly important feature in the life of man and it follows that the study of
this environment is a particularly suitable topic for the education of our
children. Furthermore, due to the urban setting of our lives and our ability
to create and transform the built environment, it is particularly important
for students to become aware of their surroundings and to realize that they
have the potential to appraise, preserve, change, improve and create their
built environment.

The art teacher in a school system with a curriculum intended to meet
the needs of society has a responsibility to educate students in aspects of

art considered relevant to the goals of the educational system and the curriculum objectives of that system. Adams (1977) points out that art teachers often have difficulty articulating and defending the role of art education in the study of the built environment. She feels that there is a common tendency for art teachers to retire to the security of the classroom or studio and concentrate on creating art products, developing craft skills or giving students experience with art materials. Adams points out that most art teachers appear concerned with developing "self-expression" or "self-awareness" in students but tend to forget that such qualities depend on the subjective response of the individual to the external world that he or she perceives.

Chippindale and Ward (1979) argue that it is fitting for the teacher to become involved in the business of architectural interpretation. In their view, there is a great need to increase students' awareness of their surroundings and to make students understand those surroundings. The authors argue that much may be gained through the revelation of meanings through firsthand experience and that education of the senses should be a major task of the schools. Chippindale and Ward assert that teaching a child to be sensitive to his environment may lead him to form opinions, make judgments and do something positive as a result of his sensitivity. Thus, they maintain that interest and concern for built environment is an important attribute of citizenship and is therefore a very important aspect of education.

This study is concerned with the role of the art teacher in the subject area where art, design and environmental education interests overlap. It suggests that there is a need for the curriculum to give serious consideration to the development by students of critical skills and ability to make and explain judgments. The intent is to develop a program concerned with the built environment and art education for possible application within the B.C. Secondary School curriculum.

In addition to the important role the built environment plays in the lifestyle of man as outlined previously, the educational value of including the study of the built environment in either art or multidisciplinary curriculum may be expanded as follows. First, the study of the built environment allows teachers to examine the necessity for preservation of historical structures and to use those structures as examples of past art and architectural forms. The report of the Built Environment Education Center (1977) cites the following educational objectives of preservation activities:

-to make students aware that the built environment is the result of a historical process and development which can be understood, even though not always logical and predictable.

-to make students aware that the built environment has imbedded in its fabric the story of development, the history of the society who built it, and the history of the materials and technology used in its development.

-to make students aware that the character of a place is determined in part by the old buildings which tell its story.

-to make students aware that old buildings and neighborhoods must be kept alive and vital in order to retain that link with the past upon which our personal and community identity depends.

-to make students aware that old buildings can have new uses, and need not simply be torn down and replaced by new ones.

Another useful educational function of the study of the built environment is illustrated by programs which use the city as a "learning laboratory" (Bulletin of Environmental Education, Jan. 1979; Macaulay, 1976; Schneider & Schneider, 1954). By this approach, the structure, function, appearance, social context, sensory impact, economic, historical, architectural and other aspects of the community can be integrated in a study program designed to emphasize these elements by interactive exposure to the city. Furthermore, aspects of the future of the built environment may be emphasized to illustrate the values of town planning, innovative architecture, artistic elements, creation of recreational, commercial or other environments, to emphasize the pleasing aspects of architecture and design, and to integrate structure,

function and beauty with urban planning.

Eriksen and Smith (1978) provide an excellent rationale for the importance of art to the consideration of the built environment. They assert that the "built environment is an art form" and point out that McFee (1974a) maintains that we must "develop the capacity to use art as a humanizing force in improving the quality of life on earth". Erikson and Smith observe that there is a great potential for using the built environment to "help children understand and participate in the art process". They point out that the built environment is space divided into functional elements (buildings, parks, streets, gardens, etc.) and that we respond to elements of space and form with our feelings just as we respond to art objects. Erikson and Smith posit that one of the prime functions of education is that of "helping children learn how to see" and that built environmental education places a heavy stress on visual awareness and offers a rich choice of visual images. Furthermore, there is an opportunity for children to observe space, structure, shape, colour, form, scale, light and shadow, texture and function as well as the concepts of systems and wholes. Lastly, the approach emphasizes observation and notation of detail, awareness of environment, recording of information, appraisal, criticism and the development of analytical thought.

In the following pages current trends in curriculum thought and the underlying conceptions of the author are summarized and examples of existing built environmental education programs are reviewed. Detailed information is presented on the methods used by the author to develop a curriculum program for use in the B.C. Secondary School system based upon preparation, testing and evaluation of an activity workbook in three senior secondary schools. The effectiveness of the approach is examined in relationship to possible use of the material in the B.C. Secondary School curriculum.

Conceptions of Curriculum in Art Education

There are a great many viewpoints on curriculum content in art education

and indeed the subject is controversial. It is evident that the nature of curriculum in the field has undergone significant change in recent years. In developing a curriculum package for possible incorporation in the B.C. art education curriculum, it is important that we examine curriculum trends and emphasis in order to ensure that what is proposed is relevant to existing orientations in the school system and contemporary thought in art education.

Eisner and Vallance (1974) categorized five major perspectives of the nature and function of school curriculum as employed today or in the past:

1) Development of Cognitive Processes: child-oriented, deals with refinement of intellectual operations and sharpening of cognitive skills.

2) Curriculum as Technology: process oriented, deals with the technology by which knowledge is communicated and learning is facilitated. The presentation of material is stressed.

3) Self-actualization or Curriculum as Consummatory Experience: child-oriented, focus on content and the need to produce personally satisfying experiences for the learner. Stresses educational self-discovery and enrichment.

4) Social Reconstruction-relevance: stresses the role of education and curriculum content in a social context. Deals with social reform and analysis of the present and future needs of society. Societal needs rather than individual needs are stressed.

5) Academic Rationalism: stress is placed on the established disciplines of a classic nature which are thought to contain the properties necessary for stimulating intellectual growth and success in society.

Eisner's and Vallance's classification of curriculum orientations is useful in that it allows us to visualize and examine trends in curriculum thought, either of a contemporary nature or of the past. While there is

considerable room for debate on the appropriateness of the above classification, it is fair to say that of the range of possible curriculum orientations, those which stress classic disciplines, emphasis on method and skill development and technology, have been replaced in modern usage by a more holistic approach that stresses the individual and his development to full potential. Thus, the contemporary approach is highly child-oriented. Dorn (1978) observed that a major historical trend occurred in art education in the schools in the 1960's which saw the recognition of the art program as a body of "developmental activity" which included "creative involvement". Hurwitz and Madeja (1977) relate that in the 1960's the art program in the schools had three major expectations (stated but not necessarily achieved):

-the making of the art object (the art experience)

-knowing about art objects and events (art history)

-critical analysis of the art object (art appreciation)

Today, art curriculum proponents stress the need for "aesthetics" and "aesthetic experience" (not necessarily defined) in art education and argue that this experience is essential to the development of skills which optimize human development (Broudy, 1977; Williams, 1977). A significant point in the current approach is that training the child to be more sensitive and critical of his surroundings is considered important and contributory to enabling the child to lead a more complete and enjoyable life. Aoki (1978) maintains that art curriculum must be centered on man-world relationships and should contain a search for meaning and critical assessment of fundamental interests, values, assumptions and implications for human societal action.

Eisner (1973) stresses the need for recognition of the fact that educational values change with time and that things that appear important today may be trivial at a later date and vice versa. In the art field, trends, techniques and emphasis are highly influenced by cultural settings and values popular at the time. Eisner advocates development of a "clinical criticism"

based upon the philosophy that criticism can be defined as the ability to understand art in its historical and contemporary context with a sensitive eye and an ability to articulate and describe the qualities that constitute the work. Eisner's concepts have important applications to the development of curriculum content concerning art and the built environment.

McFee (1974b) emphasizes the importance of integrating cultural, societal and human characteristics with the study of art education. She points out that we must recognize the differences in attitudes, response, appreciation of art objects and their meaning, and the meanings of art objects amongst subcultures. Similarly, cultural heritage and background of different groups may serve as excellent stimuli to illustrate differing responses to art experiences in students. This suggests that for the teacher, an important aspect of the study of the built environment could be helping students understand the value of art in culture and the way it transmits values and attitudes as well as the richness of art forms of different cultures. Efland (1976) supports this view and maintains that an anthropological approach to art was desirable with emphasis on examination of diverse cultures and their values. Jones (1979) and Mann (1979) point out the influence of past class structure of society on our current attitudes and that many of these attitudes are descended from class characteristics of earlier periods of history. This heritage is important in determining and understanding our present day attitudes and responses to art and the environment.

In summary, the current perspective in art education stresses a holistic approach toward development of highly child-oriented teaching methods designed to stress development of the student to full potential. It is considered desirable that students develop an ability to appraise and understand art in its historical, contemporary and cultural context and be able to describe critically, the qualities that constitute the work.

Education Programs Related to the Built Environment

in Effect in the U.S.A. and Britain

A broad spectrum of built environment programs for school children has been developed, most notably in the United Kingdom, but also in the U.S.A. No doubt the development of these programs stems from many factors, not the least of which is the recognition that environmental forms are the art forms that are experienced by students most frequently and that such forms have the capacity to affect the individual, and the individual in turn, has the capacity to affect the environment. In addition, there has been recognition of the need to address questions of urban renewal, numerical and social population pressures, awareness of heritage buildings and preservation concerns, identification of the problems of large urban centers, and a growing awareness of the need to study man and his relationship to his environment. Chalmers (1981) provided a comprehensive bibliography of recent literature on built environment education as a source of ideas and potential approaches. While it is impossible to survey all existing and past programs in detail, the following discussion will illustrate the types of programs, variety, structure and approach taken.

The report of the Built Environment Education Center (1978) provided an excellent overview of built environmental education programs in the U.S. teaching system. The nature of these programs is summarized in Table 1.

In Britain there is a wealth of studies related to the built environment many of which center on the study and preservation of heritage structures which abound. For example, a comprehensive report on the significance and outcome of European Architecture and Heritage Year (1975) describes the study program at all educational levels related to the built environment. Many examples of programs developed by local education authority initiatives, national influences and program development authorities, special courses and programs, adult education conferences, exhibitions, award and competition

Table I - Educational Programs Related to the Study of the Built Environment in U.S. Schools and
Educational Institutions (after B.E.E.C. Report, April, 1978).

Level	Sponsoring Group	Program Location & Date	Program Content and Theme
Preschool	New Jersey School of Architecture	Maryland Daycare Center, 1974	Properties of space, size relationships, colours, functions of space
"	Architects-In-Schools Program	Kindergarten Glen Cove, Long I., New York	Basic building techniques, spatial concepts, reconstruction of the classroom environment, planning the creation and function of neighberhoods and circles, exploration of unusual spaces, interaction of man and environment
Schools	Architecture/ Environmental Arts component of the Artists-In-Schools Program	U.S. Schools on a national basis 1976 Commencement	Architects and environmental designers acted as resource people to teachers and students in projects dealing with awareness of personal space, space requirements, actual construction of school sites
"	Pennsylvania School System	Workshops in Pennsylvania	Design projects - "Snug-As-A-Bug-House", "Energy House", "Hide Away for Two", conducted as workshops for children
Higher Education	School of Architecture and Planning a College of Education, U. of New Mexico	New Mexico schools, public institutions, community centers, 1977 Commencement	Architecture, man and man-made relationships, human growth and development needs. The School of Architecture and Planning serves as a center for instruction of graduate students and others from a variety of disciplines to work with schools and public institutions in the field of built environmental education
"	National Endowment for the Humanities	Temple University Philidelphia, American Studies Program	Social history, material culture, environmental studies, architectural criticism, social geography, literature and economics are explored in an interdisciplinary framework with emphasis on research and presentation techniques for use in community programs

Table I (cont'd)

Level	Sponsering Group	Program Location & Date	Program Content and Theme
Community Institutions	U. of Kansas, Museum of Art	University Museum and classroom in Lawrence, Kansas (current program)	The physical components and sensual elements of a city and other aspects of space are featured in a school participation program "Space: Inside/Outside". Classroom museum exercises feature a portfolio of materials and follow-up exercises which encourages students to reflect on what is observed and the relationship of the experience to their own experience of their cities
"	Philadelphia Academy of Natural Sciences	Please Touch Museum Philadelphia (current)	Handling, enjoying and learning from contact with objects from the arts and sciences
"	The Learner Exchange, A Teacher Center	Kansas City, Missouri (current program)	A four-part series of workshops for teachers is designed to make the processes of the city more visible and accessible and to enable teachers to develop study programs for classroom use
National Organizations	American Institute of Architects	Environmental Education Committee, Publications for elementary and secondary schools	Publications of a series of teacher guides for classroom application and activity of the Committee to act as a catalyst for local initiatives
"	National Endowment for the Arts	Funding of curriculum materials for schools & community use on a national basis	Grant support for the National Trust for Historic Preservation (curriculum, rennovation, restoration, adaptive re-use); U.S. Forest Service lesson plans in "Investigating Your Environment", including collection of information about liveability, functions, needs and problems of an urban community

Table I (cont'd)

Level	Sponsoring Group	Program Location & Date	Program Content and Theme
Local Groups & People	CBT Architects of Boston	Reconstruction project in S. Boston, Mass.	Development and implementation of a procedure where the community was involved in the design process necessary for reconstruction of the city streets
"	Hoosuck Community Resources Corp.	North Adams, Mass., 1975-76	Project goal was to enhance the quality of community life through the use of design concepts. Rejuvenation projects included involvement of the community and High School students in a public awareness and historical research program

programs, educational broadcasting and affiliated European programs are described. The range of study themes include:

- architectural and built environment themes
- studies of historical context of specific groupings of buildings
- early settlement, landscape and building form and function
- plants, animals, homes and fine building
- science, engineering of structures, organic and architectural design elements and function
- art skills in relation to the built environment
- interdisciplinary activities in the arts (costumes, painting, music, historical plays and sketches, recreation of the past)
- recreation of existing and old buildings in model form from real life, old drawings, photographs, interviews
- village and town architectural "trails" which serve to guide observers through specific examples of the built environment
- study guides and brochure development for historical tours, tourism, and study of building elements; map preparation
- questionnaires for public response to Heritage Year, preservation, function and use of heritage structures, architectural matters, urban planning
- studies of problems of urban development and planning such as old villages lost in modern construction, population and social pressures, use of space, conservation and enhancement
- preparation of films, slide shows, tapes and other media presentations on the built environment
- planning housing estates (design, function, landscaping, green space, studies of community attitudes, selection of materials)
- comparison of old and new building techniques (materials, function, design elements, types of uses for buildings)

-coordinated programs between architects and educators (eg. London

"Front Door" project) with joint curriculum development for application

to all grade levels

In the British system, several techniques appear to have been commonly used in the incorporation of the built environment theme into education programs:

Critical Appraisal, Buildings and Townscapes

The purpose of this area of emphasis is to develop discriminatory skills and a critical approach to the study of the built environment in the individual. Students are encouraged to articulate responses of a critical nature, perform comparisons, look at the pleasing and displeasing aspects of what they see, examine use of space and the functional aspects of built forms, and act as effective "critics" of what they perceive. This approach offers scope for examination of problems in architecture and planning and considers the future as well as past events. The intent implied by the approach is that students may be better prepared to play a part in shaping their environment following such exposure.

Sensing the Environment

This study area provides direct experience with what we see, hear, smell, touch and taste and how we organize and interpret these sensory stimuli. The study area is concerned with enlarging the students' capacity to respond and learn from their own experience. The sensory approach can be facilitated by the use of "games" or other devices which encourage exploratory activities and "scorekeeping" as children follow a "sensory walk" (an experience which concentrates on sensory information perceived by the individual as he or she moves through the built environment).

Town Trails

The town trail study approach uses a previously established "trail" or route through a selected portion of the built environment which has been

chosen to emphasize important aspects of that environment such as aesthetic or historical features of interest. Students may follow trails devised by their teacher or may be encouraged to develop and describe their own trails. Evaluation of the method has indicated that it is highly desirable to design trails which elicit a critical response to townscape and deal not only with built form but with spatial qualities as well.

Steeple Chasing

In this approach, a central visual attraction such as a church steeple or prominent building is selected as a focal point and various spaces are examined in relationship to that object. The focal point is viewed from various vantage points and spatial relationships to adjacent buildings are noted. The technique utilizes an experiential device for the comparison of space and the assessment of townscape quality or lack thereof. The approach is applicable to the study of use of space, connections, network design, linking space and the analysis of spatial qualities. Space relationships may be studied by notation, annotated sketches, etc. and the results may be discussed in class. Trails leading to the central object may be prepared which explore a variety of spatial qualities.

Annotated Sketches, Annotated Photographs, Slide Programs

Annotated sketches and photographs provide a useful way of recording information and deepening the response and analytical approach to townscape appraisal. Use of drawing as a mode of analysis provides instruction in perception, recognition, organization and presentation of sensory stimuli and the execution and presentation of good photography has similar effects. Captions can be used to good effect in lending or altering meaning, emphasizing study features and bringing out interrelationships. Content may be detailed, comparison facilitated, and analysis encouraged by use of annotation of photographs and sketches. Similarly, slides provide good documentation of townscape, can be assembled according to specific themes, communicate ideas and

concepts, and can be combined with talks, tapes, or written material for presentation.

Many other techniques may be employed in addition to those mentioned and combinations of approaches may be highly productive. Obviously, a great deal has been done in this field, particularly in Britain, with regard to the development of built environmental education programs that are highly diversified and may be applied to all educational levels, from pre-school to adult and community education programs. It is also apparent that many disciplines may be included in the study of the built environment and that art education plays an important role in considerations of architecture, design, urban planning, historical trend analysis, cultural and social context, quality and beauty of environment, and preservation and conservation of heritage structures.

Educational Programs Related to the Built Environment in British Columbia

At present, the study of the built environment does not receive formal recognition in the B.C. school curriculum. Some aspects of the built environment may be considered in instructional materials used for Social Studies, Architecture, History, and aspects of Art. However, emphasis on the study of the built environment is slight and largely at the discretion and personal interest of the teacher. A major causative factor in this lack of focus on the built environment in our school system may be the lack of instructional material for teachers and students. Very few books, study guides or instructional packages exist on the subject that make reference to the B.C. environment and are designed for instructional purposes. Some excellent reference material is available on B.C. history, heritage buildings, architecture, community structure and planning; however, little practical instructional material exists to familiarize students and teachers with the topic and to illustrate how reference material may be utilized in support of a study of the built environment. One excellent Canadian book, The Teacher and the City,

(Symonds, 1971) provides detailed instructions for teachers interested in developing study materials related to the urban environment but there is little material available for students themselves. A major goal of this study is to address this lack of instructional material. The aim is preparation of a study program for use by both teachers and students in B.C. schools at the secondary level with specific examples drawn from B.C. urban and rural settings.

Chapter 2

DEVELOPMENT OF THE CURRICULUM PROGRAM

The Basic Content and Design of the Program

If we were to investigate programs in actual use, we would find that regardless of how any one of us may wish to define the word "program", we would all be able to isolate some basic components. These components are:

Intents: What are we to accomplish or achieve?

Activities: How are we to accomplish the intents?

Resource Materials: With what are we to achieve the intents?

Evaluation: How do we appraise the quality and effectiveness of the program?

The intents of a program may be defined as the purposes or goals of the program. The activities are the "how" of the program. Activities are what teachers and students and others participating in the program are supposed to be doing in order to achieve the intended outcomes. These activities commonly encompass teaching methodology, learning strategies, and classroom organization designed to bring about the planned goals. Resource materials constitute any material which has been selected for program participants to interact with including things such as textbooks, films, persons, situations or objects of some kind. Evaluation is concerned with how to acquire evidence about the successes of the program relative to achievement of its intents. These components may be simply diagrammed as follows[1]:

[1]W. Werner and T. Aoki, Programs for People. 1979 (pre-publication draft)
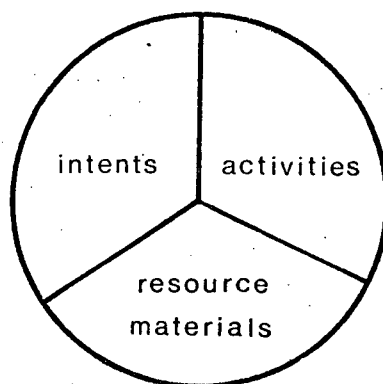
Figure 1

It is important to note the relationship among the four components in figure 1. There exists an "ends-means" relationship in any program. The "ends" of a program refer to our goals, intents, purposes or objectives and the reasons why the program is being developed. It is important to specify what we wish to accomplish and what outcomes are expected. The "means" of a program are represented by the activities and resource materials which are both instrumental to achieving the ends. The means are concerned with how we are going to accomplish our purposes and with what materials. In a sense, the means are a vehicle for getting the program to an anticipated destination. The diagram in figure 1 can therefore be modified as indicated below.
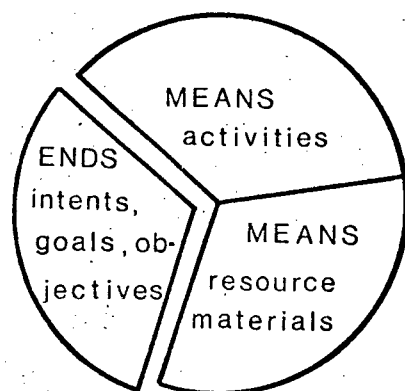
Figure 2

This definition of a program as an end-means relationship can be further thought of as a plan. As a plan, a program is an organized scheme of ends-means relationships. As an experience, a program is the way in which the plan is actually worked out by the participants when using means to achieve certain ends. My focus throughout this program will be on plan and experience.

Conceptions Upon Which the Program is Based

The underlying conceptions of any program can be defined as the values, assumptions, beliefs, priorities, opinions or biases upon which the program is based (Werner and Aoki, 1979). The diversity of such conceptions may be as great as the differences among individuals engaged in developing a given program as each person will approach the topic in his or her particular way. These conceptions play a very important role in shaping the nature and character of any program. The ends-means diagram (figure 1) may thus be modified to include the conceptual framework under which the program is developed.

Figure 3

In the introduction of this study report, various classifications of curriculum conceptions outlined by Eisner and Vallance (1974) were summarized. In order to understand better the nature of the program of study on the built environment proposed here, it is important to examine the conceptions of

curriculum held by the author while developing the program.

Using the definitions of Eisner and Vallance (1974), it is possible to categorize my approach to program development in three ways: stress on development of cognitive processes, curri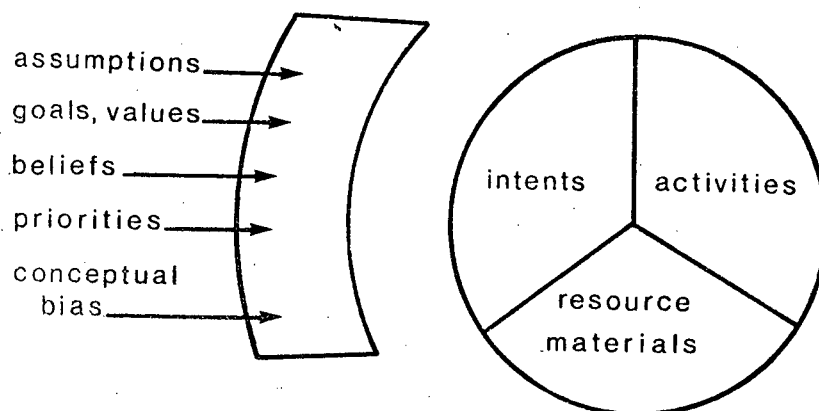culum as technology, and curriculum for purposes of social reconstruction and relevance. To illustrate this point, it is worthwhile to examine each of these conceptions as it applies to the program.

Development of cognitive processes centers on the refinement of intellectual processes so that they are sharpened and so that cognitive skills are developed which may be applied to any subject matter. Eisner and Vallance specified that this approach is process oriented in two says. Schooling is viewed as a means to provide the student with "a repertoire of essentially content independent cognitive skills applicable to a variety of situations". Secondly, emphasis is placed upon "understanding the process by which learning occurs in the classroom". This is envisioned as a child-centered approach and the cognitive skills are thought to grow with time and experience.

It is very important to introduce students to the study of the built environment. This may be done in a gradual way, with stress placed upon development of comprehension concepts and progressive assimilation of more complex concepts. A key objective of the program, as outlined in the Introduction, is to teach students to think about their environment in an analytical way, to form judgments, and to develop the ability to evaluate their surroundings. Development of such ability demands a gradual stepwise sequence in program content and complexity suited to the needs of the individual and his ability to refine cognitive processes.

Curriculum as technology is concerned with the process by which learning occurs. The process is aimed at developing educational technology for the communication of knowledge and for the facilitation of learning. Emphasis is placed upon effective packaging and presentation to make subject matter logical, clear and concise. The approach of systems analysis is evident here, with the

educational process defined as the means by which specific objectives of education are met. Packaged education guidebooks, manuals, audio and video instruction programs, etc. which are highly structured can be thought of as good examples of educational curriculum with a technological conception.

As there is a serious lack of instructional material available for both students and teachers with respect to the study of the built environment in the British Columbia setting, a major objective of this program has been to prepare an activity workbook for use in the schools, which could serve as an introduction and idea sourcebook suited to the B.C. environment. Such an activity guidebook can be viewed as a technological approach where there is an attempt to "package" the topic and distill, organize, and follow a logical ends-means process. I was conscious, however, of the dangers of such an approach; namely, creation of a rigid, highly structured program that left little room for innovation or expression of personal initiative. Thus, while the objective was to produce an activity workbook, my approach has been to treat the workbook more as a sourcebook for ideas and ways of approaching the study of the built environment rather than to restrict the users through adoption of a rigid format. Although technological methods (photography, sketching, use of notes, tape-recording, model construction) form a part of the content of the activities described in the program, the process concentrates upon recording the experiences of the individual for further analysis and communication rather than the technical aspects of the recording techniques themselves.

In the social reconstruction-relevance philosophy, the role of education and curriculum within the social and political context of society is stressed. Often the needs of the individual are considered less important than those of society. Essentially, the education system may be envisioned as a means for societal change or improvement. The philosophy therefore is problem oriented or anticipatory in nature and the schools serve as a mechanism for achieving

perceived societal needs. Another view of this conception of curriculum held by some educators (Metcalf and Hunt, 1974) is that the demand that education be relevant to the needs of the individual as well as society. The philosophy is concerned with the "fit" between the individual and society and with equipping the individual to function well in a rapidly changing world. Fur-thermore, the student may be regarded as the instrument for affecting change, i.e. the schools may motivate him to do something constructive for society.

As stated in the Introduction, strong arguments can be raised for inclu-ding the study of the built environment in school curriculum. These arguments can be classed as being based upon a social reconstruction-relevance philo-sophy. It is evident that population growth, shortages of energy and raw materials, transportation problems, environmental degradation, preservation and concern for culture and heritage, as well as the role of the individual in addressing these problems are of considerable concern to all levels of society. Thus the program definitely contains social reconstructionist philosophies aimed at the development of critical judgment and awareness in the individual which are expected to better equip students for societal pressures and change and also to prepare them to intervene actively to shape environmental change and improvement.

From the above, it is evident that several conceptions of curriculum underlie this program and that the strongest conception is of a social-recon-structionist nature with emphasis placed upon the benefits of the program for the individual and the preparation of that individual for the future. As Werner and Aoki (1979) point out, a program is usually not based upon a single conception of curriculum and several viewpoints are often involved. Emphasis on the value of the program to the individual lends another funda-mental criterion for the program development process; this is the importance placed upon individual experience, sensations and interaction with the built environment as a vehicle for learning. This stress on experiential aspects

of learning may be considered as a fourth underlying conception of the program.

Development of the Program

The structure of the program is based upon the elements outlined in table 2 which specifies the ends-means content of the program. Each of the major elements of the program development phase will be examined in the following pages while the evaluation phase of the program will be presented in a separate section.

Intents (Objectives) of the Program

Broad Objectives

Curriculum objectives in art education in the B.C. Secondary system today are governed by several broad goals termed "General Learning Outcomes" (G.L.O.'s). The most recent version of the G.L.O.'s specified four major learning outcomes as desirable in art education:

   -The student should demonstrate knowledge of, ability to apply, and consideration for:

   Imagery

   Elements and Principles of Design

   Historical and Contemporary Developments

   Reasoned Criticism

   -These four general learning outcomes should be carried out in conjunction with appropriate:

      -materials

      -tools and equipment

      -processes

      -vocabulary

It follows then, that development of a program designed to acquaint teachers and students with the study of the built environment should take into account these G.L.O.'s and incorporate them as core objectives of the program.

Specific Objectives

Table 2- Synopsis of Ends-Means relationships within the program.

Intents (Objectives)	Activities (Means)	Resource Materials (Means)	Evaluation (Ends)

-to satisfy the general learning outcomes of the British Columbia art curriculum
 	
-to develop program content based, in part, on Bloom's behavioral objectives
 	
-to utilize activity matrices to generate program content
	-provide a broad spectrum of study activities concerned with various aspects of the built environment in a workbook form
	
	-structure the activities in order to maximize personal experience of the student and facilitate interest and enthusiasm
		-utilize the workbook in conjunction with supportive materials and experiences associated with the built environment (buildings, plans, architects, art materials and supplies, books, sketches, photographs, tape recorders)	-perform the following types of formative evaluation:
			
			1) Ends-means:
			  -program analysis form
			2) Situational:
			  -pilot testing
			  -pre- and post-test quantitative evaluation
			  -teacher survey by questionnaire
			  -student questionnaire
			  -letters from teachers and principals
			  -examination of teacher logs
			  -participant observation
			3) Summative:
			  -report writing with the inclusion of the scope of the study, procedures, strengths, concerns, suggestions for improvement.

My objectives in designed the program are:

a) to allow teachers and students to become better acquainted with the study of the built environment through personal experience.

b) To provide a compendium of methods and approaches used elsewhere or that have been modified or specifically designed for use in the B.C. school system.

c) To develop lessons related to the study of the built environment that incorporate holistic and critical orientations currently emphasized in art education.

d) To generate ideas and approaches for the study of the built environment that may be incorporated into areas of the curriculum related to art education and affiliated subject areas.

e) To illustrate how concepts and approaches may be modified, adapted or utilized by teachers and students to suit their own interests, situations, and conceptions of the built environment.

f) Provide variety in approaches, content, and emphasis in the activity portion of the program suitable for stimulating the interest, participation, innovation, and creativity in the individual student in such a way that the experiences are rewarding and meaningful.

Translation of Intents into Means - Planning the Program

I have chosen to generate ideas for development of a program of study on the built environment by utilizing an "idea matrix" approach based upon methods outlined in the State of Ohio Department of Education publication Planning Art Education in the Middle/Secondary Schools of Ohio (1977). The matrix approach allows compilation of a variety of educational activities in tabular form according to table headings which specify content and the theme of the program. I have accordingly prepared three matrices (tables 3, 4 and 5) which are designed to conform with the goals and general learning

Table 3- Built Environment Study Matrix- Visual-Physical Activities

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIAL	FUNCTION	DESIGN
DISCOVERING IDEAS FROM PERSONAL OBSERVATIONS	-reading books about buildings -collecting examples of a wide range of different architectural plans and ideas -taking inventory on walks on the way to and from school	-organizing the collection according to the type of building -extracting the main features of each type of building	-observing architects & planners at work to see how they work and utilize materials to generate ideas -observing the type of materials used for different built forms & recording this information	-collecting examples of built forms (pictures, notes, sketches) that serve different functions -observing how your senses function in different environments -relating appearance to function	-learning how to recognize a culture's beliefs, hopes, attitudes, values as expressed in built form -discerning the design elements in structures -relating design to style, use of material and the function of the structure
LEARNING HOW IDEAS ARE TRANSFORMED TO CREATE BUILDINGS	-examining plans, models, drawings and designs prepared by architects and planners -noting the methods used in planning, designing and proposing changes in built environment -reading books about about how architects and planners work	-examining plans, books, designs, etc. to note style & type of building -making notes on how styles change with time -relating the style to function of the building and how style and function change with time	-comparing the finished building with the plan to see how choice of material influenced appearance -comparing similar structures built with different materials -observing historical trends in use of materials	-discerning changes made in buildings for functional purposes -discerning how function influences the type and appearance of the building -noting the priority that architects and planners place on functional aspects of design	-learning to see similarity and differences in built structures -observing how designs with similarity and difference are created -relating design to use & appropriateness in relation to use, appearance & choice of location
LEARNING HOW USE OF MATERIAL INFLUENCES BUILT ENVIRONMENT	-collect architects' & planners statements on how they select material to suit the site or client -read about how use of material has changed with time and about possible choices of material	-interview designers, architects, & planners to see how choice of material is influenced by style -observe how appropriateness of style is influenced by location & surroundings	-consider how the structural properties of material are considered in relation to the design of the finished structure -consider the durability of different materials in relation to life of the structure and its appearance	-observe how building materials are chosen in relation to the function of the structure -comparing buildings for aptness of choice of material in relation to function -considering choice and effectiveness of networks	-practising with materials to investigate design use -testing structural properties and longevity of materials for design use -choosing materials to reflect appropriate beliefs and values -choosing appropriate materials for a specific design

Table 3 (cont.)

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIAL	FUNCTION	DESIGN
LEARNING HOW PEOPLE PER-CEIVE AND INTERPRET THE BUILT ENVIRON-MENT	-collecting written material and opinions on how people regard the importance of buildings and how they ascribe meaning to a particular location -studying how people react to particular types of buildings and the atmosphere of the buildings	-comparing writings that place different social, cultural, or historic values on particular styles -discovering people's attitudes to particular styles of buildings -considering why styles may change with time	-discovering how use of materials influences people's reactions and attitudes -looking at historical trends in use of materials in relation to the meaning and use of the structure -considering how modern technology influences attitudes to materials	-noting how the function of a structure may change with time or remain the same according to people's perceptions of the use of the structure -noting how the cultural or social significance of a building designed for a specific function may change with time	-learning how people interpret design concepts according to their backgrounds and experience -noting that the surroundings of a building influence the impact of a design -observing how design elements affect the meaning & overall impact of the design
LEARNING HOW TO CRITICALLY APPRAISE & JUDGE THE BUILT ENVIR-ONMENT	-collecting criticial & historic comments that illustrate how people appraise structures & what factors are used to make judgments -practising the evaluation of existing or proposed buildings by means of a variety of techniques	-noting how writers and the public evaluate a particular style of structure and what factors influence judgment -learning terms or language associated with a given style -observing how appraisal of a given style varies with culture, historical context or social group	-noting how aptness of choice of material is influenced by a variety of factors (cost, function, availability, construction ease, durability, appearance, location) -learning to weigh a variety of factors in assessing aptness of choice of materials	-relating the aptness of choice of design to function -assessing the efficiency of function of the structure and whether function-improvements are required -determining the suitability of the structure for an alternate use to that for which it was designed	-learning to judge the aptness of design by weighing a variety of factors -appraising the skill with which materials and design elements are combined to produce the final design -evaluating the aptness of the design for theme, setting, and relationship to surrounding structures

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Table 4- Built Environment Study Matrix- Psycho-Social Developmental Activities

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIAL	FUNCTION	DESIGN
LEARNING HOW SOCIETY EXPRESSES VALUES AND BELIEFS IN BUILT FORM	-studying societal beliefs and values and learning how these are expressed in built form -comparing buildings of different cultures and identifying values and beliefs expressed	-studying examples of built environment that reflect different values and beliefs by style adopted -noting how style changes with time as societal values change	-identifying materials used to fashion the built environment and noting historical trends in use of materials -relating use of materials to beliefs and values	-comparing built forms used for different functions (religion, trade, finance, entertainment, housing, transportation) -relating function to societal values and needs (eg.- value of time and efficiency)	-identifying different solutions to designing and arranging public buildings -studying how design expresses beliefs and values (eg.- church design) -establishing what priority designers attach to expression of beliefs and values
LEARNING HOW SOCIETY EXPRESSES ALTERED BELIEFS AND VALUES IN BUILT FORM	-organizing an historical sequence of built forms of a culture -explaining altered form with time in terms of altered values -examining the publics' concept of the "ideal" building in an historical perspective	-observing how changes in values of a culture influence style -noting how technological developments influence style	-noting how societal beliefs and attitudes are reflected in choice of building materials -noting how environment and climate influence choice of materials -examining how new technology influences use and choice of materials	-identifying changes in function that reflect altered beliefs and values (eg.-industrial site to housing, church to community center) -noting trends in behavior and population density related to urbanization	-studying buildings that have been redesigned as a result of altered beliefs and values -studying art of different cultures and how that art is expressed in building design -relating design developments to availability of new technology (eg.-flying buttress, structural steel, concrete)
LEARNING HOW SOCIETY WORKS WITH TECHNOLOGY TO CREATE BUILT ENVIRONMENT	-collecting examples of attempts to adapt materials to the "image" desired in public places -studying examples of buildings which use modern technology (eg.- geodesic dome)	-exploring the use of natural shapes in the built environment -illustrating how technology allows wider variation in style and type -collecting examples of new styles of buildings	-observing how technology permits new uses for traditional materials -comparing how different societies' use of new materials is influenced by degree of technological advancement.	-observing the effect of new technology on specific functions and how technology changes the nature of the city -studying peoples' attitudes to functional improvements in the built environment	-observing the influence of technology and new methods on design and choice of design elements -observing how architects keep abreast of new design areas and experiment to discover new designs

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Table 4 (cont.)

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIAL	FUNCTION	DESIGN
LEARNING HOW SOCIETY ASSESSES THE BUILT ENVIRON-MENT	-observing that differ-ent social groups and cultures attribute diff-erent meaning to certain images -studying buildings from different societies that have similar meaning to people from different cultures -collecting peoples' re-actions to a new or his-toric building -observing how the pub-lic, through consump-tion, accepts or rejects new building forms -determining which cri-teria are employed by people to form judgments of buildings	-distinguishing those styles of building that are interpreted by the public as advocating social change or trad-itional values -assessing peoples' reactions to different styles and types of buildings -observing how peoples' opinions of style and aesthetic quality may be influenced by the presence or absence of certain themes (eg.-strength, solidarity, warmth, tranquility, beauty, patriotism)	-determining peoples' att-itudes to use of materials -identifying what proper-ties of materials are con-sidered important and how those properties are priorized (eg.- is appear-ance of a building most important?) -discovering what materials symbolize tradition, her-itage, beauty, wisdom, solidarity, emotion, etc. -noting the publics' re-sponse to introduction of new materials or abandon-ment of traditional mater-ials	-assessing how the pub-lics' reaction is re-flected by the way that the environment controls or influences human be-havior (observation of people in public places, exhibitions, transit systems, etc.) -assessing the publics' reaction to functional aspects of the built en-vironment and what sig-nificance is attached to efficiency, saving of time, etc. -noting and recording the criteria that people use to make judgments about functional aspects of the built environment and how important functional as-pects of a building are in comparison to aesthetics, atmosphere, etc.	-relating human behavior to the design elements and resultant atmosphere in a building -accounting for some of the ways society understands or fails to understand, the design of buildings of its time -learning what factors are important in assessing the aptness of design of public buildings -observing how various seg-ments of a given society evaluate the design elements of a building and how cul-tural and age differences within society may influence judgments

Table 5- Built Environment Study Matrix- Economic-Technical Activities

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIAL	FUNCTION	DESIGN
DISCOVERING IDEAS FROM PERSONAL OBSERVATIONS	-studying economic and technical aspects of buildings familiar to the students -collecting reference material on familiar buildings -considering what econonmic and technical factors were important during planning of the building	-documenting how style influences cost and choice of materials -noting how style changes with time and with the availability of technology	-evaluating the cost of different materials and the economics of building with specific materials -evaluating strength and structural properties of different materials -experimenting with different materials to discover their properties	-relating the function of a building to economic and technical considerations (efficiency, cost effectiveness, technical limitations, durability, future use) -comparing buildings design-for similar functions for economic and technical suitability	-using models to experiment with different design options and visualize economic and technical factors -experimenting with different design options and performing economic comparisons of cost effectiveness of each design -studying different buildings to learn how technical factors influence design
LEARNING HOW IDEAS ARE USED TO TRANSFORM MATERIALS INTO BUILT ENVIRON- MENT	-observing architects and planners at work to study how they consider economic and technical factors of a building plan -comparing different buildings where technical or economic factors may or may not have constrained planning	-experimenting with different styles of building to satisfy a particular need (eg.-what style of house might be most energy efficient?) -relating style to economic and technical considerations of the time (eg.- wood construction where wood is cheap and available)	-considering the advantages and disadvantages of use of a variety of materials in construction of various types of buildings -practising with different tools and materials to discover their advantages and limitations -relating the pros and cons of specific properties of a given material (strength, durability, appearance, cost, finish, versatility)	-evaluating the functional properties of different materials (eg.-plastic for lightness and durability; steel for strength and width of span; concrete & ashphalt for road surfaces) -comparing different functions of similar forms (eg.-windmill for electric power generation, water pumping, grain milling) -considering cost effectiveness of structures in relation to function	-selecting materials to produce desired design effects (eg.-texture, colour, harmony, light penetration, economy, durability, contrast) -experimenting with models, drawings, plans, etc. to design efficient, cost-effective structures that satisfy specific design objectives -experimenting with design possibilities where one or several design elements are most important (eg-aesthetics, cost, function)

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Table 5 (cont.)

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIAL	FUNCTION	DESIGN
ASSESSING THE BUILT ENVIRONMENT IN TECHNICAL AND ECONOMIC TERMS	-developing a vocabulary of technical and economic terms to describe buildings -learning to visualize the technical and economic considerations that were involved in planning a building -performing technical and economic assessments of buildings familiar to the student by considering a variety of factors	-discovering the publics' reaction to economic and technical aspects of different styles of buildings (observations, interviews, questionnaires) -assessing how well style of a building suits factors such as location, site properties, adjacent structures, efficiency of design function, cost effectiveness	-explaining the ways economic and technical factors contribute to assessment of the built form (cost-benefit analysis, time required for construction, availability of materials, technical benefits of materials vs. cost) -assessing choice of materials vs. durability and alternate use of the structure; aesthetics	-assessing how well a structure performs its intended function -studying a variety of functional aspects of buildings (access, safety, efficiency, cost of supporting the function conducted in the building) -comparing different buildings performing the same function for economic and technical properties	-explaining how choice of design and design elements introduces technical and economic constraints on the design -relating design of a building to choice of materials, function and economic and technical considerations
JUDGING BUILDINGS & PERFORMING A CRITICAL APPRAISAL OF THE BUILT ENVIRONMENT	-considering the success with which a building satisfies economic and technical assessment criteria -establishing criteria with which to perform appraisals and ensuring that the criteria are up to date	-establishing if the choice of building style is appropriate within economic and technical constraints	-evaluating the architect or planner's choice of material in terms of economic (cost, availability, construction ease) or technical (structural properties, durability, maintenance, function, aesthetics) considerations	-deciding how well a structure serves its intended function in relation to cost, technology available or alternate approaches -examining alternate functions for a given structure as an alternative to demolition	-evaluating the overall effectiveness of the design in relation to economic and technical considerations -deciding if the organization of design elements is suitable in relation to technical considerations (placement of entryways, windows, entry of light, mood, colour atmosphere, energy conservation, safety, etc.)

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outcomes of B.C. secondary art curriculum. The three matrices are based upon specific approaches which could be applied to the study of the built environment:

Table 3 - Visual-Physical Aspects of the Built Environment

Concentrates on the appearance of the built environment, materials used to construct buildings and structures, relationship of function to design and choice of materials, design concepts in relation to appearance, trends in visual-physical properties.

Table 4 - Psycho-Social Aspects of the Built Environment

These activities deal with how people relate to the built environment, their attitudes, reactions, cultural heritage and background in relation to their perception, beliefs and values of society, interaction of the built environment with society.

Table 5 - Technical-Economic Aspects of the Built Environment

Relating technical and economic aspects of the built environment could provide meaningful instruction in the relationships of cost, design, function, choice of materials, style, alternate use of structures, energy concerns, etc., and the benefits of such considerations to society and business.

The matrix is a useful planning tool as it sets out a great choice of activities and concepts for potential incorporation into a program and allows the material to be arranged according to themes, topics or subject areas, thus facilitating organization of the program.

The content of tables 3, 4 and 5 is diverse and one could develop a complete program around the content of any one matrix or develop similar matrices with different emphasis depending upon one's interest and orientation. I have chosen to develop a program of study for B.C. schools around table 3, the visual-physical aspects of the built environment. This choice appears appro-

priate considering the nature of my art education orientation. It should be pointed out that the matrices presented here are not mutually exclusive and some overlap in content occurs. It is hoped that tables 4 and 5, while not chosen here for program development purposes, may be useful to others wishing to develop their own programs or may serve as a stimulus for people to develop their own planning matrices.

In developing a program on the study of the built environment for application to the B.C. school system, I felt it was appropriate to develop the program in a practical way that would lend itself to evaluation. As there was little in the way of study material available for use in such a program, I felt it was highly appropriate to prepare, for trial testing in the classroom, an activity workbook based upon the previously mentioned broad and specific objectives. This workbook appears as Appendix I and its content is based upon activities described in the visual-physical matrix provided in table 3. The workbook is entitled "Close Encounters with the Built Environment" and is organized in four major chapters, each containing a variety of activities. The organization of the workbook reflects the content of the visual-physical matrix (table 3) as follows:

Headings from the matrix	Workbook Chapter	Workbook Chapter Title
Discovering ideas from personal observations	1	Sensory experience; discovery and description
Learning how ideas are transformed to create buildings	2	Experiencing the built environment
Learning how use of material influences built environment	3	Influence of design and materials
Learning how people perceive and interpret the built environment	4A	Critical Appraisal
Learning how to critically appraise and judge the built environment	4B	More experience with appraisal techniques

Drawing from research and published examples of built environment study activities in the literature, particularly material developed and tested in Great Britain and the U.S.A., I assembled a compendium of study activities for incorporation in the workbook. The matrix acted as a rouch planning and organizational chart for the compilation of the workbook. Table 6 shows how the content of the visual-physical matrix was used to develop content and emphasis in the workbook. Portions of table 6 are cross-referenced to pages in the workbook.

Technical Evaluation of the Program

An important part of the development of any program is the technical basis upon which it is developed. D. Massey and W. Werner (W. Werner - personal communication) have constructed a "program analysis form" which facilitates analysis of technical aspects of any program by the unit developer(s). They maintain that three essential components of any unit are the intents (ends), and content (means) and the method (means). Technical analysis asks a number of questions of the unit developer. With regard to intents, it is important to specify what is intended by the developer and to articulate the rationale for the unit. Specifically, one must ask why the unit was developed and what justification exists for it. Learning objectives are important also, and the developer must be aware of the knowledge areas, skills, and attitudes that are desired outcomes for the students making use of the unit. In addition, there must be a clear idea of the content of the unit with regard to subject matter, display materials utilized if appropriate, and the emphasis on various aspects of the content. Lastly, it is most important to ascertain how the content is to be used to attain the intents of the unit.

Appendix II summarizes the author's technical evaluation of the program and is a detailed analysis of the workbook "Close Encounters with the Built Environment" according to the "program analysis" approach of Massey and

Table 6- Use of the concepts in the visual-physical study matrix (table 3) in development of the workbook contents. The headings of this table correspond with the headings in the matrix. The body of the table indicates how the concepts were developed into activities described in the workbook and where those activities are located in the workbook.

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIALS	FUNCTION	DESIGN
DISCOVERING IDEAS FROM PERSONAL OBSERVATIONS (use of the senses)	-The Sensory Walk- noting how places and your perception of those places change as you walk through them. (workbook p. 4)	-Describing Your Environment- looking at parts of interesting buildings and describing what you see. Seeking information from various sources. (workbook p. 7)	-Building a Critical Vocabulary- exploring ways of using and building vocabulary through visual observations. (workbook p. 9)	-Open Space Activity- sensing places by concentrating upon open spaces one at a time. (workbook p. 3)	-Shopping Area Activity- using a shopping area as a place to practice sensing the environment. (workbook p. 5)
LEARNING HOW IDEAS ARE TRANSFORMED TO CREATE BUILDINGS	-Serial Vision- focusing on a distant building and experiencing the changing and emerging view of the building as you draw nearer to it. (workbook p. 15)	-Steeplechasing- a focal point on the horizon is chosen and viewed from many vantage points in the surrounding area. The appearance of the focal point is examined in relation to other buildings at each vantage point. (workbook p. 12)	-Experiencing a Building From all Sides- a study of a building from all sides allows observation of order, variety, similarity and difference, use of materials and design. Appearance in relation to adjacent structures may be considered. (workbook p. 17)	-The Town Trail- a planned walk through an urban area along a selected route allows the student to focus on numerous topics related to the study of the built environment (function, design, aesthetics, human behavior, etc.) (workbook p. 20)	-The Town Trail-(see listing under "function")
LEARNING HOW USE OF MATERIALS INFLUENCES BUILT ENVIRONMENT	-Analysing the Look and Use of Space- examining a space, analysing it and redesigning that space. (workbook p. 34)	-Network Space- noting how different types of networks are structured and examining the effectiveness of network systems. (workbook p. 36)	-Home Improvements Game- examining and proposing how materials may be used to improve your home or neighbourhood surroundings. (workbook p. 43)	-Network Space- noting the function of networks as systems (workbook p. 36) -Creating Symbols for Use in Networks- noting how symbols illustrate function of space; designing symbols.(workbook p. 37)	-Shared Space Activities- examining the properties and constraints of shared space; designing shared space. (workbook p. 33) -Analysing the Look and Use of Space- exploring visual properties of space and considering design concepts (workbook p. 34)

Table 6 (cont.)

STUDY APPROACH	BUILDINGS	STYLE/TYPES	MATERIALS	FUNCTION	DESIGN
LEARNING HOW PEOPLE PERCIEVE AND INTERPRET THE BUILT ENVIRONMENT	-Four Factor Building Analysis- studying context, routes, interface and grouping factors to help appraise built forms using a checklist and scoring system. (workbook p. 46)	-The Dating Game- experience with a method for checking the dates of construction of buildings and for relating style and type to historical perspective and attitudes. (workbook p. 39)	-Appraising Proposals- learning to appraise proposals of architects and planners and consider the appropriateness of the choice of materials proposed. (workbook p. 60)	-Appraising Proposals- appraising functional aspects of proposals. (workbook p. 60) -Infill, Commercial- examining possible solutions to the design of corner commercial building sites from a functional perspective. (workbook p. 58)	-Appraising Proposals- evaluating peoples' reaction to proposals and design concepts. (workbook p. 60) -Infill, House Fronts- examining the design of house fronts (workbook p. 57)
LEARNING HOW TO CRITICALLY APPRAISE AND JUDGE THE BUILT ENVIRONMENT	-Building Impact Evaluation- assessing the impact of a building by means of a set of established evaluation criteria. (workbook p. 62)	-Annotated Sketches- use of annotated sketches or photographs to illustrate aspects of building style (workbook p. 66) -Slide Program- use of an illustrated program to describe building styles and types and facilitate appraisal. (workbook p. 67)	-Annotated Sketches, and Slide Program (see under "style/types)- use of the methods to illustrate advantages or disadvantages of use of different materials in construction and form judgments.	-Annotated Photographs- use of annotated photographs to illustrate functional strengths and weaknesses of buildings and use of space. (workbook p. 66)	-Urban Evaluation Sheet- use of a structured evaluation method during a sensory walk to aid in the evaluation of design concepts.(workbook p. 64) -Four Factor Building Analysis- evaluating the appropriateness of design in relation to four key appraisal factors. (workbook p. 46) -Appraising Proposals- participating the the appraisal of proposals and learning to perform an appraisal. (workbook p. 60)

Werner. One aspect of the analysis that required more follow-up was the readability aspect of the workbook. As a considerable amount of new material for students unfamiliar with architecture or vocabulary related to descriptions of buildings was contained in the workbook, I felt it important to conduct a readability test on portions of the book to test readability aspects.

Fry (1977) provided a rapid method for determination of readability based upon a sample analysis of sections of the unit being tested. Fry's method involves determination of the average number of sentences and average number of syllables in several selected one hundred word passages of the unit and the use of a graph (figure 4) to estimate readability according to grade level equivalent. Fry reports this method to be accurate within one grade level using a variety of data from U.S. schools and that it correlates closely with other readability estimation methods. Analysis of three passages selected from pages 4, 33, and 67 of the workbook by the Fry method yielded a readability level of approximately grade 9. Thus the workbook should not have been expected to pose difficulty for the intended student test groups (grade 11, 12) assuming that the readability method was applicable to B.C. schools. Figure 4 reveals one interesting feature of the workbook's written material; sentences are of short to moderate length yet long words are used, thus placing the readability score somewhat off the plotted curve. This could suggest that long and possibly complex words could pose some difficulty for students and that difficulty of this sort should be closely watched for during pilot testing of the program. The following sections provides information on evaluation methods and results of pilot testing of the program.

Average no. syllables / 100 words

short words   long words
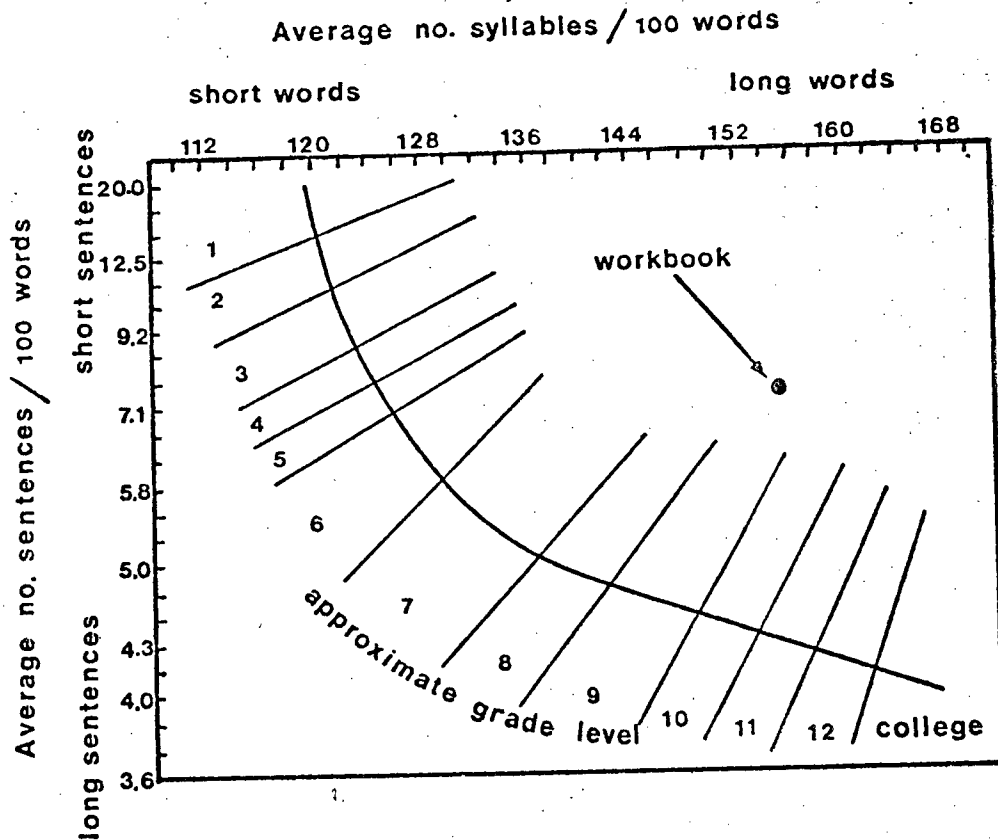
Figure 4

Graph for determining readability level of written material (after Fry, 1977). Average number of sentences per 100 words and average number of syllables per 100 words are determined by averaging results from analysis of three or more representative passages in the material being examined. The results from analysis of the workbook material are illustrated in the figure.

Chapter 3

FORMATIVE EVALUATION OF THE PROGRAM

Following preparation of the workbook "Close Encounters with the Built Environment: and review and revision of the book in consultation with my graduate studies committee, I implemented a pilot testing program in three local schools and devised an evaluation methodology with which to assess the appropriateness of the material for use in British Columbia secondary schools. This section of the study report describes the evaluation procedures used and the results of that evaluation. The format used for systematic evaluation of the program was similar to that suggested by Werner (personal communication) as summarized in Appendix III.

Preparation

The Program to be Evaluated

The activity workbook "Close Encounters with the Built Environment" was prepared during the Spring and Summer of 1980 and tested in B.C. secondary schools during the period Sept. 15, 1980 to Oct. 27, 1980. The intent was to select two secondary schools for pilot testing purposes and to provide those schools with copies of the workbook for classroom and field use during a period of approximately six weeks' duration. In preparation for this evaluation, it was necessary to find cooperative teachers interested in participating in the trial testing, to obtain permission for the pilot testing from the principals of the selected schools, and also to determine what time allotments were available in each school for testing purposes. Once the available time allotments were known, it was then necessary to work out a flexible timetable of study activities chosen from the workbook for testing in each school in order for the author as evaluator to be available as a participant observer in the process.

Evaluation Methodology

Several evaluation procedures were adopted in order to provide a thorough assessment of the program. Procedures included use of teacher and student questionnaires (Appendix IV) administered to each group engaged in the pilot testing program at the completion of the six-week trial period, teacher interviews conducted by the evaluator with the two teachers using the workbook, interviews with students during classroom and field activities, personal observation by the evaluator during those activities (Appendix V) and solicitation of comments on the workbook by teachers at schools where testing was taking place who were not themselves directly involved in the trial testing program.

In addition to the above qualitative evaluation techniques, a quantitative evaluation scheme was devised which consisted of a written test (Appendix VI) administered to each student engaged in the program. This test, which involved responses to questions concerning the built environment (mostly slides presented during the test administration), was given to each student twice: once at the beginning of the trial period before the student had seen the workbook or participated in any of its activities, and again at completion of the six week trial period following exposure to the material. In order to provide a control for possible change in overall awareness of the built environment among the student population during the six week trial period, it was necessary to add a third school group to the testing program. This group received the quantitative test (termed pre- and post-tests) at both the start and finish of the six week trial period but did not see the workbook or engage in any study of the built environment.

Objectives of the Evaluation

The intent of the activity workbook, "Close Encounters with the Built Environment" was to assemble a program of study which would satisfy both

the general learning outcomes of both the British Columbia secondary school art curriculum (p.23) and the specific objectives (p.25) of this report. The evaluation therefore, is directed at ascertaining if these objectives (ends) of the program have been achieved. Furthermore, the formative eval- uation provides information on the strengths, weaknesses, organization and concerns of a program and is therefore a means for improving such a program. It was hoped, therefore, that the trial testing program would provide useful information on the overall suitability of the activity workbook for use in British Columbia secondary schools and would also lead to improvement in the workbook content and format.

Questions of Concern to the Evaluator

In conducting a thorough evaluation of any program, it is exceedingly important that the evaluator be familiar with the process of evaluation and the underlying concepts, assumptions and approaches available. Table 7 lists fundamental concepts and implications of evaluation approaches and was instruc- tive in developing the previously described evaluation approach. Implications for evaluating a program developed on an "ends-means" basis as described earlier are included in table 7. Table 8 lists guiding concerns for evaluators described as "clusters" of concerns. These concerns will be referred to later during discussion of the results of the evaluation and the overall success of the program.

Specifics of the Pilot Testing Program
Schools and Test Groups

Two schools were chosen for trial testing of the workbook, one independent school located in the Vancouver School District (termed school "A") and a sec- ond public school in the School District of Richmond (termed school "B"). For purposes of providing a control group for the quantitative testing portion of the evaluation, a third public school (school "C") was chosen in the District

Table 7
Fundamental concepts and implications of evaluation approaches (after W. Werner, Personal Communication)

Factor	Ends-Means Evaluation	Situational Evaluation	Critical Evaluation
Purpose of Evaluative Research	To increase control (eg. predictability, specificity, certainty, precision, speed, efficiency) of system variables such as inputs, and outputs.	To understand meaning, relevance, perceptions of participants	To uncover hidden and basic beliefs, interests, and relations.
Assumptions about Programs	Programs viewed as ends-means relations. Program weaknesses viewed as technical problems.	Programs viewed as multiple meanings and realities. Weakness viewed as problems of understanding and relevance.	Programs viewed as reflections of fundamental perspectives and relations. Program weaknesses viewed as communications problems.
Indicators of a Program's worth	Comparative costs; increased student scores; efficiency and certainty in achieving precise and predictable ends.	Relevance and meaningfulness to participants	Clarified and justified premises; increased self-reflection.
Social Relationship of Evaluator to Program Participants	Expert monitors system components; dominance and control; acting upon or for; producer/consumer; hierarchical and unidirectional (from the top down)	Participant; consensus of understanding; interdependent; acting with; co-active, mutual, emergent, situational.	Posing questions; free and open communication; dialogical; acting with; honest.
Outcomes for Program Improvement	Application of compensatory means for rectifying deficiencies.	Program relevance and meaningfulness is understood and enhanced.	Program perspective is identified, clarified, justified, or changed.
Appropriate Form of Data	Precise discrepancy figures; numerical scores, clear-cut methods, operational definitions.	Meanings found in conversation, transcripts, case studies, situation descriptions, multiple viewpoints.	Foundations uncovered (assumptions, values, beliefs, and world views) which were taken for granted.

Table 7 (cont.)

Factor	Ends-Means Evaluation	Situational Evaluation	Critical Evaluation
Methods for Data Defining & Collecting	Systems analysis; cost/benefit analysis; pre-post testing; forced-choice questionnaires; specifying and monitoring performance indicators. Emphasis upon techniques, standardization, and reductionism.	Interviews; participant observation; ethnographies; open-ended questionnaires. Emphasis upon mutual understanding and communication.	Questioning dialogue; dialectics and multiple perspectives. Emphasis upon self-reflection and change.

Table 8

Clusters of evaluation-guiding concerns (after W. Werner, personal communication)

Cluster 1	Cluster 2	Cluster 3
Are the means effective and efficient in achieving the ends?	Is the program relevant to student/parent/community concerns, needs, interests?	What are the underlying assumptions about 'knowledge', 'learning','relevance', 'worthwhileness'?
Are the means cost effective?		
What are the outcomes? (in terms of measurable student achievement scores, retention rates, training level, performance outcomes).	Why do various groups approve or disapprove?	What is the implied image of the student or teacher?
	What is the impact upon student self-image, community involvement, classroom interaction?	What is the program's value position?
		Are the intents and emphasis worthwhile?
What is the cost per unit (student/materials/teacher) as compared to other programs or to provincial costs?	What are the percieved unintended outcomes?	What (whose) interests are served through the program?
	What is the school "climate" for students?	What are the long-term implications for our plans?
Can we predict with any degree of accuracy, the effect the program will have on subsequent achievement/attendance?	What are the sociological/psychological implications of the program for the child?	What are the root metaphors (theories, models, logics) which guide our thinking and acting?
How many people/resources are participating? How is each resource being used?	What is the student's attitude? (indifferent, enthusiastic, suspicious, etc.)	What is the bias of the resource materials?
		What structures legitimize (perpetuate) these values and assumptions?
Is there a correlation between means and ends? Can we make predictive inferences on causality?	What questions exist about the program on the part of administrators and significant other parties?	What is the supporting world-view?

Table 8 (cont.)

Cluster 1	Cluster 2	Cluster 3
What valid generalization concerning effectiveness can be made for all schools? Can we articulate a program model which describes its inputs, throughputs (efforts, money, resources, structures) and outputs? How are inputs organized to achieve operational goals? What are the principal means used directly to achieve goals? How do we know these means are actually enacted? With what frequency and intensity are they enacted? How are means linked to each other to achieve goals and outcomes?	Is the program built upon what students bring with them to school? (eg.-cultural, home, skill, value backgrounds) What are the views and interpretations of various groups?	

of West Vancouver. Choice of schools was determined largely by availability of cooperative teachers who were known to the author to be interested in using the workbook. Geographic location of the schools was another consideration; that is, they had to be reasonably accessible to the author for purposes of participating in the evaluation process.

Characteristics of the test groups participating in the trial test program are summarized below:

Table 9

Details of classes participating in the pilot testing program.

School	Type of Class	Grade Composition	No. of Students
A	Architecture	10, 11, 12	19
B	Art (applied design)	11, 12	21
C	Art (applied design)	11, 12	17

Testing of the program consisted of each class receiving the workbook and thereafter engaging in activities described in the workbook within their regularly scheduled class periods for the duration of the six week test period. Timetables for groups A and B are provided in tables 10 and 11. Schools A and B differed slightly in timetable format. School A employed a seven-day cycle with five one-hour classes spread over the seven days. School B employed a five-day cycle with three one-hour classes spread over the five days.

Teachers of both schools A and B were enthusiastic about testing the material with their classes. The teacher at school A is very interested in architecture and photography. Environmental and applied design attract the teacher at school B.

Instructions given to Teachers

An initial meeting was held with each teacher from the three schools once written or verbal permission to proceed had been obtained from the school

Table 10

Timetable for pilot testing of workbook activities in school A.

Date	Time	Activity or Involvement
Mon. Sept. 8	---	Workbook given to teacher for review and lesson planning
Fri. Sept. 12	09:45	Met with teacher, principal to discuss plans and obtain permission to proceed
Sun. Sept. 14	---	Met with teacher to discuss testing procedures, timetable, scheduling of pre-test, evaluation methods to be used
Tues. Sept. 16	09:35	Pre-test completed by class
Wed. Sept. 17	12:20	Students introduced to book and Open Space Activities
Fri. Sept. 19	08:50	Shopping Center Activity-field trip to Dunbar area
Tues. Sept. 23	12:20	Steeplechasing field trip to U.B.C. campus, clock tower area
Thurs. Sept. 25	09:30	Class work period to review Shopping Center and Steeplechasing activities and work on reports
Fri. Sept. 26	11:50	As above
Tues. Sept. 30	08:35	Class introduced to Four Factor Analysis
Thurs. Oct. 2	13:30	Field trip to Granville Island Public Market to do Four Factor Analysis
Mon. Oct. 6	10:00	Work period in class on Four Factor Analysis
Tues. Oct. 7	11:50	Steeplechasing assignment due, collected. Work period as above.
Thurs. Oct. 9	08:35	Work period, Four Factor Analysis. Students using questions from workbook in write-ups
Tues. Oct. 14	14:20	Class completing Four Factor Analysis
Thurs. Oct. 16	09:35	Steeplechasing results handed out and put on display in school work period.
Fri. Oct. 17	11:50	Work period

Table 10 (cont.)

Date	Time	Activity or Involvement
Tues. Oct. 21	08:35	Four Factor Analysis assignment due. Introduction to Infill activities
Thur. Oct. 23	14:20	Post-test administered to class.
Mon. Oct. 27	10:00	(Teacher continuing to use workbook beyond testing period) Infill activities
Tues. Oct. 28	11:50	Infill activities
Thur. Oct. 30	08:35	Infill activities

Table 11

Timetable for pilot testing of workbook activities in school B

Date	Time	Activity or Involvement
Sun. Sept. 7	---	Workbook and pre-tests given to teacher for review and lesson planning
Fri. Sept. 12	11:00	Met with teacher to discuss timetable, evaluation methodology, lesson planning. Permission from principal obtained by teacher (he was ill and could not meet with us)
Thur. Sept. 18	13:00	Class completed pretest. Teacher discussed format of assignments and instructed class that results were to be kept in a book and submitted at completion of the six week trial period.
Fri. Sept. 19	13:00	Class engaged in Open Space Activities on an individual basis (each to choose some open space, draw, photograph, record impressions)
Tues. Sept. 23	13:00	Class working on Open Space project
Thur. Sept. 25	13:00	Introduction to the Sensory Walk. Class went off in small groups or pairs to perform the activity (Evaluator with one group)
Fri. Sept. 26	13:00	Field trip to perform Shopping Center Activity (small groups or pairs). Evaluator went with one group to local mall.
Tues. Sept. 30	13:00	Critique of the three exercises (Open Space, Sensory Walk, Shopping Center) in class.
Thur. Oct. 2	13:00	Work period in class.
Fri. Oct. 3	13:00	Introduction to Steeplechasing and Serial Vision activities in class. Class dispersed in pairs or small groups to perform field work. Evaluator accompanied one group.
Tues. Oct. 7	13:00	Critique of students' books and findings in class. Town Trail activity introduced.
Thur. Oct. 9	13:00	Class work period on assignments. Discussion of different kinds of space and how space affects us
Tues. Oct. 14	13:00	Discussion of properties of space and introduction of Guiding by Cards-cards to be used for exploring personal space. Field trip to Granville Island planned.

Table 11 (cont.)

Date	Time	Activity or Involvement
Thur. Oct. 16	13:00	Field trip cancelled (bus not available). Class work period. Making directional cards.
Fri. Oct. 17	13:00	Class work period making and designing cards
Tues. Oct. 21	13:00	Work period and completion of assignments
Thur. Oct. 23	13:00	As above
Fri. Oct. 24	13:00	Class completed post-test
Unscheduled	----	Field trip to Granville Island to be done at later date

principals. Copies of the workbook were provided to the teachers and details
of the evaluation procedures involved were discussed. Examples of the evalua-
tion material were provided to the teachers.

Teachers were instructed that they were free to choose any of the intro-
ductory activities (titled "getting started" in the workbook) provided in the
workbook within the six week period. Teachers were to consider their choices
and respond with a timetable for purposes of information for the evaluator
(tables 10, 11). The teachers were instructed that the evaluator would be
frequently present during the trial period and would observe the classes
during instruction, execution of classroom activities, and during some field
trips. The evaluator would serve mainly as an observer and would not partici-
pate in instructional activities except to provide clarification if some
instruction for an activity was unclear. No resource materials beside the
workbook were provided to any class or teacher.

Results of the Evaluation

Evaluator's Observations of the Pilot Testing Program

Detailed observations of the six-week pilot testing program at schools
A and B are presented in Appendix VI. Teachers at both schools relied on the
material in the workbook to a considerable extent for purposes of introducing
and explaining the activities. Instructions appeared clear, understandable
and prompted few disruptive or confusing questions from the classes. It
appeared therefore, that students understood the material being introduced.

Differences were evident between schools A and B with regard to the
organization of the field activities. In the case of school A, the teacher
was obviously enthusiastic and participated in all field trips. An open
rapport and dialogue between teacher and students was evident and students
did not appear hesitant to ask questions, seek clarification, or express
opinions. In the case of school B, however, the teacher introduced the material

and then sent the class out to perform the field work without participating in
any field activities. Students from school B seemed hesitant and confused
while engaging in the field activities or used the opportunity to engage in
their own interests not related to school work. In the presence of the
evaluator, some small groups of students from school B took an interest in
the material once a rapport with the evaluator had been established. Many
students from the school seemed shy and lacked confidence in their drawing
skills and sketching ability. Some seemed reluctant to perform certain tasks
in the "Shopping Center Activity" such as making observations in shops or
public places where they might attract the attention of others.

Students from both schools appeared to like working in small groups or
in pairs. They interacted well, discussed the activities and consulted each
other on methods and answers to written questions posed in the activity.
Teamwork appeared to assist students in gaining confidence during fieldwork
as many students had probably had little or no opportunity to work outside
and in a largely unsupervised mode prior to this testing program.

Follow-up activities, deadlines for reporting results, method of repor-
ting, and time spent on activities varied between schools A and B. In both
cases a single lesson was insufficient for the completion of many activities
and extra classroom sessions were required for completion (see timetables -
tables 10, 11). In the case of school A, students were given specific dead-
lines to hand in reports, drawings, sketches, etc. following each major acti-
vity. These deadlines were set within the six week trial period and marks
were deducted for late assignment. Students from school A spent many hours on
classroom and home completion of such assignments and produced excellent work
with obvious interest, dedication and innovation (Appendix VII). In this case,
there was time allowed for follow-up activities such as discussion of findings,
points of view, impressions, etc. following field trips.

School B students however, were not given specific deadlines for reporting

findings from a given activity during the trial period, but rather were required to submit a sketchbook covering the results of selected activities at the conclusion of the trial period. Although critique sessions were established for this class during the trial, many students did not finish assignments and were not prepared for such sessions. In many instances, school B students did not return to the classroom for the critique sessions following an activity. The teacher was not successful in enforcing any discipline or structure with this regard.

In both schools the cost of engaging in the program appeared minimal as study activities took place within reasonable proximity to the school. School B's study sites were all within walking distance of the school and were probably very familiar to all students. A major planned excursion to Granville Island did not take place during the trial testing due to bus transportation difficulties. School A went further afield - to U.B.C. campus, Granville Island market and to Dunbar Street. Cost was minimized by use of the student's own vehicles for transportation. Materials used by both schools for reporting and illustrating findings were straightforward and inexpensive: sketching and drawing materials, and drafting supplies. In the case of school A, a considerable amount of photographic work was done along with photographic developing.

Activities did not appear to demand a great deal of preparation time by the teacher. Time organization and planning for activities appeared particularly important. The teacher at school A used the workbook as an introduction to a year's class in architecture. The teacher at school B appeared to have more difficulty relating the material to the subject area familiar to her: that is, applied design and design concepts with emphasis on the production of hand-made products. During the testing period, there appeared to be no attempt to relate natural and man-made design concepts observable in the environment to the work normally produced in the classroom.

Some areas needing improvement in the workbook and in implementation of the workbook activities became obvious as a direct result of these pilot testing observations. The workbook could be considerably improved by the inclusion of better introductory material for the teacher. The forward of the workbook should more thoroughly explain why the study of the built environment is important and relevant and how the teacher may use the book to familiarize students with the subject. The introduction should contain the underlying conceptions of the program and its broad and specific objectives. Furthermore, it would be beneficial to explain more fully to teachers how the book could be used or adapted to suit a specific requirement or interest. Notes on introducing lessons would be helpful, as would instructions on teacher participation in field trips, trip organization, follow-up activities and student reporting as well as time scheduling requirements.

Observations indicated that a number of students had difficulty with making written responses to some questions contained in the workbook's activities. Simplification and clarification of questions in the "Four Factor Analysis", "Steeplechasing", and "Open Space Activities" appear warranted. Some new vocabulary also appears to present a problem.

Teacher Responses to the Program - Teacher Questionnaires

Questionnaires completed by teachers at the schools involved in pilot testing "Close Encounters with the Built Environment" appear in Appendix IV. Comments are included from teachers at schools A and B who engaged in pilot testing as well as from the teacher at school C who had an opportunity to review the workbook but did not use the material in the classroom.

The teacher at school A provided a highly positive evaluation of the material. She felt the unit served as a worthwhile introduction to a course of study on the built environment, was appropriate to grades 10 to 12, and that it focussed on experience and involvement of the individual. This teacher's opinion was that the unit could be altered to suit almost any grade

level and that the existing activities accommodate students of varying interests and abilities ("open enough, yet directed"). School A's teacher felt the overall strength of the unit was:

> "the way the book made the students become actively involved with built environment - this is an excellent 'ground' or base for further studies in the built environment. Any student is capable of participating and getting something positive from a book of this type."

With regard to concerns and suggested areas for improvement, teacher A felt that vocabulary in the book often produced difficulty and that a clearer introduction to new words should be provided. She also suggested provision of review questions and vocabulary review at the end of each chapter. This teacher felt that illustrations and photographs could be improved and be made "more exciting". She reported difficulty on the part of students with specific questions in some activities and suggested that they be made more specific and direct. This teacher apparently experienced time-related problems imposed by the pilot testing regime. There appeared insufficient time available to do a thorough job on all activities and she felt that activities could have been "scaled down" to lessen the activity load and provide more time for a wider variety of activities.

The teacher at school B was less enthusiastic about the workbook than teacher A. She appeared uncomfortable with the rigidity and structure imposed by the pilot testing program and found the six weeks of continuous use of the material excessive. Teacher B described the unit as "lacking producing activities" and she appeared to desire more classroom time for making things and doing manual projects more in keeping with the traditional activities of an art class. She felt there was a general lack of introductory activity to bring the students' awareness to a level where the activities would have meaning. In her opinion, the students were resisting having to participate in the unit based upon their expectations of what should go on in an art class and that they therefore found it "meaningless and boring". This teacher seemed

unenthusiastic about the architectural and sociological orientations of the
workbook and experienced difficulty in integrating the concepts into an art
class. It appeared that she wished for more concentration on principles and
elements of design and their relationship to art. On the positive side, this
teacher considered the topic important and the lessons to be "clearly laid
out and explained".

Teacher B, in contrast to teacher A, felt that the book was too structured
and that it did not encourage flexibility. She suggested the following
improvements: addition of introductory material, a chapter on how to use the
book, emphasis on flexibility, a chapter on elements and principles of design,
incorporation of design concepts in activities throughout the book, a "para-
digm for critical evaluation", and stress on exercises that encourage visual
rather than verbal responses.

The teacher at school C, while reviewing and commenting on the workbook,
did not use the material with her class that participated as a control group
for quantitative testing. This teacher felt the material was more signifi-
cant for general art classes at the grade 11 or 12 level or for senior geo-
graphy classes rather than art students interested in working mainly with
their hands. Concerns expressed by the teacher included potential difficul-
ties with vocabulary and lack of information on the historical background of
architecture. The "stress on observing one's surroundings" was considered
to be the overall strength of the workbook. Teacher C reported resentment on
the part of her students to being used as a control group. They felt insulted
and that their time was being wasted. Generally, teacher C's assessment of
the workbook is positive but lacks detail due to lack of opportunity to use
and test the material in the classroom.

Teachers A and B obviously differ in their reaction to the material.
Their comments indicate considerable differences in the orientation, attitude
and characteristics of the classes they worked with. Teacher A is very inter-

ested in using the material as an introductory unit in architecture with a group of keen, competitive, positively motivated and enthusiastic students. She described the capabilities of this group as varying from "very able" to "slower learners". Teacher B's interests were in the classroom applications of art concepts and elements and principles of design. She was working with a class containing "an unusually high percentage of potential and returned dropouts". This teacher reported that about 50% of the students in the class had had "little or no success in school to this point". Furthermore, she felt the students tended to have very fixed expectations of what should happen in an art class and reported that "most of these particular students are not comfortable with reading and with words in general". These characteristics of the class were not made known to the evaluator at the start of the six week testing period and the teacher did not appear to have full knowledge of the limitations of her students at the onset of the program.

Examination of results produced by students from both schools A and B reflect obvious differences (Appendix VII). Students from school A provided detailed, innovative reports and projects while those from school B were incomplete, unavailable or lacking in detail or innovation. It could be concluded that school A was highly successful in employing the material while school B had considerably less success. It could be argued, however, that considering the characteristics of the groups, comparison of the two is not directly possible and that group B's effort was a success for them in terms of their capabilities.

Student Reaction to the Program - Student Questionnaires

Student response for groups A and B is summarized in Appendix IV. In general, students from school A reacted very positively, responding that the material was interesting, important, worthwhile and valuable, reasonably clearly presented, instructive and that it broadened their knowledge of the

built environment. Positive features of the program for this group appeared
to be interactions with the written material, class and group discussions,
opportunity to express personal opinions and discover answers for themselves,
listening to others and participating in group projects. Field trips and
field activities appear to have been a high point for this group with almost
unanimous praise for that element of the program. Students felt their aware-
ness, interest, observation skills and ability to concentrate on elements and
properties of buildings improved greatly.

Students at school A expressed difficulty with written responses to
questions posed in some of the activities and also the organization of some
question material. Difficulty may have occurred for some groups with written
instructions in the activities tested. Overall, the students appeared to
desire more time to do the projects or alternately, less emphasis on "long,
hard projects". Some expressed a desire to do more projects of a shorter
duration. Their reactions give the impression of wanting to do more detailed
work of greater variety without the time pressure imposed by the six week
trial testing format. One or two students appeared to have difficulty relat-
ing the material to the subject matter of their course (architecture). They
appeared impatient to address the subject in more depth.

Students from school B were far less articulate or constructive in
expressing their reactions. They appear to have used the questionnaire as an
opportunity to protest having to do the unit or to comment negatively on
education in general. The consensus appears to have been that the unit was
difficult, boring, confusing, too long, not worthwhile and that it did not
teach them anything new. Students appeared to feel they learned the most from
working individually, discovering answers for themselves, expressing opinions
and working with the written material. They expressed difficulty in under-
standing written material, becoming interested in the topic or, in particular,
seeing why they had to learn the material as part of an art class. Terse

comments given by students indicate dislike or difficulty with written material and written responses, some insecurity regarding group or fieldwork participation, comprehension and self-expression.

Quantitative Pre- and Post-test Results

Results of the pre- and post-tests administered to schools A, B and C are summarized in table 12 in order to provide a quantitative indication of change in knowledge and ability related to built environment concepts and understanding. The range of class scores for both groups A and B shifted towards elevated scores on the post-test in comparison to the pre-test performance.

A non-parametric method of statistical analysis was selected for the results of quantitative testing. This approach was thought preferable to parametric methods as the data were probably not normally distributed, sample size was small and because judgment was exercised in grading of the quantitative tests. Scores for each individual student in a given test group were analysed by Wilcoxon's Signed Rank Test (Steel and Torrie, 1960). In this test, a T value computed on the basis of the ranked differences of less frequent sign betweem pre- and post-test scores for a given test group is used to determine acceptance or rejection of the statistical hypothesis. Small T values, below the critical value of T specified by Wilcoxon's procedure, allow rejection of the null hypothesis (post test scores were not higher than pre-test scores). Analysis revealed a significant difference (p = 0.005) between pre- and post-test scores for groups A and B and allowed acceptance of the alternate hypothesis (one-tailed test) that exposure to "Close Encounters with the Built Environment" improved student perception, knowledge, comprehension, analytical and evaluation skills related to the built environment. These skill areas were incorporated into the testing design (Appendix V). It is interesting that group B, while indicating a generally negative reaction to the program as expressed in teacher comments, student comments, and quality of completed

projects, showed a significant improvement in test score performance. This might indicate that the other evaluation methods somehow were not as effective in assessing the impact of the material on group B as was the quantitative testing.

The control group showed no statistically significant change in performance over the six week period, indicating no major change in overall awareness of built environment in the student population had occurred during the testing period.

Table 12

Statistical analysis of pre- and post quantitative test results using a nonparametric method. Scores for each individual student in a given test group were analysed by Wilcoxon's Signed Rank Test (Steel and Torrie, 1960). Significant differences between scores for a given group are indicated by an asterisk. "NS" denotes no significant difference. The level of significance for a given comparison is indicated in brackets. The "T value" is the sum of the ranked differences of less frequent sign between pre- and post-test scores of a given group according to Wilcoxon's procedure. The number of observations for a given group (number of students tested) = n.

Group	Pre-test Scores	Post-test Scores	T value	Significance
A	range = 17.0 - 35.0 n = 15	range = 31.5 - 40.5 n = 15	0	* (0.005)
B	range = 6.0 - 27.0 n = 15	range = 21.0 - 37.5 n = 15	1	* (0.005)
C	range = 16.0 - 35.0 n = 17	range = 9.0 - 40.5 n = 17	61	NS (0.05)

CHAPTER 4

Synopsis of Evaluation Findings

Strengths of the Program and Satisfaction of Objectives

As a result of pilot testing and evaluation of the applicability of
"Close Encounters with the Built Environment" to the B.C. secondary curricu-
lum, a number of strengths of the program have been identified. The most
important beneficial aspect of the program from a student's point of view
appears to have been greatly heightened individual awareness of man's built
environment and increased appreciation of architectural form and detail.
The students from school A appeared greatly impressed with this aspect of the
program and felt that they had benefitted from increased environmental aware-
ness. Furthermore, they appeared to enjoy the opportunity to voice opinions,
make judgments and propose alternate schemes for modification of the built
environment. The students from group A and all teachers involved felt that
the topic was important, relevant and worthwhile.

Added advantages of the program appeared to be the way it prompted group
discussion and debate, encouraged teamwork both in field activities and in
problem-solving, and provided students with the opportunity to engage in field
activities and to manifest their own creativity and innovation in reporting
their findings. There was generally great enthusiasm for field studies and
the positive benefits of such involvement was evidenced by the way many
students from group A spent considerable time and effort, including home
study time, on completion of high quality reports and products. In many in-
stances students from that group expressed a desire to have more time to
devote to such activities.

The overall response of two of the three teachers involved in the pilot
testing was highly supportive, particularly in the case of the teacher from
school A, who felt the material was well organized, flexible and clearly

explained. The material appeared to be easily adapted by both pilot study teachers with relatively little preparation time or necessity to consult other reference material. Generally, classroom introduction sessions for a given activity followed the format and content of the workbook.

Quantitative testing revealed a significant increase in performance in knowledge and skill areas related to the built environment for both test groups A and B. Interestingly, the largest increase in test performance when pre- and post-test class scores were compared occurred with group B. The response of that group to other evaluation techniques indicated a generally negative reaction to the material.

In assessing the overall effectiveness of the program, it is important to ascertain if the broad and specific objectives (intents, ends) of the program, as set out in Chapter 2 (p.23), have been satisfied. The broad objectives of the program, which conform to the general learning outcomes of the B.C. secondary art curriculum specify that the student should demonstrate knowledge of, ability to apply and consideration for: imagery, elements and principles of design, historical and contemporary developments, and reasoned criticism. In addition, there is a requirement that the learning outcomes be carried out in conjunction with appropriate materials, tools, and equipment, processes and vocabulary.

While assessment of attainment of these objectives is largely qualitative, it seems reasonable to conclude that the performance of group A in the pilot testing and the quantitative improvement of both groups A and B on the pre- and post-tests (based upon specific behavioral objectives) suggest attainment of the program's objectives. Student enthusiasm and recognition of increased awareness of the built environment and evidence of production of excellent reports, sketches, and design suggestions (group A) suggest that use of knowledge gained, consideration and application of imagery and elements and principles of design took place. Furthermore, there is evidence that appropriate

tools; materials, and processes were employed to produce responses to the
study material. The study of buildings and built forms, by its nature,
focusses the student's attention on historical and contemporary trends in
building and facilitates design, function and appearance and is therefore a
specific component of the workbook design. In addition, the material is very
much oriented to the development of reasoned criticism and judgment which is
an important goal of the study. Students appeared enthusiastic about the
opportunity to express opinions and to make judgments. Moreover, they pro-
duced innovative design suggestions when asked to evaluate existing built
environments and to suggest improvements.

It may also be argued that the specific objectives of the program (p.25)
have been achieved. Both teachers and students involved appear to have bene-
fitted through personal experience with the built environment. Students
demonstrated elevated skills and knowledge through quantitative testing.
Other specific objectives related to the content, methodology, critical
orientation and flexibility of the material have also been incorporated into
the program design and the content of the workbook provides evidence of those
objectives having been met.

To further examine whether the program meets the expected objectives,
i.e. the General Learning Outcomes of the B.C. secondary art curriculum and
accepted behavioral objectives in art education, there follows an overall
assessment of the program's effectiveness at satisfying program objectives.
Both workbook content and emphasis as well as the findings of the pre- and
post-test to an assessment were related to how well the material satisfied
program objectives as set out in a table of specifications for the program.
To facilitate such an evaluation, the pre- and post-test was specifically
designed to encompass desired behavioural objectives in art education (see
Appendix V). These behaviours have been described by Bloom et al (1971) and
Wilson (1971) and include perception, knowledge, comprehension, analysis,

evaluation, appreciation and some production behavior. The intent is to develop a table of specifications for the program based upon the above behavioral objectives and the B.C. General Learning Outcomes. Desirable behaviors in art education have been defined by Wilson (1971) as follows:

1) Perception: The process by which an individual transforms received sensory qualities into the world as he knows it. In art education, it refers to a refining of the senses, to the development of the ability to view objects and events in ways which go beyond customary perception and mere recognition.

2) Knowledge: encompasses the behaviors of remembering, recalling, and recognizing those things which are present during an original learning experience (often highly verbal in art education). For purposes of evaluating knowledge of the built environment, three knowledge areas can be specified: knowledge of terms (ability to remember definitions which distinguish one built form from another), knowledge of classification (recognition of built forms belonging to specific styles, periods, cultures, geographical locations and their distinguishing features), and knowledge of criteria (the standards by which the aesthetic, functional or other qualities of the built environment may be evaluated).

3) Comprehension: refers to responses to works of art which indicate that an individual has an understanding of the literal, symbolic or allegorical messages in the built form. The individual must be able to translate (to verbally describe the built form), to interpret (to be able to describe and also be able to reorder, rearrange, and to assess what is essential or irrelevant).

4) Analysis: refers to a dissection of the subject matter into its constituent parts, a detection of the relationship between the parts, and a determination of the relationships of the parts to the whole.

Analysis of elements is an item by item accounting of the various aspects of the built form. Analysis of the relationship of parts involves the determination of some of the major connections among aspects of the built form. Analysis of relationships of parts to the whole is the reaching of a conclusion about the content of the object and a determination of how the various aspects and their relationships fuse to form the content.

5) Evaluation: is concerned with making reasoned critical judgments about the aesthetic quality and values of the built form. Empirical evaluations are made on the basis of how well something serves the function it was designed for. For example, a house can be judged to have high aesthetic merit based upon appearance but to be of poor functional usefulness based upon interior design considerations. Systematic evaluation (Pepper, 1945) provides four criteria for art evaluation:

- coherence and relatedness within the work of art.
- fusion and vividness of one's experiences with the work of art.
- degree to which the work of art represents the norm.
- amount of pleasure or pain generated from the art form.

6) Production: refers to the putting together of artistic aspects to form a work of art. Production involves skill (primarily the expertise with which the student controls art media) and creativity (ability to create with imagination and skill) in working with the subject matter and tools and materials provided.

The above behaviors, as well as the General Learning Outcomes of the B.C. Secondary Art Curriculum, were arrayed in a table of specifications (table 23) with the behavioral objectives forming the upper portion of the table and the G.L.O.'s forming the vertical axis of the table. Entries in the body of the table indicate where content areas of the workbook and sections of the pre- and

post-test satisfy the specifications in the table margins. These relation-ships therefore serve to illustrate how the program content is directed towards desirable objectives and furthermore show that improvement of perfor-mance by test groups A and B on the pre- and post-test demonstrates improved knowledge of the built environment which also corresponds with the behavioral objectives and learning outcomes desired for the program.

Concerns About the Program and Suggested Improvements

Concerns about the program arising from the results of pilot testing and evaluation are summarized in table 13. Major concerns identified include difficulty with vocabulary, some questions contained in the activities, and the need for an expanded introductory section providing more detail and explan-atory material. Needs identified for the introductory section included provi-sion of more detail on the importance and relevance of built environment, instructions for teachers on the introduction, use, and choice of activities, student reporting suggestions and pitfalls of failing to provide follow-up activities, time organization and planning suggestions, and the potential versatility of the material for special interest groups and course emphasis.

As a result of these concerns, modifications were made to a number of sections of "Close Encounters with the Built Environment". The modified pages appear in Appendix Ib and are cross-referenced to the original version to facilitate comparison. It is hoped that these modifications will improve the usefulness, clarity and versatility of the workbook material.

A major concern of the pilot testing program was the disparity between the response of schools A and B. In school A, response was enthusiastic, the teacher was highly supportive and excellent results were produced. In school B, however, the teacher was quite critical and had difficulty adapting the material to her design interests moreover, the class proved generally unres-ponsive and uninterested in the material. A major factor in the poor response of the B group may have been the academic background and readiness of this

Table 13 Synopses of concerns and suggestions for improvement arising from pilot testing of the workbook.

Source	Concern	Probable Cause(s)	Suggestions for Improvement
Evaluator's Observations	Introduction of the work-book needs improvement & expansion.	Lack of guidance on use of the work-book, time scheduling, introductory and follow-up activities, reporting by students.	Provide detailed instructions on lesson introductions, use of the book, planning for field trips, organization of time, methods and options for student reporting, use of deadlines.
		Teachers have difficulty adapting material to their subject area or interests.	Provide more information on the importance and relevance of the subject of built environment for a variety of disciplines and illustrate applications of the material for different subject areas and interests.
	Identified need for teacher involvement in field activities.	Some teachers may not recognize this need. Some students may not be ready for unsupervised field activities.	Stress importance and need for teacher involvement in introductory section of the workbook. Propose gradual exposure to unsupervised activities once students gain experience and confidence.
	Some study questions in the workbook appear difficult for the students.	Questions may be unclear, lacking in specificity, confusing or redundant.	Revise questions in order to simplify and clarify them.
	Some vocabulary appears to cause difficulty.	Vocabulary is unfamiliar to the students and possibly the teacher. New vocabulary is not clearly defined.	Simplify vocabulary, provide definitions, provide vocabulary drills or a vocabulary review section in each activity.
Teacher Questionnaires	Vocabulary difficulties	See above	See above
	Study question difficulties	See above	See above
	The readability of some sections may be questionable.	Concern about vocabulary, use of language and new concepts.	Application of readability testing to the material and comparison of results to expectations for the grade level.

Table 13 (cont.)

Source	Concern	Probable Cause(s)	Suggestions for Improvement
Teacher Questionn- aires (cont.)	Too rigid and too structured (teacher B).	Material not easily adaptable to a class lacking written or descriptive ability. Teacher had difficulty seeing potential applications.	Inclusion of more visual material and "producing activit- ies". Provision of better introductory material to show potential applications for different interest groups.
	Not easily applied to art classes interested in manual product production (teacher B).	Lack of visible applications to design concept teaching. Lack of class readi- ness for a unit of this type.	Better introductory material and illustration of poten- tial applications. Suggestion of potential pitfalls for classes lacking in readiness or suitability. Stress on the need for teacher participation and adaptation to suit the needs of the class.
	Not enough content related to elements and principles of design (teacher B).	Specific interests of the teacher and the expectations of the class.	Stress the book's applicability for discovering natural and man-made design concepts through personal experience. Emphasize the need for the teacher to adapt or modify the material to suit the needs of the class and the subject being taught.
Student Questionn- aires	Questions difficult to an- swer or understand.	See evaluator's observations.	See evaluator's observations
	Lack of sufficient time (class A).	May relate to pilot testing format. Insufficient time allowed for com- pletion of an activity.	Time may be less of a problem in ordinary classroom time format. Estimates of time required for specific activities including planning, introduction, field work and reporting would be beneficial. A broader mix of "shorter" and "long- er" activities might be helpful.
	Lack of interest, motivation at school B.	Student expectations different from material presented.	Need to stress importance of teacher attempting to relate the material to the subject matter of the classroom and illustrate how study of the built environment has applica- tion to art classes.

Table 13 (cont.)

Source	Concern	Probable Cause(s)	Suggestions for Improvement
Student Questionnairs (cont.)	Lack of interest, motivation at school B.	High proportion of students with very poor school records, lack of skill with written material. Teacher unfamiliar with the nature of the group at the start of pilot testing.	Activities may be inappropriate for "slow learners" as structured. Considerable adaptation may be required to suit the needs of such groups. Introductory remarks should provide guidance for teachers on this matter.
	Poor performance of group B in field situations	Students lacked readiness, maturity for such activities performed without supervision.	Teacher invovement with a group such as this seems essential to provide guidance, explain activities and ensure participation. Some students appear to need reassurance as indicated in their comments.
Quantitative Evaluation (pre- and post-tests)	Marked improvement in performance in both groups A & B, yet other evaluation indicators suggest little positive response from group B.	Other evaluation methods did not adequately assess the response of group B.	The students in group B may have understood the material and gained something from it yet were unable or unwilling to illustrate this in the questionnaires or through production of sketchbooks summarizing their findings.
		Quantitative evaluation methods were not comparable with other evaluation techniques.	The structure of the pre- and post-test which was largely forced choice from multiple choice options in response to visual material may have been more suitable for group B than other means of expression. If this is so, revision of the workbook for a group such as this could involve substitution of multiple choice answers to question material rather than written descriptive responses.

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class for such material. As reported earlier, the class had a large propor-
tion of returned or potential dropouts and many had a very poor record of
school accomplishments. These qualities of the students appeared largely
unknown to the teacher at the start of the testing program, hence no special
measures were taken to accommodate to the needs of such a group. In particu-
lar, the group appeared totally unprepared for unsupervised field activities
and chose the opportunity to pursue their own interests. Although choice of
such a group might have been unfortunate from the perspective of evaluation
of an average class, the results may be considered useful in terms of judging
the applicability of the workbook material for classes of a similar nature.
In my opinion, the workbook material, as currently modified, is largely unsuit-
able for such a group and introductory remarks inserted in the revised work-
book reflect that concern. In addition, with modification to include more
visual material and less requirements for written responses (as suggested by
teacher B) the workbook could be adapted to suit the needs of slow learner
groups and those more adept at providing visual responses. Use of the material
with such a group would require careful and patient introduction of the
material by the teacher and active participation in all aspects of the program
to provide supervision, direction and follow-up activities.

Program Analysis - Critical Evaluation of the Program

Program analysis is concerned with a critical evaluation of the technical
aspects of the program. The process is similar to that used by an editorial
critic who teases out embedded assumptions and values within the material to
reveal the author's perspective. Munby (1979), in discussing critical evalua-
tion of curriculum, addresses the question "of what should a curriculum
criticism consist?" (p. 246). His approach consists of a number of elements
including describing the connectives and discontinuities within and among
various materials, activities, goals and the rationale; analysing logical con-
sistencies and inconsistencies within the developer's arguments; assessing the

strength of evidence provided in support of the varied claims and conclusions made; making explicit the knowledge and demands placed on the teacher; checking readability, clarity, and format, and portraying some picture of the quality of the classroom experience that teachers and students encounter.

In the second chapter is this report, the underlying conceptions of the program were addressed and were defined as development of cognitive processes, curriculum technology and social reconstruction (based on definitions by Eisner and Vallance, 1974). Provision of such a focus on the underlying conceptions of the program allows for definition of a critical method that questions the developer's viewpoint in selecting, editing and unifying various ideas and material in the format of curriculum, which in turn is translated into classroom thinking and activities.

Werner (1979) addresses the significance of program criticism, making three main points. First, and most important, he states that program criticism seeks to uncover the deep underlying perspectives and assumptions contained in the curriculum. Secondly, he feels it is important to discover the underlying relationships between the program and its social context. Lastly, Werner asserts that criticism must seek to identify the possible implications that the program's perspectives and relations have for the classroom.

Werner (1979) also addresses the limitations of criticism. He relates that there is no standard fixed formula or procedure to follow and no fixed format for reporting or time requirement for analysis. In Werner's view, curriculum criticism offers a tool for reaching the "roots" of curriculum analysis and for illuminating the important elements of the program under evaluation.

Following the above viewpoints, a critical evaluation of the program was conducted by the author from an editorial critical perspective.

Intents

The rationale, goals and objectives of the program were specified and

appear to relate well to one another. A significant volume of literature on the built environment (chapter 1) supports the belief that the subject matter is important and meaningful for students. Results of quantitative testing indicate that all students involved in the pilot testing program achieved the goals established. Some may have achieved more than the established goals. The qualitative evaluation illustrated student and teacher reactions and provided guidance on some areas of the program that must be strengthened to improve likelihood of goal attainment for all students. Students should find the goals and objectives suitable for their interests and abilities as those goals are sufficiently broad to enable teachers to adapt the material to their own class's interests, ability and environment. Thus, the teacher is free to establish more specific goals to suit a local situation.

If students achieve the goals and objectives of the program the intents of the program will be met. What is important is ensuring that increased environmental awareness and development of critical judgment of that environment will provide students with lasting skills and sensitivity that will provide an ongoing experience throughout their lives. In addition, the external constraints on the objectives (G.L.O.'s of the B.C. art curriculum) and the behavioral objectives of the program design (table 14) appear to have been satisfied.

Content

The content of the program is organized and sequenced appropriately into a compendium of built environment activities. Each chapter has an explanatory introduction and table of contents. The workbook itself has a table of contents. An appropriate introduction for teachers, a glossary, and revised question content will be added to the workbook. Content emphasis within the book centers on the provision of written and visual material to stimulate the students.

With regard to clarity of the material, some necessary modifications in

Table 14- The relationship between the General Learning Outcomes of the B.C. secondary art curriculum (vertical axis) and the behavioral objectives in art education specified by Wilson and Bloom (horizontal axis) arranged in a table of specifications. Pertinent content of the workbook related to the specifications is indicated in the body of the table (no brackets) while sections of the pre- and post-test pertaining to the specifications appear in brackets in the body of the table.

Unit 1- Sensing, experiencing, discovery and description

| | Behavioral Objectives | | | | | |
Learning Outcomes	Perception	Knowledge	Comprehension	Analysis	Evaluation	Production
Imagery						
Elements and principles of design						
Historical and contemporary development	Meaning of a built form (1B-1,2,3,4)					
Reasoned criticism in conjunction with:						
Materials	Perceiving meaning through the senses (1A-1,2,3,4,5)					skill-following directions
Processes						creativity & skill- writing, sketching, photography, paint-
Vocabulary		Critical words				ing, 3-D form

Table 14 (cont.)

Unit II-Experiencing the Built Environment

	Behavioral Objectives					
Learning Outcomes	Perception	Knowledge	Comprehension	Analysis	Evaluation	Production
Imagery						
Elements and principles of design	Experiencing the Built Environment, Serial Vision, Steeple Chasing, Observing from all sides, Town Trails			similarity, order, variety differences, changes, relationships, comparisons of buildings, contrasts to surroundings		
Historical and contemporary development						
Reasoned criticism in conjunction with:						
Materials, tools & equipment			experiencing likes & dislikes related to the built environment			mapping, photography, sketching, painting, 3-D form, camera skills following directions
Processes						
Vocabulary		diversity of vocabulary used in unit re concepts of space, space relationships (II A- 1-14)				

Table 14 (cont.)

Unit III- Part A- Influence of Design and Materials

	Behavioral Objectives					
Learning Outcomes	Perception	Knowledge	Comprehension	Analysis	Evaluation	Production
Imagery						
Elements and principles of design		Personal space, defining space with objects, shared space. look and use of space, network space, symbols	Observing, interpreting, space concepts, shared space, objects in space (III A 1-5, III B 1-11)			Redesigning the look and use of space
Historical and contemporary development						
Reasoned criticism in conjunction with: Materials, tools & equipment						Developing better network systems, designing storage systems
Processes						Mapping, tracing, designing symbols, sketching, photography, silk screen, 3-D form, textiles
Vocabulary		Personal space, shared space				

Table 14 (cont.)

Unit III Part B- Influence of Design and Materials

	Behavioral Objectives					
Learning Outcomes	Perception	Knowledge	Comprehension	Analysis	Evaluation	Production
Imagery						
Elements and principles of design		Game approach, Working with material and de- sign, Houses Game (planning), Home Improvements	Factors involved in the building process	Analysis of elements in the design process (space, access, func- tion, light)	Critical evaluation of home plans	
Historical and contemporary development		Dating Game-tracing and classifying buildings, historical features, signs				
Reasoned criticism in conjunction with:					Evaluation and suggestions for improvement of neigh- bourhoods, cities, homes	
Materials, tools & equipment		Adaptation of building material to use, climate, historical and aesthetic use of material				Mapwork, checklists, 3-D models, sketch- ing, photography, slide series, reports.
Processes						
Vocabulary		Semi-detached, duplex, detached				

Table 14 (cont.)

Unit IV- Critical Appraisal

Learning Outcomes	Behavioral Objectives					
	Perception	Knowledge	Comprehension	Analysis	Evaluation	Production
Imagery				Design proposals of architects and planners		
Elements and principles of design		Learning to appraise the built environment				
Historical and contemporary development						
Reasoned criticism in conjunction with:					Checklists, scoring systems, class discussion, debate	
Materials, tools and equipment		Aptness of choice of materials for construction				Mapwork, photography, 3-D models, written reports
Processes		Aptness of design approach		Design solutions for space, groupings, routes, context, building parts (IV A-1, IV B- 12; IV C- 1,2)		
Vocabulary		Context, routes, inter-face, grouping, proposals				

Table 14 (cont.)

Unit IV (part II)- More Experience with Appraisal Techniques

Learning Outcomes	Behavioral Objectives					
	Perception	Knowledge	Comprehension	Analysis	Evaluation	Production
Imagery					Appraising buildings, building impact evaluation, descriptive techniques	
Elements and principles of design		Appraisal techniques		Urban evaluation sheets, building impact score sheets, criteria use (V A 1-3, V B 1-3)		
Historical and contemporary development						
Reasoned criticism in conjunction with: Materials, tools and equipment					Use of word evaluation sheet to critically des- cribe the built environment	
Processes		Appraisal processes				Annotated photographs, sketches, slides, written reports
Vocabulary						

question format and directions were identified as a result of the evaluation. Readability testing indicated a grade 9 level of difficulty. Most of the content is based upon material recently described and tested elsewhere, hence the content reflects current thought and modern perspectives. Some photographs in the workbook depict modern buildings that will, in time, become dated.

It is important to consider also, whether the material is free from bias of any kind; i.e., ethnic, religious, political, sex roles, multicultural, regional or occupational bias. All the photographs in the book illustrate B.C. localities, however, there is obvious emphasis on the urban rather than the rural setting as a result of the subject matter. No particular bias is evident in the material with regard to religion, political viewpoint, sex roles, culture or occupation. Many of the activities described in the book were adapted from approaches developed and tested in Great Britain and the U.S.A. Hence, the material is probably universal in application to Western society.

Methodology

"Close Encounters with the Built Environment" offers a variety of student and teacher strategies suggested for opener, developmental and closure lessons. The book offers a mix of content transmission and activities involving inquiry discovery and experience rather than just content transmission. The methodology is consistent with the objectives. The forward of the book offers suggestions of flexibility. Different teaching and learning styles are encouraged and should not be hindered by the material. Creativity and innovation are encouraged on the part of students. In recording and illustrating their discoveries, students are directed to work with a variety of materials to express their reactions and recommendations.

Student involvement in decision-making is encouraged. There are stated goals in the book but these goals may be adapted or modified based on indivi-

dual needs and interests. Ideally, there should be mutual adaptation on the part of students and teachers whereby the group works together to develop individual study activities and an approach suited to the need and environment of the group.

The workbook material allows for individualized pacing of the material rather than group pacing. As much of the work can be done individually or in teams, students can proceed at their own pace to a considerable extent. It is evident that the need for an organized approach to field work is very important so that students are adequately prepared for the experience and engage in follow-up activities. The book encourages open-ended responses from students that are not restrictive. Students are free to express their own opinions and feelings and are encouraged to do so. As the study area is broad and encompasses a variety of subject matter in art and architecture (planning, functional aspects of buildings, materials and construction methods, ethnic and social considerations, historical perspectives), students are free to concentrate on aspects of the built environment that are of interest to them. Hence, there is a broad range of experience and expression available for students to explore.

Evaluation

Evaluation methodologies were chosen to form a broad assessment of the material. Teacher surveys, student questionnaires, evaluator's observations, quantitative testing and examination of student output were employed. Evaluation methodology provided for examination of mastery of the material by the students. Measures of what the students learned from the program were assessed in relationship to prior knowledge. Progress and reactions of students and teachers were monitored through participant observation to evaluate their response to the material and questioning procedures. Use of behavioral and general learning outcomes provided criteria to assess learner performance against a desired standard of mastery. Students were encouraged to engage in

self-evaluation and express opinions about the material. It is felt that the use of a broad array of evaluation methods, of both a quantitative and qualitative nature, have led to a thorough evaluation of the program.

Potential for Implementation of the Program in the B.C. Curriculum

In simple terms, implementation is the process of introducing a particular change in the curriculum. In this case, we are considering the introduction of a built environment program in the art education curriculum for B.C. secondary schools. Thus, implementation is concerned with the implications and consequences of change within the existing system. Fullan (1979) visualized five components of implementation: structure/organization, materials, role/behavior, knowledge/understanding, and internalization (commitment).

Structure or organizational changes might take the form of some fundamental deviation in the classroom environment or in the teaching methods as a result of altered student groupings, independent work, team teaching approaches or some change that alters the existing pattern of events and associations. "Close Encounters with the Built Environment" offers the opportunity for group, team, or individual experiences in the built environment with the option of considerable field study. Thus, from the standpoint of the program, the proposed introduction of such material in the art curriculum which tends to be highly studio-oriented, would present the possibility of considerable change in organizational groupings and traditional practice.

Another component of the implementation process deals with the use of materials. If we consider implementation as change, then a deviation can only occur through the introduction of new materials or a fundamental change in the way traditional materials are used or interrelated. The built environment program that I have developed is a compendium of study activities, many of which have been developed and tested elsewhere. These materials have been adapted for use and evaluated in the B.C. secondary school system. If we

consider the program itself as a material resource, then introduction of the
new workbook into the curriculum constitutes an opportunity through intro-
duction of new material. From this perspective, it is important to understand
that there is at present no study material of this type specifically developed
for use in the B.C. school system other than the proposed program.

A second source of study material is the built and natural environment
that surrounds us. In other words, the subject matter itself constitutes an
untapped material resource for study in the school system. Implementation of
a program such as I propose would act to focus the attention of students and
teachers on the natural and man-made environment and tend to broaden art
horizons beyond traditional studio-related activities. In many instances,
sources of inspiration for creativity in art activities could result from ob-
servation of design elements, natural forms, interrelationships, and textural
and aesthetic qualities of natural and man-made forms and features.

Also important in the implementation process are human behavior and role
phenomena. Implementation can only be said to have occurred if some change
takes place in the behaviour of the people involved in the education process.
Such change could be in the form of altered instructional behavior on the part
of teachers, in the way the teacher prepares for instruction (teaching strate-
gies) and the way the students behave in response to the new material or
system. The role of the teacher and student could undergo some fundamental
alteration through implementation.

The built environment program encourages flexible planning to suit the
needs, interests and abilities of the students and teacher. In addition, flex-
ibility is present in choice of study activity and emphasis to suit different
geographic locations and emphasis on subject matter. A key strength of the
program is that it encourages mutual program development between the student
and teacher. This emphasis is definitely a major change in the traditional
role of the teacher as transmitter of information and student as passive

receiver. Much dialogue and use of questioning is encouraged in the program. Outside resource people such as architects, planners, developers and designers are encouraged to participate in the program through interaction with the students. The program therefore introduces change through a more collaborative program development process between teacher and students and takes advantage of external resource persons.

Knowledge and understanding constitute a fourth dimension of implementation. Here, we are concerned with whether the teacher and student understand the intents, assumptions, philosophical objectives and benefits of the program and the methods necessary to implement and use the program. If the parties involved fail to see the relevance of the material or have difficulty working with it, change will not take place.

The introduction of the workbook attempts to illustrate the relevance and importance of the study of the built environment from a personal point of view. Its objective is to demonstrate that heightened environmental awareness and development of critical appraisal abilities are of value to the individual in daily life. Activities within the workbook assume no prior knowledge of the subject and are arranged in a graded manner to encourage gradual accumulation of knowledge and familiarity with the subject. An extremely important component of the program is its emphasis on personal experience as a vehicle for learning and as a stimulant for further enquiry. Student response to this aspect of the program, as evidenced through a variety of evaluation techniques (Appendix I), was extremely enthusiastic, indicating that there was understanding of the intents and benefits of the process and enthusiasm to do more.

Finally, a very important aspect of implementation is commitment (or internalization) on behalf of the participants. If individuals are enthusiastic and motivated positively towards the intents of the program there is a much improved possibility of successful implementation. However, as Fullan (1979) points out, there is often commitment to an objective that is not necessarily

the innovation connected with the program. An example of such an occurrence appears to have occurred during pilot testing of this program. The teacher at school B, while initially highly enthusiastic about the material, had difficulty applying it or producing any significant results from her class. Her comments (Appendix IV) suggest that she originally believed the material to be directly applicable to a studio class of slow learners accustomed to producing traditional art products with their hands. Her comments indicate resistance to the material when it failed to directly facilitate producing activities in the classroom environment related to elements and principles of design. This teacher therefore appeared to expect a different outcome from the use of the material than that for which it was designed.

Fullan (1979) states that there are two potential approaches to visualizing implementation of a program. The first, he terms the "degree of implementation" or "fidelity approach" which involves carefully defining or specifying a change in such a clear and precise way and then providing maximum encouragement for people to use it. Alternately, he describes the "mutual adaptation" approach in which the innovation is externally defined in a fairly general way and then implemented and adapted by the users to suit their specific circumstances, interests and abilities. Once this formative process has occurred, the innovation is then carefully evaluated and defined in the context of its use. Fullen points out that the mutualistic approach is "closer to the realities of curriculum change" and therefore implies the method to be the more practical of the two approaches. Certainly, a mutual adaptation approach as discussed earlier, has been taken in developing a flexible program in "Close Encounters with the Built Environment".

Fullen (1979) lists nine factors which he reports have been consistently found to relate to whether or not implementation takes place: pre-history, distinction between content and role change, clarity of goals/means, in-service training linked to implementation problems, meetings, local materials, adminis-

trative support, overload of changes, and time-line for implementation. Each of these factors will be examined as they relate to the program in question.

Pre-history relates to the scepticism that can develop on the part of teachers from their experiences with past implementation failures. There may be reluctance to accept any new innovation arising from external sources. A major benefit from the standpoint of introduction of built environment program material is that it has been introduced successfully elsewhere, notably in the U.S.A. and Britain. Thus, it may be possible to "sell" the program to the sceptics on the basis of proven success in other locations.

Role change definition and role identification are important determinants of successful implementation. Fullen tells us that it is particularly important to be aware of all the potential role change and behavioral changes that will accompany implementation and to exercise proper planning in anticipating and defining these changes. In some cases, old roles and behaviors must be abandoned and new roles taken up in order to implement the program. Coupled with altered roles, is the human trait that tends to make people suspicious and fearful of change. Usually, any change is viewed negatively if a deviation from accustomed tasks, roles or behavior is likely to occur as it disrupts the familiar and introduces unknown elements. Certainly, adoption of the mutual adaptation approach where teachers and students work closely in developing and modifying material from "Close Encounters with the Built Environment" might be viewed as disruptive or threatening to some teachers and students if it led to a major change in roles. Perhaps evidence of such a reaction is apparent in the response of test group B during pilot testing of the program.

I do not believe that the material or the approach is particularly divergent from current curriculum emphasis in the B.C. schools. Certainly, the general learning outcomes of the B.C. art curriculum encourage development of critical thought processes and "reasoned criticism" on the part of the individual, as well as development of imagery, design concept understanding, and

historical and contemporary awareness - all major concerns of the program

content. What is different from traditional approaches to art is the stress

on field activities and team and small group involvement in project comple-

tion. Also, the topic is considerably broader than traditional art subject

matter and embraces architecture, urban design and planning, historical

considerations and sociological concepts.

Argyle (1967) posits that society in general tends to resist change of

any sort and McFee (1974 a,b) discusses the relationship of art, culture and

environment in terms of societal context. Art education however, perhaps more

than most curriculum areas, is a field in which students and teachers share a

critical awareness of the development of their art form. In art, development

of a critical approach is considered essential (Eisner, 1973), hence the

emphasis on development of building appraisal techniques and critical judgment

which forms a cornerstone of the program should not represent a major change

in concept from that advocated by writers in art education. Indeed, many

authors would agree that the teacher's role is to stimulate awareness and

development of criticism in the student.

Another important factor in successful implementation of a program is the

necessity for clearly establishing the goals and objectives of the program and

the means by which such goals may be achieved. This area is addressed in the

introduction to the workbook which specifies why the study of the built envir-

onment is important and how it can benefit the individual. Furthermore, as a

result of deficiencies in this area identified through the pilot testing pro-

gram, revised versions of the book (Appendix I-b) provide more detail on the

objectives of the program. Suggested reading material in the program biblio-

graphy should aid teachers in seeing the benefits of the program and in apply-

ing the material to their own interests and situations.

Fullen (1979) cites in-service training as an important asset to success-

ful program implementation. He advocates the use of "workshops" for teachers

to address specific problems of implementation. The Educational Resources Information Center (ERIC), also cites studies which indicated that "concrete, on-going, and teacher specific" training which allows teachers to try new techniques and seek guidance and assistance as needed proved a highly effective tool for successful implementation (ERIC 1980, p. 2). Findings indicate that involvement of all levels of staff, including school principals in "staff support" activities, prove particularly useful and that external pre-implementation training was ineffective. The findings suggest that in-house expertise and guidance was more readily accepted and deemed useful than the periodic help of external consultants.

In the case of implementation of a built environment program, it would be useful to develop a team approach to implementation among teachers of related disciplines in a given school or district. In this approach, teachers from the fields of art, social studies, history and architecture and design could work together to discuss implementation strategies and share their experiences. It would likely be highly beneficial to have an individual familiar with the material available to assist the others as required. Ideally, this resource person should be someone known to the group and not considered an "outsider". Thus, development of specialization in the subject within a school district and availability of a district resource person could improve chances of successful implementation. Adoption of this approach would facilitate the use of regular program meetings as advocated by Fullan (1979) providing the pitfalls of such meetings degenerating into "record keeping" or "project administration" as indicated by the Educational Resource Information Center (1980) are avoided.

Use of local materials has also proven important in the implementation process. A study done by the Rand Corporation and described by Berman and McLaughlin (1977) indicates that teachers are more likely to make use of a program that they gained experience and familiarity with by working with the

material and adapting it to their own needs than an externally imposed pro-
gram. For this reason, internal flexibility and potential for innovation and
adaptation of the program materials are major elements of the program.

Administrative support is essential to any program where people are
accountable to higher authority. The administrator provides approval and
support for the program. Obviously, implementation of the program is not
possible without full administrative support and interest. Lawrence (1974)
reports that program implementation proves to be more successful with direct
involvement of local supervisors and administrators than with attempts by
outside personnel.

To attempt to enlist the support of administrators and curriculum author-
ities, I propose to submit a copy of the program and the results of the pilot
testing to the Department of Education's Curriculum Department. I also intend
to publish results in popular journals and periodicals and circulate the
material to authoritative groups and associations such as the B.C. Art Teach-
er's Association, American Institute of Architects, Group for Environmental
Education, and Bulletin of Environmental Education. In addition, circulation
of complementary copies of the workbook to local school districts may prove
helpful, as would presentation of findings at symposia and conferences.

Time frames for the implementation process have also proven crucial for
successful implementation. Gross et al (1970) describe case studies where
teachers who were initially enthusiastic about a new program, gradually became
disenchanted with it and cynical about chances of success. He relates that
this reaction came about due to frustrations which arose with time as the
teachers attempted to implement the new material. Fullan (1979, p. 48) tells
us that "almost invariably people's expectations for the time to implement a
curriculum are too short". Challenges raised by the implementation process for
the teacher may lead to "overload" problems that teachers cannot cope with.
The important thing here is that the implementation process must consider the

potential effects of time frame and overload problems and develop contingency plans and effective strategies to deal with them. In Fullan's view, the key to success lies in developing a strategy which assigns priority to one's activities and a time frame that is realistic and specific. Careful consideration of the various problems and pitfalls of implementation described here could aid successful implementation of a built environment program in the B.C. curriculum.

CHAPTER 5

Conclusion

Evidence presented indicates that the program has demonstrated merit and potential for application to the B.C. secondary curriculum. Results of a variety of evaluation techniques indicate positive response on the part of teachers and students to the material with heightened environmental awareness, evidence of development of critical thinking and judgment, positive motivation towards the subject matter, production of innovative results, growth in knowledge, comprehension and vocabulary and enjoyment of individual and teamwork participation, particularly during field work. Encouraging results have been obtained with one highly motivated class of moderate to high ability. Results with a class of slow learners, returned students and potential drop-outs were less encouraging yet growth in all evaluation areas was indicated for the group on the basis of quantitative testing. Pilot testing revealed some concerns about the program which were addressed through modification and expansion of some areas of the program. The program appears to be implementable, provided implementation criteria can be satisfied. Trial implementation on a one-year basis has been suggested for a larger scale evaluation of the material than possible in this program.

In support of the program, a number of sources in the literature can be cited to illustrate successful use of the subject matter elsewhere. Chapter I summarizes built environment study programs in place in the school systems of other countries, notably the U.S.A. and Great Britain. Concern for, and interest in the subject of built environment, has led to the publication of a number of works, periodicals, and books on the subject as summarized in bibliographies such as that of Chalmers (1981). Obviously, many influential educators and specialists believe the material and subject matter to be important and relevant to the modern curriculum.

An important strength of the program is that it increased environmental awareness and gave students the opportunity to voice opinions, make judgments and propose alternate schemes for the built environment. Increased individual awareness is viewed as essential by Halprin (1978) who stresses the importance of individual participation in the shaping of our cities. Halprin (p. 221) states that "the art of cities is the art of creative assemblage and change requiring the constant and energetic input of all its citizens". His message is that individual awareness of surroundings and desire to become involved with improving those surroundings is essential if the potential of the human environment is to be fully realized.

Hilda Symonds (1971) believes that the school system is an essential element in addressing the matter of societal need for built environmental awareness. She advocates inclusion of urban education in the school system as early as possible in the educational process. McFee and Degge (1980) stress the importance of the urban environment and its quality as a place in which to live and point out that the need for an optimized urban environment increases as population rises and resources become scarce. McFee and Degge (p. 10) state that "the quality of the environment depends on the people's ability to use their design, sensitivity, their social responsibility and their ecological concerns together to solve environmental problems". Lynch (1960. p. 120) stresses the importance of individual awareness by stating:

> "Education in seeing will be quite as important as reshaping of what is seen. Indeed, they together form a circular, or hopefully a spiral process: visual education impelling the citizen to act upon his visual world, and this action causing him to see even more acutely. A highly developed art of urban design is linked to the creation of a critical and attentive audience. If art and audience grow together, then our cities will be a source of daily enjoyment to millions of their inhabitants."

Fabstein and Kantrowitz (1978, p. 2) discuss the benefits of increased awareness, stating that "being more aware opens up opportunities for action, for

understanding places and being aware of them".

A major strength of the program, as indicated by student comments and enthusiasm, was that it provided opportunity for students to voice opinions, make judgments, and propose alternative schemes for modification of the built environment. Added advantages of the program appeared to be the way it promoted group discussion and debate, encouraged teamwork in field activities and problem solving and provided students with the opportunity to use their own creativity and innovation in reporting findings. In support of such activities, Symonds (1971, p. 6) states:

> "The place in our society where all men meet is in the school. Only if the dialogue can begin there, is there some reasonable ground for hoping that in adult life there will be a widespread understanding of the city."

Mumford (1961) supports this point of view, advocating greater public participation in the dialogue related to urban development. McFee and Degge (1980) discuss the importance of teachers and students participating in the process of making thoughful judgments about the quality of the built environment as it affects our experiences. Lynch (1960) cautions us that cities support large numbers of individuals with widely diverse backgrounds and ethnic and cultural differences. In his view, in forming judgments and proposing modifications to the built environment we should try to concentrate on the physical image and allow meaning to develop on an individualistic basis rather than from some directed scheme.

Teacher A, in particular, felt that the material tested was well organized, flexible and clearly explained. The material appeared to be easily adapted by both pilot study teachers with relatively little preparation or necessity to consult other reference material. Activities in the book appeared to be most successful with average and above average students who are able to verbalize and write responses at the applied grade level. Less success can be expected with students whose ability is of the level of test group B, i.e.

students unable to express themselves in verbal or written form. More visual experiences and "hands on" activities and teacher participation will be needed for success with such groups.

The teacher is an essential factor in successful application and implementation of a program of study on the built environment. First it is essential that the teacher understand and believe in the value of the material for the students. Symonds (1971) posits that it is fashionable to consider the city as a hideous place and to advocate the joys of the unspoilt natural environment. She reminds us that we must face reality and recognize that cities are a basic element of human life and that it is therefore incumbent on the teacher to attempt to prepare students to deal with this way of life and to work to improve it. Symonds feels that the teacher must awaken the awareness in students of the actual life of the city. She feels that only through such awareness, gained through training and experience, will the student come and see and understand cities and their complex construction, systems and sociological characteristics.

Finally, it is the investigator's belief that the study of the urban environment is an important one worthy of inclusion in the curriculum. Furthermore, the program described here has been shown to have potential for implementation in the B.C. curriculum on a trial basis. As population grows, shortages of natural resources and inexpensive energy occur, and as further urbanization takes place, there will be an ever-increasing need for the educational system to address the needs of students in relation to the built environment. The students of today will shape tomorrow's environment. It is our responsibility to ensure that they have the intellectual tools and knowledge in order to meet such a challenge.

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Appendix I

Part A- The activity workbook "Close Encounters with the Built Environment" as tested in the pilot testing program.

Part B- Revisions to the workbook arising from the findings of the pilot testing program. Only pages where revisions occur or new pages added to the original are included. Page numbers correspond to the original test version wherever possible.

(Note- an 11½ x 14 inch format was used for the workbook. Pages have been reduced to 8½ x 11 inch format for inclusion here.)

CLOSE ENCOUNTERS

with the

BUILT ENVIRONMENT

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Introduction

This book deals with the built environment and your relation-
ship to it. The built environment is the man-made environment
which surrounds you in everyday life- your house, neighbour-
hood, city, streets, paths or any structural forms. This book
is to be used, not just to be read. It will enable you to get
involved in places, to be aware of places, to understand how
people experience those places and form judgments about them.
The activities in this book are for your enjoyment as well as
to help you become aware of the built environment and how it
affects you as a person.

Each of the activities in the book offers a pathway into a
significant aspect of how we experience, use, design, organize,
or evaluate the built environment. Out of this awareness it is
possible for us to decide how we might wish to change or modify
the built environment. Each chapter introduces an issue through
a set of experiences or study approaches. The ideas are yours
to use, change or expand as you wish. You may work individually,
in small groups, or as a class on most projects. Many different
activities are offered in order to give you a choice and allow
selection of those activities that suit your surroundings,
opportunities, interests or available time. You are not expected
to complete all activities and may select those in any part of
the book as you wish.

At the beginning of each chapter a list of the activities in
the chapter is presented. In most chapters these activities
are grouped under headings entitled "getting started", "ex-
panding horizons" or "doing more". While none of the headings
suggests that the activities under it are more difficult or
complex than any other, those entitled "getting started" may
be expected to provide a logical starting point for activities
within the chapter. Some activities are designed for class use
in the immediate surroundings of the school. Others involve
field work and can be expected to require more time, field
trips or after class study.

No activity in the book assumes prior expertise and extensive
preparation. If you can sketch, take photographs, make notes,
follow directions, build models or write descriptive material
you have all the skills required. Process, experience, aware-
ness, and desire for action are important, not any desired
product. The book and its activities are yours to use and enjoy.
The practical benefits of learning more about experiencing,
describing and appraising your built environment will be of
lasting value for you in years to come.

Contents

Acknowledgments

Your Senses

The environment surrounds us and we constantly interact with it. The environment gives us information about who and what we are and how we relate to our external surroundings. You can find out more about yourself and others by discovering and describing the environment about you through the use of your senses.

Your senses bring you a great deal of information about your surroundings. Places are experienced through your hearing, touch, sight, sense of smell and taste. As your body moves through space you may receive a changing impression of that space through information coming from your senses. A large amount of this information comes through your eyes. You distinguish light and shade, colour, shape, texture and form a variety of mental impressions through visual images. The two eyes allow us to judge distance, orient ourselves in space and examine relationships between objects. Our eyes also allow us to observe the activities of people and living and moving objects.

Our ears, sense of touch, taste and smell provide other information. The ears detect a range of sound, from loud to soft, low pitched to high. Sounds tell us about the size of a place, what is happening there, and also provide information on the nature of the place. For example, think about the sounds you associate with the seashore or deep forest and the different sounds of a crowded street at rush hour. Touching objects can give you a variety of impressions. Imagine cold, hard rock or marble, soft green grass, wet snow, polished hardwood. Touching gives us sensations of heat, cold, pressure, pain and pleasure and may enrich or confirm what we see or hear. Our sense of smell also tells us about the nature of a place and what is going on there. Taste is important too. Licking a gluey stamp may be unpleasant, while savoring an ice cream sundae may be a pleasurable experience which you wish to prolong.

The brain is our computer that receives information from the senses, interprets it, and governs our reactions to sensory information. It is through this action of the senses and our intellect that we form impressions of our environment and react to those impressions.

1. Sensory Experience - Discovery and Description

Concentrating on your sensory experiences will enable you to better describe the built environment. A group of activities follow which will allow you to discover your environment through the use of your senses:

GETTING STARTED:

Open Space Activity- sensing places by concentrating upon open spaces and their properties by using your senses one at a time will help you become aware of your perceptions.

The Sensory Walk- noticing how places and your perceptions of those places change as you walk through them while concentrating upon your sensory impressions.

Shopping Area Activities- using a shopping area as a place to practice sensing the built environment.

EXPANDING HORIZONS:

Guiding by Cards- using "fun cards" to help you sense the built environment through a structured approach.

DOING MORE:

Describing Your Environment- looking at parts of interesting buildings and describing what you see. Exploring other parts of those buildings and seeking information in order describe them through various sources.

Building a Critical Vocabulary- exploring ways of using and building vocabulary through visual observation.

Open Space Activites (after Bulletin of Environmental Education, April 1977, 72, 7-8)

Choose a large open space such as a park, field, play-ground or parking lot and enter it. Stop somewhere and look around. Concentrate on each of your senses in forming an impression of the space:
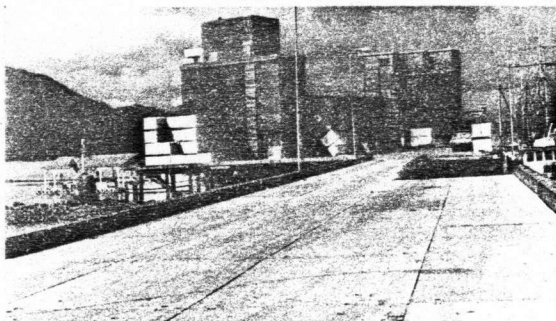
Eyes: What do you see? How is this space used and how does its design reflect this use? Notice light, shadow, textures, the tapestry of lights, colours. Record your impressions:

_____

_____

_____

Ears: Close your eyes and concentrate on the sounds around you. What different sounds can you hear? What sounds are most noticable? What sounds are attractive or unattractive? Are there near sounds, distant sounds, musical sounds or birdsongs? _____

_____

_____

Smell and Taste: Turn and inhale facing in different direc-tions. What smells do you detect? Flowers, automobiles,industry, cooking? Can you also taste things in the air? How do you feel about these sensations? _____

_____

_____

Touch: Examine the ground around you and at your feet. Reach down and touch it. If an object is nearby, reach out and touch it. How does it feel? _____

_____

Motion through Space: Choose an interesting object and walk to-wards it. How does your impression of the space change as you move? Does the object appear different as you get nearer to it? Stop at the object and explore it carefully using all your senses. Record your impressions: _____

_____

_____

_____

_____

The Sensory Walk (after Bulletin of Environmental Education, April 1977, 72, 7-8)

Find an interesting area that has a variety of buildings such as a city or residential block. If possible, choose an area with which you are generally familiar. Then choose a direction to move in that is least predictable. Follow any change of direction that occurs to you along the way. As you move, try to relax and concentrate on your surroundings using all your senses. Try to experience the walk with all your senses-touch, look, listen, smell and think about the sensations. As you move, begin to concentrate upon all the environment about you. Examine sky, clouds, trees, signs, buildings and the perimeters of buildings and other structures overhead as well as things beside you and at your feet. Record your impressions in a notebook. Does the place please you? Have you noticed things that you overlooked before? Are some of the sensations surprizing or interesting? Is today's weather influencing your impression of the place?

Take an area and walk very fast through it, finishing the section at a run. How did your perception of the place change according to the rate you moved through it? Try moving through the same area moving very slowly and concentrating on all your senses. Do you notice a difference? Record your findings. Are you tempted to change direction? Why?

Halt at an intersection or place where there is a lot of activity. Note the different directions, speeds and features of moving objects such as cars, trucks, people, animals. Is there a rhythm or special pace of the activities? What do your senses tell you about the moving objects? Imagine yourself as one of the people you are observing. How would it feel to be that person dressed the way he or she appears?

Turn your attention to the architecture around you. Pick out one or two details that are attractive and study them carefully. Pretend that you have to reproduce a sketch of those details from memory at the finish of the walk and try to memorize each feature.

At the end of your walk, think about your impression of the place. Do you feel different about it now? Did you discover things you had overlooked before? Were you aware of new sensations and feelings? In your notebook, make a checklist of your new impressions and try to compare them to your feelings about the place before you started the sensory walk.

Shopping Center Activities (after <u>Bulletin of Environmental Education</u>, April 1977, <u>72</u>, 8)

Select a local shopping center or community store complex as a study site. Try to find a place where there is a variety of shops and different types of activities and choose a time when people are actively doing things there. Stand in an interesting spot and look around you. Examine colour, light and shade, movement and details of the buildings. Record your sensations: _____

_____

_____

_____

Concentrate on a group of shops that attracts your attention. Examine this group carefully, noting details of the architecture, shape and character of the buildings. Choose a shop that you would normally never enter and imagine you have business there. Enter the shop and study its interior carefully. Are there things about the shop that you did not visualize from outside? _____

_____

_____

Return to the street and examine the people going about their business in the area. Imagine that you are one of those people and follow along behind the person for a time, trying to put yourself in the person's role. How would it feel to be that person? What might they be thinking about? Follow someone

into a shop and imagine that you are that person going about the same business. Think about how that activity influences how you might behave and why you are in the shop. Record your actions while imagining that you are the other person: _____

_____

_____

Return to the street and look at the human activity around you. How is the shopping center or store complex suited to the business people have there? Is the design and layout convenient for people? Is the atmosphere pleasant? Does the place appeal to the senses? Think about how you would design the area to make it a convenient and attractive place to be. Suggest what features are attractive and functional in the place and how it might be improved (use notes and sketches): _____

_____

_____

_____

_____

_____

Guiding by Cards

(from Bulletin of Environmental Education, April 1977, 72, 9-10, with illustrations from that source)

Make up a series of cards on light cardboard similar to the ones shown here. They should be small enough so that you can easily carry them round and work with them. The idea is that a group of cards serves as a random guide to a sensory walk for you or your study group by providing directions and instructions to be followed during the walk. If you wish, you may make up other kinds of cards to add to those illustrated. For example, you might wish to add cards which specify starting the walk at different times of day, role-playing cards or anything that strikes your imagination. You could have an "observe something expensive" or an "observe something old" card. Try variations on the theme to add enjoyment.

Select a partner and an appropriate study site to test the cards. Shuffle the cards and turn one over and proceed with the activity indicated on the card. When satisfied, proceed to the next card and develop the game as you go. Try to think of ways to improve the exercise and if necessary, make more cards to add to the deck. At the end of the activity write a short report on the experience including any observations made at the direction of the cards. Include comments on the usefulness of the method and how it could be improved for use by others.
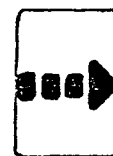
stretch   move   walk   run

forward   left   right   reverse
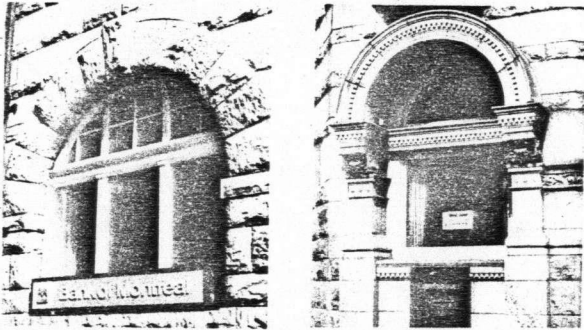
see   hear   smell   touch   taste

ask   tell   write   record

Describing Your Environment

It is very useful to be able to describe buildings and
their features clearly. Follow the directions indicated:

WINDOWS- Architects use names for various parts of windows.
Can you find names for the parts in dictionaries and texts?
Draw or place a photograph of an interesting window below
and name the parts:

DOORWAYS- give you an impression of
the type of building you are entering.
What impression do these doorways give
you? _____

_____

What function would you expect these
buildings to serve? _____

_____
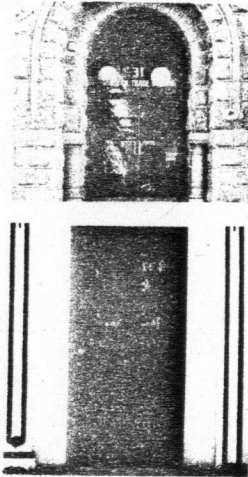
FACADES- Architectural decorations are used to give
character to buildings. Can you find out the names of
the parts of these facades? On a separate page, describe
or draw parts of the decorative detail that strikes you.
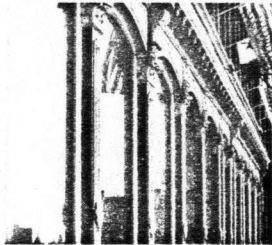
ROOFLINES- may be flat, pitched or mansard
and form the covers or lids of the buildings
to keep out the elements.
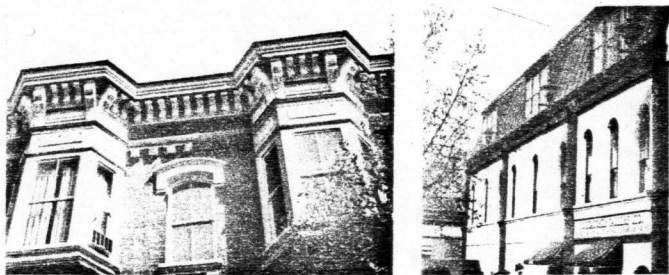
What type of rooflines are illustrated above?

_____

Do you think these rooflines are suitable for
the wet British Columbia climate? _____

_____

How does the roofline influence the appearance
of the building? Can rooflines be enhanced or
decorated for artistic purposes? _____

_____

_____

<u>Draw</u> a series of rooflines that capture your interest. What
type of style are they? Can you look up names for the various
styles? Think about how the style influences the appearance of
the building.

<u>Develop</u> an investigative eye by finding information on archi-
tecture in books such as dictionaries of architecture and
construction. Books on cities and art may also be useful sources
(see the references at the end of this section for suggestions).

Building a Critical Vocabulary

Bentall

Dominion
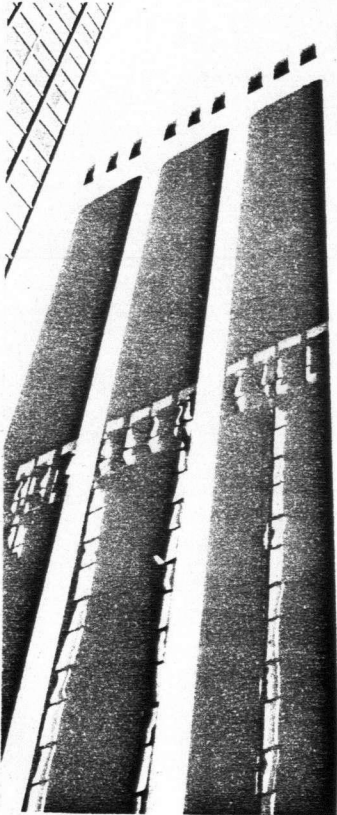
A great variety of words may be used.to say something about an interesting building. You may wish to consider words such as: line, colour, mass, volume, space, contrast, rhythm, balance, light, scale, proportion, symmetry, variety, unity, enrichment, decoration, enhancement, accent, expansion, contraction, enclosure, mystery, focal point, definition or intricacy.

Some words are quite descriptive and carry special meaning: vital, dominant, exciting, bold, vivid, modern, contemporary, powerful, simple, uniform, positive, complementary, convincing, honest, old, inviting, solid, harmonious, comfortable, elegant, restored, renovated, historic.

Find words that describe each building illustrated here from the listings above: Bentall-_____
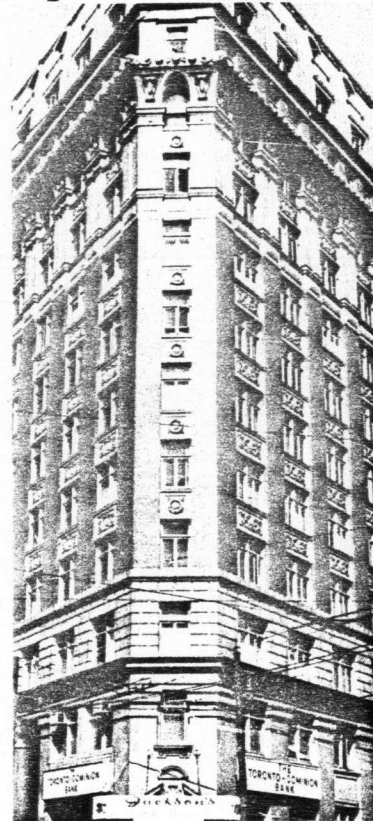
_____

Dominion-_____

_____

Find new words to describe both buildings and list them on a separate page. The two buildings have both similarities and contrasts. List words which illustrate these similarities and contrasts- Similarities:_____

_____

Contrasts:_____

_____

Practice this approach on buildings or places of interest.

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2. Experiencing the Built Environment

Think about the tremendous variety of places that you have visited and experienced during your lifetime. What do you really remember about them? When you went to school or work recently how much notice did you take of your surroundings? When you think about it you will realize just how much we take for granted the details of things in the environment around us. Unless we are specifically looking for something much of our time may be spent on preoccupation with inner thoughts. How many of us are really good observers?

People are exceedingly complex organisms. Our experience of a place may take many forms. We may respond to the place and situation on the basis of what we see, feel or hear. Alternately, our response may be in relation to an experience we have in that place and its special meaning to us as individuals. If the experience is pleasant then we may have a good feeling about the place. If the experience is unpleasant we may dislike or even dread the recollection of the situation.

Our reactions to people, places and situations are largely governed by our past experience and the way in which we have learned to react to life. Through experience, we learn to

judge people and situations based upon inner feelings. The strength and nature of those feelings is very much a personal thing and each of us differs in our reaction to a given situation. Our individual lifestyles, likes, dislikes, choice of job and environment are a product of our experience and of our culture. We tend to be comfortable in familiar surroundings and ill at ease in situations new to us. Each human society tends to reflect these characteristics and each period in the history of man has its special features.

By focussing on your experience, you can become much more aware of your own reactions to a situation. In addition, it is useful to try and understand how others react to the same situation. The groups of activities which follow will help you to focus on your experiences, preference and dislike for places.

You can examine your own experiences of the built environment and the ways in which you perceive things through the use of the following activities:

GETTING STARTED:

Steeplechasing- a focal point on the horizon such as a church steeple, high building, water tower or other structure is chosen and viewed from many vantage points in the surrounding area. The appearance of the object will be examined in relation to other buildings from each vantage point.

Serial Vision- in this activity you will focus on a distant building and experience the changing and emerging view of the building as you draw closer to it.

EXPANDING HORIZONS:

Experiencing a Building From All Sides- this activity involves a close encounter with a built form, a study of the different appearance and nature of the building as viewed from all sides and observation of similarity, differences, order and variety.

DOING MORE:

The Town Trail- the town trail is a planned route through an urban area which may be walked. The trail may be indicated by markers or routes on a map and provides a basis for experiencing the urban environment, practising description of that environment or experimenting with the method.

Steeplechasing (adapted from Bulletin of Environmental Education, Dec. 1976, 68, 6-10)
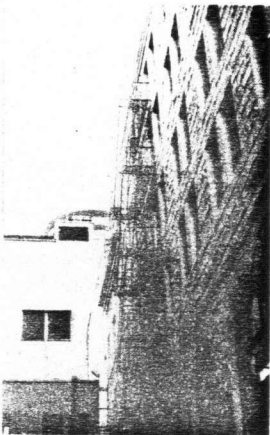
Few places do not have some tall building, church steeple, tower or other object that is visible on the skyline. The objective of this activity is to choose such a structure and observe its appearance in relation to other buildings and objects from different vantage points surrounding it. Once you have chosen a suitable focal point, proceed as follows:

1) Acquire a map of the streets surrounding the focal point. A tourist guide map with a large scale is ideal if available. If you cannot obtain a suitable map draw one to approximate scale.

2) Move around the focal point at a suitable distance stopping at appropriate places to observe the focal point. When you stop for observation record your location on the map.

3) Draw or photograph a selected number of views from your observation points. Try to select locations where you get a different perspective of the focal point in relation to other buildings or structures.

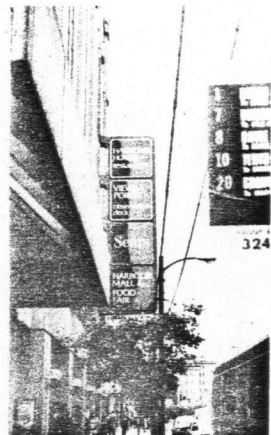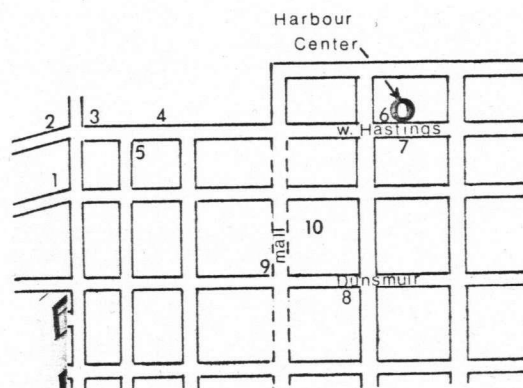4) Make notes on how the focal point looks from each observation point. How does your location influence the way the structure looks? How do you feel about the focal point when you view it from different locations? Would your impression of the structure be different if you only viewed it from one spot? How does the structure compare and contrast with surrounding buildings? Make notes on the design elements of the steeple, tower or structure. How do they influence its' appearance? Are there things about it you had not noticed before?

Present your findings in the form of a written report or oral report to the class.
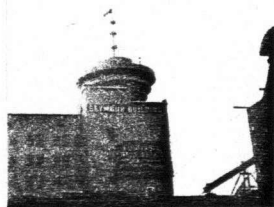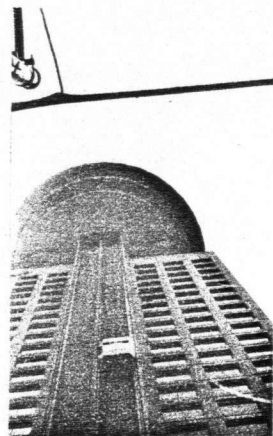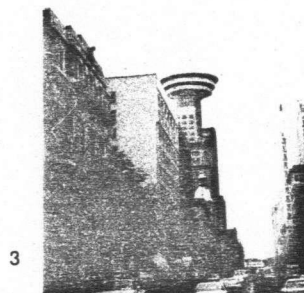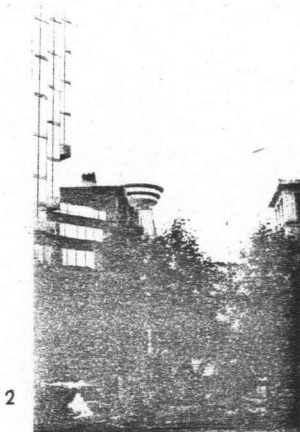
13

10

Harbour
Center

2 | 3 | 4
5
1
6
w. Hastings
7
10
mall
9
Dunsmuir
8

324

6

9

8

7

14

Harbour
Center

w. Hastings

Georgia

Dunsmuir

mall

2 3 4 5 1 6 7 9 10 8

1 2 3 4 5

115
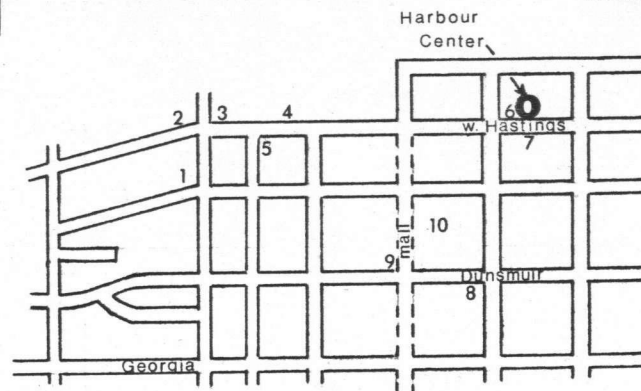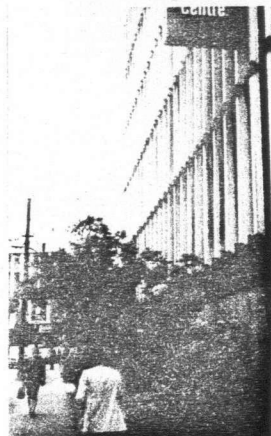
Serial Vision

(adapted from Cullen, G. The Concise Townscape, p. 9)

When you walk from one end of a space to another your impression of the object at the end of that space changes as you approach it. Imagine that you are walking down a long street with your eyes closed. Every once in a while you open your eyes and look down the street in the direction that you are moving. What you experience is a series of changing views of the street and the process may be termed "serial vision". Your perspective of the objects at the end of the street changes as you approach them. In other words you are experiencing an "emerging view".

3

1

2
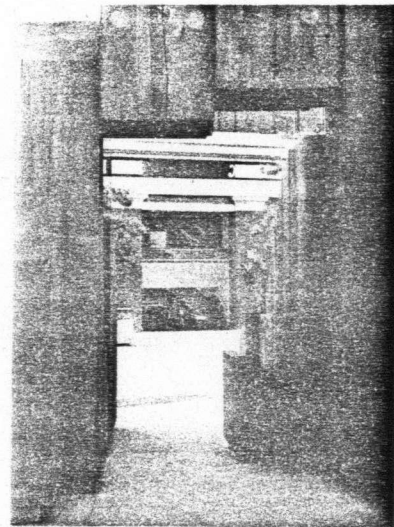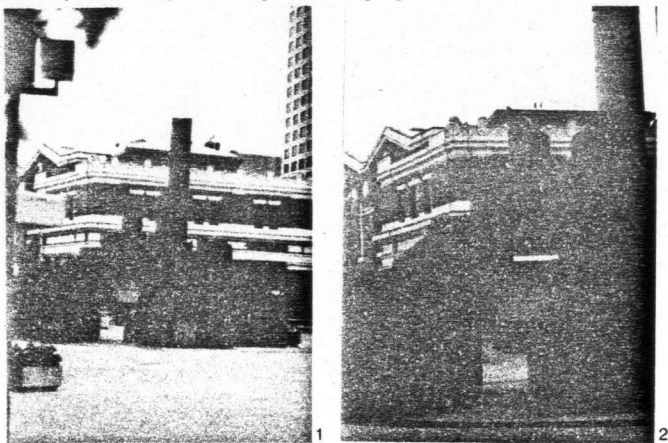
Select a long straight street, preferably with a building or interesting object at the end. Walk down the street and make observations periodically of your surroundings and of your perspective of the end of the street. Take pictures or make sketches as you move from stop to stop. How does the emerging view change and what details become apparent? Next, try the activity on a long curving street. How does the curved view contrast with the straight view? Arrange your photographs or illustrate the process with cut frames as shown on the following pages.
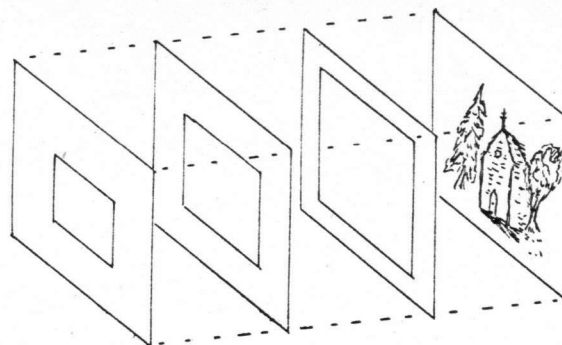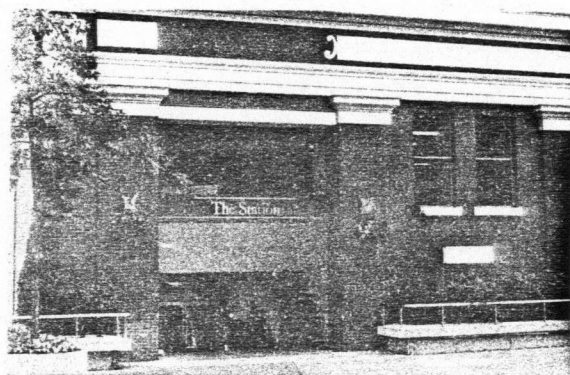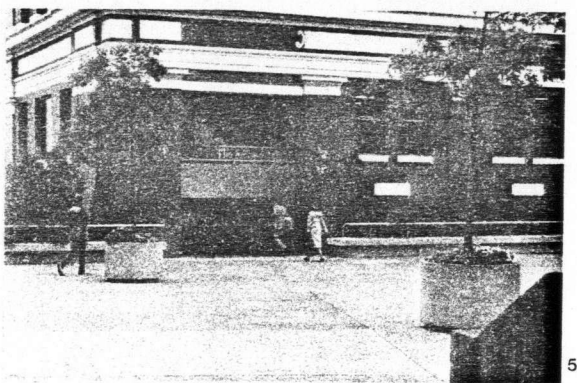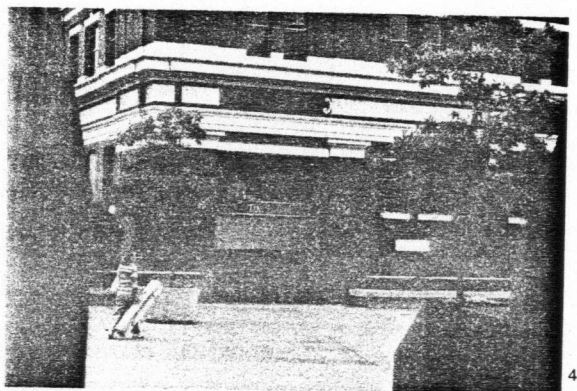
cut frames illustrate emerging view

Experiencing a building from all sides

(questions modified from McFee, J.K. and Degge, R.M. Art, Culture and Environment A Catalyst for Teaching, 1977, p. 117- 122)

This activity involves getting familiar with a prominent building or structure from all sides and experiencing the building in relation to its surroundings.

Select a building or structure that is interesting to you, preferably one with some striking architectural features or historical significance. If possible, obtain a large scale map of the area which clearly shows the streets surrounding the building (tourist guide maps are often good). Move around the building, stopping to observe it from all sides. Take pictures, make sketches and make notes on your impression of the building from each observation point. Move away from the building a short distance and observe it in relation to surrounding buildings. Repeat this procedure from several vantage points around the building. Record the location of the observation points on your map.

Study the example of observation of the Hotel Vancouver in Vancouver, B.C. illustrated on the facing page. Note how your photographs or sketches can be arranged to show the features of the building from different sides and its relationship to adjacent buildings. Try this procedure with your material.
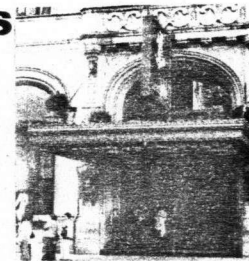
Through your experience you can observe a great deal about the design features of the building. At several observation points ask youself the following questions:

LOOKING FOR SIMILARITY AND DIFFERENCES-

Shape and Form:

What shapes appear most alike? _____
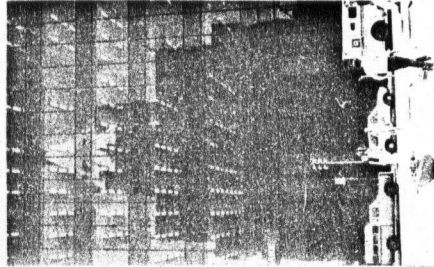
_____

What makes them most alike? _____

_____

How are shapes within the building different and why? _____

_____

_____

How does the overall shape of the building differ from surrounding structures or is it similar? _____

_____

_____
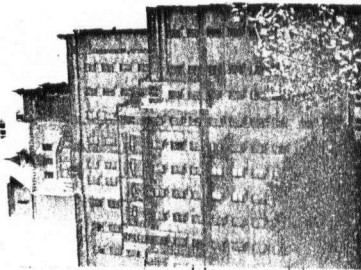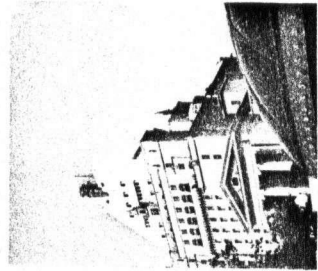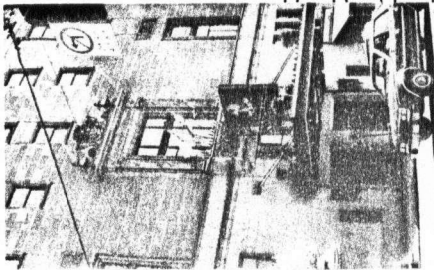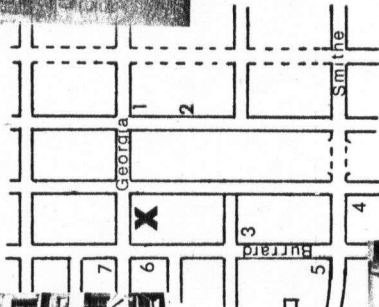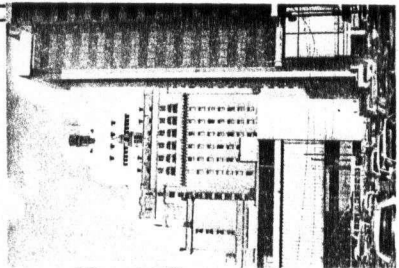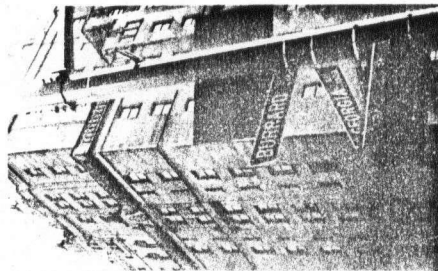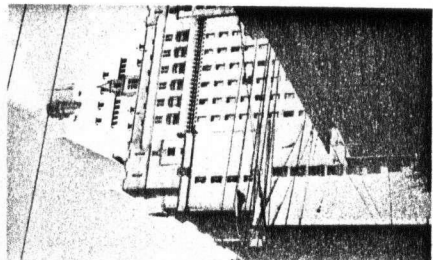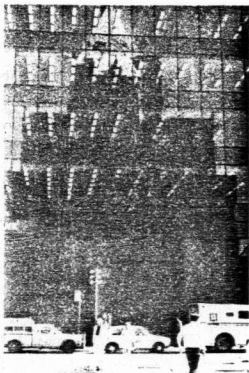
Colour:

Note the colour of the building you are experiencing. Why is it this colour? Does the material used for construction influence the colour? _____
_____

How does the colour compare to adjacent buildings? _____
_____

Do you find the colour(s) of the building pleasing or would you like to change them to some other colour scheme? ____
_____
_____

Consider the texture of the surface of the building. Are there varying textures of parts of the building and how are they similar of different? _____
_____
_____
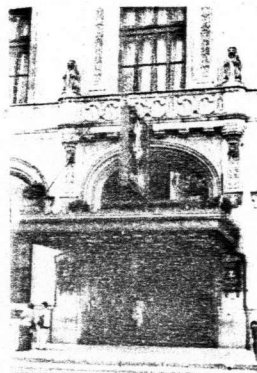
Do surfaces of the building gleam or reflect light? Are there dull surfaces? Why do you think the architect chose those surfaces? Do you like the effect? _____
_____
_____

LOOKING FOR ORDER AND VARIETY-

Things can be organized by colour, shape, line, texture and size to give order. What order do you observe? _____
_____
_____

Variety adds a difference to the way a group of things is order-ed. What variety do you observe in your buildings features?
_____
_____

Looking at adjacent buildings in comparison to the one that you are observing, what buildings or surrounding street objects (eg.-telephone poles, fences) appear most orderly? _____
_____
_____

What building designs or street features appear most varied?
_____
_____

Think about how an architect or planner could use order and var-iety to make buildings and streets interesting.

The Town Trail

(adapted from Bulletin of Environmental Education, March 1978, 83, 16-17)

The town trail provides a way of enjoying and experiencing the built environment. It involves a planned route through an urban area that may be walked and is designed to bring out features of the area for the observer. The route may be illustrated on a guide map or brochure or be marked by signs or posts where town trails have been prepared for use by visitors to the community. Such a trail can have many uses. It can be used to guide people past points of interest for tourism purposes or be organized to illustrate specific features such as shopping areas, historic buildings, house types, architectural features, industry, ethnic community content or landscape detail. Alternately, the town trail can be used to illustrate urban features such as road and rapid transit systems, urban renewal, problems (traffic flow, decay, reconstruction needs) or almost anything that the designer of the trail wishes.

Use of a town trail will enable you to develop interest and have enjoyable and useful experiences in the built environment. Through the use of the town trail you can examine the processes that shape our urban environment and develop a critical eye for evaluating that environment.

DESIGNING A TOWN TRAIL-

Preparation and Planning: Think of an interesting topic or theme and write down what your objectives are in designing such a trail. What do you hope to achieve and who would use such a trail? Do you wish to study a particular type of building, architectural feature, urban problem or historical theme? Once you have established these objectives, go out and find examples in the urban environment to illustrate your ideas.

In planning a town trail you should try to be practical and consider both the objectives of the trail as well as the comfort and needs of the users. Can you design a trail that clearly illustrates your point? Are most of the points of interest along the way fairly close together so that the distance walked is not excessive? Is the trail safe for users and not likely to cause discomfort and hardship?

Presentation of Your Town Trail: As well as carefully planning your trail's route, it is most important that you consider how you intend to communicate ideas and information to the users of the trail. A written guide to the trail with illustrations that add something to the text is very useful. This guide should not just provide a description of what the user sees, but should convey your message, suggest ideas or ways of looking at things that are informative and stimulating to the user.

Check that your material is accurate, clear and well thought out. Directions and maps should be clear so that the user is not confused by the route. If buildings are to be entered, the hours that they are open to the public should be specified as well as any entry fees. It is useful to tell the user how long it will take to walk the trail and approximately how far he or she will have to walk. Any special features such as safety considerations, rest stops or transportation needs should be mentioned.

Possible Topics for Trail Design:
- barriers (fences, doors, walls, hedges, banks)
- advertising (signs, posters, billboards, window displays, storefronts)
- enclosure of space, activities
- construction methods and materials
- gardens
- degeneration and decay
- conversion of form or function
- urban housing types
- natural form vs. artificial form
- human activities

What other ideas for a theme can you think of? _____
_____
_____

Record your choice of a theme here: _____
_____

What are the objectives of your town trail? _____
_____
_____

An Example- The Trounce-Bastion Walk, Victoria, B.C.
This example illustrates how you can focus on the use of
space as a topic for a town trail. The Trounce Alley-
Bastion Square complex in Victoria, B.C. provides a good
area for the study of space utilization in a setting of
restored historic buildings, narrow steets, courtyards,
quaint shops, and boutiques.

Objectives: To show to the user of the trail how
built space may be divided and manipulated, compare
private vs public space, internal space vs external
space and illustrate the effect of space upon atmos-
phere and function of a place.

Length of Trail: 6 blocks

Time for Completion of Trail: one hour

The Route: The route to be followed is illustrated
on the adjacent map. The trail can be easily accom-
plished by walking and follows sidewalks and city
streets through a pleasant and interesting area.
Shops, small restaurants and places to sit and rest
are common throughout the area.
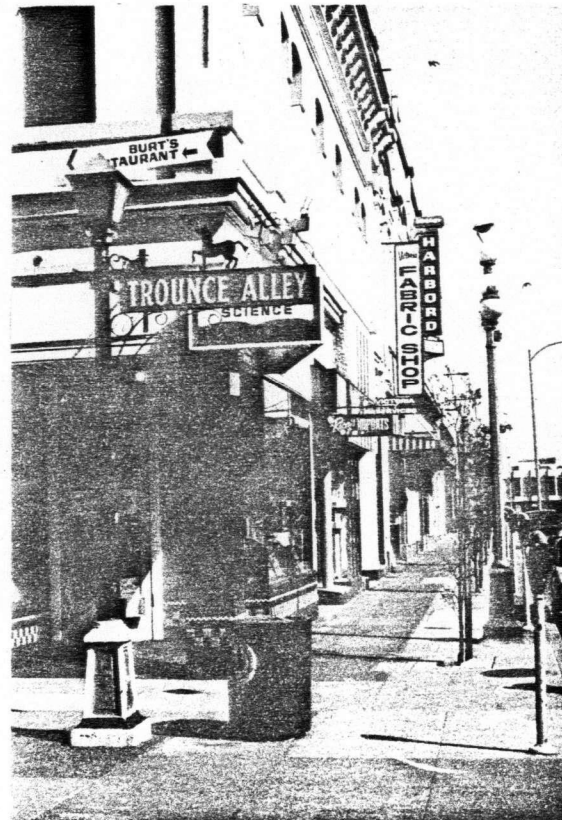
The illustrations here show different types of space encountered on the trail. The explanatory brochure accompanying the trail would show pictures such as those together with a map and information such as:

1-Trounce Alley

1) Anticipated Space (Mystery): The beginning of the walk is exciting as you do not know what people, places, sights, experiences or spaces lie around the corner. You therefore anticipate an encounter with the space beyond.

2) Enclosed Space: This narrow pedestrian pathway provides an atmosphere of quiet away from the busy vehicle traffic. Squares and courtyards would provide similar quiet space.

3) Projection and Recession: Architectural features which project outwards into space and inwards provide contrast, variety and mood to the use of space. Consider the bay window and the recessed arched entranceway.

4) Private Space: People seek out and require private space for reasons of comfort, security, convenience, shade, shelter and relief from the outside world. The inviting restaurant provides a promise of such things.
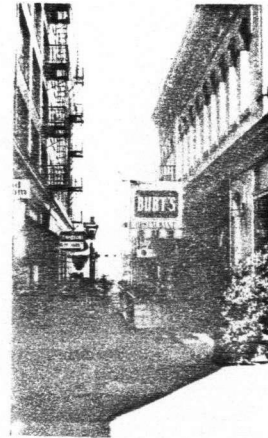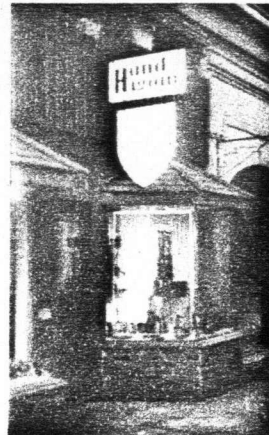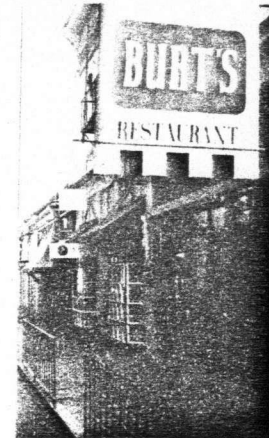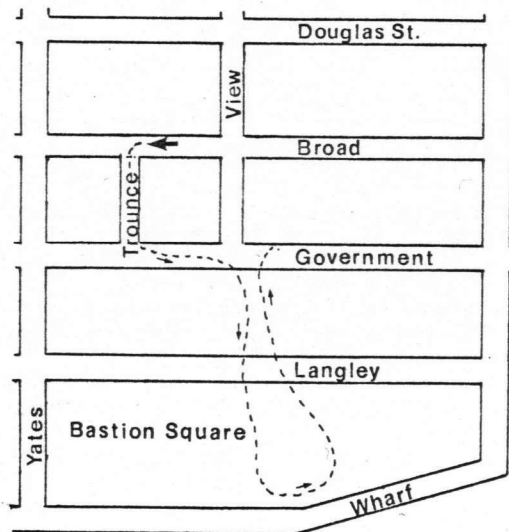
5) Public and Private Space: Here, the public walkway con-
   trasts with the private space within the buildings. One
   can move from private to public space or vice versa or
   pass through the area. In the summer the area outside of
   the restaurant becomes attractive for public dining, showing
   that people will forego enclosed space for outdoor enjoy-
   ment.

6) Interesting Continental Threshold: This appealing and friend-
   ly entrance invites people to move from external to internal
   space. The technique is therefore both visually attractive
   and also useful to the merchant for enticing customers.
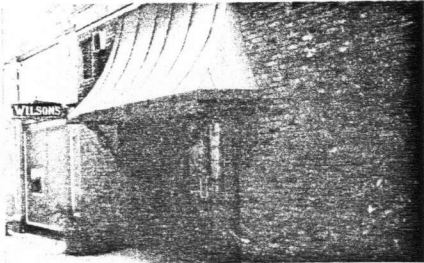
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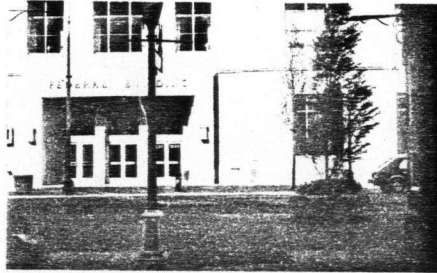
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10

8

7) Formal Threshold: The formal entrance offers a feeling of grandeur and opulance and tells us something about the space within. Such an entrance might attract some customers and deter others who felt the shop was too expensive for them.

8) The Pedestrian Way: Pedestrian walks link or join space together as well as providing comfort and safety to people. Here the alley, dedicated only to pedestrian traffic, provides access to the buildings as well as a link to the vehicular traffic at either end.

9) Separation of Pedestrian and Vehicular Space: The alley opens onto a busy street with vehicular traffic and thus joins space with a different function. Barriers (10) separate the space.
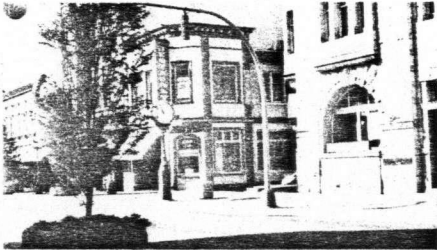
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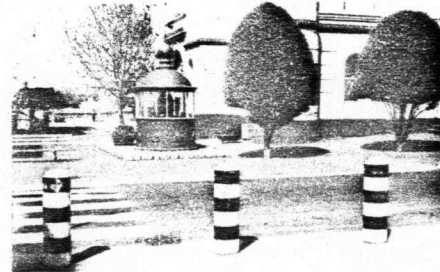
2

2- Bastion Square

1) <u>Anticipated Space (Mystery)</u>: The approach to the second portion of the trail is exciting as you have to anticipate what is unseen beyond the corner of the Bank.

2) <u>Barriers</u>: The striped posts mark the boundaries of space serving different functions. They prevent cars from entering pedestrian space and provide a message about the function of enclosed space.

3) <u>Street Furniture</u>: Trees, benches and other appealing and useful objects add decoration to the space and improve its function for human activity.

4) <u>Planters</u>: Add visual attraction, contrast of living <u>vs</u> non-living things and act as a form of barrier to separate private space of the restaurant from the public walkway. The restaurant sign identifies what type of space lies within the building and tells us what type of food is offered there.
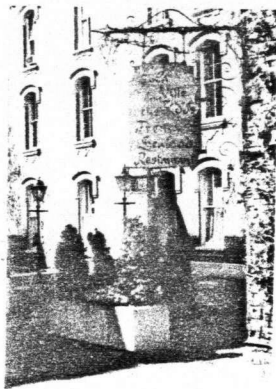
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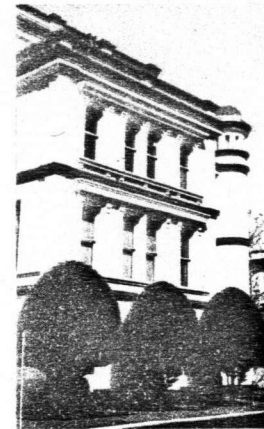
3

5) <u>Closed Space</u>: A break in the line of the street is
   created by this enclosed space. The eye is drawn into
   the space and the lamp standards provide a sense of
   progression.
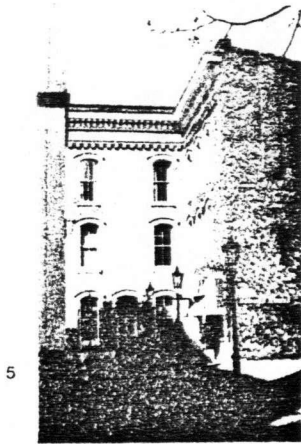
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6

7

6) <u>Enclosed Space</u>: The arrangement of the streets and buildings
   plus the privacy of the planters provides an enclosed and
   attractive entrance for this restaurant.
7) <u>Pedestrian Way-Movement and Dividers</u>: Efficient pedestrian
   movement is important in a busy city. Here street lights, trees,
   and brick patterns in the pavement help to separate the pedes-
   trian traffic into a two-way flow.
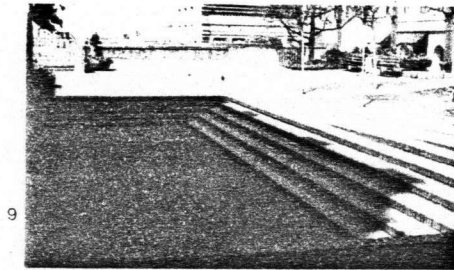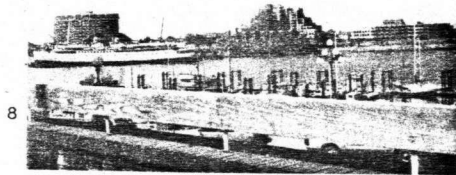
8) <u>Vantage Point</u>: The vantage point is a space set aside and des-
   igned to provide an unimpeded view of the space beyond. A barrier
   is provided for safety reasons. The vantage point allows the
   viewer to observe open space from enclosed urban space.

9) <u>Change in Levels</u>: Changes in level provide relief from the
   continuity of flat spaces. The feeling of height provides
   exhilaration and emergence. Level changes can be used to make
   open space interesting.

10) <u>Textural Properties of Space</u>: Texture of bricks, paving stones,
   concrete, grass, and other materials can be used to add interest
   to space. A textured surface pleasing to the eye is far more
   appealing than an expanse of asphalt. Texture of flat places can
   be used to link the buildings which rise vertically from the
   flat space to appealing properties in that space.

3. Influence of Design and Materials

Your environment is composed of both natural and man-made objects. The built environment consists of man-made objects crafted with the use of materials such as wood, concrete, steel, brick or masonary according to the technology of the time, function of the structure, customs and fashion at the time of construction, cost and other considerations. Buildings and man-made structures can be categorized according to their function- ie. as dwellings, businesses, transportation systems, storage areas, recreational areas, etc. The attitudes that people have in regard to built structures varies with the function, atmosphere, appearance, and significance and meaning of the structure in relation to the culture and experience of the individual.

The designer of built structures is faced with the task of considering many factors such as size, function, choice of materials, location, durability, cost, appearance, relationship to other structures and systems. Use of space is a basic element of the design task as a building is essentially a man-made structure which partitions, divides or alters natural space in some way.

The physical features of a place are important both to the function of that place as well as its appearance. Size and form are important in relation to the number of people using a place, how much time they spend there and the nature of the activities they engage in there. Surfaces offer a combination of colours, shapes and textures and often have a major effect on the sound of a place due to reflective or absorptive properties. The kinds of sounds one hears and the differences in sounds inside and outside the structure are important design features related to space and choice of materials. Maintenance and durability are important in choice of building materials and influence repair needs, life of the building, appearance, value, and health and sanitation concerns. Designs which consider light and air entry to the structure are also important in human comfort, temperature control and economy, and health considerations. Amount of light, colour, sources of light, aesthetic effects of light patterns and use of light are important design considerations. Openings in structures provide access and choice in number, size and location is important, both to access but to the overall appearance of the building and its function and atmosphere.

The following activities will help you to learn how design and use of materials influence the built environment:

Part A- Activities for relating how people are influenced by design and use of space in the built environment.

GETTING STARTED:

Personal Space Activities- examining the properties of personal space and that of others in different roles, professions, and activities.

Defining Personal Space with Objects- seeing how well objects serve people in providing and communicating personal space.

Shared Space Activities- designing and symbolizing space.

Analysing the Look and Use of Space- analysing and redesigning a space.

EXPANDING HORIZONS:

Network Spaces- tracing the nature and effectiveness of network systems.

DOING MORE:

Creating Symbols for use in Networks- designing and collecting graphics and examining networks for use in the environment and school setting.

Part B- Working with material and design to examine the planning, function and durability of the built environment:

Dating Game- establishing when in time certain materials and styles were in use in the built environment. Tracing styles, building designs, lettering and other historical content.

The Houses Game- planning the layout of a small group of houses with the consideration of important design elements; construction of a model.

The Improvements Game- examining and proposing improvements that could be incorporated into your own neighbourhood or commercial area.
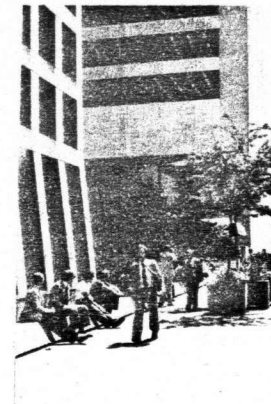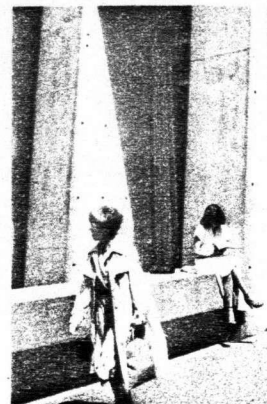
Personal Space (concepts and questions adapted from McFee, J.K. and Degge, R.M. Art, Culture and Environment A Catalyst for Teaching, 1977, 219)

Have you ever walked upon a deserted beach or broad meadow and had the feeling that the space all around you was yours? When you have been packed tightly into a crowd did you experience a feeling of being squeezed into a small place with others pressing in upon you? You relate to the space around you in a personal way and if you think about it you will realize that this "personal space" is portable for you carry it about with you and it shrinks or swells according to your surroundings. Try the following activities to experiment with personal space:

Find a small space somewhere in your home or school environment (a closet, table top, underside of a table or chair, or the space behind a door would be adequate). Think of things to do. What kinds of things can you do in that space? What things does the small space prevent you from doing? _____

_____

_____

If you were to redesign the space to enable you to do one of the things you currently cannot, how much bigger and how much different would you make the space? _____

_____

_____

How much space do you need to put on your coat? Your shoes? Paint a picture? Eat your lunch? Climb on a bus? Can you measure and describe space needs for these activities? _____

_____

_____

Do you feel differently when you enter the school hallway when it is crowded after coming in from a large playing field? _____

_____

_____

Look at the people about you and in pictures, films and different types of activity. What do you think about their personal space in each case? How does personal space vary with the activity and the role of the individual? Take several interesting examples from your observations and analyse them in written form comparing and contrasting them where appropriate.

Defining Personal Space With Objects

(concepts and questions adapted from McFee and Degge, 1977, 224).

Objects can be used to define personal space and set it apart. For example, what might you do if you wished to reserve a whole seat on a bus or train for yourself?

_____

_____

How would you keep a whole work table to yourself? ____

_____

_____

How would you prevent your lunch from getting mixed up with a lot of others? _____

Objects not only define personal space but they may also indicate function and ownership. Consider the furniture in the room around you. What function does each object suggest? _____

_____

_____

Some objects denote ownership or rights to personal or private space. Consider your desk, house, room, car etc. Public buildings often have a mix of public space with appropriate furniture and private office space for staff.

You can look at objects in terms of their function, meaning, appearance and potential for change or other use. A checklist can be established for each object as follows:

Social Function- does the object clearly communicate its intended use?

Meaning- could you change the way we use the object to make it function better?

Visual Properties- is the object attractive and does it improve people's personal space?

Information- is there a way of altering the appearance of the object so that it provides more information about its function or is more appealing?

Go out and look for some objects in your environment. Examine them in private and public areas such as homes, parks, theatres, restaurants and gas stations. List the objects and for each go through the checklist above listing responses. Record the objects you have observed here: _____

_____

_____

_____

Shared Space Activities

(adapted from McFee and Degge, 1977, 227-228)

You can design and construct an individual storage system
that will be a part of a shared storage system structure
assembled for use by your class. Proceed as follows:
Design Criteria: What are the space needs of the class;
of each student? When is the space needed during the day's
activities? Is the storage long term or short term in
nature? What items are being stored and do they have any
special storage requirements? How much space is available
and where is it located? Is the proposed location (s)
practical and functional?
Design Elements: What materials do you propose to use?
How will the completed project look? Are you considering
a modular design with stacking elements? Are there ways
of improving the appearance and function of the design?
What will it cost for the project and are there less ex-
pensive methods of construction? How much time will the
project take to carry out? Is the proposed method strong
and safe?
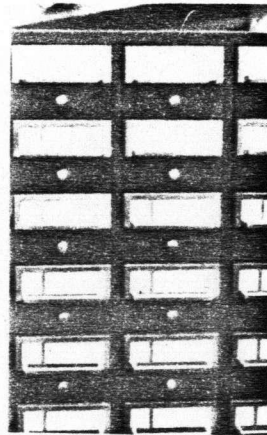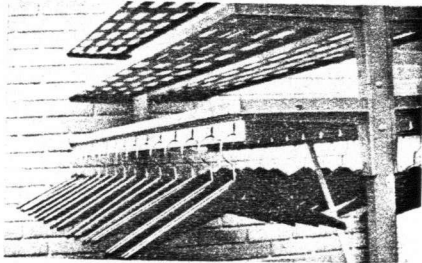
Construction: Once you have finalized the choice of design, proceed
to prepare detailed plans, cost estimates and obtain the necessary
materials. Decide on a work schedule and how the task is to be carried
out using people's time efficiently. Try to divide the labour so that
a complementary approach is taken- ie. some people cut lumber, some
smooth boards, others paint and finish.
Evaluation: During construction and at completion of the project, carry
out an evaluation of the project. Did it meet the design criteria? Is it
functional and visually pleasing? Were there problems that you did not
consider? How does the space allocated for individual use relate to the
space used by the entire class? Does the project tell you something about
efficient use of space?

Analysing the Look and Use of Space

(adapted from McFee and Degge, 1977, 228-229)

Space use is a very important facet of the design of things which are part of our built environment. In assembling design concepts you must try to envision how space will be used, how groupings of space will look together and how people will react to the design. The appearance of a space is important as it tells us what activities can go on there. In addition, the way a place looks also determines our feelings about it and a designer should be conscious of the attitudes of the user. You can learn more about the attitudes you have, as well as those of your classmates by participating in a class discussion group. Proceed as follows:

Divide up into discussion groups. Ideally, each group should have about six people in it. Elect a discussion leader whose job is to keep the discussion going, make sure all people participate, and stop some people from dominating the discussion. Elect a recorder who will write down the results of the discussion for later presentation to the class.

The objective is to discuss how areas of your school or classroom look and function and attempt to see how people's attitudes are similar or different. Go through the following guiding questions or adapt them to your situation. (All participants should record their own responses here and accept, reject or modify points of view that come out in the discussion).

How is your room similar, different, or in any way special in comparison to other classrooms in the school? _____
_____
_____

How do you feel about the design of the room? Is it well designed or could it be improved? _____

How could it be improved? _____
_____
_____

Does the material used in the room (carpet, flooring, seating, wall covering etc.) limit what you can do in the room? _____
_____
_____

Is the room so functional in design that it is uninteresting?
_____
_____

If you could make the room look more interesting, how would you do it? _____
_____

Examine the features of the room with regard to materials used and make any recommendations you feel would improve the appearance of the room. _____

_____

Look at the lighting and window arrangement in the class-room. Is the lighting arrangement and the availability of natural light well designed? _____

_____

Could the floor level be broken up into more functional space for different activities? _____

_____

Should the seating area and furniture be changed or re-arranged? _____

_____

What colours are present in the room? How does the colour scheme affect the feeling you get in the room? _____

_____

Would you alter the colour scheme? _____

_____

In the space below draw a diagram of how you would redesign the room to make it more pleasant or functional. Consider the design objectives of the room and the feelings of other users in your planning.

Meet together as an entire class following the discussion group sessions. Each group's reporter should present a brief report of the findings. Notice how groups other than your own may differ according to the way their discussion developed. Compare your own responses recorded here to those of your own group and the other groups'. What do you conclude about personal attitudes and feelings towards the built environment? _____

_____

_____

Network Spaces (adapted from McFee and Degge, 1977, 232-233)

As you move about in the built environment you make use of stairways, hallways, footpaths, streets and other structures designed to get you from one place to another. These devices are termed "networks" and their effectiveness depends upon how well the space alloted for the network allows for the desired pattern of movement and use. You may examine the network concept through the following activities:

Networks in the Classroom Environment: Divide into groups and start by making a large scale map of the classroom on a big piece of paper. On the map, indicate all the paths which are used to enter and leave the room. Act out the daily use of these routes to become familiar with the ways you get to doors, blackboard, teacher's desk, books, storage areas, etc. Think about what happens when the entire class moves at one time. Where are the congested areas in your network? _____

_____

What areas are not used much of the time? _____

_____

Can you think of a better arrangement that would prevent congestion and improve use of space in your network? _____

_____

_____

Network Spaces Within and Around the School: Try to obtain a floor plan of the school and surrounding grounds, possibly from the janitor, District School Board or planning office. If a plan is not available, draw one to approximate scale. Obtain a map of the surrounding community-enlargements can be made using an overhead projector with the image directed onto a large piece of paper. From the school floor plan, locate and mark the spaces in the school that are used by all the students (gymnasium, cafeteria or lunch room, library). Using a felt pen, indicate on the map the routes students in your class follow to move to different places in the school during the day. Draw the paths followed by several individuals and then make tours along those routes to study what those individuals experience in one day. Where do traffic jams occur?

_____

What is going on in the halls, besides people moving from one place to another? _____

What happens in the heaviest traffic areas? _____

_____

Does the traffic in different areas vary with different times of the day? _____

_____

Is there enough light on the routes? Is there space for people to stop and talk or do they interfere with traffic flow? _____

_____

What effect would changing the times people use spaces, the way people behave, and the atmosphere of the spaces do to make the process of getting from one place to another a more pleasant experience? _____

_____

_____

Study traffic flow patterns in your school grounds and on the approaches to the school using the maps you have obtained. Do you feel the networks around the school are well planned? Can you suggest improvements?(assume you are a member of a planning team given the task of designing the layout of the network serving the school area). Write a report on your approach to the problem and include any diagrams that are helpful.

Symbols (adapted from McFee and Degge, 1977, 233)

Symbols and signs which provide information are a very important means of informing people about the location and function of different parts of a building or assemblage of buildings. Every day you encounter many symbols which make it easier for you to share network spaces with many other people. To make yourself more aware of this, collect pictures, make drawings and observe symbols and signs as you travel about.
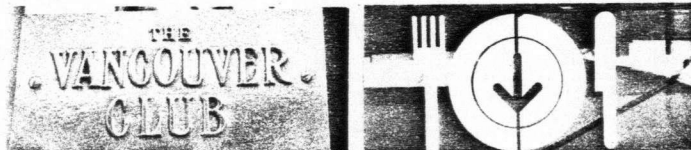
Observe road and highway signs. How do they tell people what road they are on and where they are going? What kind of symbols tell motorists about important safety matters? _____

_____

_____

What symbols indicate a park or playground; a railway crossing; a steep hill? (draw)

What kind of symbols are used, other than words, to indicate on shop signs what a shop sells? _____

_____

_____

How are different rooms in the school marked? Examine the school office, gymnasium, different classrooms. _____

_____

What techniques are used to make symbols noticable and obvious at a distance? _____

_____

How are signs placed so that they are still visible when a space is full of people? _____

_____

Can you locate examples of poorly designed signs or symbols in your school or local environment? Describe and identify the problem: _____

_____

_____

Examine advertising material in magazines and store displays. How are symbols used effectively and what qualities of shape, colour, texture and design do they have? _____

_____

_____

Experiment with creating your own symbols and signs which use symbols. How would you indicate a gymnasium, tennis court, ski touring trail, seafood restaurant, pet shop, farm implement supplier or any other activity that interests you? (try different media, two and three-dimensional designs)

PEDESTRIAN AREA

EMERGENCY AND DELIVERY VEHICLES **ONLY** BEYOND THIS POINT

UNAUTHORIZED CARS WILL BE IMPOUNDED

? TOURIST Informatio

The Dating Game

(adapted from B.C. Urban History: Discovering the Past in the Present, 1974, p. 67-69, with illustrations from that source)

You can discover a lot of interesting things about the historical trends of the area in which you live by conducting a walking tour and observing trends in appearance and construction methods according to the age of the buildings. For example, you might notice old wooden stores with false fronts among brick or stone buildings of a later period. Alternately, you might see residential streets with large 2½ storey wooden houses that are quite different from nearby single storey, 2 bedroom houses of a more recent period. It might be apparant that there has been a shift in the location of the commercial and retail center of the area with time or a trend towards movement of shopping centers into the suburbs.

Understanding such trends will involve you in consideration of many factors such as changes in construction materials and technology, the fashion of different time periods, population trends, the advent of transportation systems, economic factors, changing land use patterns, population density and availability of services. Trends in urban development could well be related to world events and immigration patterns.

In order to study this aspect of the built environment it is important to be able to assign dates of construction to the buildings observed. Information on the age of structures may be obtained from a number of sources. Some heritage buildings are identified with dated name plaques or are described in brochures on city architecture. Interviews with owners and residents can provide additional information. City or municipal hall records and planning offices may be cooperative. Good reference books are often available which describe trends in local architecture and general categories of construction. Local museums may have displays or archival material.

The style of architecture is often an excellent indicator of the age of a structure. For example, house styles in B.C. have changed from the Victorian form (turrets, dormer windows) of the late 1800's:

to Ontario Cottages ; California Bungalows or ; 1920-30's romanticism ; 1940's International Style ; to 1950's Split Level Ranch Style and so on.

Lettering on buildings, often found on cornerstones or above the entrance, can be a useful indicator of age according to the type of lettering employed. By accurately dating one building you may obtain clues as to the age of adjacent ones.

TEA 1934

BANK 1895

GARAGE 1942

Once you have assembled sufficient background material and references, proceed to organize a walking tour of your study area. Obtain a map or prepare one for the walking tour and work out a coding system for the building types you will observe. For example, if the walk was through a residential area with some of the house types illustrated on the facing page, you might use a code such as:

California Bungalow - CB
20's-30's Romanticism - R
International Style - I
Split Level Ranch - SLR

As you move through the area, record the code on your map so that you obtain a plan of the house types on the street and the approximate age based on the style and any other information you can obtain. For each major type of house observed, note the construction details, materials used, ornate decorations, spacing of buildings, shape and dimensions, and any other special features. What trends are apparant in the study area with time? Why do you think changes occurred? How did altered technology change the frequency of use of different construction materials and materials used to finish exteriors?

Prepare a report on your findings, including maps illustrating your walking tour and the age of structures you observed. Describe the features of the buildings and the materials used in construction and provide sketches or photographs to illustrate your report. Speculate on why built form changes in different time periods and what factors have influenced changes in your study area.
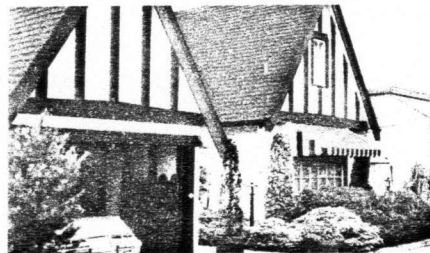
The Houses Game

(from Bulletin of Environmental Education, July 1979, 99, 17-20, with house model and evaluation form from that source)

In this activity you will have an opportunity to design your own arrangement of a group of houses and consider both the functional requirements of the arrangement and the most attractive design you can devise. Proceed by taking an 8½ x 14 " piece of paper and tracing the pattern for 12 houses on the paper using the pattern shown here. Cut out the model of each house and fold it as indicated in the diagram to leave a back garden on each dwelling. You now have 12 houses, one of which is to be designated a grocery store and identified in some way (colour, label or sign, etc.).

Take another 8½ x 14 " piece of paper to represent the land upon which the houses are to be arranged. A piece of stiff cardboard or poster board would be excellent. Assemble glue, felt pens, pencil crayons, painting materials or other suitable items with which to complete your model.

Your task is to design a model of the arrangement of the 12 buildings which is interesting, attractive, convenient and inexpensive to construct. A number of design considerations are listed on this page which must be taken into account in your model. Experiment with a number of different arrangements before deciding on a final layout and consider the advantages and disadvantages of each arrangement.
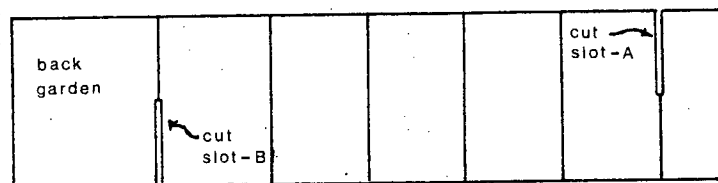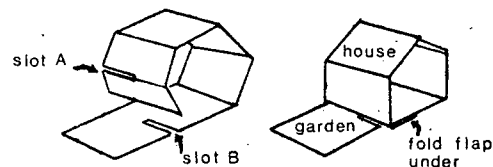
House Pattern

Design Considerations:

Access- Each house must have suitable footpath and road access and there should be room to park cars closeby. Traffic should not cause problems of noise, safety or interfere with privacy.

House orientation- Sunshine is desirable in back gardens and people will wish to use their gardens for recreation. A southern exposure will maximize entry of sunlight. Privacy in home and garden is required.

Open space- space for recreation, landscaping and children's play should be considered and indicated on the model. Consider noise, safety and appearance of the area.

Convenience- People will wish to visit each other and have easy access to the grocery store and their homes. Visitors from outside the area will require access and parking. Delivery vehicles will require access to the area, particularly to the store.

Once you have carefully selected your design, proceed to complete the model by gluing down the houses on the site. Prior to positioning the houses, make sure all the roads, paths, open spaces etc. are drawn in and identified in some way. Use any techniques you wish to enhance the appearance of your model and the clarity with which it illustrates the elements of your design.

Evaluation:

You may evaluate your own design or those of other members of the class using the evaluation form shown on this page. In evaluating designs, ask yourself how well the design satisfys the design considerations. Is the layout convenient? Is it practical and does it make best use of the site? Does the design look expensive to construct? Has privacy, noise, traffic flow, access, safety been accounted for? Is the design attractive and would you like to live in the area? How might the design be improved?

Class evaluations of designs could be done in open discussion or by ballot. In the case of a ballot, someone will have to count the ballots and fill in the number of people responding to each of the boxes on the evaluation form.

Evaluation Form:

	very	fairly	in between	fairly	very	
attractive						unattractive
convenient						inconvenient
inexpensive						expensive

Other Activities:

You may wish to devise other activites based on this idea. Some things that could be done are:
-designs that make use of different types of houses such as single (detached), semi-detached (duplex) or condominium-type housing. Consider the advantages and disadvantages of each.
-experimenting with housing density variations and the problems and opportunity posed by such developments.
-designing for special needs of people- the old, family needs, young people without children, single parents, handicapped people
-designing for special environments- heavy snow conditions,strong prevailing winds, periodic flooding, hot dry conditions.

The Improvements Game (modified from Bulletin of Environmental Education, July 1979, 99, 21-26)

The objective of this activity is to allow you to experiment with planning for improvement of an area familiar to you and consider alternatives for future use of parts of that area.

Proceed by walking individually or in small groups around an area close to your school. Select a study area of only a few blocks in size so as not to make the project unmanagable. As you tour the area, concentrate on sites that are suitable for replanning such as derelect buildings, unused vacant lots, places that are not being actively utilized or industrial sites that could be relocated elsewhere. Record details of your observations by photography, sketches, notes or other appropriate means and locate each site's position on a map. Identify each site by means of a number for future reference.

Think about possible alternate use of each site that you have observed. As a guide to alternate use, you should decide on a theme for your redevelopment plans. For example, do you wish to redevelop the area as a residential area with facilities for people such as more recreation area, playgrounds, activity centers, etc? If so, your redevelopment plans would concentrate on creating housing, leisure, local shopping and network space such as streets, paths or transit systems.

As an aid to developing your plans for the area you may wish to use a checklist such as the one shown below:

Redevelopment Checklist

Theme: To improve the quality of the residential area adjacent to the school by providing more leisure facilities and activities for local residents.

Site Number	Present Use and Condition	Alternate Possible Use
1	Vacant level lot; covered with wild grass	Playground and fitness circuit
2	Abandoned corner grocery store	Activity center for young people
3	Parking lot; currently not fully used	Partial conversion to green space area and foot and bicycle path linking Marine Drive and Keith Road

When you have completed your survey and developed your ideas for alternate use of the area, meet with a small group of students and present your findings and suggestions. Consider any ideas they may have and try to achieve a consensus on a redevelopment scheme for the area. Prepare maps and diagrams to illustrate your plans and appoint a group spokesperson to present the findings to the class. Discuss the findings and the approach taken in class.

If you wish, you may expand this activity into a class project which is designed to produce a land use plan for the area surrounding the school. Proceed as follows:

Discuss, as a class, the theme for desirable land use in the area around the school. If the area is residential you may wish to enhance its residential qualities to make the area a more pleasant and interesting place in which to live. If the area is largely commercial it may be desirable to try to create more green space, recreational opportunity or to generally enhance the appearance of the area. Alternately, you might wish to improve transportation systems in the area and devise a scheme that is least disruptive to established areas of the community.

Once you have decided on a class theme, proceed to investigate the area in small study groups as indicated on the facing page. The area around the school should be divided among the groups so as to produce a complete study of the entire surrounding area. Each group should finalize its recommendations and the group spokesperson should present them to the class.

A map of the area surrounding the school can be drawn on the blackboard or on a large piece of paper and the recommendations of the study groups can be displayed on this map. The class

should consider and debate the recommendations and decide on an overall land redevelopment scheme for the area. Once a consensus is reached, if desired a model can be prepared which incorporates the suggested changes for visual examination and discussion purposes. Such a model could be presented to local planners and designers for their consideration. They might be willing to address the class and discuss the municipal planning process.
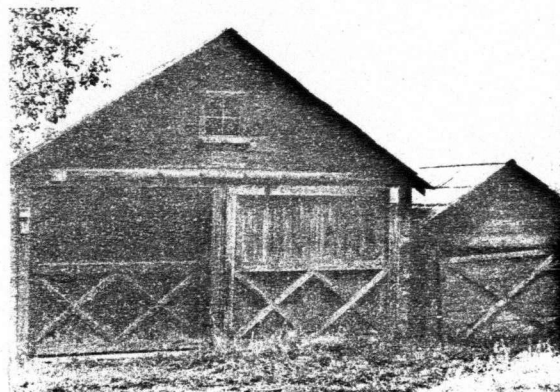
4. Critical Appraisal

Becoming more aware of places deepens our understanding of ourselves and our environment. Understanding however, is only a part of the potential that you have within you and it is possible to go much farther and move towards positive action to create, modify or influence the nature of your built environment.

Activities in the previous sections of this book were directed towards developing an understanding of what factors make a place work well and feel right. In considering how a place works and feels, you examined many factors such as function, materials used in construction, aesthetics, atmosphere, economics, structural form, use of space, networks, etc. In order to critically appraise the built environment and to use this appraisal to bring about change, it is necessary for you to examine the process of appraisal. The group of activities included here therefore deals with practical ways of appraising the built environment and will help you practice the technique.

GETTING STARTED:

The Four Factor Building Appraisal- Context, routes, interface, and grouping factors help you to appraise built environment through a checklist and scale system.

Infill- You will observe spaces between buildings and experiment with the design of possible solutions to fill in the space.

Infill- House Fronts- This activity involves the examination of residential house fronts and the appraisal of how well they relate to each other and to factors such as climate, topography and function.

EXPANDING HORIZONS:

Infill- Commercial- Examining possible solutions for corner sites being used as commercial offices and evaluating the appropriateness of design.

Appraising Proposals- Learning to appraise proposals and schemes of designers, architects and developers and examining the proposal review process.

The Four Factor Building Appraisal

(after Bulletin of Environmental Education, May 1977, 73, 3-8 utilizing J. Bishop's "CRIG Analysis")

An example of an appraisal technique called the "four factor building appraisal" is provided in the following pages. This approach allows you to focus on four key elements of building appraisal-context, routes, interface and grouping by using a series of checklist questions and a numerical rating scheme that allows you to assign a score to the factor being appraised.

To proceed, select any building or group of buildings that is of interest to you. You could appraise a house, your school, a commercial building, a housing complex, the corner store or the old gas station down the street. Carefully read through the examples that follow to be sure that you understand the checklist process. Then go out and observe the building(s) of your choice and conduct your appraisal using the checklist questions and making notes, drawings, taking photographs, etc. to supplement your appraisal of each of the four factors described in the checklists.

For each question in the checklists, assign a numerical score from 1 to 7 (1= highly appropriate, 7 = highly inappropriate) and then calculate the average score for the factor by adding up all the individual scores for each factor and dividing by the number of questions answered. To assign an overall score

for the project as a whole based upon the four factor analysis, add up the average scores for the four factors and divide by four. Prepare a report on your appraisal using the following format:

1) Description of building(s) appraised with supportive illustrations (photographs, sketches, maps, diagrams).
2) Appraisal of the building(s) according to the four factor analysis using the checklists with responses to each question completed and a numerical score for each question provided.
3) A paragraph describing the success or lack of success with which each factor is achieved or satisfied (see the example of the appraisal of the Vancouver Law Courts which follows).
4) Analysis of numerical ratings by computation of average scores for each factor of the appraisal and computation of the overall score for the building(s).
5) Concluding comments based upon your overall appraisal of the building(s).

FACTOR 1 - CONTEXT: Context is the setting in which the
building is placed.

Checklist
(Complete the response for each question and assign a
 score from the choices shown below by asking yourself
 how well the building(s) suit the context.)
Score:
    highly appropriate-1 2 3 4 5 6 7-very inappropriate

1) What is the general pattern of the surrounding area; is
   it streets, squares, crescents, winding roads? _____
   _____ Score- ___

2) What is the scale of the development; size of lots, shape,
   height, bulk of building, height vs width of streets?
   _____ Score ___

3) What is the form of the building? Is it consistent, varied,
   are materials basic, are windows and doors suitable, etc?
   _____ Score- ___

4) How do public and private areas relate to each other?
   _____ Score- ___

5) What are the land uses in the area adjoining the building?
   _____ Score- ___

6) What is the topography of the site? Consider slope, contours,
   views in and out of the site. _____
   _____ Score ___

7) What are the environmental factors of importance? Consider
   orientation, exposure, sun, wind, rain, humidity, daylight.
   _____ Score ___

8) What is the existing vegetation surrounding the building(s)?
   _____ Score ___

9) How do people use the building(s) in relation to the surround-
   ing structures? _____
   _____ Score ___

                                      Total Score ___
                              Average (Total / 9) ___

Write a paragraph describing the success or failure or the strong
points or deficiencies of the way in which the building(s) suit the
context of the surrounding area.

FACTOR 2 - ROUTES: Routes are the paths or passageways for traffic that allow the building to relate to its context.

Checklist

(Complete the response for each question and assign a score from the choices shown below by asking yourself how appropriate the routes are to link the building to its surroundings and how functional they are.)

Score:

   highly appropriate-1 2 3 4 5 6 7-very inappropriate

1) What routes, pathways, streets and passageways are provided to and around the building? _____
_____ Score ___

2) What are the flow patterns of traffic or people? Are there busy periods, quiet periods, one-way flows, regular movement patterns, traffic jams? _____
_____ Score ___

3) Where are the nodes (meeting points) for traffic around the building and what, if anything, happens there? _____
_____ Score ___

4) Do all the routes make sense? Are they coherent and convenient? _____
_____ Score ___

5) Are all the routes easily understood by newcomers, visitors, service people? _____
_____ Score ___

6) How are the routes marked? Are markings clear and easily observed? _____
_____ Score ___

7) Do the routes effectively link the building to the surrounding buildings? _____
_____ Score ___

                     Total Score ___
            Average (Total / 7) ___

Write a paragraph describing the way in which the routes in and around the building(s) relate the building to its context and the success with which the routes accomplish that purpose.

800 Robson St.
Food Fair
Cinema/Theatre
Exhibition
Meeting Rooms
Tourist Information

Parking Level P2

EXIT
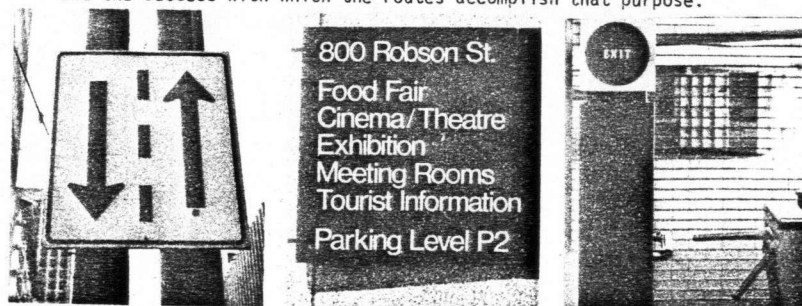
FACTOR 3 - INTERFACE: A building is essentially an enclosure that separates an interior private space from an exterior public space. Interface is the crucial meeting place where the inside of the building connects with the outside.

Checklist

(Complete the response for each question and assign a score from the choices shown below by deciding how well the building satisfies the problems related to interface.)

Score:

   highly appropriate-1 2 3 4 5 6 7-very inappropriate

1) Does the exterior of the building explain its interior function(s)? (Shop windows explain nature of shop within).

_____

_____ Score ___

2) How does the inside of the building connect with the outside of the building? Are the connections appropriate and functional? _____

_____ Score ___

3) Are the entrances and exits accessible or are there difficult entry ways or exits? _____

_____ Score ___

4) Are the various openings related to thoughtful planning of the interior? Consider entry of light, view, privacy needs, noise, heat, glare, atmosphere, etc. _____

_____ Score ___

5) What ideas, themes, or concepts are evident inside and outside the building? _____

_____ Score ___

6) Are there unexpected features inside the building which are not evident from the outside? _____

_____ Score ___

7) What clues indicate the presence of public and private space?

_____ Score ___

8) Have the designers addressed the problem of interface well in their design of this building? Has its full potential been realized? _____ Score ___

                              Total Score ___

                        Average (Total / 8) ___

Write a paragraph describing how well the design of your building has addressed the problems of interface. What are the strengths and weaknesses of the design? How might it be improved or changed?

FACTOR 4 - GROUPING: Buildings are usually divided into sections which are organized in form into some type of grouping. Grouping of the parts gives both meaning and variety to the building.

Checklist
(Complete the response for each question and assign a score from the choices shown below by concentrating on the sub-divisions of the building's form and deciding on the appropriateness of the designer's choice of groupings.)
Score:
   highly appropriate-1 2 3 4 5 6 7-very inappropriate

1) How is the building made up? Are subdivisions apparant and if so, what are they? _____
_____ Score ___

2) Do the subdivided parts of the building relate clearly to their function? Is use by any social group apparant? ____
_____ Score ___

3) Is it clear what the various subdivisions of the building might mean to people? Do some sections have a very obvious function? _____
_____ Score ___

4) Are the various parts of the building planned carefully in relation to one another and to the characteristics of the site? _____
_____ Score ___

5) Is there sufficient relationship between the parts of the building for it to appear as one unified structure? Does enough variation exist to provide interest? _____
_____ Score ___
                                            Total Score ___
                                    Average (Total / 5) ___

In a paragraph, discuss the subdivision of your building into identifiable parts and the way that the designer has arranged the grouping of those parts. Is the design successful and has the concept of grouping been well employed?
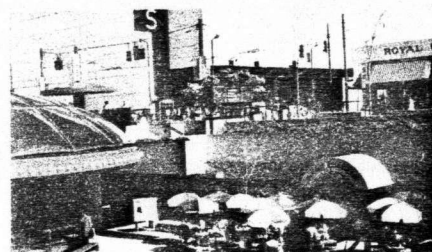
AN EXAMPLE OF FOUR FACTOR ANALYSIS - THE VANCOUVER LAW COURTS
The following is a series of notes compiled on each of the
four factors used in the appraisal of the Vancouver, B.C. Law
Court structure. These notes illustrate the kind of information
that can be assembled for appraisal purposes for use in com-
pletion of the checklist process.
Background: The Law Courts, opened in September of 1979, were
designed by famous architect Mr. Arthur Erickson. The seven story
structure, which took three years to construct, accomodates 35
courtrooms plus appropriate related facilites, including 13 civil,
11 criminal, 3 appeal, 3 assize courts, 3 motion chambers and 2
courts designed for complex commercial legal cases.

Factor 1 - Context: The site of the structure is the new Robson
Square complex located in the heart of downtown Vancouver. Four
busy commercial streets- Howe, Smithe, Nelson and Hornby surround
the complex. A covered office walkway bridge connects the Law
Courts to Robson Square by passing over Smithe Street.

Instead of tall, narrow buildings rising vertically from the
sidewalk, the architect has used an angled geometric stucture for
the building and has provided a considerable number of pedestrian
walkways, grassy areas, trees, shrubs and water as well as

seating areas. The Robson Square facility which connects to
the Law Courts is a "people place" with gardens, private and
public space, roller rinks, restaurants, an information center
and a theatre complex. Other uses of surrounding land are mixed.
The Law Courts are central to the city core with hotels, commer-
cial office buildings, shops and restaurants located in buildings
which are mostly in the 30-50 year age category and of mixed
architectural features. Adjacent buildings such as the Hotel
Vancouver and the old courthouse provide an interesting contrast
with their unique and attractive architecture.

The structure of the Law Court facility is so designed that different
views of the surrounding buildings and of the structure itself are
apparant from each level. The building, with its ample public space,
allows access from adjacent streets and buildings and allows recrea-
tional and leisure time activity for the public as well as serving its
intended function as a legal facility.

Scores: (following completion of checklist on context)-
       4,2,1,1,2,2,3,2,2   Total= 19, Average= 2.1
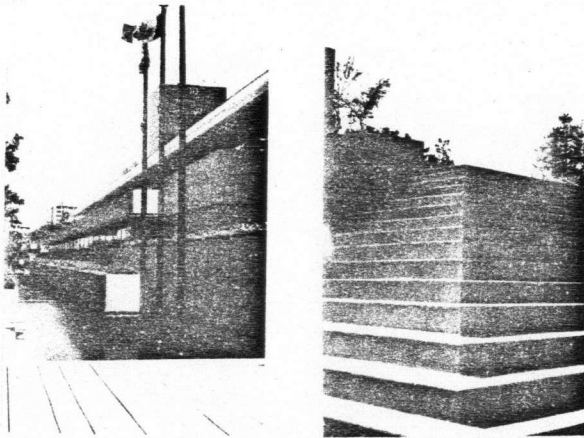
Factor 2 - Routes: The major entrance of the Law Courts is on the corner of Smithe and Hornby Streets. Service and parking entrances are located off the street on lower levels with entry from Smithe and Howe Streets. Pedestrian routes are tree-lined sidewalks that surround the building. The raised office-bridge structure over Smithe street facilitates movement to and from Robson Square without presenting a barrier to automobile traffic. Pedestrian traffic generally moves well about the building with little obvious congestion at any time. Due to the legal nature of the building's function, public access to much of the interior is restricted. Routes, services and function of space is generally well labelled and identifyable.

Scores: (following completion of checklist on routes)-

3,2,2,4,4,3,3   Total= 21, Average= 3.0

Factor 3 - Interface: The Law Court structure is composed of glass panel roofing supported by tubular steel framework with floors and walls of textured concrete. There are a number of entrances, walkways, levels and the layout varies with each floor. Use of a glass roof substitutes for the need for large windows on the upper floors with several levels opening onto a high, glass enclosed space with ample natural light.

Entry into some parts of the building is restricted due to security measures and passage through the building can be confusing due to presence of public and private restricted space.

The function of the structure is in no way apparant from its outside appearance. It is unlike any traditional structure used for legal purposes. Large commercial signs are not apparant but rather dignified black block letters provide directions and information on the function of parts of the building. The interior design is consistent with the futuristic appearance of the exterior. The harsh and angular lines of the roof, entry ways and pathways is softened by extensive use of foliage.

Public space on the exterior of the structure is generally well coordinated with public space within. Private space within the building is well separated from public space.

Scores:(from completion of
        checklist on interface)
    6,4,3,2,1,2,2,3 Total= 23
                    Average= 2.9
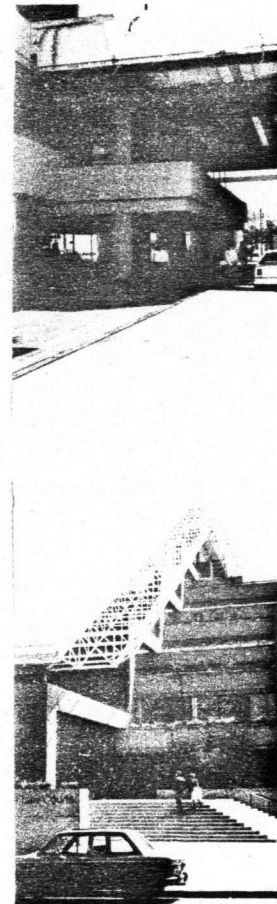
Factor 4 - Groupings: Viewed from the Howe and Hornby Street
sides, the Law Courts have an all glass apex roofline. The
glass expanse is broken by angular steel reinforcing structures
and the geometric repetitive pattern of those structures adds
variety to the design. Trees planted along the periphery of the
building help break up the glass expanses. The main entrance
area provides the most interesting geometric groupings of design
elements. Interior stepped levels climb vertically and expand to
the outside of the structure to form a cohesive element in the
design. The Smithe Street side of the building serves as a conn-
ector to the Robson Square area. This bridge joins the Law Courts
and the Robson Square area in a unique way which makes the two
parts a cohesive whole. Interior function is not obvious from
exterior appearance however, public space and private space is
generally readily identifyable.

Score: (following completion of checklist on groupings)-

    4,4,3,1,2   Total= 14, Average= 2.8
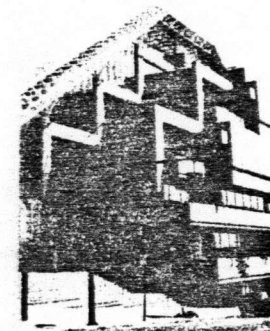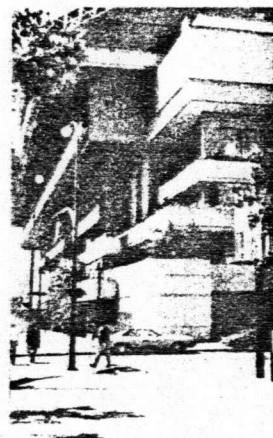
Overall Rating of the Vancouver Law Courts:
Scores on the four factors= 2.1,3.0. 2.9,2.8 Average= 2.7
Synopsis: An extemely interesting structure that combines
public space and interest with an important community and
government function in a unique and creative way. To the
visitor, function and routes of access may be somewhat obscure,
however the uniqueness and versatility of the design which
is appealing proves to be a significant factor in the appraisal.

Infill
(after <u>Bulletin of Environmental Education</u>, May 1977, <u>73</u>, 17-21,with house plans and corner site illustrations from that source)

Consider the situation where there is a group of structures with a gap or space between them such as a vacant lot, building under demolition, etc. that requires the design of a new structure to occupy the vacant space. The challenge facing a designer or planner is to decide on the appropriate use and appearance of the new structure that is to fill that space.

This activity will give you a chance to appraise the potential of such a space in the context of its surroundings and to try out your ideas for designing an appropriate structure to occupy the space. Proceed as follows:

Find an appropriate site for your "infill activity" by walking around an area that interests you and locating a vacant lot, unused building set amongst other functional buildings, a parking lot or other such site. If you wish, you could work with such areas as town squares, gardens, apartment or condominium complexes or any situation where you intend to consider the design of a structure occupying space among other structures.

Identify your site and describe it by making sketches and notes and note particularly the context of the site. What is the function, appearance, and form of adjacent buildings? What constraints and advantages does the context pose for your design?

Decide on how you will proceed for your infill activity. List the <u>objectives</u> of your design and its <u>properties</u>. Describe how the infill structure will relate to the context of the other adjacent buildings or structures. In evaluating your proposed design, use the four factor building appraisal described in the preceeding activity. To assist you in this project, make use of photographs, maps, diagrams, sketches or models which allow you to experiment with different structures inserted in the gap to visualize appearance and function. Once you are satisfied, select an appropriate infill structure and describe or illustrate it in any way that is suitable as if you were a planner or architect faced with the task of presenting a building proposal for consideration. Class discussion and presentation of proposals would be useful as an end-point for your project. Examples of infill activities follow which should be helpful.

Infill- House Plans: The examples shown illustrate the
possible solutions for inserting a new house between other
houses. Here design and placement are important. Constraints
include distance between houses, distance from the streets
(setback), and factors such as parking and access.

new
house

street
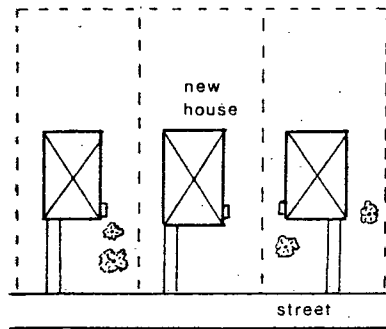
Here the house fronts are arranged in line and the new
house must relate well with the adjacent houses.
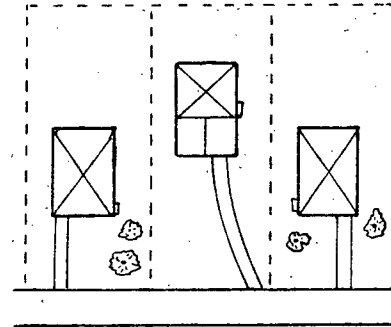
Setting the new house back may have advantages as the design
does not have to relate so closely with the adjacent houses.
Lot space at the rear is sacrificed for setback.
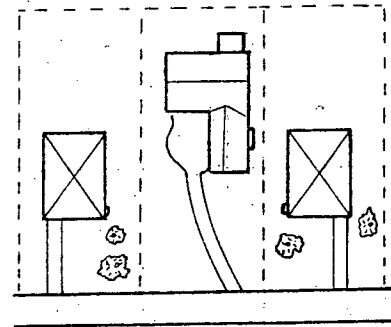
Here design is radically different from the other houses and
space for off-street parking is created.

Infill- Residential House Fronts

Consider the three residential dwellings illustrated and how well these houses would relate to each other if placed side by side. Look at the scale, design and the context in relation to the others and the appropriateness of the house design for a flat, moderately treed West Coast street.

Sample 1
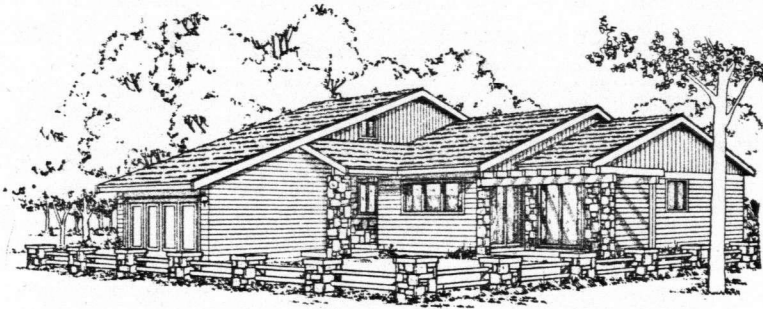
A non-basement bungalow, often described as a "West Coast Rancher". The size and proportion of the house relates well to Sample 2, as does the variety in roof levels and texture of stone decorative features and shake roof. The design suits the lot topography and the climate.

Sample 2
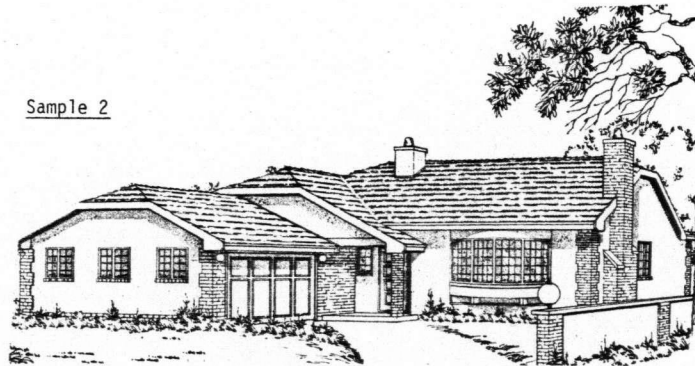
A non-basement bungalow with a Colonial design influence. Size, proportion, textural detail (brick, cedar shakes), relate well to Sample 1. The style suits the house size and topography and is appropriate for the local climate.

Sample 3
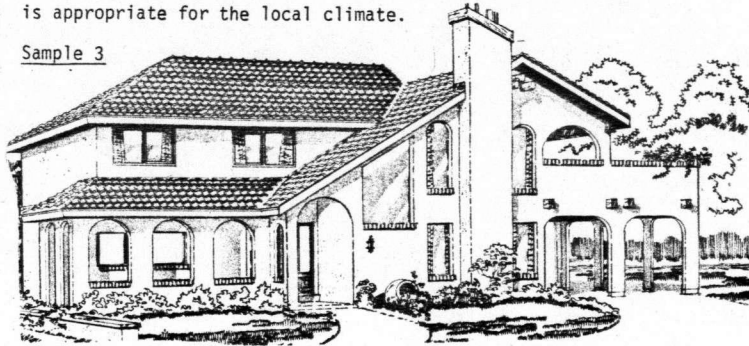
This two storey Spanish design house is larger and more grand than Samples 1 and 2. Variety is evident in the roof line and tile work and the arches add interest. The design differs from samples 1 and 2.

Infill- Commercial Use of Corner Site

The following examples give alternatives for use of a corner
site being used for commercial offices. Each solution should
be examined and evaluated by the class through group discussion.

A corner site with a three-storey block which occupies most
of the corner. The angled lower storey responds to pedestrian
movement.
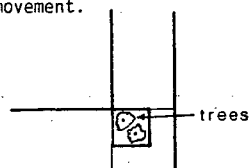
This block appears solid from the exterior but has an internal
courtyard which allows light in and provides green space.
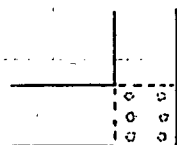
Here the office block occupies the upper two floors and the
lower floor allows seating, meetings, displays, etc.
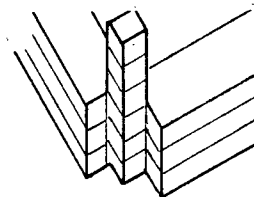
Putting the same volume into
a building twice as high.
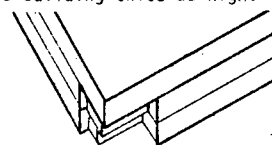
Stepping outwards, provides
protection, loses space and
light.
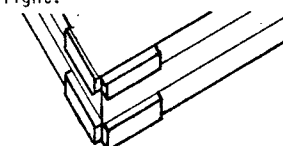
Alternating projection of
facades. Interesting, expen-
sive.
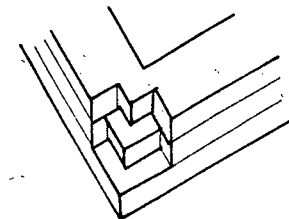
Ziggurat form, stepping back,
provides terraces, loses space.
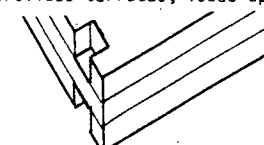
Treating one facade differently
from the other.
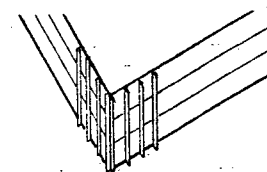
Vertical emphasis, slit windows,
use of fins for effect.
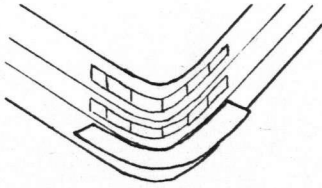
1930's International Modern style, horizontal emphasis.
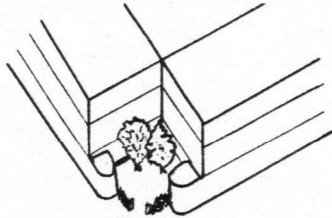
1970's ecology style, trees, grass and greenspace. Office space is almost entirely lost.

Activity:

Explore your city, town or village for a possible corner infill site. Consider alternate designs for the site using drawings, sketches or models to illustrate alternatives. Evaluate each alternative. Recommend the plan that pleases you best.

Locate 4 or 5 corner sites in your town or city that have commercial office buildings. Photograph, sketch and record details of the sites in note form. Evaluate each site. How have the building designers dealt with corner space? Can you list advantages and disadvantages of each design? How might you improve the design? Report on your findings in written form using illustrations to make your points. Alternately, present an oral report to the class on your investigation and evaluation.
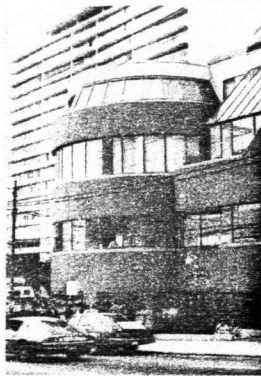
Evaluating Proposals

"Proposals" are designs submitted by architects, designers and developers to local authorities for planning purposes and in order to receive permisssion to proceed with the project in keeping with the regulations and wishes of local government. Every municipality has a planning office and such offices are open to the public. Often plans for major developments are outlined in newspapers and public meetings are sometimes held where developers present their plans and illustrate them by the use of drawings, maps, models or planning portfolios.

You can gain experience in the evaluation of proposals by carrying out the following activity. Evaluation of proposals may be a useful exercise for you to gain experience that is advantagous to you in business or community life. Proceed as follows:

-Visit a planning office and talk with the planning officer to find out how the planning procedure works. Find out how a proposal goes through the development, review and accept- tance, modification and acceptance or rejection phases.
-Have your teacher arrange for a planner or developer to visit the school and give an informal talk on the planning and review process. It may be possible to review a "case history"of a development familiar to you.

-Try to obtain copies of proposal documents that have been through the review process. Study and appraise these documents and conduct a role-playing activity in the classroom where some students take the role of developers presenting a proposal and others act as municipal officials and general public reviewing the proposals.

-Attend public hearings where proposals are reviewed. Watch the process and be aware of the arguments made by both the proponent and the reviewers. Check to see if the outcome is what the developer had in mind. If possible, talk to the people involved after the hearing to get their personal points of view.

-Follow newspaper articles on the progress of major development schemes and clip and keep a file of these articles for reference purposes. Note if and how the proposal was modified with time.

-In evaluating proposals, be aware of all the things that you have learned about the built environment-pedestrian and vehicle movement, convenience, use of space, appearance, function, net- work systems and efficiency, noise, crowding and density, dura- bility of materials, future use options, context, etc.

More Experience With Appraisal Techniques

Environmental education is concerned with teaching you the evaluation of environmental quality. You must learn to exercise discrimination and judgment in relation to planning and architecture in order to make informed judgments about your environment and the way it affects your life. Environmental education is meaningless unless it provides you with these opportunities along with environmental knowledge and skills. In your everyday lives you constantly use spaces such as homes, shopping centers, sports arenas, theatres, schools, public buildings, etc. By applying your knowledge of the built environment, it is possible for you to work towards influencing the quality and function of these built forms and to have a say in the way things are done in your community and work environment.

You will be asked to participate and vote on many issues that will affect the nature of your surroundings in future. Often public referendums are held on major development schemes or there is opportunity to participate in the proposal review process. It is important that you participate and be knowledgable about development alternatives in your town or community and make use of the skills that you have acquired through these activities.

Another application of knowledge of the built environment relates to your own private lives. At some time in your future you will be concerned with buying, renting or leasing real estate for the personal use of yourself and your family. By being aware of environmental issues and by being discriminating you have the potential to make the best possible choice of personal environment, to modify that environment to suit your needs and to realize the maximal potential and value of that environment.

In this last section of the book you will have further opportunity to practise evaluation and judgement in relation to the built environment and to explore further techniques of evaluation:

GETTING STARTED:

    Building Impact Evaluation- Assessing buildings by making use of a set of criteria.

EXPANDING HORIZONS:

    Urban Evaluation Sheet- Using an "urban word evaluation sheet" during a sensory walk to form judgments.

DOING MORE:

    Annotated Photographs- exploring a technique which uses annotated photographs to record and illustrate judgments of the environment.

    Slide Program- an evaluation technique that uses slides, tapes and written material to form judgments.

Building Impact Evaluation

(after <u>Bulletin of Environmental Education</u>, Dec. 1976, <u>68</u>, 20-26 with building assessment score sheet modified after that source)

New development in our cities, towns, villages or communities often leads to construction of buildings of modern design beside older forms of architecture. With time, there is a tendancy for new forms of buildings to replace older, traditional forms.
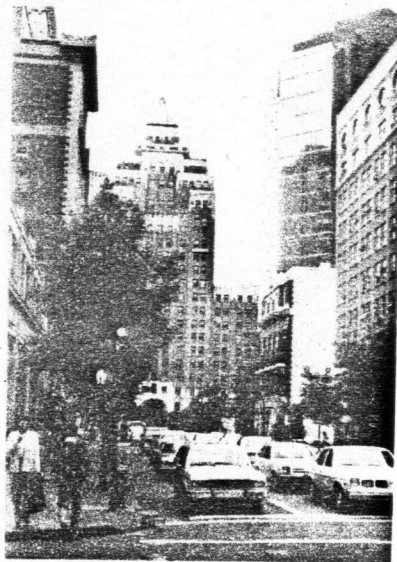
In this activity you will practice using an evaluation technique that is based upon a set of established criteria.

The class should choose several buildings in the area that are worthy of assessment. You may choose examples of both modern buildings and traditional buildings. Try to choose locations where the building being assessed has other buildings close by so that its context is easily examined.

Proceed to examine each building you have selected in turn and for each building, complete the appropriate section of the evaluation sheet given on the following page. Note that you must assign a score for the way each building satisfies the criteria listed. Record details of buildings by photos or notes.

In the classroom, add up and compare totals and calculate a class total for each building (sum of total scores divided by the number of students completing assessment sheets). Display the scores along with photographs or drawings that illustrate each building and discuss the relative merits of each building and its weaknesses. Were the criteria useful or would you wish to change them to suit your own assessment scheme?

BUILDING ASSESSMENT SCORE SHEET .   Assessor's Name- _____

Date- _____   Class or Group-   _____

Instructions- Assign each building a number and record the number and location of
each building in Table 1. Assess each building according to the criteria in Table
2 and assign a score for each criterion from a range of 0 to 10 according to the
way in which the building <u>satisfies the criterion</u> (0 = very poor, 10 = excellent).

Table 1   :   Identification and Location

Building Number	Building Location	Building Name
1		
2		
3		
4		
5		
6		
7		
8		

Table 2   Assessment According to Criteria

| Criterion | Building Number | | | | | | | |
	1	2	3	4	5	6	7	8
Impact of building on the street								
Size and scale								
Relationship of building to surroundings								
Choice of materials, textures, colours								
Standard of design of details								
Value of external space made by building								
Enjoyment of living or working there								
Use of site and site possibilities								
General appearance of the building								
Resistance to weather and climate								
Totals-								

Urban Evaluation Sheet

A useful technique for recording your impressions and for appraising the built environment involves the use of the "urban evaluation sheet" given on the following page. The method is derived from a research publication dealing with the comparative environmental assessment of four U.S. cities (Lowenthal and Riel, 1972) and may be applied to your own activities.

To use the evaluation sheet, select a short stretch of road that has interesting features worthy of evaluation. Proceed as a class or group to conduct a sensory walk (Part 1) that takes you through the area. Concentrate on recording your impressions on the evaluation sheet as you move. Instructions for the use of the evaluation sheet are provided at the top of the sheet.

The completed urban evaluation sheet will allow you to construct a profile of the area you have chosen for your sensory walk. Making a class set of these profiles will allow you to compare impressions with those of your classmates. This technique could be adapted for use in a number of built environment activities as you wish.

O'Keefe Ranch — early town center, Vernon, B.C.
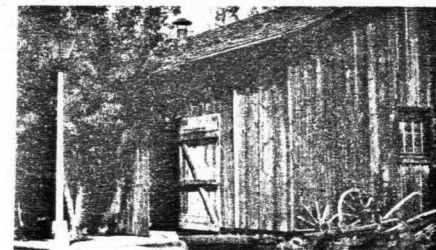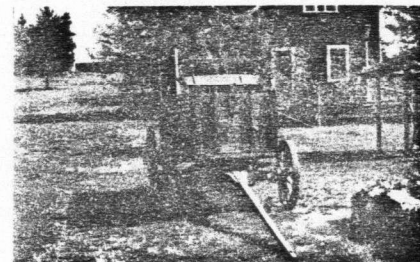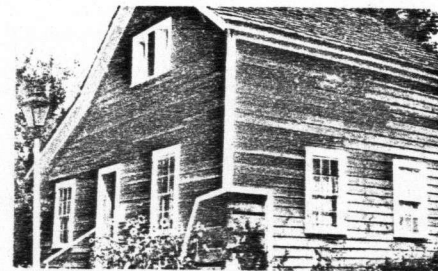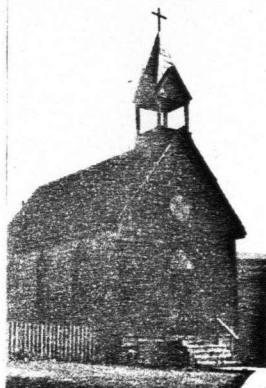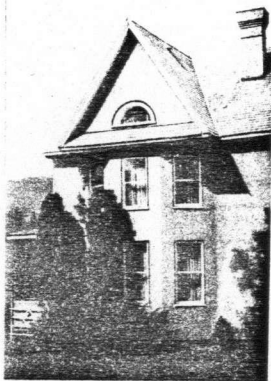
URURBAN EVALUATION SHEET   Name of Evaluator- _____

Class or Group-   _____

Location- _____   Time and Date-   _____

Have you been here before?(circle): often , sometimes · never

Instructions- Below are 23 pairs of words, each separated by five lines. As you walk, consider each pair of words and place an "X" on the line that best suits your assessment of the place. For example, if you feel the place is highly artificial, you might place your "X" on the line closest to the word artificial:

natural	___	___	___	___	___	artificial
contrast	___	___	___	___	___	uniform
people	___	___	___	___	___	things
ugly	___	___	___	___	___	beautiful
smelly	___	___	___	___	___	fresh
vertical	___	___	___	___	___	horizontal
ordered	___	___	___	___	___	chaotic
moving	___	___	___	___	___	motionless
smooth	___	___	___	___	___	rough
poor	___	___	___	___	___	rich
open	___	___	___	___	___	closed in
boring	___	___	___	___	___	interesting
old	___	___	___	___	___	new
quiet	___	___	___	___	___	noisy
vivid	___	___	___	___	___	drab
pleasant	___	___	___	___	___	unpleasant
business use	___	___	___	___	___	living use
clean	___	___	___	___	___	dirty
full	___	___	___	___	___	empty
rural	___	___	___	___	___	urban
near views	___	___	___	___	___	far views
like	___	___	___	___	___	dislike
dark	___	___	___	___	___	light

How do you feel today? Did your mood affect your assessment? _____
_____

Circle the five words on this list that best apply to the location assessed. Write a paragraph describing your sensory walk and the impressions you obtained there. Use five words that are not on the list to describe the place. If you were trying to compare or assess particular types of places could you modify this technique to design a more relevant assessment sheet?

(urban evaluation sheet modified from Bulletin of Environmental Education, Dec. 1976, 68, 26)

Annotated Photographs

Service areas are narrow

Too close for cars and vehicles to pass

Cluttered telephone poles and wires

Prominent heating duct

narrow street, little natural light

garbage bins unsightly

Photographs are very useful as they allow you to record factual information about the built environment and analyse that information or compare one place with another. Different photographic techniques may be used to reveal detail, concentrate on specific aspects of buildings or record the context of a building.

You can make notes directly on photographs as a part of your appraisal process. This procedure is called "annotated photography". Analysing a photograph in this way will help you to note details of the building and form judgments.

To practice the technique, obtain a large photograph of a street scene in your town, city or village. If it is hard to obtain such a picture, find one in a magazine that is suitable for practice purposes. Paste the picture on a piece of white paper leaving borders around the picture to provide space for your notations. If you have a photocopier available, make two or three copies of the picture and its margin to produce a final copy for annotation. Proceed to examine details of the picture and evaluate its contents by writing critical comments on the margin of the picture with a fine felt pen or dark ink. Observe the example given here. Use this technique to strengthen your analysis of other activities you may wish to pursue in the study of the built environment.

Slide Program   (after <u>Bulletin of Environmental Education</u>, March 1978, <u>83</u>, 22)

You may present a slide and tape show describing some aspect or experience of the built environment that interests you and that you would like to communicate to others. Slides are a very useful tool as they enable you to present a serial visual representation of what you have observed. Presentation of slides can be assisted by tape recorded comments which stress the message of the presentation. Proceed as follows:

<u>Preparation</u>- Choose a topic related to the study of the built environment that interests you. You may choose to use some of the activities in this book or invent new ones. Try to select a topic that will allow evaluation of some aspect of the built environment and critical appraisal.

<u>Investigation</u>- Locate a study area and a suitable large scale map of the area or make a sketch map to suit your project. Carry out your investigation according to the objectives of the study being careful to note details of buildings, spaces, street features, traffic and pedestrian movement, vegetation, slopes and other features suitable for the topic you have chosen. Make notes or sketches to assist your analysis.

<u>Photography</u>- Obtain a camera and suitable slide film and choose a series of viewpoints around your subject for photographic purposes. Be sure to select sites that will illustrate the message you are attempting to convey. Photographs taken from both distance and close-up may be useful. As you take each picture, make a note of its number on the roll of film and use a tape recorder to record the content of the picture and any critical comments about it that you wish to make. Record the picture number on your map for future reference. Try to concentrate on only important features that illustrate your point of view.

<u>Interpretation</u>- Project your developed slides and try to arrange them in a sequence that illustrates the point of your presentation. Listen to the tape recorded comments on each picture and review any notes or supportive material that you have. Write down important interpretive comments that you wish to make in your presentation and think about how those points can be integrated with the slide show.

<u>Presentation</u>- Assemble your presentation with the slides in an ordered sequence and a tape recorded narrative to go with the slides. Make sure that the audience knows the purpose and objectives of the study at the beginning and why you did it. Operate the slide projector in time with the recorded narrative. Present conclusions and evaluation comments at the end of the show. Be aware that a few good slides and a clear, concise message is much better than a cluttered confusing presentation.

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Appendix I-B

Revised pages of the workbook prepared in accordance with the findings
of pilot testing.

Contents

Acknowledgments

Comments for Teachers

This book deals with the built environment and your relation-
ship to it. The built environment is the man-made environment
which surrounds you in everyday life- your house, neighbour-
hood, city, streets and paths or any structural forms. The
book is to be used, not just to be read. It will enable your
students to get involved in places, to be aware of places, to
understand how people experience those places and form judg-
ments about them. The activities in this book are for enjoy-
ment as well as to help students become aware of the built en-
vironment and how it affects them as people.

Living creatures interact with their environment and are fund-
amentally influenced by it. Man is by no means excluded from
this relationship and by his nature and intellect, has the
means to alter or shape his environment by transforming natu-
ral or man-made objects into the built form. Implicit in this
relationship between man and his built environment are the in-
fluence of human emotions, feelings and sensitivity, cultural
heritage, social patterns, lifestyle and the nature and variety
of human activity.

Man is, with few exceptions, not a solitary creature and there-
fore confines himself to social groupings which may be termed
tribes, societies, ethnic groupings, etc., organized around

some physical built arrangement of structures such as camps, villages,
towns, cities or large metropolitan assemblages. As modern man is, to a
large extent, an urban dweller, this urban setting plays a vital and
constant role in his total lifestyle. The city and its structure is
based upon man's activities and interests and the physical and function-
al aspects of the city govern and in some cases constrain man's activ-
ities. It is therefore apparant that the built environment is a partic-
ularly important feature in the life of man and it follows that the
study of this environment is a highly suitable topic for education. Fur-
thermore, due to the urban setting of our lives and our ability to cre-
ate and transform built environment, it is important for students to
become aware of their surroundings and to realize that they have the po-
tential to appraise, preserve, change and improve their urban environ-
ment.

This book is concerned with providing the opportunity for students to
experience the built environment for themselves. It does not concentrate
on the traditional classroom experience but is based upon the premise
that learning does not take place in a vacuum and is greatly facilitated
by making the student aware of the external world of ideas, events, peo-
ple and objects. Chippindale and Ward (1979) argue that it is fitting
for the teacher to become involved in the business of architectural in-
terpretation. In their view, there is a great need to "open pupils' eyes

to the visual aspects of their habitat and make it under-
standable".Their point is that there is much to be gained
through the education of the senses and revelation of mean-
ings and that such objectives should be a major task of the
schools. Teaching a student to be sensitive to his or her
environment may lead to the formation of opinions, judgments,
or positive action as a result of such sensitivity. Inter-
est and concern for the built environment is an important
attribute of citizenship and is therefore highly relevant
for education.

In addition , study of the built environment has application
to a variety of subject areas- art, social studies, history,
architecture, city planning, design and other interests. It
is therefore multi-disciplinary in character and can be ad-
apted by the teacher to suit a variety of needs, programs
and situations. Study of the built environment allows the
teacher to examine historical buildings and examine the nec-
essity for preservation of heritage structures, past art
and design forms, historical use of building materials and
the interests and values of the past. Alternate use of older
buildings may be studied and the pros and cons of replace-
ment or rennovation examined. Some innovative programs have
used the city as a learning laboratory (B.E.E.C., April 1978,
MaCaulay, 1976, Schneider, 1954) in which the structure,
function, appearance, social context, sensory impact,

economic, historical, architectural and other aspects of the community
can be integrated in a study program designed to emphasize those elements
by interactive exposure to the city. Furthermore, aspects of the future
of the built environment may be emphasized to illustrate the relevance
of town planning, innovative architecture, artistic elements, creation
of functional and pleasing environments and to integrate structure, func-
tion and beauty with urban planning.

Art is important in the consideration of the built environment. Ericksen
and Smith (1978) assert that "the built environment is an art form".
McFee (1974) maintains that we must "develop the capacity to use art as
a humanizing force in improving the quality of life on earth". McFee's
point is that a pleasant and stimulating urban environment can do a lot
to improve the nature of modern life and the often impersonal nature of
our surroundings. Ericksen and Smith suggest that there is great potential
for using the built environment to help children understand and take part
in the art process. They observed that the built environment is space
divided into functional elements (buildings, parks, streets, gardens)
and that we respond to elements of space and form with our feelings just
as we do to art objects. They feel that one of the prime functions of
education is helping students "learn how to see" and that built environ-
mental education places heavy stress on visual awareness and personal
meaning for the individual.

This workbook is based upon several conceptions of curriculum orientation.
A key objective of the approach is to teach students to think about their
environment in an analytical way. The material follows a cognitive

developmental process of learning- sensing, experiencing, organ-
izing, analysing and evaluating. Each chapter introduces an issue
through a set of experiences or study tasks. The approach is
flexible in order to allow you to select an activity or area of
emphasis suitable to your circumstances, area of interest and the
capabilities of your class. For a given chapter, activities are
divided into three groups entitled "getting started", "expanding
horizons", and "doing more". The book is intended to be a compend-
ium of possible means for the study of the built environment
rather than a definitive and structured set of instructional mat-
erial. You may well wish to adapt some of the material to suit
the interests and needs of your class. Consultation of some of the
reference material listed in the book should be helpful in develop-
ing ideas and approaches.

This material has been successfully tested and evaluated in sev-
eral British Columbia high schools (Davis, 1981) and results of
that evaluation indicate several factors are important to success-
ful introduction and use of the material. First, it is most impor-
tant that both the teacher and the students understand the reasons
why the study of the built environment is important and worthwhile.
Introductory lessons should place emphasis on how the built envir-
onment plays an important part in the daily life of people. Such
things as population growth, crowding, pressures of city life,
function of buildings and city transportation systems, quality of

the urban experience, historical, cultural and aesthetic consider-
ations, and the need for evaluation and good planning should be
recognized as important concerns in the study of the built environ-
ment. Alternately, students of art and design may wish to use the
material to observe natural and man-made design concepts and study
various elements of design such as texture, shape, colour, form
and size and space relationships. Thus, the study of the built en-
vironment can serve as a stimulus for a variety of subject matter
which varies from social and cultural considerations to art, design,
architecture, historical trends and planning activities.

This workbook has been developed to conform with the General Learn-
ing Outcomes of the B.C. secondary art curriculum and also with the
objective of satisfying a number of behavioral objectives in the
learning process. Things to look for in evaluating progress of your
students are increased perception (transformation of sensory infor-
mation into meaningful concepts about the built environment), growth
in knowledge (definitions that distinguish one built form from another,
architectural styles, historical groupings, geographical considerations,
relationship of form and function, and knowledge of criteria by which
built environment may be evaluated and judged) and also comprehension.
Comprehension includes full understanding of the meaning and function
of the built form and the development of a student's ability to
verbally describe and discuss the qualities and strengths and weak-
nesses of a design. Also important, is analysis, behavioral responses

which involve the dissection of the subject matter into its con-
stituent parts, detection of relationships among the parts and a
determination of the relationships of the parts to the whole.
Evaluation is a very important behavioral objective of the
program and involves development of capacity in the student to
make reasoned judgments and perform critical evaluation of the
built form in relation to aesthetics, functional suitability,
design concepts, or any criteria you may wish to establish for
the material. Production activities involved in the work are
varied and flexible. Production could involve creation of models,
plans, architectural drawings, creation of designs, sketching
and descriptive writing, slide and tape presentations, illustra-
tive brochures and town trail route development or other activ-
ities designed to encourage expression and innovation on the
part of the student.

Where do I start?
At the outset, it is important for you to determine the readiness
of your class for this material. Readiness should be judged in
two areas- familiarity with built environment concepts and city
structure and function and readiness to engage in field activities
and unstructured small group activities. If the class is new to
the subject area, it may be best to start the group on personal
space activities (see table of contents), and proceed to explore

a gradually widening array of situations- immediate surroundings,
local neighbourhood settings familiar to the students, and finally
more distant field excursions to interesting places removed from
the school location. Don't just turn your class loose on their own
in unsupervised activities until you are convinced that they are
comfortable and mature enough to handle such responsibility.

You may find it very useful to prepare an overview of the program
before you start which maps out your course of action and the means
by which you are going to achieve specific goals you have establish-
ed for the study program. Ask yourself: What do I want to accomplish
or achieve? How am I going to achieve such objectives? What events
or behavior on the part of students will tell me if I am being succ-
essful? What problems might I encounter and how could I deal with
them as they arise? What resource materials, time, budget and facil-
ities are required? What methods do I wish to use for encouraging
enthusiasm and productivity on the part of the students and for en-
suring assignments and follow-up activities are completed?

Evaluation techniques that you plan to use must be carefully consid-
ered. Experience with pilot testing of the material has indicated
that it is best to evaluate student's work at the completion of each
assignment. Follow-up activities and class discussion of findings
are particularly important, especially following a field trip. Also,
it has been demonstrated that it is important for the teacher to

specify due dates for reporting each activity and to consider the time requirements for completion of projects. Marks could be given for content, originality, practicality, comprehension, knowledge, use of extra reference material, neatness and skill with materials, and for class participation in discussion and teamwork situations.

Hints for Field Trip Organization

This program can involve considerable field trip activities if the teacher chooses to select such activities. Pilot testing of the material has identified some important considerations for successful field trip implementation:

1) Plan a field trip with the class by setting out the objectives and approach on the blackboard. Make sure everyone knows the purpose of the trip and what will occur. Have the students record the trip's objectives and steps to be followed.

2) Assemble all the materials required for the trip and make sure each student has the materials at the start of the trip. Consider methods of transportation, schedules, access to buildings, time available, recording materials required, instructional information and brochures, etc. Good maps may be particularly helpful for some activities.

3) Consider what means of recording information will be used by the students (notebooks, sketchbooks, cameras, etc.). Would a standardized format be helpful?

4) Be sure to take careful note of the time required for the trip and for reporting on the results of the trip. Followup class discussions at the completion of a trip are particularly important, preferably when the experience is fresh in the minds of the students. Considerable work may be involved in processing the information gathered on a trip. Allow classroom time or home study time for completion.

5) If students are ready for unsupervised activities, ensure that they choose realistic and practical topics that have a good possibility of success- some students may wish to tackle very ambitious and challenging topics that will prove frustrating for them.

6) Enjoy the experience with your class. It is most important that you participate in field activities and be available to give advice and support as required. Try to maintain a dialogue with the students and challenge them to look at the built environment from a variety of perspectives.

7) Choice of study location is very important. Select interesting and stimulating places for study. Students respond very positively to field activities and their enthusiasm and interest can be turned to advantage if you select a good study site.

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1. Sensory Experience - Discovery and Description

Concentrating on your sensory experiences will enable you to better describe the built environment. A group of activities follow which will allow you to discover your environment through the use of your senses:

GETTING STARTED:

Open Space Activity- sensing places by concentrating upon open spaces and their properties by using your senses one at a time will help you become aware of your perceptions.

The Sensory Walk- noticing how places and your perceptions of those places change as you walk through them while concentrating upon your sensory impressions.

Shopping Area Activities- using a shopping area as a place to practice sensing the built environment.

EXPANDING HORIZONS:

Guiding by Cards- using "fun cards" to help you sense the built environment through a structured approach.

DOING MORE:

Describing Your Environment- looking at parts of interesting buildings and describing what you see. Exploring other parts of those buildings and seeking information in order describe them through various sources.

Building a Critical Vocabulary- exploring ways of using and building vocabulary through visual observation.

3

Open Space Activites (after Bulletin of Environmental Education, April 1977, 72, 7-8)

Choose a large open space such as a park, field, play-
ground or parking lot and enter it. Stop somewhere and
look around. Concentrate on each of your senses in forming
an impression of the space:

Eyes: What do you see? How is this space used and how does
its design reflect this use? Notice light, shadow, textures,
the tapestry of lights, colours. Record your impressions:

_____
_____
_____

Ears: Close your eyes and concentrate on the sounds around
you. What different sounds can you hear? What sounds are
most noticable? What sounds are attractive or unattractive?
Are there near sounds, distant sounds, musical sounds or
birdsongs? _____
_____
_____

Smell and Taste: Turn and inhale facing in different direc-
tions. What smells do you detect? Flowers, automobiles, industry,
cooking? Can you also taste things in the air? How do you feel
about these sensations? _____
_____
_____

Touch: Examine the ground around you and at your feet. Reach
down and touch it. If an object is nearby, reach out and touch
it. How does it feel? _____
_____
_____

Motion through Space: Choose an interesting object and walk to-
wards it. How does your impression of the space change as you
move? Does the object appear different as you get nearer to it?
Stop at the object and explore it carefully using all your senses.
Record your impressions: _____
_____
_____
_____
_____

Steeplechasing

Few places do not have some tall building, church steeple, tower or other object that is visible on the skyline. The objective of this activity is to choose such a structure and observe its appearance in relation to other buildings and objects from different vantage points surrounding it. Once you have chosen a suitable focal point, proceed as follows:

1) Acquire a map of the streets surrounding the focal point. A tourist guide map with a large scale may be ideal. If you cannot obtain a suitable map, draw one to approximate scale.

2) Move around the focal point in the surrounding streets, stopping at appropriate places to observe the focal point. When you stop record your location on the map (use a numbering system to record locations- see following page).

3) Draw or photograph the focal point from each observation point. Try to select locations where you get a different perspective of the focal point in relation to other buildings or structures.

4) Make notes on how the focal point looks from each observation point. Use the following questions to guide your note taking (not all have to be answered at each observation point). How does your location influence the way the structure looks? How do you feel about the focal point when you look at it in relation to other buildings? Is your impression of the focal point different than when you viewed it

from other spots? How does the structure compare and contrast with other buildings? What design elements are visible on the structure? How do they influence its appearance? Are there things about the focal point you had not noticed before? Do you like the structure? Does it look like an inviting place to visit?

Arrange your photographs or sketches around the map and use the number code to indicate the location of each observation point as illustrated on the following pages. On a separate page, list your observation point numbers and under each number, write a few important comments about each observation location by consulting your notes. Write a conclusion about the focal point you have observed, including comments on its appearance, your impressions of it, things you became aware of and your reaction to the experience. You may wish to discuss your findings with others in class.

The Town Trail

The town trail provides a way of enjoying and experiencing the built environment. It involves a planned route through an urban area that may be walked and is designed to bring out features of the area for the observer. The route may be illustrated on a guide map or brochure or be marked by signs or posts where town trails have been prepared for use by visitors to the community. Such a trail can have many uses. It can be used to guide people past points of interest for tourism purposes or be organized to illustrate specific features such as shopping areas, historic buildings, house types, architectural features, industry, ethnic community content or landscape detail. Alternately, the town trail can be used to illustrate urban features such as road and rapid transit systems, urban renewal, problems (traffic flow, decay, reconstruction needs) or almost anything that the designer of the trail wishes.

Use of a town trail will enable you to develop interest and have enjoyable and useful experiences in the built environment. Through the use of the town trail you can examine the processes that shape our urban environment and develop a critical eye for evaluating that environment. Town trails are fun- they contain adventure, surprize and entertainment.

DESIGNING A TOWN TRAIL-

Preparation and Planning: Think of an interesting topic or theme and write down what your objectives are in designing such a trail. What do you hope to achieve and who would use such a trail? Do you wish to study a particular type of building, architectural feature, urban problem or historical theme? Once you have established these objectives, go out and find examples in the urban environment to illustrate your ideas.

In planning a town trail you should try to be practical and consider both the objectives of the trail as well as the comfort and needs of the users. Can you design a trail that clearly illustrates your point? Are most of the points of interest along the way fairly close together so that the distance walked is not excessive? Is the trail safe for users and not likely to cause discomfort and hardship?

21

<u>Presentation of Your Town Trail</u>: As well as carefully plan-
ning your trail's route, it is most important that you con-
sider how you intend to communicate ideas and information to
the users of the trail. A written guide to the trail with
illustrations that add something to the text is very useful.
This guide should not just provide a description of what the
user sees, but should convey your message, suggest ideas or
ways of looking at things that are informative and stimulat-
ing to the user.

Check that your material is accurate, clear and well thought
out. Directions and maps should be clear so that the user is
not confused by the route. If buildings are to be entered, the
hours that they are open to the public should be specified as
well as any entry fees. It is useful to tell the user how long
it will take to walk the trail and approximately how far he or
she will have to walk. Any special features such as safety
considerations, rest stops or transportation needs should be
mentioned. Try to make your trail exciting and interesting
for the user. Can you introduce adventure, surprize or fun
into the trail directions?

<u>Possible Topics for Trail Design</u>:
    -barriers (fences, doors, walls, hedges, banks)
    -advertising (signs, posters, billboards, window displays,
     storefronts)
    -enclosure of space, activities
    -construction methods and materials
    -gardens
    -degeneration and decay
    -conversion of form or function
    -urban housing types
    -natural form vs. artificial form
    -human activities

What other ideas for a theme can you think of? _____
_____
_____

Record your choice of a theme here: _____
_____

What are the objectives of your town trail? _____
_____
_____

Network Spaces   (adapted from McFee and Degge, 1977, 232-233)

As you move about in the built environment you make use of stairways, hallways, footpaths, streets and other structures designed to get you from one place to another. These devices form "networks" of circulation and communication and their effectiveness depends upon how well the space alloted for the network allows for the desired pattern of movement and use. You may examine the network concept through the following activities:

Networks in the Classroom Environment- Divide into groups and start by making a large scale map of the classroom on a big piece of paper. On the map, indicate all the paths which are used to enter and leave the room. Act out the daily use of these routes to become aware of the ways you get to doors, blackboard, teacher's desk, books, storage areas, etc. Think about what happens when the entire class moves at once. Where are the congested areas in your network? _____

_____

What areas are not used much of the time? _____

_____

Can you think of a better arrangement that would prevent congestion and improve the use of space in your network? _____

_____

_____

Network Spaces Within and Around the School- Try to obtain a floor plan of the school and surrounding grounds. If a plan is not available, draw one to approximate scale. Obtain a map of the surrounding community. Enlargements of maps can be made using an overhead projector with the image directed onto a large piece of paper. From the school floor plan, locate and mare the spaces in the school that are used by all the students (halls, gymnasium, lunch room, library, etc.). Using a felt pen, indicate on the map the routes students in your class follow to move to different places in the school during the day. Draw the paths followed by several individuals and then make tours along those routes to study what those individuals experience in their travels. Where do traffic jams occur? _____

_____

What is going on in the halls, besides people moving from one place to another? _____

_____

What happens in the heaviest traffic areas? _____

_____

Does the traffic in different areas vary with different times of the day? _____

_____

Are some routes not used as much as they could be? _____

_____

The Dating Game

(adapted from B.C. Urban History: Discovering the Past in the Present, 1974, p. 67-69 with illustrations from that source)

You can discover a lot of interesting things about the historical trends of the area in which you live by conducting a walking tour and observing trends in appearance and construction methods according to the age of the buildings. For example, you might notice old wooden stores with false fronts among brick or stone buildings of a later period. Alternately, you might see residential streets with large 2½ storey wooden houses that are quite different from nearby single storey, 2 bedroom houses of a more recent period. It might be apparant that there has been a shift in the location of the commercial or retail center of the area with time or a trend towards movement of shopping centers into the suburbs.

Understanding such trends will involve you in consideration of many factors such as changes in construction materials and technology, the fashion of different time periods, population trends, the advent of transportation systems, economic factors, changing land use patterns, population density and availability of services. Trends in urban development could well be related to world events and immigration patterns.

In order to study this aspect of the built environment it is important to be able to assign dates of construction to the buildings observed. Information on the age of structures may be obtained from a number of sources. Some buildings have their dates of construction carved onto the facade near the roof, over the main door or on a cornerstone. Some heritage buildings have been identified with dated name plaques or are described in brochures on city architecture. Interviews with owners and residents can provide additional information. City or municipal hall records and planning offices may be cooperative. Good reference books are often available which describe local architecture and general categories of construction. Local museums may have displays or archival material, including old photographs and articles that can be dated.

The style of architecture is often an excellent indicator of the age of a structure. For example, house styles in B.C. tend to follow the trends shown below:

Victorian-late
1800's

Ontario Cottages

California Bungalows

1920-30's romanticism

1940's International Style

1950's Split Level Ranch

4.
Critical Appraisal
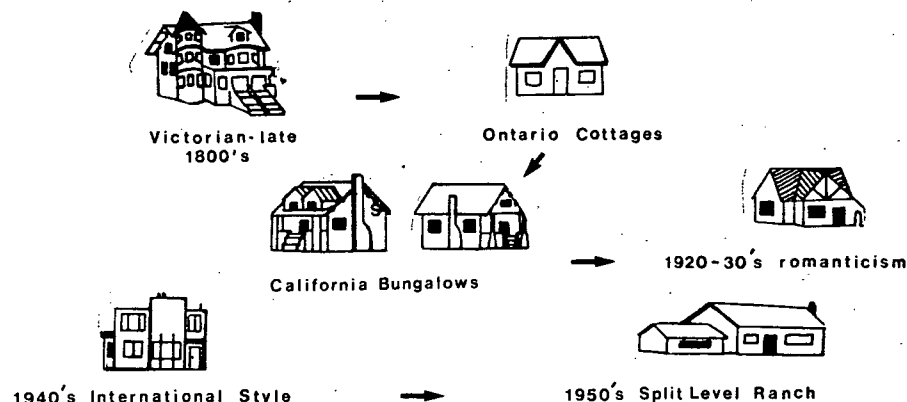
Becoming more aware of places deepens your understanding of yourself and your environment. Understanding however, is only a part of the potential that you have within you and it is possible to go much farther and move towards positive action to create, modify or influence the nature of your built environment.

Activities in the previous sections of this book were directed towards developing an understanding of what factors make a place work well and feel right. In considering how a place works and feels, you examined many factors such as function, materials used in construction, aesthetics, atmosphere, economics, structural form, use of space, network systems, etc. In order to critically appraise the built environment and to use this appraisal to bring about change, it is necessary for you to examine the process of appraisal. The group of activities included here deals with practical ways of appraising the built environment and will help you practice the technique.

GETTING STARTED:

The Four Factor Building Appraisal- Context, routes, interface, and grouping factors help you to appraise built environment through a checklist and scale system.

Infill- You will observe spaces between buildings and experiment with the design of possible solutions to fill in the space.

Infill- House Fronts- This activity involves the examination of residential house fronts and the appraisal of how well they relate to each other and to factors such as climate, topography and function.

EXPANDING HORIZONS:

Infill- Corners- Examining the uses of corner sites and evaluating the appropriateness of design.

Appraising Proposals- Learning to appraise proposals and the schemes of designers, architects and developers and examining the proposal review process.

FACTOR 1- CONTEXT: (the buiding's setting)

(Complete the response for each question shown below and
assign a score from the choices below by asking yourself
how well the building suits the context)

Score

 highly appropriate- 1 2 3 4 5 6 7 -very inappropriate

1) How does the building suit the pattern of the surrounding
   streets? _____
   _____ Score = _____

2) How does the scale of the building suit the site it sits
   upon? _____ Score = _____

3) How does the scale of the building suit the scale of
   surrounding buildings? _____
   _____ Score = _____

4) How does the scale suit the character of the neighbour-
   hood? _____
   _____ Score = _____

5) Do the public and private areas relate well to one an-
   other? _____
   _____ Score = _____

6) Do the land uses adjacent to the building seem to fit
   harmoneously with the building? _____
   _____ Score = _____

7) Does the type of building and its intended use fit well
   with the type and uses of adjacent buildings? _____
   _____ Score = _____

8) Does the appearance of the building fit in well with the type
   of buildings surrounding it? _____
   _____ Score = _____

9) Is the scale of the building suitable for its purpose on the
   site? _____
   _____ Score = _____
                            Average Score (total/9) =

Write a paragraph describing the context, including any comments or
concerns that you may have about the way the building suits or
fails to suit the context of the surrounding area.

FACTOR 2- ROUTES: (routes are the traffic paths or passageways that allow the building to relate to its context)

(Complete the response for each question shown below and assign a score from the choice shown below by asking your-self how appropriate are the routes to link the building to its surroundings and how functional the routes are.)

Score

highly appropriate- 1 2 3 4 5 6 7 -very inappropriate

1) Are sufficient routes, pathways, streets and passageways provided to and around the building? _____

_____ Score = _____

2) What are the flow patterns of traffic or people? Are there busy periods, quiet periods, one-way flows, regular movement patterns, traffic jams? Are the routes arranged to consider these factors? _____

_____

_____ Score = _____

3) Where are the nodes (meeting points) for traffic around the building and what happens there? _____

_____

_____ Score = _____

4) Do are the routes make sense? Are they understandable and convenient? _____

_____

_____ Score = _____

5) Are all the routes easily understood by newcomers, visitors, service people? _____

_____ Score = _____

6) How well are the routes marked? Are the markings clear and easily understood? _____

_____ Score = _____

7) How effectively do the routes link the building to the surround-ing buildings or structures? _____

_____ Score = _____

Average Score (total /7)   =

Write a paragraph describing the way in which the routes in and around the building(s) relate the building to its context and the success with which the routes accomplish that purpose.

800 Robson St.
Food Fair
Cinema/Theatre
Exhibition
Meeting Rooms
Tourist Information

Parking Level P2

EXIT
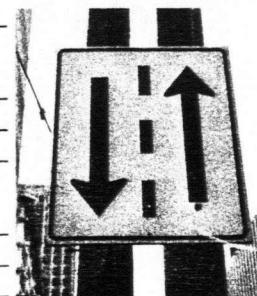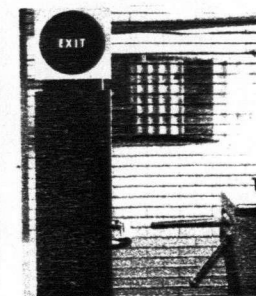
FACTOR 3- INTERFACE: (A building is essentially an enclosure that separates an interior private space from exterior public space. The interface. is the crucial meeting place where the inside of the building connects with the outside.)

(Complete the response for each question and assign a score from the choices shown below by deciding how well the building satisfies the problems related to interface.)

Score

highly appropriate- 1 2 3 4 5 6 7 -very inappropriate

1) How clearly or effectively does the exterior of the build-
   ing indicate its interior function(s)? _____

   _____
   _____ Score = ___

2) How effectively does the inside of the building connect
   with the outside of the building? Are the connections
   appropriate and functional? _____

   _____
   _____ Score = ___

3) Are the exits and entrances easily accessible? _____

   _____
   _____ Score = ___

4) Are the various openings related to thoughful planning of
   the interior? (Consider entry of light, view, privacy,
   noise, heat, glare, atmosphere, etc.) _____

   _____
   _____ Score = ___

5) Are the exitways appropriate from a safety point of view?

   _____
   _____ Score = ___

6) When you move from the exterior of the building to the inter-
   ior by means of the main entrance, is the experience pleasant,
   interesting, or special in any way? _____

   _____
   _____ Score = ___

7) Are the clues to what is public and what is private space
   clear to the visitor? _____

   _____
   _____ Score = ___

8) Have the designers, in your opinion, handled the problem of
   interface well in their design of this building? _____

   _____
   _____ Score = ___

                     Average Score (total/8)   =

Write a paragraph describing how well the design of the building
has addressed the problem of interface. What are the strengths
and concerns that you have about the design? How might it be im-
proved or changed?

FACTOR 4- GROUPING: (Buildings are usually divided into sections which are organized in form into some type of grouping. Grouping of the parts gives both form and meaning as well as variety to the building.)

(Complete the response for each question and assign a score from the choices shown below by concentrating on the subdivisions of the building's form and deciding on the appropriateness of the designer's choice of groupings.)

Score
highly appropriate- 1 2 3 4 5 6 7 -very inappropriate

1) Concentrate on the subdivision of the building's parts as viewed from the outside. What parts are evident? Do the parts integrate well with each other and form an effective and pleasing appearance? _____

_____

_____ Score = _____

2) Do the subdivided parts of the building appear to have a specific function? Is the function of each part easy to identify? _____

_____ Score = _____

3) Is it clear what various subdivisions of the building might mean to visitors? Would a visitor know where to go on entering the building? _____

_____ Score = _____

4) Are the various parts of the building planned carefully in relation to one another and to the characteristics of the site? _____

_____ Score = _____

5) Is there sufficient relationship between the parts of the building for it to appear as one unified structure? _____

_____

_____ Score = _____

6) Does enough variation exist in the structural parts and groupings to provide interest and variety? _____

_____ Score = _____

Average Score (total/6)   =

In a paragraph, discuss the subdivision of your building into identifiable parts and the way that the designer has arranged the grouping of those parts. Is the design successful and has the concept of grouping been well employed?
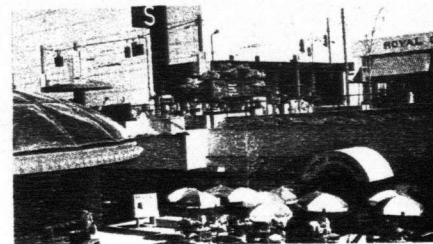
Infill- Possible solutions to house placement

1-Consider each of the following examples. In each one, a
different solution is shown for the problem of placing a
house or houses on the center lot. Give reasons why each of
the following examples would or would not work.
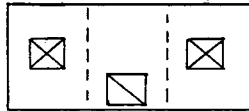
A.
_____
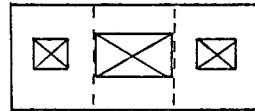
B.
_____
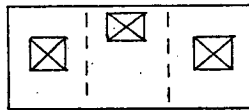
C.
_____
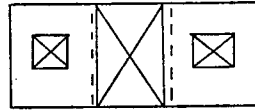
D.
_____
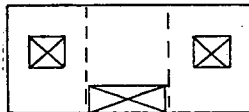
E.
_____
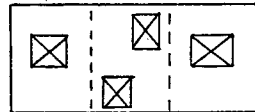
F.
_____
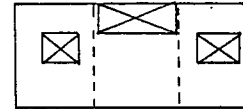
G.
_____
_____
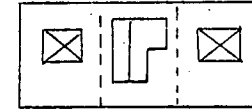
H.
_____
_____

2-Choose a design which would best be placed on the infill lot
shown below. Discuss your infill lot plan in a paragraph, giving
reasons for your choice of design and location.
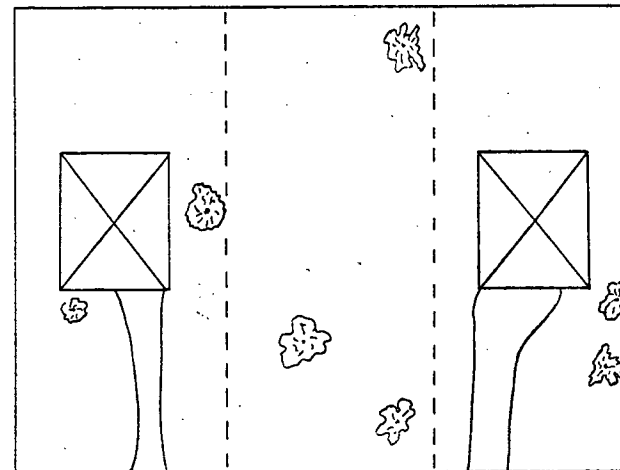
Evaluating Proposals

"Proposals" are designs submitted by architects, designers and developers to local authorities for planning purposes and in order to receive permission to proceed with the project in keeping with the wishes and regulations of local government. Every municipality has a planning office and such offices are open to the public. Often plans for major developments are outlined in newspapers and public meetings are sometimes held where developers present their plans and illustrate them by the use of drawings, maps, models or planning portfolios.

Evaluation of proposals may be a useful exercise for you to gain experience that is advantageous to you in business or community life. You can gain experience in the evaluation of proposals by carrying out the following activity:

> -Visit a planning office and talk with the planning officer to find out how the planning procedure works. Find out how a proposal goes through the development, review and accept-ance, modification and acceptance, or rejection phases.
> -Have your teacher arrange for a planner or developer to visit the school and give an informal talk on the planning and review process. It may be possible to review a "case history" of a development familiar to you.

-Try to obtain copies of proposal documents that have been through the review process. Study and appraise these documents and conduce a role-playing activity in the classroom where some students take the role of developers presenting a proposal and others act as municipal officials and general public review-ing the proposals.

-Attend public hearings where proposals are reviewed. Watch the process and be aware of the arguments made by both the proponent and the reviewers. Check to see if the outcome is what the devel-oper had in mind. If possible, talk to the people involved after the hearing to get their personal points of view.

-Follow newspaper articles on the progress of major development schemes and clip and keep a file of these articles for reference purposes. Note if and how the proposal was modified with time and for what reasons.

-In evaluating proposals, be aware of all the things that you have learned about the built environment- pedestrian and vehicle move-ment,convenience, use of space, appearance, function, network sys-tems and efficiency, noise, crowding and density, durability of materials, future use options, context, etc.

Building Impact Evaluation

New development in our cities, towns, villages or communities often leads to construction of buildings of modern design beside older forms of architecture. With time, there is a tendency for new forms of buildings to replace older forms.

In this activity you will practice using an evaluation technique that is based upon a set of established criteria.

You should choose several buildings in an area that appear worthy of assessment. Examples of both modern buildings and older buildings should be selected, preferably in a location where the two types are located close together so that building context is easy to examine in relation to the surrounding built environment.

Proceed to examine each building you have selected in turn and, for each building, complete the appropriate section of the evaluation sheet provided on the following page. Note that you must assign a score for the way each building satisfies the criteria listed. Record details of buildings by photographs or notes.

In the classroom, add up and compare totals and calculate a class total for each building (sum of total scores on each assessment sheet divided by the number of students completing assessment sheets). Display the scores along with photographs or drawings that illustrate each building and discuss the relative merits of each building and its weaknesses. Were the criteria useful or do you wish to change them to suit your own assessment scheme?

Slide Program;

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Glossary of Terms

Annotate- to add notes; usually critical or explanatory comments.

Anticipated space- the space which one expects to experience before fully encountering it.

Appraisal- an evaluation or estimate of something's value, cost, usefulness, qualities, etc.

Barrier- any obstruction or object serving to separate or limit space, ie.- fence, wall, hedge, bank, etc.

Bungalow- a one-storey frame house or summer cottage, often surrounded by a veranda.

Closed space- space completely closed off by walls, buildings, etc., ie.- a room, a courtyard.

Condominium- a form of real estate ownership of a multiple family residential dwelling. Each occupant has full ownership of his apartment and partial ownership of all common elements of the structure such as halls, elevators, grounds, etc.

Context- the setting in which a building is placed, ie.- its surroundings (other buildings, etc.)

Design- to assemble and compose elements that are drawn or constructed as scale models in order to indicate the form of a building or other object that can be created from this composition. The composition of the final object is called the design.

Dormer- a structure projecting from a sloping roof, usually housing a window or ventilation opening.

Exterior space- space outside of structures, usually uncovered (external space).

Facade- the exterior face of a building which is the architectural front. Sometimes the facade is distinguished from the other sides by elaboration of architectural or ornamental details.

Floor plan- a drawing taken above the floor of a building as if one were looking directly down at the structure from above. The floor plan shows diagrammatically, the walls of the building, its doors and windows and the arrangement of its spaces.

Four factor building appraisal- use of four important factors (context, routes, interface, groupings - see definitions) to appraise built environment through a checklist and scale system.

Function- the natural, proper or characteristic action or purpose of an object or the way man uses that object.

Functional- serving a function or use.

Functionalism- a philosophy of architectural design, emerging in the 20 th century, asserting that the form of a building should fit its function, reveal its structure, and express the nature of the material.

Grouping- composition of the elements of a building into groups which form recognizable units.

Impression- the general influence or feeling one has in response to first contact with a building or structure.

Infill- a term used to describe the process of designing appropriate structures to fill in a space or spaces between buildings or the space in a corner of a block of buildings. Good use of the site and compatability with existing buildings are important.

Interface- the critical transitional place where the outside of a building meets the inside.

Internal space- inside space contained within a structure.

Mansard roof- a roof having a double slope on all four sides; the lower slope being much steeper.

Network- an interconnected structure where elements of the structure cross each other or are attached to each other. In the context of the city, networks include streets, paths, railway systems, communication systems, drainage and supply systems, freeways.

Open space- in urban planning, the designation given to parks, recreational and natural areas and other land not occupied by buildings or structures.

Perimeter- the external boundary of a body or figure.

Perspective- the technique of representing solid objects upon a flat plane; the appearance of objects or scenes as determined by their relative distance and positions.

Pitched roof- a roof having one or more surfaces with a pitch greater than 10 degrees; a roof having two slopes that meet at a central ridge.

Population density- the average number of people per unit of area (usually per square kilometer).

Private space- personal space, usually used for reasons of comfort, quiet, security, convenience or shelter.

Projection- in masonry, stones that are set forward of the general wall surface to provide a rugged or rustic appearance; any component member or part which juts out from a building.

Proposal- an offer to perform the work described in a contract or set of specifications for a specified price. A construction proposal would usually have a full set of drawings and details of how the structure would be built.

Public space- an area within a building to which there is free access by the public, such as the entrance foyer or lobby. In some areas, public space may be a piece of land of a structure legally designated for public use.

Recess- any shallow depression in a surface; a shallow depression in a floor.

Redevelopment- to develop again in some new way.

Route- the course or way which is to be travelled.

Semi-detached houses- duplex or fourplex housing with several family dwellings contained in the same structure.

Serial vision- focusing on a distant building or object and experiencing the changing view of the object as you draw closer to it.

Single houses- detached houses that stand alone from one another.

Steeplechasing- a technique for studying the built environment which a church steeple or high object is chosen and viewed from many vantage points in the surrounding area.

Street furniture- a term given to benches, signs, lights, fixtures, and receptacles provided as part of the design of a street right-of-way.

Structural form- a form resulting from a choice of construction method.

Texture- the tactile and visual quality of a surface other than its colour.

Threshold- the plank, stone or piece of timber which lies under a door; the sill of a door; entrance or beginning point.

Town trial- a planned route through an urban area which may be walked. The trail may be indicated by markers or by routes on a map. It provides a planned means of experiencing the built environment and for guiding the walker to specific points of interest.

Traffic flow- the flow or movement of pedestrians and vehicles along a route (street, path, entranceway, corridors inside buildings).

Urban renewal- the improvement of a deteriorated or under-utilized area of a city such as a slum or old industrial site. Generally, urban renewal is achieved through city, provincial or federal programs which specify clearance and redevelopment of the area, rehabilitation of relatively sound structures and conservation measures to arrest the spread of deterioration.

Vantage point- a position that gives a person advantage for observing a situation or place.

Vehicular space- space designated for vehicular traffic such as roads, highways, driveways, parking areas.

Visual- something perceived or understood by vision; an image that forms a mental picture.

Appendix II

Technical evaluation of the program according to the format developed by Massey and Werner. This evaluation was conducted by the author prior to pilot testing of the workbook to identify strengths and concerns about the program for further consideration. The format provides an organized method for examining details of the intents, content, methodology and structure of the workbook.

Technical Analysis of the Program- Program Analysis

(after format of D. Massey and W. Werner- unpublished)

Unit: Close Encounters with the Built Environment

Grade Level: 11, 12

Analyst: Susan J. Davis

1.0 Intents

1.1 Completeness: (Is there a complete and explicit statement of intents? Knowledge objectives - concepts and generalizations? Skill objectives? Value objectives?)

Intents and general objectives are specified. Specific objectives include knowledge, behavioral objectives (Bloom, Wilson). Skill and value objectives are based upon the general learning outcomes of the B.C. secondary art curriculum.

1.2 Clarity: (Are the intents clearly stated and easy to understand? Are they kept within the teacher's view at all times?)

The objectives of the book should be stated in the forward of the book. The intents of each activity should be stated.

1.3 Scope: (Is the scope of the unit of sufficient breadth? Is it too general or too narrow?)

The scope of the unit appears of sufficient breadth for a workbook. It is not intended to be a difinitive text on the subject of built environment or art or architectural concepts. Certainly there are other sources and handbooks which could be used by teachers and students to complement the workbook. Few however, are written with the B.C. built environment in mind.

1.4 Appropriateness: (Are the intents appropriate to student grade level and to a range of student interests and abilities?)

The intents appear appropriate for senior high school students. Background material was largely selected from similar grade level programs developed in Great Britain. The approach has been successfully tested in Great Britain. All activities in the book are broken into three levels-"getting started,"expanding horizons",and"doing more". Activities take the students through areas that are familiar to them. Considerable emphasis is placed on making conscious natural processes- sensing, experiencing, working with materials and analysing and evaluating.

1.5 Realism: (Are the intents achievable within the time and resource constraints?)

Most activities are capable of completion within given school periods. Some take longer than others and extra time is likely required for the reporting of field projects. Teachers must be conscious of this requirement and plan accordingly. Suggestions for organization of time should

be incorporated in the introduction of the workbook. Since many of the activities are field oriented, a scheme involving a planning session, a field trip and follow-up session(s) in class would be a general pattern for organization of time.

1.6 <u>Internal Consistency</u>: (Are the objectives consistent with the rationale?)

Yes- the objectives of the program (to provide students with the means of concentrating on sensing, experiencing, analysing and appraising the built environment) are consistent with the rationale that they will benefit from the experience through increased awareness and ability to exercise critical judgment.

1.7 <u>Provincial Consistency</u>: (Are the intents consistent with the provincial guidelines?)

The general learning outcomes of the B.C. art curriculum form the specific objectives of the program and of the evaluation methodology. Related subject area objectives (Social Studies, Architecture, Sociology) were not used directly in preparation of all of the activities but certainly are probably applicable to some degree.

1.8 <u>Inter-unit Consistency</u>: (Is there sequential consistency with prior and subsequent units- concepts, topics, skills, attitudes? Does it have continuity?)

The workbook follows cognitive development stages- sensing, experiencing, analysing and evaluating. Within every activity and in each chapter three levels of familiarity are presented- "getting started", "expanding horizons" and "doing more". Activities are arranged in the order of cognitive developmental stages.

1.9 <u>External Consistency</u>: (Are the intents consistent with related literature?)

Recent trends in art education thought are incorporated in the book. The concept of developing awareness and critical judgment is fundamental in current thinking. Emphasis on flexibility and the unique nature of the individual, his culture, background, experience and personal meaning of interaction with the environment are incorporated.

2.0 Content

2.10 <u>Bias/Stereotypes</u>: (Is there evidence of bias- ethnic, religious, political, sex roles, multicultural, regional, occupational?)

All the photographs in the book illustrate B.C. locations. The source material was adapted from programs tested in Great Britain and the U.S.A. The activities are probably universal in application, at least to Western society. There is emphasis placed upon urban rather than rural settings.

2.20 <u>Accuracy</u>: (Are there misstatements or omissions? Is there evidence of inaccuracy?)

None at this time.

2.30 <u>Currency</u>: (Does the content have currency and futurity? Are the styles, examples, and expressions dated?)

Content is recent- activities were adapted in many cases from recently published literature sources. Some photographs in the workbook depicting "modern" buildings will become dated with time.

2.40 <u>Congruency</u>: (Does the content match the stated objectives? Are the objectives developed?)

Content follows stated objectives of the workbook. The general learning outcomes of the B.C. art curriculum were considered when incorporating and adapting activities.

2.50 <u>Readibility</u>: (Is the level of reading difficulty - vocabulary, style of presentation, sentence structure - appropriate for student differences and preparedness?)

A number of new concepts are included in the workbook and a considerable amount of new vocabulary that is unfamiliar to the students may be incorporated. A readibility test appears warrented. Explanatory sections on vocabulary might improve the workbook.

2.60 <u>Interest</u>: (Is it interesting, attractive, meaningful and relevant to students? Does it start from their experience?)

The workbook attempts to provide both written and visual material to stimulate the students. Many illustrations will be well known to B.C. students. Students are aware in a general way and concerned about their environment, hence the material should be of interest. Field trips and group activities provide relief from highly structured classroom work and are likely to promote interest and enthusiasm. As awareness of the properties and features of built environment increases through introductory activities in the workbook, interest and desire to do more should result.

2.70 <u>Organization</u>: (Is the content well organized? Are the ideas clearly stated? Is it easy to understand? Is there sequencing? Is there a table of contents? Summary charts? Advanced organizers? Does the format keep intents visible to teachers?)

Content is organized and sequenced appropriately. Each chapter has an explanatory introduction and table of contents. The workbook itself has a table of contents. The general introduction could be strengthened to provide more guidance for teachers and clarify intents and objectives. Generally, material and directions should be easy to understand.

2.80 <u>Variety</u>: (Are a variety of resources suggested? Are different materials provided? Is a bibliography of sources provided to facilitate further teacher planning?)

A large reference list is provided and indexed by chapter. Citations within the chapter of listed references are made. Use of different materials, methods, choice of study locations provides variety of content.

3.40 <u>Flexibility</u>: (Are alternatives suggested for different teaching styles and learning styles? Accomodation of different interests and choices?)

The workbook is designed to be flexible and to allow for different teaching and learning styles as well as innovation. The use of a question and answer format in some activities may be quite structured and impose some restraint on flexibility.

3.50 <u>Creativity</u>: (Is creativity encouraged?)

Creativity and individual action is encouraged wherever possible. In recording and illustrating their discoveries, students are encouraged to work with a variety of materials to express their reactions and recommendations. Field trip formats are often sufficiently flexible to allow students to develop their own approach to study design and emphasis.

3.60 <u>Student Involvement</u>: (Is student decision-making encouraged? Are students involved in the formulation of goals and selection of content? Do students have choices in the unit? Does it incorporate the experiences they bring to the classroom? Are they interested?)

Student decision-making is certainly encouraged, especially in the sections on analysing information and evaluation. The purpose of the exercise is to teach students to form critical judgments based on personal experience and knowledge. There is opportunity for students to select goals and study emphasis and to modify activities to meet the needs of their study design.

3.70 <u>Individualization</u>: (Does it allow for individualized pacing- rates of speed and output, rather than group pacing? Must all students do the same thing at the same time and in the same way?)

The workbook allows for individualized pacing rather than group pacing. Students are encouraged to work individually or in small groups in many activities. The teacher must have a well-developed organizational plan, particularly where field trips are involved so that introductory and follow-up activities are properly conducted. The evaluation methodology imposes some structure on use of the workbook by confining pilot testing to an intensive six week period.

3.80 <u>Open-endedness</u>: (Does it encourage a variety of student responses rather than restricting responses? Is it divergent rather than convergent?)

Both the activities and subject matter can be described as open-ended. The study of the built environment encompasses many subject areas- art, architecture, planning, functional aspects of buildings, materials and construction methods, ethnic and social considerations, historical perspectives, etc. The activities should serve to illustrate this variety and allow students a broad range of expression relative to their own interests and experience.

3.90 <u>Evaluation</u>: (Do evaluation strategies accommodate student differences? Matched with intents rather than content? Do students have opportunity for self and group evaluation?)

2.90 <u>Significance</u>: (Is it worthwhile for students to pursue? Can the time allotted to the unit be justified?)

The book deals with the built environment and our relationship to it. It therefore deals with subject matter common to the lives of all people. Awareness of, and development of critical appraisal techniques related to the built environment should be helpful from both the standpoint of the individual and of the community.

2.10 <u>Depth</u>: (Is it treated in sufficient depth and detail rather than in survey fashion? Is it covered adequately? Is it comprehensive?)

The workbook is intended to be a compendium of a variety of ways from which to approach the study of the built environment. It is not intended to be a comprehensive work on the subject but rather an activity guide which stimulates innovation and the desire to do more and explore related fields. Emphasis on city planning and social studies and other topics could form the basis of similar workbooks.

2.11 <u>Redundancy</u>: (Is the content new rather than redundant to students?)

While buildings and man's built environment are extremely familiar to all students, their familiarity may be quite superficial. The workbook concentrates upon making students aware of built forms, their properties and features, materials used in construction, use of space, network systems and a variety of considerations designed to increase awareness and analysis of the appropriateness and complexities of the subject. It is expected that most students will find that focussing on these areas greatly increases awareness and critical appraisal of the built environment.

3.0 Methodology

3.10 <u>Variety</u>: (Are a variety of student and teacher strategies suggested for opener, developmental, and closure lessons?)

Each chapter contains introductory material and three levels of familiarity are provided to offer a natural progression through the material. There is opportunity for individual, group or class projects conducted in the classroom, immediate area around the school or further afield. A variety of methodology is offered and teachers and students are encouraged to innovate to suit their own circumstances.

3.20 <u>Emphasis</u>: (Is the intended emphasis upon transmission of content, student activities- inquiry, discovery, experiential, or both?)

The book offers a mix of content transmission and activities involving inquiry, discovery and experience. The use of personal inquiry and judgment encourages development of critical appraisal skills. Emphasis is upon personal discovery and experience rather than content transmission.

3.30 <u>Consistency</u>: (Does the methodology match the objectives?)

Methodology is designed to match the objectives.

Evaluation methodologies were chosen to form a broad assessment of the material- teacher surveys, student questionnaires, evaluator observation, quantitative testing, examination of student output. A number of activities within the workbook encourage self evaluation and classroom evaluation of results through open discussion and verbal or written presentation of findings. Working in small teams and groups encourages discussion and evaluation of findings and approach taken.

Appendix III

Important points to consider when designing a formative evaluation of a program (from W. Werner, personal communication).

DESIGNING FORMATIVE EVALUATION

There are no formulae for evaluation planning. It requires creativity and work because no two evaluations are the same.

1.0 Negotiation (eg. developers, administrators, etc.)

   1.1 What program is to be evaluated?(eg.- master plan; classroom program; discrepancy between master plan and classroom program; etc.)

   1.2 What purposes are to be served? (eg.-goal and roles of evaluation)

   1.3 What questions are of concern?

   1.4 What parameters are necessary? (eg.-time lines, finances, access to information, etc.)

   1.5 Who is to be involved, and when?

2.0 Proposal (indicate scope and sequence of study and the contract)

   2.1 Problems, questions, purposes of the study;

   2.2 Methodology for data collecting, analysis and reporting;

   2.3 Personnel needed or involved;

   2.4 Budget (specify items such as time, secretarial, travel, computor, mailing, hiring help, etc.);

   2.5 Time lines for procedures and submission of reports;

3.0 Data Collection (method)

   3.1 Ends-means data

      3.1.1 Qualitative analysis of documents, special techniques and instruments

         a) Ends: kinds (knowledge, attitudes, values, skills), balance, clarity, levels, specification (specific-general; teacher-student), consistency.

         b) Means: readability, kinds of activities (opener, developmental, closure), balance, clarity, redundancyy levels of questions, instructions.

         c) Organization: linkages between activities, transitions, cumulative building or development, sequential logic, focus mechanisms.

         d) Consistencies: internal (is there consistency between and among the intents, resources, and strategies? Carry through?); external (congruency with master plan? with current practice and research? significance of the program?); inter-program or unit (logical and

. sequential consistency among the programs for various grades, etc.

`3.1.2 Quantitative analysis of outcomes (testing and measurement)

3.2 Situational Data (pilot testing)

  3.2.1 Questionnaire (usually all participants)

    a) teachers

    b) students

    c) administrators, consultants, parents

  3.2.2 Interviews (selected participants)

    a) teachers

    b) students

    c) other groups

  3.2.3 Teacher diaries (all participants)

  3.2.4 Observations (selected situations)

3.3 Critical Data

  3.3.1 Images of groups (ethnic, sex, minorities, etc.)

  3.3.2 Images of students (freedom, involvement, etc.)

4.0 Report Writing

4.1 Format

  4.1.1 Scope of the study; purposes; procedures

  4.1.2 Strengths

  4.1.3 Concerns- concerns raised by teachers, students; concerns about internal consistency, inter-program consistency, external consistency.

  4.1.4 Suggestions for consideration

  4.1.5 Appendices, special reports and data

4.2 Approach

  4.2.1 Ego involvement (question posing)

  4.2.2 Ease of reading (tables, lists, points, brevity)

5.0 Discussion

5.1 Copies for everyone

5.2 Brief overview of findings:

    5.2.1 Start with and stress strengths

    5.2.2 Interpret summary charts or points

    5.2.3 Raise concerns/recommendations as questions which lead into discussion

5.3 Discussion re revisions

    5.3.1 Be sure concrete examples are available to support claims

    5.3.2 Determine where action is needed- where do we go from here? (specify directions, roles, times, etc.)

Appendix IV

Results of teacher and student questionnaires administered at completion of the six week pilot program period. Teacher responses are reproduced verbatum as hand written on evaluation questionnaires. Student responses represent a compilation of individual responses on a single questionnaire form for each group with number of students responding in each category shown numerically on the questionnaire form. Responses of a written nature from the students are summarized by listing all individual responses to a given question by a test group.

<u>Teacher Questionnaire</u>

This survey is to obtain your view of the Built Environment curriculum unit being tested in your classroom. As you are piloting the unit, make notations on the following questions as they apply to the unit's objectives, content and teaching-learning strategies. Your comments will be treated confidentially.

Unit Title: <u>Built Environment</u>   Grade Level: <u>10 to 12</u>

School: <u>   A   </u>

Characteristics of the Class (eg. -reluctant readers, more able learners, etc.):

<u>Keen, competitive students who want to do well in the course. Their ability</u>

<u>varies from very able students to slower learners- but all have interest in</u>

<u>the course.</u>

1) Comment on the <u>significance</u> of the unit. Can time alloted to the unit be justified? Is the content worthwhile for the students to pursue?

<u>This unit is an excellent introduction to a year course on studying one's</u>

<u>built environment. The content is definitely worthwhile for student's aware-</u>

<u>ness is definitely increased through the various activities. The course is</u>

<u>designed to make all actively involved- not just passive observers.</u>

2) Comment on the <u>appropriateness</u> of the unit. Is it appropriate to the grade level? Does it accomodate students of varying abilities and interests?

<u>It is appropriate to this grade level (10 to 12). The vocabulary is reason-</u>

<u>ably easy to understand. The activities encourage the students to become</u>

<u>completely aware of their environment which is, in my opinion, of vital im-</u>

<u>portance to everyone. This unit could be altered to suit almost any grade</u>

<u>level. The unit does accomodate the students' varying abilities and interests-</u>

<u>open enough, yet directed.</u>

3) What is your overall assessment of the unit?

<u>The overall assessment of the unit is good. However, more time could have been</u>

<u>allowed- so much to learn!</u>

4) Please complete the following questions by placing an "x" on the response that best fits your assessment:

	The unit is:
	satisfactory/unsatisfactory

Objectives

	satisfactory	unsatisfactory
Are they explicit and complete?	x	
Are they clearly stated and easy to follow?	x	
Are they suited to your time and resource restaints?	x	
Are they developed satisfactorily throughout the unit?	x	

Content

	satisfactory	unsatisfactory
Is there evidence of bias (ethnic, sex roles, stereotypes)?	x	
Are there mistatements or omissions of fact?	x	
Is the content dated rather than current?	x	
Does it match stated objectives?	x	
Is the readibility appropriate (vocabulary, sentence structure)?	sometimes	confusing
Is it well organized and easy to follow?	x	
Are a variety of resource materials provided or suggested?	x	
Is it treated in sufficient depth rather than in survey fashion?	x	
Is the content new rather than redundant to students?	x	

Teacher-learning Strategies

	satisfactory	unsatisfactory
Is variety provided (opener, developmental, closure)?	x	
Are they suited to the objectives?	x	
Are there alternatives for different teaching-learning styles?	x	

Do they encourage creativity: _X_   _____

Do they encourage a variety of student responses?   _X_   _____

Do they facilitate enquiry rather than rote learning?   _X_   _____

Do evaluation activities suit the objectives?   _X_   _____

Do evaluation activities accommodate student differences?   _X_   _____

Do students have opportunity for self and group
evaluation?   _X_   _____

5. Comment on how long it took you to teach the unit.

We were given six weeks, however, as stated earlier, more time could have

been spent on the unit. It offered enough variety to have more time spent

on it yet each activity progressed nicely from one to another.

6. Did you require help from someone (eg. consultant, development team
   member, fellow teacher) to clarify some aspect of the unit?

_____ Yes, help was required

____X____ No

7. Comment on the _involvement_ of the student in the unit. Do students become
   actively involved and interested? Do they perceive it as relevant,
   attractive and meaningful? Does the unit build on the student's own
   experiences? Is it student or content oriented? Is there enough variety?
   Is student decision-making encouraged and choice accommodated? Does it
   allow for individualized pacing, or must all students do the same thing
   at the same time and in the same way?

All students became actively involved in the unit - they all seemed to want to

do well and put a good deal of effort into their assignments. Yes, the students

did perceive the unit to be relevant and meaningful. They continually made com-

ments about how they were now aware of their built environment and had learned

basic skills in how to evaluate their environment. It does build on a student's

own experiences - the activities were directed and specific about the aims of

each area but allowed for personal expression. The entire unit was based on

student decision-making - they were evaluated on their efforts on each project

but not whether it was wrong or right. It definitely encouraged individual

thinking. Students had to work at the same time but _not_ the same way.

8) Comment an any <u>additional</u> <u>aspects</u> which you feel would be helpful to the person revising this unit. Suggested areas for comment could include selected aspects from the following: completeness, clarity, scope, realism, internal consistency, bias, accuracy, currency, readability, interest, organization, variety, depth, redundancy, flexibility, creativity, sequence, individualization, open-endedness.

For the amount of time allotted, it would perhaps have been better to have the individual units scaled down (lessen the activity load). Therefore, more of the activities could have been done. The exercises could have included more objective questioning- maybe a "vocabulary" review at the end of each sub-unit (activity). The questions could have been more specific and direct- the students sometimes found them difficult to understand.

9) What in your opinion, is the overall <u>strength</u> of this unit?

The overall strength was the way the book made the students become actively involved with exploring their built environment. This is an excellent "ground" or base for further studies in the built environment. Any student is capable of participating and getting something positive from a book of this type.

10) What in your opinion, is the overall <u>weakness</u> of this unit?

Vocabulary- a clearer introduction to new words. Illustrations and photographs could have been more exciting.

11) Do you recommend that this unit be produced for classroom use and distributed throughout the entire province? (check one)

(a) _____ without revisions   (c) _____ with major revisions

(b) ___X____ with minor revisions   (d) _____ not recommended

If you checked (b) or (c), what specific suggestions for <u>improvement</u> do you recommend?

<u>Review questions and vocabulary at the end of each section.</u>

Teacher Questionnaire

This survey is to obtain your view of the Built Environment curriculum unit being tested in your classroom. As you are piloting the unit, make notations on the following questions as they apply to the unit's objectives, content and teaching-learning strategies. Your comments will be treated confidentially.

Unit Title: <u>Built Environment</u>   Grade Level: __11__

School: ___B___

Characteristics of the class (eg.- reluctant readers, more able learners, etc.)

<u>The class has an unusually high percentage of potential and returned dropouts.</u>

<u>Many of them (about 50 %) have had little or no success in school to this point.</u>

<u>The students were fairly new to me when this project began.</u>

1) Comment on the <u>significance</u> of the unit. Can time allotted to the unit be justified? Is the content worthwhile for the students to pursue?

<u>Content is important and a great deal of time should be spent on learning about</u>

<u>the environment. I am, however, unhappy with the structure that the testing</u>

<u>imposed. The students found five continuous weeks too much. I would normally</u>

<u>have integrated this information with "producing" activities.</u>

2) Comment on the appropriateness of the unit. Is it appropriate to the grade level? Does it accomodate students of varying abilities and interests?

<u>The language was sometimes too technical and often too dry. There is a general</u>

<u>lack of introductory work to raise student's (and teacher's) awareness to the</u>

<u>level where exercises would have some meaning.</u>

3) What is your overall assessment of the unit?

4) Please complete the following questions by placing an "x" on the response that best fits your assessment:

The unit is:

Objectives   satisfactory/unsatisfactory

Are they explicit and complete?   (lack intro. exercises) ____   x

Are they clearly stated and easy to follow?   x   ____

Are they suited to your time and resource restaints?   x   ____

Are they developed satisfactorily throughout the unit?   x   ____

Content

Is there evidence of bias (ethnic, sex roles, stereo-
types)?   (slanted towards architecture rather than design ____   x
             concepts)
Are there mistatements or omissions of fact?   x   ____

Is the content dated rather than current?   x   ____

Does it match stated objectives?   x   ____

Is the readibility appropriate (vocabulary, sen-
tence structure)?   ____ x ____

Is it well organized and easy to follow?   x   ____

Are a variety of resource materials provided or
suggested? (often necessary to find and use extra resources)____   x

Is it treated in sufficient depth rather than
in survey fashion?   ____ x ____

Is the content new rather than redundant to
students?   x   ____

Teacher-learning Strategies

Is variety provided (opener, developmental,
closure)?   (more making activities could be included) ____   x

Are they suited to the objectives?   x   ____

Are there alternatives for different teaching-
learning styles?   (highly structured in traditional way) ____   x

Do they encourage creativity: (fairly directive) ___   __x__

Do they encourage a variety of student responses?   __x__   _____

Do they facilitate enquiry rather than rote learning?   _____ x _____

Do evaluation activities suit the objectives?   __x__   _____

Do evaluation activities accommodate student differences?   __x__   _____

Do students have opportunity for self and group
evaluation?   __x__   _____

5. Comment on how long it took you to teach the unit.

Five weeks

6. Did you require help from someone (eg. consultant, development team member, fellow teacher) to clarify some aspect of the unit?

____x____   Yes, help was required

_____   No

7. Comment on the involvement of the student in the unit. Do students become actively involved and interested? Do they perceive it as relevant, attractive and meaningful? Does the unit build on the student's own experiences? Is it student or content oriented? Is there enough variety? Is student decision-making encouraged and choice accommodated? Does it allow for individualized pacing, or must all students do the same thing at the same time and in the same way?

The students found the unit meaningless and boring (according to their responses). However, what I think they were opposed to was the fact that they had to do the unit. Also, they came into the class with 10 years' worth of expectations about what one does in an art class. Most of these particular students are not comfortable with reading and with words in general. The work book might have been more successful if it had been more visual in its approach. It is very wordy.

8) Comment on any <u>additional</u> <u>aspects</u> which you feel would be helpful to the person revising this unit. Suggested areas for comment could include selected aspects from the following: completeness, clarity, scope, realism, internal consistency, bias, accuracy, currency, readability, interest, organization, variety, depth, redundancy, flexibility, creativity, sequence, individualization, open-endedness.

My first (and strongest suggestion) is that the book be set up in such a way that it encourages integration with other activities. I also feel that its architectural and sociological emphasis is too strong for an art class. There is very little information on elements and principles of design and how they are used in our surroundings. Introductory exercises in communication and response to stimuli would also be helpful. Critical evaluation should receive further clarification and guidance.

9) What in your opinion, is the overall <u>strength</u> of this unit?

The general topic is important and the lessons are clearly laid out and explained.

10) What in your opinion, is the overall <u>weakness</u> of this unit?

While the book allows for individual adaptation, it is structured to such a degree that it does not encourage flexibility. Some teachers would find it too constrictive. I would also have appreciated a little more humour. The tone is very serious.

11) Do you recommend that this unit be produced for classroom use and distributed throughout the entire province? (check one)

(a)——————— without revisions   (c)——————— with major revisions

(b)———*X*——— with minor revisions   (d)——————— not recommended

If you checked (b) or (c), what specific suggestions for <u>improvement</u> do you recommend?

1) An introductory unit.

2) A chapter on how to use the book emphasizing flexibility.

3) Inclusion of a chapter on elements and principles of design and activities

dispersed throughout the book which relate back to it.

4) A paradigm for critical evaluation.

5) More visual exercises (exercises that encourage visual rather than

verbal response).

*Perhaps the suggestions (for revison) would be seen as major. I call them minor because they do not alter the essence of the book.

Teacher Questionnaire

This survey is to obtain your view of the Built Environment curriculum unit being tested in your classroom. As you are piloting the unit, make notations on the following questions as they apply to the unit's objectives, content and teaching-learning strategies. Your comments will be treated confidentially.

Unit Title: Built Environment   Grade Level: 11, 12

School: _____ C (Control Group Teacher)

Characteristics of the class (eg.- reluctant readers, more able learners, etc.)

Grade 11/12 AD (Ceramics). Students are interested in working with their hands.

1) Comment on the significance of the unit. Can time allotted to the unit be justified? Is the content worthwhile for the students to pursue?

Unit is more significant for a general Art 11 or 12 or senior Geography.

2) Comment on the appropriateness of the unit. Is it appropriate to the grade level? Does it accomodate students of varying abilities and interests?

Appropriate to grade level. Accomodates students of varying abilities and

interests.

3) What is your overall assessment of the unit?

4) Please complete the following questions by placing an "x" on the response that best fits your assessment:

The unit is:

Objectives   satisfactory/unsatisfactory

Are they explicit and complete?   X _____

Are they clearly stated and easy to follow?   X _____

Are they suited to your time and resource restaints?   X _____

Are they developed satisfactorily throughout the unit?   X _____

Content

Is there evidence of bias (ethnic, sex roles, stereo-
types)?   X

Are there mistatements or omissions of fact? (historical background X
                                          of architecture)

Is the content dated rather than current?   X _____

Does it match stated objectives?   X _____

Is the readibility appropriate (vocabulary, sen-
tence structure)?   (too advanced)   _____   X

Is it well organized and easy to follow?   X _____

Are a variety of resource materials provided or
suggested?   X _____

Is it treated in sufficient depth rather than
in survey fashion?   X _____

Is the content new rather than redundant to
students?   X _____

Teacher-learning Strategies

Is variety provided (opener, developmental,
closure)?   X _____

Are they suited to the objectives?   X _____

Are there alternatives for different teaching-
learning styles?   X _____

Do they encourage creativity: __x__ ____

Do they encourage a variety of student responses?   __x__ ____

Do they facilitate enquiry rather than rote learning?   __x__ ____

Do evaluation activities suit the objectives?   __x__ ____

Do evaluation activities accommodate student differences?   __x__ ____

Do students have opportunity for self and group
evaluation?   __x__ ____

5. Comment on how long it took you to teach the unit.

___Control group_____

_____

_____

6. Did you require help from someone (eg. consultant, development team
member, fellow teacher) to clarify some aspect of the unit?

_____ Yes, help was required

_____ No

7. Comment on the <u>involvement</u> of the student in the unit. Do students become
actively involved and interested? Do they perceive it as relevant,
attractive and meaningful? Does the unit build on the student's own
experiences? Is it student or content oriented? Is there enough variety?
Is student decision-making encouraged and choice accommodated? Does it
allow for individualized pacing, or must all students do the same thing
at the same time and in the same way?

Control Group - students were not interested. For them the unit was not

relevant, attractive or meaningful. The students felt they were being

unfairly used.

As a teacher, I realize the need for a control group in such an endeavor.

But frankly, I felt sorry for the students who seemed to get only a

feeling of stupidity from being a control group.

_____

_____

_____

8) Comment an any <u>additional</u> <u>aspects</u> which you feel would be helpful to
the person revising this unit. Suggested areas for comment could in-
clude selected aspects from the following: completeness, clarity, scope,
realism, internal consistency, bias, accuracy, currency, readability,
interest, organization, variety, depth, redundancy, flexibility, creat-
ivity, sequence, individualization, open-endedness.

<u>The unit itself seems to be quite good. One point I wonder about is the</u>

<u>overall vocabulary. I wonder if words and phrases such as "texture, tapestry</u>

<u>of lights, facade, and the vocabulary listed on page 9 is understandable to</u>

<u>a high school student?</u>

9) What in your opinion, is the overall <u>strength</u> of this unit?

<u>The stress on observing one's surroundings.</u>

10) What in your opinion, is the overall <u>weakness</u> of this unit?

<u>Overall vocabulary should be simpler.</u>

11) Do you recommend that this unit be produced for classroom use and distributed throughout the entire province? (check one)

(a) _____ without revisions   (c) _____ with major revisions

(b) __x__ with minor revisions   (d) _____ not recommended

If you checked (b) or (c), what specific suggestions for <u>improvement</u> do you recommend?

<u>This question seems to assume that this unit in some form should be a</u>

<u>mandatory part of the curriculum. (Improvements- as mentioned, vocabulary).</u>

Student Responses   School A

Your Reaction

Please tell us how you feel about the things you did during the unit on
Built Environment. There are no right or wrong answers. Your reaction will
help us to revise the unit.

1) I think this unit was ......(place a check mark along the line)

Easy to understand	2	6	3	5	0	Hard to understand
Interesting	3	8	3	2	0	Boring
Important to learn	1	6	7	2	0	Not important to learn
Too long	0	1	7	6	2	Too short
Moving too fast	3	3	5	5	0	Moving too slowly
Worthwhile and valuable	4	9	3	0	0	Not very worthwhile or valuable

What else?
"Very worthwhile and enjoyable."
"Should be longer."
"The questions were very vague and difficult to
understand."
"Quite interesting."

2) While doing this unit I ...... (place a check mark along the line)

Often discussed it at home or with friends	2	2	1	7	4	Seldom discussed it at home or with friends
Seldom felt confused	5	7	0	3	1	Often felt confused
Often asked questions	2	5	5	3	1	Seldom asked questions
Learned things I never knew before	9	4	3	0	0	Learned things I already knew before
Broadened my knowledge about built environment	5	5	5	1	0	Did not broaden my knowledge about built environment

What else?
"I was very pleased with the work I was doing and I was
enjoying the unit."
"I'd like to know the costs of buildings and things"
"Learned to control my hand at drawing and painting."
"Find difficulties in answering the questions."
"I learned to examine buildings."

Student Responses- <u>School A</u> (cont.)

3) I learned most in this unit by ...... (Check as many as you wish)

  __2__ Taking notes.

  __10__ Reading the books.

  __12__ Listening to the teacher.

  __1__ Watching the pictures and listening to the tapes.

  __11__ Having class discussions.

  __14__ Doing group projects.

  __1__ Having simulations or debates.

  __7__ Doing the written exercises and writing answers to questions.

  __2__ Having the teacher ask me questions.

  __4__ Working by myself.

  __9__ Listening to what other students have to say.

  __1__ Asking resource people for their opinions.

  __0__ Working in the library.

  __1__ Being given the answers to the problems by the teacher.

  __10__ Expressing my own opinion.

  __2__ Disagreeing with the teacher or other students.

  __7__ Finding out answers for myself.

  __8__ Asking questions.

What else?
> "Doing the projects in the unit. Doing field trips."
> "Asking opinions of people."
> "Field trips."
> "Studying buildings."

4) I found it hard in this unit to ...... (Check as many as you wish)

  __3__ Understand the books and articles.

  __10__ Answer the assigned questions.

  __1__ Watch the films or filmstrips.

  __6__ Work by myself on the assignments.

  __1__ Work with others on the group projects.

Student Responses- School A (cont.)

      4   Find information to answer the questions.

      2   Become interested in the topic.

      5   Make sense out of the assignments.

      0   Ask questions.

      4   Follow the instructions on handouts.

      0   Remember what I read in the assigned readings.

      6   Figure out why we had to learn this material.

What else?
> "We already knew some of it."
> "Hard to make the answers complete."
> "Hand in projects because there was a lot of work to do."
> "Use the exercises."
> "Wording hard to understand in questions and exercises."
> "Understand the questions asked."

5) What I liked best about the unit was ......

> "It was fun to do while at the same time taught us important things such as environmental awareness."
> "The field trips, architecture, some Vancouver history."
> "The field trips and going to places to learn more."
> "It helped me to be aware of any buildings around me."
> "Field trips."
> "The selection of study areas-Granville Island was very good."
> "The trip to U.B.C. and Granville Island."
> "Going on the field trips to observe and take notes for projects."
> "As far as the built environment is concerned, I think I have learned something."
> "That it helped me become more aware of the buildings around me."
> "The field trip to Granville Island and really looking at each building."
> "Being able to go on a field trip and look at a building in a very different manner than I would normally. You get a very much more objective view."
> "That I take a closer look at all buildings I see now."
> "That the unit wasn't too long and didn't take much time to do any one assignment."
> "The field trips to interesting architectural places."

6) What I liked least about the unit was ......

> "Trying to figure out what the questions meant."
> "The fact that why we had to learn the information that seemed to have nothing to do with architecture."
> "The amount of time allowed for the unit."
> "The repetitive or vague questions assigned for each assignment."

>"The questions."
>"The repetitive nature of the questions and the way they
> were presented."
>"It was very brief."
>"Doing some of the questions- they were hard to answer."
>"The amount of time to do such projects."
>"Doing the assignments of the U.B.C. tower."
>"Some of the questions asked."
>"I liked the entire unit."
>"Some of the stupid questions-eg.-How do the people go
> from the inside to the outside."
>"Nothing. I felt the whole unit was interesting and enjoy-
> able."

7) What I would like to change in this unit is ......

>"I think there should be more simple projects which can
> be done to learn, instead of only a few long, hard pro-
> jects. I think more field trips would be a good idea,
> since the field trips we did take were very enjoyable."
>"Some of the questions need more time, 2-4 hours in the
> area."
>"Nothing."
>"The form of the questions and the wording of some of
> the questions."
>"To make it a little bit shorter."
>"If it were to be used in schools, the time allotted
> should be shorter."
>"To spread assignments out- more time, more explicit
> questions."
>"More field trips."
>"The way the questions are phrased and arranged."
>"Making the instructions simpler and easier to understand."
>"The way the questions were asked."
>"The number of assignments in such a short period of time."
>"More time and more learning of technical drawing."
>"The assignments- eg. the Clock Tower. What does this have
> to do with architecture, other than appreciating it? Unique
> buildings should have been recognized, rather than tall,
> slim, boney structures."
>"The Steeplechasing- there were too many angles involved."

Student Responses

Your Reaction

Please tell us how you feel about things you did during the unit on Built Environment. There are no right or wrong answers. Your reaction will help us to revise the unit.

1) I think this unit was ...... (place a check mark along the line)

Easy to understand	6	1	5	2	2	Hard to understand
Interesting	0	2	3	3	6	Boring
Important to learn	1	0	6	2	5	Not important to learn
Too long	11	2	2	0	0	Too short
Moving too fast	2	2	4	0	5	Moving too slowly
Worthwhile and valuable	0	0	4	4	6	Not very worthwhile or valuable

What else?

2) While doing this unit I ...... (place a check mark along the line)

Often discussed it at home or with friends	1	1	1	2	7	Seldom discussed it at home or with friends
Seldom felt confused	6	2	2	1	5	Often felt confused
Often asked questions	3	3	2	0	6	Seldom asked questions
Learned things I never knew before	3	0	5	1	5	Learned things I already knew before
Broadened my knowledge about built environment	0	2	1	1	8	Did not broaden my knowledge about built environment

What else?
          "I liked to discuss the unit."
          "Nothing."

3) I learned most in this unit by ...... (check as many as you wish)

   3   Taking notes

   1   Reading the books

   6   Listening to the teacher

Student Responses- School B (cont.)

   4   Watching the pictures and listening to the tapes.

   3   Having class discussions.

   0   Having simulations or debates.

   9   Doing the written exercises and writing answers to questions.

   1   Having the teacher ask me questions.

   8   Working by myself.

   3   Listening to what other students have to say.

   4   Asking resource people their opinions.

   4   Working in the library.

   2   Being given the answers to the problems by the teacher.

   7   Expressing my own opinion.

   1   Disagreeing with the teacher or with other students.

  10   Finding out answers for myself.

   7   Asking questions.

4) I found it hard in this unit to ...... (Check as many as you wish)

   6   Understand the books and articles.

   5   Answer the assigned questions.

   3   Watch the films or filmstrips.

   2   Listen to the tapes.

   1   Work by myself on the assignments.

   2   Work with others on the group projects.

   3   Find information to answer the questions.

   9   Become interested in the topic.

   6   Make sense out of the assignments.

   1   Ask questions.

   3   Follow the instructions on handouts.

   4   Remember what I read in the assigned readings.

  <u>13</u> Figure out why we had to learn this material.

What else?

> "I didn't understand."
> "The questions were useless."

5) What I liked best about the unit was ......

> "Thinking things out myself."
> "Nothing." (3)
> "Working and talking with other people."
> "No."
> "I didn't really like it." (2)
> "Walking by myself and noticing things that I wouldn't of
> if I was with someone."
> "Open space activity."
> "Open space."
> "Work outside."
> "Going outside."
> "Gave us free time."
> "It had a few interesting points."

6) What I liked least about the unit was ......

> "It was hard to understand at first."
> "Some of the stuff didn't make sense."
> "Everything." (3)
> "Writing these papers."
> "The handouts."
> "Deadline."
> "Talking about it with other people- I couldn't get into it."
> "That there was so much writing."
> "All."
> "Doing it myself."
> "Writing the assignments out."

7) What I would like to change in this unit is ......

> "I don't know."
> "Stupid questions."
> "That it should have been a group thing."
> "All."
> "Everything." (3)
> "That we be able to do it all our selfs."
> "Everything but open space activity."
> "These papers."
> "Almost everything."
> "Some of the topics."
> To be able to go other places that I am not familiar with."

Appendix V

Details of the quantitative evaluation (pre- and post-tests) administered to the pilot test groups and the control group.

Objectives of the Pre-and Post-Test of the Curriculum Workbook

General

-The objectives of the test correspond with the objectives of the workbook.

-Questions used in the pre-and post-test correspond with specifications

(page 25).

Content of Parts of the Pre and Post Test

I Perception- Learning to perceive and respond to aspects of the built

environment.

A. Learning to recognize and describe the subject elements of the built

environment.

B. Learning to go beyond the recognition of the subject matter to the

perception and description of formal qualities and expressive content.

Testing mastery of the combined effect of the subject matter and the

specific visual form that characterizes a particular built form.

II Knowledge- Testing knowledge about the built environment by remembering,

recalling or recognizing those things which are present during an original

learning situation.

A. Terms- to remember definitions of terms which distinguish one built form

from another.

III Comprehension- Achieving an understanding of the literal, symbolic and

allegorical message of the built form.

A. Translation- Learning to translate (verbally describe) built form.

B. Interpretation- Learning to be able to verbally interpret and also to

re-order, rearrange, and assess what is irrelevant.

IV Analysis- Ability to dissect the built form into its constituent parts

and detect relationships among the parts and the relationship of the parts

to the whole.

A. Analysis of Elements- Accounting for elements of the built form item

by item.

B. Analysis of Relationships- Ability to determine some of the major connections among aspects of the built form.

C. Analysis of Relationships of Parts to the Whole- Ability to reach a conclusion about the expressive content of the work and explicate how various aspects and their relationships fuse to form the expressive content.

V Evaluation- Making a reasoned critical judgment about the aesthetic quality and value of the built form.

A. Empirical Evaluation- ability to recognize how well something serves a function

B. Systemic Evaluation- ability to see coherence and relationships within the built form:

-fusion and vividness of one's experience with the built form

-degree to which the built form represents the norm

-amount of pleasure or pain generated from the built form

Administration and Structure of the Pre- and Post-test

Based upon the above content, a quantitative test was developed which incorporated behavioral objectives and content areas related to the study of the built environment. The test consisted of a mixture of forced-choice and written responses to visual material presented to the study groups according to a set time schedule (60 minutes total). Visual material used to stimulate responses was a set of slides and large format illustrations depicting buildings, design concepts, interrelationships of the built form and building parts and features. The test was scored out of a total of 50 points and results were analysed on the basis of class response as described in Chapter III of this report. The following pages provide details of the test format and content.

<u>Pre and Post Summative Test for a Unit of Curriculum</u>

<u>on the Built Environment</u> (time- 60 minutes)

Date: _____

Name: _____

School: _____

Instructions: <u>darken</u> the circle that <u>best answers</u> the question.

I Perception:

A. Look at the pictures and answer the following:

1) Which picture shows rapid sequential movement
   in space?

	(a)	(b)	(c)	(d)
	0	0	0	0

2) Which picture shows skillfully directed object
   movement in space?

	(a)	(b)	(c)	(d)
	0	0	0	0

3) Which picture shows floating directed movement
   in space?

	(a)	(b)	(c)	(d)
	0	0	0	0

4) Which picture shows rhythmic expressive
   movement in space?

	(a)	(b)	(c)	(d)
	0	0	0	0

5) The arrangements in this slide have been designed to give a person a
   feeling of calm, tranquility or serenity. What do you see in the picture
   that gives you this feeling? (choose one)

   a) shape of house   0
   b) pool of water   0
   c) all the elements in the picture   0
   d) don't know   0

B. Look at the picture and answer the following:

1) Doorways give you the impression of the style of building you are entering.
   What style of building does this doorway suggest to you?

   a) Greek   0
   b) Roman   0
   c) Baroque   0
   d) Modern   0
   e) don't know 0

2) what evidence suggests the architectural style present?

   a) height of door   0   c) shape of the door   0
   b) door decoration 0   d) colour   0
                                  e) don't know   0

3) In what building might you find this door?

                    a) house   0
                    b) store   0
                    c) warehouse   0
                    d) library   0
                    e) don't know   0

II Knowledge:

  A. Terms

1) When you walk from one end of a street to another your impression of the
   object at the end of the street changes as you approach it. What you
   experience is a series of changing views of the object. What could that
   process be termed?

                    a) focal point   0
                    b) tunnel vision   0
                    c) serial vision   0
                    d) vantage point   0
                    e) don't know   0

2) This picture of the U.S.S.R. Pavilion illustrates a site that might be
   used in the:

                    a) steeplechasing game   0
                    b) horse racing game   0
                    c) Pavilion seeker's game   0
                    d) tower tolling game   0
                    e) don't know   0

3) This picture shows:

                    a) vehicular space   0
                    b) clustered space   0
                    c) private space   0
                    d) enclosed space   0
                    e) don't know   0

4) This picture shows public and private space. The architect has created
   this situation by:

                    a) making the pathways out of brick   0
                    b) changing the surface levels   0
                    c) creating barriers   0
                    d) adding a waterfall   0
                    e) both b and c   0

5) The architect's use of stairs, bridge, mirrors help direct us to the
   entrance of this Japanese Pavilion at Expo 70. These factors make us
   look forward to:

                    a) enclosed space   0
                    b) anticipated space   0
                    c) private space   0
                    d) vehicular space   0
                    f) don't know   0

6) The following picture illustrates:

        a) open space   0
        b) closed space   0
        c) shared space   0
        d) personal space   0
        e) both b and d   0

7) Functionally, the railings in the picture were used to create:

        a) stair structure   0
        b) aesthetics   0
        c) architectural line 0
        d) barriers   0
        e) don't know   0

Texture is used to give surface quality, variety and order to a built form. Which picture shows:

	(a)	(b)	(c)	(d)	(don't know)
8) metal surface?	0	0	0	0	0
9) clay surface?	0	0	0	0	0
10) wood surface?	0	0	0	0	0
11) lacquered surface?	0	0	0	0	0

12) This picture shows space arranged in different ways. Which picture shows rearranged space?

	(a)	(b)	(c)	(don't know)
	0	0	0	0

13) This playground picture is composed of elements that both define and subdivide space. What are some of these elements? _____

_____

14) To what extent has the designer or architect met the needs of the children who will be using this space? (answer in a few words) _____

_____

III Comprehension:

  A. Translation

People occupy different spaces in their working environment. Which pictures suggest the following things about working spaces?

	(a)	(b)	(c)	(d)	(don't know)
1) indoor, closed, limited feelings	0	0	0	0	0
2) outdoor, flexible feeling	0	0	0	0	0

	(a)	(b)	(c)	(d)	(don't know)
3) mobile, but confining	0	0	0	0	0
4) indoor, stimulating feeling	0	0	0	0	0

5) Express which category of work space you would like to work in for a living if you had a choice of indoor, closed limited space; outdoor, flexible space; mobile, but confined space; indoor, stimulating space. Give a substantial reason for your choice of work environment: _____

_____

_____

B. Interpretation

You can look at an object in terms of its function, meaning, appearance. or potential for change. Answer the questions below and give a reason to support your answer.

1) Does the letter box clearly communicate its intended use? _____

_____

2) Could you change the way we use the letter box to make it function better?

_____

3) Is the letter box attractive and does its intended use (storage of mail) improve people's relationships with one another?_____

_____

4) Is there a way of altering the appearance of the letter box so it provides more information about its function? _____

_____

The appearance of space is important as it tells us what activities can go on there. In addition, the way a place looks also determines our feelings about it and an architect or a designer should be conscious of the attitudes of the user.

5) How does the appearance of the outside space of this building give us information about the country it represents? _____

_____

_____

6) How does the building and structure make you feel? Explain in a few words:

_____

_____

7) Graphics and signs can organize or tell us about the use of space. What do these graphics tell you about the country that the building represents?

_____

_____

Networks such as paths, roads, stairways, streets allow for a desired pattern of movement and use. Which pictures show networks suited for:

	(a)	(b)	(c)	(d)	(don't know)
8) rapid movement, flexible	0	0	0	0	0
9) slow movement	0	0	0	0	0
10) rapid movement, inflexible	0	0	0	0	0
11) product movement	0	0	0	0	0

IV Analysis

  A. Analysis of Elements

1) Context is the setting in which the building is placed. Write a few words describing the success or failure or the strong points or deficiencies of the way the building (center) suits the context of the surrounding area.

_____

_____

_____

  B. Analysis of Relationships

1) Buildings are usually divided into sections which are organized in form into some type of grouping. Discuss the subdivision of this building into identifiable parts and the way that the designer has arranged the grouping of those parts. _____

_____

_____

2) To what extent is the design successful and has the concept of grouping been well employed? _____

_____

_____

  C. Analysis of Relationships of Parts to the Whole

1) Each of these trademarks illustrated is composed of a bare minimum of visual elements. In every symbol but one, the elements are identical or are derived from a single basic shape. Which one is different?

  a) top left   0
  b) top right   0
  c) center left   0
  d) center right   0
  e) bottom left   0
  f) bottom right   0

2) Explain how the symbol that you chose is different from the others. _____

_____

V Evaluation

  A. Empirical Evaluation

Write a short answer for the following questions:

1) How does the British Pavilion portray elements of British industry and technology? _____

_____

2) What skills are apparent in British industry and technology and what might the country be proud of judging from the building's appearance? _____

_____

_____

3) How well does the building convey the message the designer had in mind and why? _____

_____

_____

  B. Systemic Evaluation

1) Give your overall feelings of pleasure and displeasure with your personal bedroom in two or three sentences. _____

_____

_____

_____

2) How would you rate your room on a scale of 1 to 10 (1 = highly pleasurable, 10 = very unpleasant). _____

3) If you had the opportunity, what would you do to change your room to improve it? _____

_____

_____

Appendix VI

Completed formative evaluation sheets resulting from the author's observation of groups from schools A and B engaged in activities described in the workbook. Each activity is identified by title, date of commencement of the activity (some took several periods) and details are provided on the strengths of the activity and concerns of the evaluator.

Formative Evaluation Sheet (Qualitative)

Title of Activity: Open Space Activity

     (students went individually to various open spaces)

Workbook Page: _____   Evaluator: _____
Date: Wed. Sept. 17, 1980
Time: 12:20
Class: _____
Grade: 10, 11, 12
School: A

Lesson Introductions:

1) Are the lesson introductions clear and do they arouse interest in the students?
   > The class used the workbook exactly

2) What method(s) does the teacher use to introduce lessons?
   > As above

3) Are they related to, or do they use information from the workbook?

   > Yes

Lesson Materials:

1) Are the materials, plans or timetables well executed?
   > Yes

2) To what extent does the book help or hinder positive suggestions for materials, plans, or timetables? Cite what materials are used. Why or why not are material choices clear?
   > Used notebooks, pens, pencils. Chose individual open space

3) Do students respond positively to the use of materials?

4) What are some of the student responses?

Lesson Instructions:

1) To what extent are the instructions of teacher and workbook clear?

   > Not enough information was provided on the purpose of the activity. The instructions were clear and posed no problems.

Formative Evaluation Sheet - 2

2) How many times do students ask what to do and
what type of questions are asked?

   No questions were asked as instructions were clear

3) How do the students respond?   (attitude)

   Attitude appeared satisfactory

4) What distractive or obstructive questions are there?

   None

Body of the Lesson:

1) To what extent are students able to work independently?

   Students had no difficulty working independently.

2) Is the activity well designed for individuals or groups?

   Appears well designed for individuals.

3) To what extent does the lesson show good interaction
between students and materials? (examples)

   Students selected a variety of open spaces.

4) To what extent does the lesson show good interaction
between students? (examples)

   Positive and keen to discuss their own findings.

5) Is there evidence of good interaction between students
and the teacher? (examples)

   Yes - good rapport in class discussions.

Conclusion of the Lesson:

1) Does the lesson end on a positive note?

   The students had obviously chosen a variety of interesting open
   spaces for study. This suggests interest and innovation was present.

2) Is it necessary to extend activity to another art period
or to independent work?

   Activity required 45 minutes.

Formative Evaluation Sheet - 3

3) Has there been sufficient time apportioned for this activity?

   Yes

4) Do student responses indicate that they want to work on further activities in the workbook?

   Yes - they appear positive about the subject matter.

5) Is there any evidence that this work or related activity is being performed outside the classroom? (students)

   Some rechecked space for accuracy

6) Have other students or teachers not directly involved with the activity expressed interest?

7) To what extent are examples of related visual materials displayed in the classroom or school? (products of the activity, magazines, articles, pictures, maps, models, etc.)

   None

8) What choices or choice of materials and products were evident and how were they evaluated?

   Several alternatives were discussed - Memorial Park, Lighthouse Park, back gardens, a parking lot, the soccer field.

9) Did the students feel they were successful in the experience or production portions of the activity? (or both?)

   Yes - as indicated by the follow-up discussions and finished products.

10) What costs were involved for materials, maps, field trips, etc.

    None

11) How much time did the teacher have to spend on this activity and was extensive preparation required?

    No extensive preparation - about 15 minutes.

General Comments:

       Students appeared to enjoy working in the open spaces. Some thought the activity a "bit corny".

Formative Evaluation Sheet (Qualitative)

Title of Activity: <u>Shopping Center Activity (follow-up lesson)</u>

Workbook Page: Evaluator: S. Davis
Date: Fri. Sept. 19, 1980
Time: 08:50
Class:
Grade: 10,11,12
School: A

Lesson Introductions:

1) Are the lesson introductions clear and do they arouse students' interest?

     Interest aroused by review of existing and proposed Granville St. designs.

2) What method(s) does the teacher use to introduce lessons?

     Proposed rennovation of the 4000 block, Dunbar St. and a field trip to the area.

3) Are they related to, or do they use material from the workbook?

     Material from both parts 1 and 4 of the workbook with reference to evaluating and redesigning the built environment.

Lesson Materials:

1) Are the materials, plans or timetables well executed?

     Yes.

2) To what extent does the book help or hinder positive suggestions for materials, plans or timetables? Cite what materials are used. Why or why not are material choices clear?

     Buildings in the Dunbar area were chosen for study. Materials included notebooks, pencils, paper, light cardboard.

3) Do students respond positively to the use of materials?

     Yes.

4) What are some of the student responses?

     Some felt the activity increased their awareness of local buildings.

Lesson Instructions:

1) To what extent are the instructions of the teacher and workbook clear?

     Instructions were clear and the intent of the activity was evident. They drew plans of the existing block, made an overlay of drafting paper and then redesigned the block on the overlay.

Formative Evaluation Sheet - 2

2) How many times do students ask what to do and
what type of questions are asked?

Intelligent, thoughtful questions asked.

3) How do the students respond? (attitude)

They displayed a positive attitude and appeared to enjoy the activity.

4) What distractive or obstructive questions are there?

None.

Body of the Lesson:

1) To what extent are students able to work independently?
Students worked individually and did rough maps and drawings, notes, etc.
in class time. Detailed drawings of existing and redesigned structures.
done as homework.

2) Is the activity well designed for individuals or groups?

Works well for both individuals and groups.

3) To what extent does the lesson show good interaction
between students and materials? (examples)

Good students were adept at grasping the intent of the lesson and using
materials to produce interesting and attractive designs for the area.

4) To what extent does the lesson show good interaction
between students? (examples)

The activity promoted considerable discussion among the students.

5) Is there evidence of good interaction between students
and the teacher? (examples)

The teacher accompanied the students to the site. She was keen to help
the students and answer their questions.

Conclusion of the Lesson:

1) Does the lesson end on a positive note?

Yes - students were interested and motivated.

2) Is it necessary to extend activity to another art period
or to independent work?

Students put considerable private time into completion of the designs.

Formative Evaluation Sheet - 3

3) Has there been sufficient time apportioned for this activity?

Sufficient for introduction and acquisition of information but more time was required for completion of the project.

4) Do student responses indicate that they wish to work on additional activities?

Yes- they were positive about doing more activities.

5) Is there any evidence of additional work being done outside of the classroom?

Yes- extremely well done designs with obvious investment of time.

6) Have other students or teachers not directly involved expressed interest?

7) To what extent are examples of related visual materials displayed in the classroom or school? (products of the activity, magazines, articles, maps, pictures, models, etc.)

Architectural drawings were displayed on the bulletin board.

8) What choices or choice of materials and products were evident and how were they evaluated?

Materials available included notebooks, drawing paper, drafting supplies.

9) What costs were involved for materials, maps, field trips, etc.?

Students used their own cars for transportation on the field trip. Cost of the materials supplied by the school was minimal.

10) How much time did the teacher have to spend on this activity and was extensive preparation required?

Extensive preparation was not required beyond researching the introductory material and choice of study location.

11) Did the students feel they were successful in the experience or production portions of the activity?

Students felt that they had become more aware of buildings and enjoyed the preparation of alternate building designs.

General Comments

The group produced an extremely well done set of drawings and innovative alternative building designs. Motivation was high and the students obviously became interested and involved in the activity. Awareness of design elements and buildings appeared to increase.

Formative Evaluation Sheet (Qualitative)

Title of Activity: Steeplechasing

Workbook Page: 12   Evaluator: S. Davis
Date: Sept. 23, 1980
Time: 1:00-3:00 PM
Class:
Grade: 10,11,12
School: A

Lesson Introductions:

1) Are the lesson introductions clear and do they arouse students' interest?

   Instructions were clear- the students were obviously eager to begin the trip.

2) What method(s) does the teacher use to introduce lessons?

   Discussion of the use of a high object (U.B.C. Clock Tower) in relation to other buildings.

3) Are they related to, or do they use material from the workbook?

   Used the introduction from the activity and workbook questions.

Lesson Materials:

1) Are the materials, plans or timetables well executed?

   Planning included preparation of maps of the U.B.C. campus, a question sheet, sketchbooks.

2) To what extent does the book help or hinder positive suggestions for materials, plans or timetables? Cite what materials are used. Why or why not are material choices clear?

3) Do students respond positively to the use of materials?

   Yes- interested in the campus buildings and architecture although not familiar with the campus.

4) What are some of the student responses?

Lesson Instructions:

1) To what extent are the instructions of the teacher and workbook clear?

   Instructions were clear. The students were to use seven questions from the workbook and observe the tower from eight locations.

Formative Evaluation Sheet - 2

2) How many times do students ask what to do and
   what type of questions are asked?
   The students asked for the questions to be repeated as they did not
   come prepared with typed lists of questions.
3) How do the students respond?   (attitude)
   Positive attitude.

4) What distractive or obstructive questions are there?
   None

Body of the Lesson:

1) To what extent are students able to work independently?
   Students worked in pairs - one sketched each vantage point, one
   answered questions.

2) Is the activity well designed for individuals or groups?
   Activity could work with either individuals or groups. The pair system
   probably saved some time.

3) To what extent does the lesson show good interaction
   between students and materials? (examples)
   See above. The activity appeared to increase awareness of buildings and
   their relationship to one another.

4) To what extent does the lesson show good interaction
   between students? (examples)
   See above. The pairing system promoted discussion among peers. Good
   class discussion followed the activity.

5) Is there evidence of good interaction between students
   and the teacher? (examples)
   There was good interaction with the teacher. Students were not afraid to
   ask questions. They were encouraged to give positive or negative res-
   ponses with substantive reasons to back up their judgments.

Conclusion of the Lesson:

1) Does the lesson end on a positive note?
   Yes - the students enjoyed the study location. Some had never been on
   the U.B.C. campus.

2) Is it necessary to extend activity to another art period
   or to independent work?

   Yes - an additional hour was required to do final drawings, compile
   answers to questions and prepare a summary paragraph. Some needed to
   spend additional time on their own.

Formative Evaluation Sheet - 3

3) Has there been sufficient time apportioned for this activity?

Sufficient time was available for the field trip and data gathering but not for follow-up completion activities.

4) Do student responses indicate that they wish to work on additional activities?

Two boys said they appreciated working out of the classroom and having the opportunity to think for themselves and form opinions and judgments.

5) Is there any evidence of additional work being done outside of the classroom?

Patrick and Andrew felt they had become more aware of high points in the city.

6) Have other students or teachers not directly involved expressed interest?

A social studies teacher visiting the school expressed interest.

7) To what extent are examples of related visual materials displayed in the classroom or school? (products of the activity, magazines, articles, maps, pictures, models, etc.)

Architectural drawings and building designs displayed on the bulletin board.

8) What choices or choice of materials and products were evident and how were they evaluated?

Buildings used included the Sedewick Library, Brock Hall, Law Building, Buchanan Building, Physics, Architecture, light posts, street furniture.

9) What costs were involved for materials, maps, field trips, etc.?

Maps were free from U.B.C. Transportation was by student and teacher vehicles. Materials costs were minimal.

10) How much time did the teacher have to spend on this activity and was extensive preparation required?

Approximately one half hour preparation plus the field trip.

11) Did the students feel they were successful in the experience or production portions of the activity?

Students felt they would have liked more time for this activity.

General Comments

The questions for this activity may require revision. It may be preferable to have questions answered at the end of the activity- all seven questions are too many or appear repetitive if used at each station of observation.

Formative Evaluation Sheet (Qualitative)

Title of Activity: __Four factor analysis__

Workbook Page: _____   Evaluator: ___S. Davis_____
Date: __Oct. 2, 1980___
Time: __1:30 - 3:00 p.m.__ (commencement)
Class: _____
Grade: __10, 11, 12___
School: __A_____

Lesson Introductions:

1) Are the lesson introductions clear and do they
   arouse interest in the students?
      Yes

2) What method(s) does the teacher use to introduce
   lessons?
      Introductory class discussion of the four factors and explanation

3) Are they related to, or do they use information
   from the workbook?
      All the basics of the lesson were taken from the workbook.

Lesson Materials:

1) Are the materials, plans or timetables well
   executed?
      Yes.

2) To what extent does the book help or hinder positive
   suggestions for materials, plans, or timetables?
   Cite what materials are used. Why or why not are
   material choices clear?
      Granville Island Public Market chosen for study location.

3) Do students respond positively to the use of materials?

      Yes - enjoyed the opportunity to study the area.
4) What are some of the student responses?

      Very excited about going to the Public Market.

Lesson Instructions:

1) To what extent are the instructions of teacher
   and workbook clear?

      All appeared clearly understood by the students.

Formative Evaluation Sheet - 2

2) How many times do students ask what to do and what type of questions are asked?

   Some of the questions in the book appeared difficult for the students. They appear to require simplification.

3) How do the students respond? (attitude)

   Very keen; interested.

4) What distractive of obstructive questions are there?

   None.

Body of the Lesson:

1) To what extent are students able to work independently?

   Worked as a group in the Granville Island Boardroom to review and answer the workbook questions and complete data sheets.

2) Is the activity well designed for individuals or groups?

   Could work well for either individuals or groups. Group completion of the questions was probably best as some questions appeared difficult.

3) To what extent does the lesson show good interaction between students and materials? (examples)

   Granville Island Public Market was a good choice of location. It is full of interesting activities and also a good example of public markets in the Province.

4) To what extent does the lesson show good interaction between students? (examples)

   Students were extremely keen, anxious to help one another and partici-pate in group discussion.

5) Is there evidence of good interaction between students and the teacher? (examples)

   The teacher conducted an instructive and enjoyable field trip. The stu-dents talked freely with the teacher and asked questions of content.

Conclusion of the Lesson:

1) Does the lesson end on a positive note?

   Yes- the students were guided by good instruction, knew what they were doing and responded positively- in all, a feeling of success.

2) Is it necessary to extend activity to another art period or to independent work?

   Follow-up questions were explored in class after the field trip.

Formative Evaluation Sheet - 3

3) Has there been sufficient time apportioned for this activity?

 Yes- the teacher planned several blocks of time for completion of the lesson.

4) Do student responses indicate that they wish to work on additional activities?

 Yes.

5) Is there any evidence of additional work being done outside of the classroom?

 Students came prepared to class with assignments done. Assignments were handed in on schedule (mark penalty specified for late assignments).

6) Have other students or teachers not directly involved expressed interest?

7) To what extent are examples of related visual materials displayed in the classroom or school? (products of the activity, magazines, articles, maps, pictures, models, etc.)

 Four Factor Analysis projects were displayed in the school art gallery.

8) What choices or choice of materials and products were evident and how were they evaluated?

 Write-ups on the project were scored out of 100 (25 marks/factor)

9) What costs were involved for materials, maps, field trips, etc.?

 Students used own transportation.

10) How much time did the teacher have to spend on this activity and was extensive preparation required?

 One half hour.

11) Did the students feel they were successful in the experience or production portions of the activity?

 Very successful- good rapport with teacher and team mates and feedback.

General Comments

 Workbook questions require simplification. Teacher interest and participation appears essential to assist students and provide explanation.
 A detailed lesson introduction appears important to introduce concepts.

Formative Evaluation Sheet (Qualitative)

Title of Activity: Shopping Center Activity

Workbook Page: 5   Evaluator: S. Davis
Date: Sept. 5, 1980
Time: 11:00 AM
Class:
Grade: 11,12
School: B

Lesson Introductions:

1) Are the lesson introductions clear and do they arouse students' interest?

   Instructions clear- students told to read questions carefully.

2) What method(s) does the teacher use to introduce lessons?

   Teacher reviewed the questions with the class- discussion followed.

3) Are they related to, or do they use material from the workbook?

   Yes- direct application of the workbook. Field trip to local mall
   utilized.

Lesson Materials:

1) Are the materials, plans or timetables well executed?

   Yes, copies of the workbook and notebooks used.

2) To what extent does the book help or hinder positive suggestions for materials, plans or timetables? Cite what materials are used. Why or why not are material choices clear?

   The book asks basic questions in a manner that appears clear to the
   students.

3) Do students respond positively to the use of materials?

   Fairly- some seemed shy and hesitant to sketch in a public place. They
   appear uneasy about doing activities outside of the classroom.

4) What are some of the student responses?

   Appear quiet and shy.

Lesson Instructions:

1) To what extent are the instructions of the teacher and workbook clear?

   Students were asked to answer the questions in the workbook, draw a
   group of stores as they are, and consider how they could be redesigned.

Formative Evaluation Sheet - 2

2) How many times do students ask what to do and
what type of questions are asked?

    None

3) How do the students respond?   (attitude)

    Fairly well - hesitant until they become involved in the activity.

4) What distractive or obstructive questions are there?

    None.

Body of the Lesson:

1) To what extent are students able to work independently?

    Appear to require guiding questions.

2) Is the activity well designed for individuals or groups?

    The students worked in small groups and were asked to submit individual
    project reports (reports due at the end of the six week trial period).

3) To what extent does the lesson show good interaction
between students and materials? (examples)
    Students hesitant to enter shops and record information by sketching.
    Working outside the shops appeared less traumatic for them.

4) To what extent does the lesson show good interaction
between students? (examples)
    Students have to converse and discuss their findings and study approach.

5) Is there evidence of good interaction between students
and the teacher? (examples)

    Teacher did not accompany students on the field trip.

Conclusion of the Lesson:

1) Does the lesson end on a positive note?

    Students did not bother to return to class to discuss findings.

2) Is it necessary to extend activity to another art period
or to independent work?

    Absolutely - time is needed for discussion of the activities.

Formative Evaluation Sheet - 3

3) Has there been sufficient time apportioned for this activity?

Not in this case - the teacher did not allow time for a follow-up discussion.

4) Do student responses indicate that they want to work on further activities in the workbook?

Not sure of attitudes - may lack motivation.

5) Is there any evidence that this work or related activity is being performed outside the classroom? (students)

6) Have other students or teachers not directly involved with the activity expressed interest?

7) To what extent are examples of related visual materials displayed in the classroom or school? (products of the activity, magazines, articles, pictures, maps, models, etc.)

Students were instructed to bring in pictures of store fronts (not done).

8) What choices or choice of materials and products were evident and how were they evaluated?

9) Did the students feel they were successful in the experience or production portions of the activity? (or both?)

10) What costs were involved for materials, maps, field trips, etc.

Nil - field trip took place within walking distance of the school.

11) How much time did the teacher have to spend on this activity and was extensive preparation required?

Nil.

General Comments:

In this case the response by the students was not particularly encouraging. Teacher preparation and participating was not adequate - the teacher must accompany the class and work with them for the project to be successful. The book itself therefore may not be sufficient for total motivation.

Formative Evaluation Sheet (Qualitative)

Title of Activity: The Sensory Walk

Workbook Page: Evaluator: S. Davis
Date: Sept. 24, 1980
Time: 1:00 PM
Class:
Grade: 11,12
School: B

Lesson Introductions:

1) Are the lesson introductions clear and do they arouse students' interest?

   Students were asked to look for an area outside that was familiar to them.

2) What method(s) does the teacher use to introduce lessons?

   Used the workbook contents and instructions on sketching and recording.

3) Are they related to, or do they use material from the workbook?

   Exactly as given in the workbook.

Lesson Materials:

1) Are the materials, plans or timetables well executed?

   Yes- field trip to nearby Minoru Park, Richmond

2) To what extent does the book help or hinder positive suggestions for materials, plans or timetables? Cite what materials are used. Why or why not are material choices clear?

   The book provides specific questions to guide the students.

3) Do students respond positively to the use of materials?

   Yes- they needed more specific individual help with sketching techniques and texture rubbing methods.

4) What are some of the student responses?

   Wondered how you "can smell air"?

Lesson Instructions:

1) To what extent are the instructions of the teacher and workbook clear?

   Students instructed to draw a sketch map at each stop they made, label location on a map, take a texture rubbing, record signs, smells, sounds, visual images. Instructions clear. Texture rubbing a good idea.

Formative Evaluation Sheet - 2

2) How many times do students ask what to do and what type of questions are asked?

Some asked what was meant by a sketch map?

3) How do students respond (attitude)?

Positive attitude- enjoyed working outside in the park.

4) What distractive or obstructive questions were there?

None.

Body of the Lesson:

1) To what extent are the students able to work independendently?

This group appears to need direct supervision and guidance and help with the exercises.

2) Is the activity well designed for individuals or groups?

Worked in groups of two individuals per group. This appeared to be a good arrangement.

3) To what extent does the lesson show good interaction between the students and the materials? (examples)

The guiding questions definitely help orient the students and organize their approach to the activity.

4) To what extent does the lesson show good interaction between students? (examples)

It is evident that working in pairs facilitates discussion of the material and encourages group resolution of answers to the workbook questions.

5) Is there evidence of good interaction between students and the teacher? (examples)

The teacher did not accompany the class on the field trip. The students appeared glad the evaluator was present and felt they needed someone to provide guidance and clarify approaches to the activity.

Conclusion of the Lesson:

1) Does the lesson end on a positive note?

There was no direct follow-up after the field trip. Lesson was inadequately concluded.

2) Is it necessary to extend activity to another art period or to independent work?

Product was to be a compendium of all activities handed in at completion of the six week trial period.

Formative Evaluation Sheet - 3

3) Has there been sufficient time apportioned for this
   activity?

   No - requires an extra period.

4) Do student responses indicate that they want to work on
   further activities in the workbook?

5) Is there any evidence that this work or related activity
   is being performed outside the classroom? (students)
   Some students stated that they would like to go on other field trips
   (down to the city).

6) Have other students or teachers not directly involved
   with the activity expressed interest?
   A Social Studies teacher expressed interest in the workbook.

7) To what extent are examples of related visual materials
   displayed in the classroom or school? (products of the
   activity, magazines, articles, pictures, maps, models, etc.)

   None.

8) What choices or choice of materials and products were
   evident and how were they evaluated?
   The projects were to be evaluated at the end of the 6-week trial period.
   Materials used included notebooks, sketching materials, cameras.

9) Did the students feel they were successful in the
   experience or production portions of the activity? (or both?)

   Fair - attitudes difficult to assess with this group.

10) What costs were involved for materials, maps, field trips,
    etc.
    Nil.

11) How muchtime did the teacher have to spend on this
    activity and was extensive preparation required?
    Nil.

General Comments:

   The activity would definitely have benefitted from more teacher partici-
   pation in the field trip. Also, there was no follow-up discussion of
   findings following the field trip. The use of texture rubbings in the
   activity appeared a good idea. Information from the specific senses could
   be recorded at each study site and itemized on the sketch map.

Formative Evaluation Sheet (Qualitative)

Title of Activity: Steeplechasing or Serial Vision (choice given to students)

___

Workbook Page: Evaluator: S. Davis
Date: Oct. 4, 1980
Time: 1:00 PM
Class:
Grade: 11, 12
School: B

Lesson Introductions:

1) Are the lesson introductions clear and do they arouse students' interest?

> The activities appear to arouse more interest than shown previously by the group.

2) What method(s) does the teacher use to introduce lessons?

> Used one period to discuss the book and review the instructions for the activities.

3) Are they related to, or do they use material from the workbook?

> Direct use of the workbook.

Lesson Materials:

1) Are the materials, plans or timetables well executed?

> Students go off on their own in small groups to do the field work, draw and photograph.

2) To what extent does the book help or hinder positive suggestions for materials, plans or timetables? Cite what materials are used. Why or why not are material choices clear?

> Students must be organized for the field trip and have the proper equipment assembled.

3) Do students respond positively to the use of materials?

> More positive attitude to the activities than in previous cases.

4) What are some of the student responses?

> One student elected to go to Seattle and study the Space Needle as a Steeplechasing activity- ie. choice of a distant study location.

Lesson Instructions:

1) To what extent are the instructions of the teacher and workbook clear?

> Appeared very clear.

Formative Evaluation Sheet - 2

2) How many times do students ask what to do and
   what type of questions are asked?
   (Teacher did not accompany group on field trips)

3) How do the students respond?   (attitude)
   The evaluator's group seemed more keen than before. More discussion took
   place and more positive questions were asked than on previous trips.
4) What distractive or obstructive questions are there?

Body of the Lesson:

1) To what extent are students able to work independently?
   The students appeared to like to work in pairs and discuss the material.
   Reports, however, were to be individually prepared.

2) Is the activity well designed for individuals or groups?
   Groups or pairs.

3) To what extent does the lesson show good interaction
   between students and materials? (examples)

4) To what extent does the lesson show good interaction
   between students? (examples)

   Working in pairs stimulated interaction and discussion.

5) Is there evidence of good interaction between students
   and the teacher? (examples)

   Students appeared to like the evaluator to be with them and discuss
   the material, respond to questions, etc.

Conclusion of the Lesson:

1) Does the lesson end on a positive note?

   My group appeared positive. I was unable to observe other groups.

2) Is it necessary to extend activity to another art period
   or to independent work?

   Yes, a work period was required.

Formative Evaluation Sheet - 3

3) Has there been sufficient time apportioned for this activity?

Extra art periods were required to complete the work.

4) Do student responses indicate that they want to work on further activities in the workbook?

Fair response (not all appear enthusiastic).

5) Is there any evidence that this work or related activity is being performed outside the classroom? (students)

6) Have other students or teachers not directly involved with the activity expressed interest?

Other teachers in the school appeared curious as to which projects were going on.

7) To what extent are examples of related visual materials displayed in the classroom or school? (products of the activity, magazines, articles, pictures, maps, models, etc.)

No material displayed.

8) What choices or choice of materials and products were evident and how were they evaluated?

Notebooks, cameras, sketching materials were employed. Reporting at the end of the 6 week trial period.

9) Did the students feel they were successful in the experience or production portions of the activity? (or both?)

Fair - some students appeared apathetic.

10) What costs were involved for materials, maps, field trips, etc.

None - project within walking distance of the school.

11) How much time did the teacher have to spend on this activity and was extensive preparation required?

None. The field trip would have been more successful with teacher participation and guidance.

General Comments:

Teacher participation and guidance would have greatly improved this project. A more appealing landmark in an exciting area would have stimulated student interest and participation.