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**A DESCRIPTIVE SURVEY  
OF TWO QUÉBEC MULTIMEDIA  
ART EDUCATION COURSES.**

Gisèle Poulin

A Thesis

in

The Department

of

Art Education

Presented in Partial Fulfilment of the Requirements  
for the Master of Arts Degree at  
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## ABSTRACT

### A Descriptive Survey of Two Québec Multimedia Art Education Courses.

Gisèle Poulin

This study is a descriptive survey of two Québec Universities multimedia art education courses. It attempts to answer a three-fold question about what has, what is, and what should be done to prepare pre-service art teachers to incorporate multimedia in their practice. Data collection was accomplished using the following qualitative methods: interviews, questionnaire, and observation. Drawing on the literature and the interviews, a relationship between the new technologies and postmodern theories is established. A description of two undergraduate art education courses with multimedia content is presented, using points of view gathered from interviews with teachers, class observation, and a questionnaire administered to students. I noted that as the school term progressed, there was a positive change in attitudes towards technology. Teaching approaches appear to promote cooperation and collaboration between students. Based on the results of the interviews and the questionnaire, teachers and students agree that teachers could be better prepared to deal with new technologies. Such preparation would include more hours of hands-on experience with the tools.

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*This thesis is dedicated to the memory of my mother Rolande Samson-Poulin.*

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## INTRODUCTION

With this investigation, I am joining the ranks of a growing number of art educators and artists who are laying the foundation for integrating multimedia technology into art programs in Quebec. Furthermore, it is my conviction that by doing this, we are also acting to secure and improve the place of art education within the overall curriculum.

The purpose of this thesis is to examine the introduction of multimedia technology in undergraduate art education programs. More specifically, I investigated two Montreal universities: UQAM and Concordia. In order to prepare art educators to successfully incorporate multimedia technology in their teaching, I asked a three-fold question: (a) What has been done? (b) What is being done? and (c) What should be done?

The answers to (a) What has been done? gave my research an historical as well as theoretical setting. Data from interviews and the review of literature revealed what kind of curriculum changes were initiated with the arrival of new technologies in the arts. These changes included the creation of courses at different levels of the educational system, which have for their main focus the use and integration of new technologies for making and teaching art. Using relevant research sources, I was able to determine how technological innovations addressed and challenged the modern art movement of the twentieth century.

This led to an understanding of how postmodern theory has embraced the new technologies.

The answers to (b) What is being done? provided data about the existing curriculum content in both universities. Interviews with art teachers, class observation, as well as a questionnaire given to art education students, revealed some of their reactions to technology, as well as their degree of satisfaction with existing conditions, such as availability of equipment. In addition, it was possible to arrive at some points of comparison between the two institutions.

The answers to (c) What should be done? addressed the issue of how people in the profession envision the presence of multimedia technology in art education. With this inquiry, we discover that the co-habitation of the new and the old media will transform the art classroom into a cooperative and collaborative context. There, the art teacher will be more of an animator and a resource person than a traditional instructor, and students will be encouraged to develop cognitive skills such as problem-solving.

A general view to emerge from the research sources is that the acceptance of the new media implies a transformation of the artist's perception of how his/her work is defined in society, as well as how it challenges the vision he/she has of him/herself.

After processing the material generated by this research, I hoped to understand what would better prepare art teachers to incorporate new technologies in their programs. In my opinion, an introductory course on how to use the computer and related technologies applied to art teaching is essential in any art education undergraduate program. Furthermore, teachers giving this

course should always keep in mind the multi/interdisciplinary nature of the computer. This perspective will foster attitudes of collaboration and cooperation among users.

## **PERSONAL REVIEW**

My interest in media technology began in the early 1970's, during my college years, when I took two courses in photography. These courses were part of the curriculum requirements for a "DEC en arts plastiques". In that program, I was also introduced to video and 16mm movies through a "hands-on" approach. I can recall my resistance to this technology, mostly in photography, where we were expected to develop autonomous skills in handling the camera, developing films, and printing pictures in the dark room. At first I thought it was too technical a medium to mesh with my creative endeavors. I resisted learning how to master it until it became a "do or die" issue. I decided to do something just to avoid failing. In the process, I became immersed in and fascinated by the potential these tools offered for artistic expression.

In January 1974, prior to the advent of computers revolutionizing art and design programs, I began an undergraduate fine arts degree at Concordia, where I majored in graphic design. Two compulsory courses introducing the use of technology in creation were given: one in photography and the other in multimedia. Computer design was never mentioned.

By the time I graduated in the fall of 1976, computers were in my understanding still sophisticated calculating machines; certainly not tools to be used for creation. During the four subsequent years I spent working as a graphic

designer, there was talk in the profession about how we would have to go back to school and learn to use computers. I didn't take that route because in the early 1980's my career path took me into the world of performing arts, namely music and dance.

It was in that field that I discovered the great potential of the video camera for recording and circulating the performing arts. In those years, video equipment was scarce and expensive. In Montreal, PRIM video offered services to the public, but unless one had government grants or a lot of money, access to equipment was very limited.

In 1990, I went back to school for a master's degree in art education. With the new presence of interrelated arts and interdisciplinary programs in universities, it seemed to be the right moment to integrate my background as a visual artist with the knowledge and experience I had gathered working and teaching in the performing arts.

During those years, I often used video technology to support and facilitate my creative as well as my academic work. Innovations in video resulted in it being cheaper, accessible, and portable, making it the best medium for unifying different art forms. To access this technology, I became involved with Concordia University's Multimedia Interactive Technology Environment (MITE AVISTA), which was a branch of the audio-visual department. At first, I was only working with a video editor, not in conjunction with a computer. Other people (staff and students) were working with computers. On my own, I gathered information by questioning the staff, looking at technical instruction books and mostly learning through trial and error. The computer aspect seemed altogether too complex to

undertake without proper guidance.

In 1993, I registered in a video art course at UQAM with Chantal Dupont. There, I became involved in the "Inter-University Video Art Festival" as a participant and an organizer. The video-dance I presented in the competition was produced at UQAM, using their facilities. The editing was interfaced with a technological device called "Fairlight", which acted very much like a computer in the sense that it altered the colors, frames, and speed of the video recording. It also offered possibilities for drawing on top of the image or hiding certain parts of it. It was my first experience using such a tool for video editing and with it came the awareness that the creative scope of the computer was virtually unlimited.

As a member of the organizing team, I undertook the task of conceiving and producing the festival's catalogue and publicity profile. The whole endeavor depended on the computer. Accomplishing this meant owning a computer and learning to work with it. The staff at MITE AVISTA assisted my orientation to different computer programs and tools. The process not only strengthened my vision of the ever-expanding role the computer has in the making of arts; it convinced me of the urgency with which art educators must incorporate this technology in their curriculum as well as the importance of their becoming directly involved in defining policies for this introduction.

As we approach the twenty-first century, we are experiencing a passage from the industrial era to the communication age. The main tool for this transition is the computer. As art educators, we need to learn how to manage and improve the ways technology will shape creative life.

As Stan Cornyn, president of Warner New Media, suggested in his presentation at the Getty Center 1991 Conference, "*Educators need to band together to make their wishes and needs known to program makers, rather than wait around for the producers to offer what they assume the market will bear.*" (Conference Summary, 37) We can have a say, if we welcome these technologies with questions and a proactive attitude.

## REVIEW OF LITERATURE

With the review of literature I began to examine what has been done, what is being done, and what should be done toward the introduction of multimedia technology in art education. Through investigating the main American and Canadian art education publications, I discovered that before the mid 1980's, there is very little Canadian literature dealing with this topic.

Section A of this chapter defines the term multimedia. We notice that writers take great care in explaining and clarifying this term. In their conception, we discover that the computer is a space where older media and new technologies can meet and form new associations which in turn can take an infinite number of paths and create multi-layered art forms. We also begin to understand how the computer incarnates postmodern theory which supports new models for creating and teaching art.

Section B covers the general history of how the new technologies were introduced in art education from the mid-1960s onward. It describes major events, research, technological products and tools, and offers examples of art programs incorporating computer technology. Section C deals with the "what should be done" part of the question. Recommendations for art education involvement with new technologies are presented along with attitudes and reactions in the art education milieu. The main focus is on the urgent need for art



education to address the way students engage with technology. Art classes from the earliest age can be taught with both the traditional and the latest technological tools. This means art educators must overcome their resistance to technology by becoming more familiar with it, learning how to use it, and honing their critical comprehension of the esthetic it generates.

This review of literature is organized according to the following sub-groupings:

Section A:

(A.1) **Multimedia:** definition and meaning

(A.2) **Theory:** How multimedia becomes a new paradigm for postmodernism and other related theories such as cybernetics and emancipatory constructivism.

Section B:

(B.1) Historical setting

(B.2) Description of some of the technologies

(B.3) Examples of art programs where multimedia content is offered including reports on conferences, research, related events and publications.

Section C:

(C.1) Recommendations of art education involvement with multimedia technology and some possible consequences of avoiding participation.

*The real commodity of the post-industrial world is no longer anything material, it is information: words and images instantly telecommunicated worldwide.*

Slawson, 1993

## SECTION A

### (A.1) **Multimedia:** definition and meaning

**Multimedia** has been a buzzword for some time now. During the 1950's it was associated with programmed instruction. In the 1960's it often described orchestrated collections of slides, film and text. Since the emergence of the video camera and especially the computer, we find the term being used more often. One thing appears to be constant; in every period its definition has mirrored the state of technology.

For some people, it is a way to make television. Others, such as James Mecklenburger, (at a Getty Foundation Conference on Arts Education Technology) speak about multimedia in these terms: *"The concept of combining various media has a century-long tradition that embraces silent movies, the talkies, television, and teleconferences."* (Conference summary 1991, 11) Lucy J. Fjeldstad, (speaker at this same event) uses the term *multimedia technology* to describe anything *"which uses sight, sound, and touch, combining the entertainment capability of television with the programming flexibility of personal computers."* (Conference summary 1991, 9)

In the business world, multimedia has become the new term for audio-visual presentation with synchronized slide projectors. In the art world, as Brian Slawson says, *"multimedia has been used to connote interdisciplinary artistic practices, not necessarily involving computers or electronics."* (1993, 17)

Debby Greh writes that "*once you combine media, it's called multimedia... artists have been creating multimedia works for years, except we usually call these works mixed media.* (1994, 43) She differentiates between the use of this term in an audio/visual context and what she refers to as *true multimedia* where the emphasis is on activity and interactivity.

John M. Hicks uses the term *media art* when new electronic technologies are used instead of traditional material such as paint and clay:

*Media art, includes computer generated images and animation and diverse multi-media involvements connecting sound, photography, television, or video tapes with a computer. Laser and CD ROM disk players and interactive television are included as components of the media art, as are fax and copy machines, laser color printers and pen-held devices for computers. Artistic activity also includes robotics, telecommunication and fiber optic systems, and the combining of traditional imaging processes with those of the new machines.* (Hicks 1993, 42)

The terms *multimedia* and *hypermedia* are both used (Hubbard 1995, Gregory 1989) in reference to certain instructional computer programs:

*The fundamental characteristic of multimedia programs is that they allow users to link information in whatever ways they choose... More importantly, multimedia programs are not restricted to serial organization and are usually at their best when organized to offer multiple pathways through a body of instruction.* (Hubbard 1995, 45)

When we encounter the word *hypermedia* instead of *multimedia*, we automatically enter a world which is *non-linear and interactive*. Slawson traces its origin to the literary method known as *hypertext* which:

*... describes a system of writing where fragments of text are connected in a web-like fashion, as opposed to the linear logic found in conventional writing... hypertext became hypermedia. The non-linear and interactive nature remains the same, but the text is now combined with elements of digital graphics, sounds and video* (Slawson

1993, 17)

He proposes the use of *interactive multimedia* as a more complete term which retains the notion of hypertext combined with *multimedia*. By suggesting a non-linear way of reading, interacting and constructing, the new media environment also challenges the linear path of interpretation which modernism had fostered for the first part of this century.

(A.2) Theory: How multimedia becomes a new paradigm for postmodernism and other related theories such as cybernetics and emancipatory constructivism.

The instability of meaning in which "*the art object is the result of discourse, not revelation*" (Fehr 1994, 209) illustrates one of the principal virtues of postmodernism. That is to say its "*deliberate ambivalence*" where "*the notion of truth is replaced with that of purposeful uncertainty.*" (1994, 209) Fehr describes postmodernism as a "*philosophical patchwork that covers the postindustrial west, and where art education is one of the many squares of fabric making up this patchwork.*" (1994, 209)

Donna J. Cox, offers a definition for postmodernism in which the idea of image reproduction through electronic media is central to the culture, allowing the "virtual" to set the stage for human isolation:

*An art and social criticism term that originated in fine art photography and that describes the art that followed modernism; postmodernism developed during the mid-twentieth century. Postmodern criticism reveals a hypersensitive historical awareness, recognizes the print/electronic media as central to the conduit of culture and suggests that electronic media have created an isolation of the individual from direct experience of reality; critics observe that art from the postmodern era involves a pastiche of recycled styles. (Cox 1989, 12)*

Cox says that postmodern concepts such as the notion of simulacra, (I.e. Things that appear to be real; phantoms, apparitions, mere shadows) have enabled our modes of electronic media and reproduction to collapse time. Interdisciplinarity has also dissolved boundaries between traditional modes of thought, expression, and behavior. The paradigm shift can also be found in Norbert Weiner's cybernetic:

*The study of relationships and information control in the living organism. This term has come to mean a study of human control functions and of the mechanical and electric systems design to replace them: this theory is based on the concept of systems and sub-systems that are organized into hierarchies... Cybernetic processes include use of memory, free association, visualization, but most importantly, the construction of new mental models of reality. (Cox 1989, 10-11)*

This theory provides a model for society as well as for individual thought. It also offers a frame for understanding the way information is organized and operates in a computer system.

Diane C. Gregory views the world-wide paradigm shift brought about by the revolution in technology as a shift which will require all aspects of society to transform themselves and the way they operate. She foresees that technological innovation, combined with a major educational reform movement called emancipatory constructivism, will change the way art is taught and how we conceive of art education.

*Emancipatory constructivism is based on the work of poststructuralists, critical and feminist theorists (Alcoff, 1988; Bourdieu, 1977; Bourdieu & Passeron, 1977; Collin, 1990; Culler, 1982), critical ethnographers and cultural anthropologists (Clifford, 1988; Clifford & Marcuse, 1986) who assert that knowledge by its very nature is inherently partial or prejudiced because it is grounded in an individual's view of the world... in order for true learning to occur, students must construct their own meaningful and personal knowledge bases and assimilate this new knowledge into*

*their own knowledge constructions.* (Gregory 1995, 8)

Just as postmodernism challenges the linear path of modernism, emancipatory constructivism confronts *"the Aristotelian model that assumes that objective truth exists and that by using rational way of thinking we can arrive at objective truth and knowledge that can then be taught to others."* (Gregory 1995, 7) The focus of emancipatory constructivism is on *"the process of understanding the bias, prejudice, or perspective of knowledge and ideas, and presents knowledge as changing and transformative."* (1995, 8) Gregory uses the term *interactive integrated media* instead of *interactive multimedia*. With integrated media, she is referring to a new electronic medium usually developed for a micro-computer, CD ROM, laser video disc player, or any combination of all three technologies. To her *"the real power of integrated media lies in its non-linear design that enables the user to go through a program in any order... It can change the role of the student from a passive observer to an active participant."* (1995, 9)

Domenic Stanberry suggests that multimedia, which he defines as an outgrowth of the computer industry and as a sound, image, and interactive system, may be a very successful tool for teaching. His argument is based on the results of a two-year multimedia program initiated in three different American States. Stanberry links the application of multimedia programs to a constructivist learning theory:

*... which holds that in today`s fast changing world the ability to analyze and solve a variety of problems quickly is more important than applying memorized information and the best way to teach the conceptual thinking required for these tasks is through a system of inquiry in which the student is immersed in hands-on, real world situations and asked to provide solutions.* (Stanberry 1993, 30)

Constructivism originated in Russia at the beginning of the century. Naum Gabo in his essay "Art and Science" (1956) defines it as being *"the first movement to declare the acceptance of the scientific age and its spirit as a basis for its perceptions of the world outside and inside human life."* (Railing 1995, 193) The notion of construction was the most fundamental and unitive element in modern avant-garde geometric art movements of the early twentieth century. It provided a system for identifying a central creative principle as well as an underlying style for unhierarchical art forms. In that sense, Railing observes that it served not only a creative and functional purpose, but also a social, philosophical and political one in the new communist society. (Railing 1995)

In 1922, Alexi Gan defined the three fundamental elements of constructivism: **Tectonic**, the rational use of industrial material for creation, **Faktura**, the new quality of the creation, and **Construction**, the material's newly given form. (Railing 1995) The Russian avant-garde turned to science and modern technology for a variety of ideas and methods.

The way in which multimedia allows the presentation of information and ideas also "constructs" bridges between art and science. In the years to come we probably will discover, as Kenneth O'Connell suggests, that *"the computer has the potential to bring us together in shared ways that we have not yet imagined."* (1993, 17)

*Art Education cannot long remain an integral part of our cultural heritage if it does not accept and employ those means which technological changes make appropriate for other types of educational activity.*

Lanier, 1966

## **SECTION B**

### (B.1) Historical setting

Between 1964 and 1966 a project was sponsored by the NAEA and the US Office of Education with Vincent Lanier as the project director. It was entitled "*The uses of newer media in art education project*". This project "*was concerned with the generation and accumulation of media ideas and information as these relate to the teaching of art.*" (Final Report, NAEA and US Office of Education's Project 1966, 3) The project included fifty selected art educators and four media specialists who took part in a five-day symposium. Papers were presented and discussions animated relating to the impact of educational technology on the art education field.

In his recommendations, Lanier encouraged developing school facilities for media, expanding the quantity and quality of media for art, establishing interdisciplinary task forces, organizing a media center for the arts, studying the implications of programmed learning, recognizing the photographic arts, and developing a single media system. He concluded that "*For the teachers of art, the greatest single boon that media can offer is unlimited access to visual images, a gift that science and technology may soon provide.*" (Final Report 1966, 88)



(B.2) Description of some of these technologies

Thirty years later, Lanier's wish for unlimited access to visual images has been granted with the emergence of the micro-computer, CD ROM, laser video disc player and hypercard.

Two different types of interactive art programs are now available. One is commercial, featuring highly sophisticated programs such as "National Gallery of Art" designed by Microsoft Computer Corporation, or "Voyager", which is a laser disc capable of indexing hypercard art education software called "stacks". When installed on a Macintosh computer connected to a laser videodisc, the user has access to images from the National Gallery of Art, the Louvre and the Chicago Art Institute. (Gregory 1995, 9)

A second type, developed by art teachers and students, uses commercially available authoring programs such as HyperCard and sources such as video and prints. Images can be imported into the HyperCard environment with tools such as the frame grabber or the scanner. Then a programming language called HyperTalk can be used to write or install personal interactive commands. Gregory reports that children as young as 9 or 10 years old are taught how to make their own art program. *"In so doing art educators are empowering students to become their own best teachers."* (Gregory 1995, 10)

Debbie Greh, an important figure in art education and technology has been providing resources and information for teaching art with computers (through a series of article/chronicles in the magazine "School Arts"). Through this magazine she conducted a survey to find out how the computer revolution has affected American art teachers. The number of responses indicated that as

many as 6000 art teachers were using computers in their art programs. (Greh 1993, 44) Results showed that other technologies were also used in the art classroom. Slide projectors and VCRs led the list, followed by movie projectors and camcorders a distant second, videodiscs and scanners third, with CD-ROM and modems coming last. Other interesting information involving perceived limitations and obstacles were reported. She concluded her report by stating: "*Almost everyone noted that they would like to have more information about lesson plans, teaching techniques, and information on integrating technologies into the curriculum. So, share!*" (1993, 45)

(B.3) Examples of art programs where multimedia content is offered including reports on conferences, research, related events and publications.

An example of an integrated interactive multimedia teaching approach can be found at Indiana University, where a general elective course in art is offered at the undergraduate level. Students taking this course come from various academic backgrounds. Using an interactive program, they can choose from a collection of 100 lessons to construct their own course content. Students taking this course come from various academic backgrounds. Guidance and counseling is given by expert peers rather than by conventional instructors. In this type of setting, Hubbard foresees a teacher's role as evolving into one of "*guide and critic rather than director of activities.*" (Hubbard 1995, 51)

As for Lanier's recommendations, the literature shows that some ground has been gained toward his stated objectives. Art Educators in universities and colleges such as: Richard Loveless of South Florida U. (1990), Michael

S.Youngblood of Southern Illinois U. (1988), Joan Truckenbrod of the School of Art Institute of Chicago (1990), Guy Hubbard of Indiana U. (1985, 1991), Deborah Greh of St-John`s U., New York (1991), Jane Chia and Birnie Duthie from the National Institute of Education, Singapore, U.K. (1992, 1993), and Robert Campbell of University of Calgary (1991), to name a few, have already made important contributions by creating courses with a multimedia technology content in art departments.

Joan Truckenbrod developed an introductory foundation course entitled "Experimental Computer Imaging". This course is available to all students in the school. Its main objective is: *"To integrate computers into the creative process in a multidimensional, multimedia manner, and to establish a methodology of experimentation and exploration that expands the students' creative thought processes beyond the traditional boundaries of art and design."* (Trukenbrod 1990, 440)

Robert Campbell taught an experimental computer course called "A Computer in the Art Room". This course *"was developed primarily to respond to a revision of provincial curricula which forced art teachers to come to terms with new technology in their field."* (Campbell 1991, 124) Some of the conclusions to come out of this experiment indicated the need for increased emphasis on new technology in teacher training and continuing education. It also recommended that a second course at the advanced level would be of value for individuals who expressed interest in it.

In the late 1960's and the 1970's, Loveless founded a community-based media exploration and communication center called "The New Place", where the public as well as university students could get training in the newer media in art.

In 1983, he established the "Center for Innovative Technology for Educational Future" which was launched with a conference called "Future Mind: New Images for Education". A network of professionals in a variety of disciplines from several colleges and the community emerged from this conference. They began to collaborate on research and training projects using the newer media technologies in various ways. Yet, *"While the conference was highly successful in developing new inter-disciplinary relationships outside the arts, it was less successful in causing changes in the fine arts or art education programs."* (Loveless 1990, 205)

In 1986, Loveless helped organize a critical symposium called "The Computer Revolution and the Arts". *"This event addressed old and new myths regarding the urgency of introducing the newer media tools into all aspects of visual training."* (Loveless 1990, 205) Out of this event an interdisciplinary image processing laboratory was created. It introduced the computer as a new tool for visual thinking and learning capable of combining the major traditional art forms. In the two courses Loveless has designed: "Using Computers for Visual Learning" and "Using Computers for Visual Inquiry", his goal is *"to unify art production, art criticism, art history and aesthetics by means of the computer."* (1990, 206)

In 1990, a group of art teachers banded together to design a model curriculum in computer graphics for visual art departments in American colleges and universities. A first draft published in "Computer Graphics" (1993), includes general information regarding the relationships between visual arts, computer graphics and higher education, and operational considerations such as goals and objectives, evaluating and planning procedures, and program administration. It

also *"discusses recommendations for a common body of knowledge and skills which could be assumed to have been learned by students at the beginning, intermediate and advanced levels of study in computer graphics in the visual arts."* (Mones-Hattal, O'Connell, and Sokolove 1990, 78)

This research group has proposed further historical, critical, philosophical and practical investigation. As a group, they support the postmodern and the structuralist models for critical discourse. They say that the computer, by its very nature, is prompting schools, artists and educators to reevaluate their curriculum and create interdisciplinary, cross-disciplinary and collaborative arrangements.

Since the NAEA symposium of 1964 on the uses of newer media in art education, a number of events have taken place which offer platforms for different points of view as well as a forum for new ideas. In 1986, at the National Art Education Association convention, twenty-five presentations addressed computer uses in the field. The program included instructional uses for design, art criticism, art history, and photography; software application reviews; computer lab development; curriculum development; and art classroom management techniques. (Ettinger 1988, 53)

In June 1989, a meeting organized by the Special Interest Group on Computer uses in Education (SIGCUE) of the Association for Computing Machinery (ACM), invited area specialists to meet at Teacher's College, Columbia University *"to consider the problem of what pre-service teachers needed to know about computing by the time they graduated."* (Hubbard & Greh 1991, 18) At this meeting, five art education specialists presented position papers addressing

the question.

Also in 1989, the Special Interest Group on Computer Graphics (SIGGRAPH) of the ACM published a show catalog for their exhibition "Computer in Art Context: SIGGRAPH 89 Art Show". Included in the catalog is a series of 14 articles written by individuals who have distinguished themselves in this relatively new field. These articles address a variety of related topics such as aesthetics, theory, history, and philosophy.

*The dominant message is that visual art is rapidly moving beyond the static, unique imagery associated with conventional art media towards a realm where viewers interact with works of arts, where artists cooperate to create fully reproducible images, and where conventional boundaries of time and space no longer apply. (Hubbard 1991, 254)*

Finally in 1991, the Getty Center for Education in the Arts held a two-and-a-half-day conference entitled "Future Tense: Art Education Technology". This event which brought together over 800 leaders and practitioners in education, the arts, and technology, covered diverse topics such as how multimedia technology can be used to enhance DBAE. (Alexander, Nugent, and Dam, Conference Summary, 1991, 100)

In her opening commentary, Leilani Lattin Duke, Director of the Getty Center for Education in the Arts, recognized that while technology was not the Center's strong suit, the conference would provide opportunities "to learn about what is available now and what lies ahead". (Conference Summary 1991, 6) She also acknowledged that

*Encouraging the use of technology in the school's daily operations will require a drastic revision of conventional teaching methods and assumptions. There is also the question of teacher receptivity: if teachers, who have a tendency to be "technophobic,"*

*do not receive adequate training early in their careers, the availability of technology will have little impact.” (Conference Summary 1991, 7)*

Other speakers described how a new type of art student is emerging and how the technology must be mastered to ensure her education. (Gibbon, Greenfield, Kubey and Hawking, Conference Summary 1991, 110) Lucy J.Fjeldstad, IBM Vice President and President of the Multimedia and Education Division, shared her conviction that *“multimedia computer technology will be a powerful transformation tool that will forever change the ways we live and learn and think and create.”* (Conference Summary 1991, 8) She reported on studies which show:

*That multimedia instruction can increase students’ performance by as much as 50%... the potential for empowerment that multimedia technology represents has to be understood in the context of an educational crisis, in which 27 million Americans are functionally illiterate and 3,000 students drop out of school every day.* (Conference Summary 1991, 9)

New educational computer programs were presented. Other issues discussed were the importance of defining computer policies, the necessity to invest money in technology and education, and the possible cost to society of pedagogical inaction.

## SECTION C

### (C.1) Recommendations for art education involvement with multimedia technology and some possible consequences of avoiding participation.

There are many social and aesthetic repercussions which stem from using computers in art education. Hicks stresses the importance of developing the aesthetic and the critical realm of art content within the context of technological education. He is convinced that:

*All children, no matter what career or way of life they choose, need to develop understanding about the impact of mass media on their lives. They must be prepared to use communication technology effectively because every profession incorporates complex communication systems. The visual aspects and art relatedness of these systems require design concepts and the thinking skills associated with a good art class. (Hicks 1993, 44)*

He also states that in spite of the current bombardment of visual material, for many viewers "*sub-surface meanings and allusions remain inaccessible*". (Hicks 1993, 44) He suggests that the art curriculum emphasize cognitive skills, such as problem solving and reframing, and that these skills be presented in a cooperative and collaborative learning context. As for the design aspects, he proposes that they be introduced in a non-formalistic way, that is, "*as a means to an end*". (1993, 44)

For Stanley S. Madeja, it is imperative that art education address the way students from the earliest age will engage with technology. This means that art teachers would be teaching with both traditional and the latest technological tools. He proposes that there be "*one more content domain: electronic imaging, to be*



*added to the accepted art history, criticism, aesthetics, and studio content areas of future art curricula.*" (Madeja 1993, 12)

Diane Gregory (1995) sees teacher resistance to new technologies and the way art education still invests heavily in traditional instructional approaches as two consequences of DBAE reform movement.

Donna Cox (1990) states that computer art has suffered from the fact that it was born during the shift from modernism to postmodernism, in the sense that it inherited technophobic attitudes from critics. These attitudes have in the past hampered the development of a technological aesthetic.

Many art educators (Ettinger & Roland 1986, Chia & Duthie 1992, Youngblood 1988, Hubbard 1985, Roland 1990, D'Angelo 1988, Greh 1986) report that problem-solving ability, team-work, cooperative learning, collaboration, creative thinking and risk-taking increase substantially when the computer is used in their art classroom. Hubbard says that: "*Perhaps the greatest hurdle to the adoption of electronic methods of instruction is human inertia: that is, resistance to change. A related problem is that teachers may perceive multimedia instruction as a threat to their autonomy.*" (Hubbard 1995, 51)

Loveless considers that current training "*continues to encourage traditional practices and is oblivious to the present and emerging mental environments created by the newer media technologies that surround us.*" (Loveless 1990, 201) He claims that with technology being available to the general public, "*non-artists seem to be more open to experimenting with newer media forms than many artists.*" (1990, 202)

In 1990, Richard Loveless observed that attempts to introduce newer media into art training programs or link interdisciplinary studies across several

departments were frowned upon and usually perceived as suspect. He quotes Mark Slade from his book "The Language of Change":

*If the child of the future is to be literate in the contemporary world, he or she will need to learn and be comfortable with two new language systems: the first is 'data in motion', the language of letter and number via the computer; the second is 'images in motion', the language of photography, film, video and satellite communication systems. (Loveless 1990, 203)*

In a personal account of her use of computers in an art program at the secondary level, Deborah Greh (1986) describes how in the early 1980`s she became convinced that there was an exciting potential for computers in the art curriculum. At the time, she could not find any computer art courses in higher education. She had to learn on her own through research and reading. When she was finally able to introduce a computer in her art classroom, the enthusiasm of her students strengthened her belief "*that the computer could be used as an art medium in its own right. I found them approaching their work in terms of problem solving...*" (Greh 1986, 6)

In October 1984, the magazine "Vision, le journal de l'Association québécoise des Éducateurs spécialisés en Arts Plastiques", published a special issue on the image and the computer. In it, a wide spectrum of viewpoints ranged from the utmost skepticism to sheer passion. In her article, Louise Fournel points out that while musicians were embracing the new technologies with enthusiasm, visual artists were turning their backs on a tool which held so much promise for the visual arts. She explains that resistance to the digitization of the image means more than reluctance to adopt a change of style. Acceptance would imply a transformation of how the artist's work is defined in society, as

well as challenge the vision the artist has of him/herself. She concludes that educating young artists to comprehend contemporary problems cannot be achieved if we ignore contemporary technology.

*Just as artists have generally been recognized as an innovative force within society, many schools have now come to view their art educators as innovative teachers. We should not lose that image, but use the latest technological trend as an opportunity to apply our influence in a positive manner for improving the broader spectrum of education. (McCulloch, 1984, 45).*

### **Summary**

In Section A of this review of literature, I have described how the term multimedia has been used in the educational context to refer to programmed instruction. We have also seen that even though the terms multimedia and hypermedia are both used (Hubbard 1995, Gregory 1989) in reference to certain instructional computer programs, the word hypermedia rather than multimedia, appears more often in the non-linear and interactive context. Slawson (1993) proposes the use of interactive multimedia as a more complete term which retains the nature of hypertext combined with multimedia. Gregory (1995) uses the term interactive integrated media instead of interactive multimedia where its non-linear design enables the user to go through a program in any order and therefore transforms the role of the user from a passive observer to an active participant.

By proposing a non-linear way of reading, interacting and constructing, the new media environment challenges the linear path of interpretation that modernism had supplied for the first part of this century. It also set the stage for postmodernism in a critical discourse involving other related theories such as

cybernetics, structuralism, emancipatory constructivism, and constructivist learning theory.

In Section B, I observe that since the 1960's in art education, there has been a continuous effort on many fronts to promote and integrate the new technologies. Since the mid 1980's, we have also witnessed a significant increase in events and publications which illustrate the impact educational technology is having in our field. Results of surveys (Grey 1993) and experimental programs (Campbell 1991) show great interest on the part of art teachers for more information and guidance on how to use and incorporate the new technologies in their practices. Still, we see the fine arts and art education milieu resisting changes within their respective programs. (Loveless, 1990)

In Section C, the emphasis is on the willingness of art educators to address the way art students engage with technology, especially through the integration of the latest technological tools with traditional ones. This means art educators must overcome their resistance to technology in order to comprehend and help find solutions to contemporary problems brought about by the presence of these technologies in our lives. Similarly, as we shall see from the interviews with teachers, every interviewee touches upon the problem of their colleagues resistance to new technologies.

Later, in "Results and Analysis", I will examine the results of interviews with Québec's leading figures in art education and the new technologies. Some are teachers, some are theorists, yet all are concerned with the ethics and practice of introducing new technologies in art education. I will also look at the results of a questionnaire given to two groups of students, as well as data from two media

courses where I acted as an observer and participant-observer.

## METHODOLOGY

This study uses the survey as a descriptive methodology such as that defined by Cohen & Manion in Research Methods in Education.

*Typically, surveys gather data at a particular point in time with the intention of (a) describing the nature of existing conditions, (b) identifying standards against which existing conditions can be compared, or (c) determining the relationships that exist between specific events. (Cohen & Manion 1980, 71)*

Three approaches were employed for the collection of data: interviews, questionnaires, and class and/or participant observations. My intention was to describe the existing conditions with regard to the presence of multimedia content in two art education undergraduate programs. I also wanted to identify ideal standards for teaching art and art education with the new technologies, and compare these with the existing conditions. In the light of the literature, I attempted to determine if the situation here in Québec is comparable to what is happening elsewhere in Canada and in the USA.

I carried out my research at UQAM (Université du Québec à Montréal) and at Concordia. The rationale for my choice was that most of Québec's primary and secondary art teachers obtain their pre-service training at these universities. For the interviews, I identified key people in the field of art education, who were instrumental in introducing the new technologies to the

profession. For the observation and questionnaire section, I investigated two art education courses at these universities which included the new technologies.

## **PARTICIPANTS AND DATA SOURCES FOR STUDY**

The following individuals were interviewed: two retired art educators, **Micheline Couture** (UQAM) and **Stanley Horner** (Concordia), who created the courses, **Enseignement des arts plastiques et ordinateurs** and **Multimedia**, respectively.

Interviewees from Concordia also included **Miriam Cooley, Ph.D.** and **Carol Woodlock, MFA**, both teachers of a **Multimedia** class. An interviewee from UQAM, **Rémi Bergeot, MA**, teaches the course **Enseignement des arts plastiques et ordinateurs** and is a full time art teacher at the primary level. He is also one of the cofounders of "Copie-Art", an important art center and gallery in Montreal dedicated to art and technology.

**Georges Baier, MA**, has been a high school teacher since 1966. In 1989, when computer technology at CECM's (Commission des Écoles Catholique de Montréal) was designated for the primary level only, he was instrumental in implementing art and computer programs at the secondary level, as well as creating a center for training pre-service teachers in art instruction and the new technologies.

Finally, interviewee **Louise Poissant, Ph.D.**, teacher at UQAM in the "Département des Arts Plastiques" specializes in defining terminology and aesthetic theory in art and the media. She is also the coordinator of GRAM (Groupe de recherche en arts médiatiques), a research group which produces

documents designed in part to address the questions of art teachers concerning the presence of technology in their field.

## QUESTIONNAIRE

I administered a questionnaire to two groups of pre-service art teachers from two courses I observed during the 1994 winter school term: **Enseignement des arts plastiques et ordinateurs** at UQAM and **Multimedia** at Concordia. At Concordia, 7 out of 12 students participated and at UQAM, 15 out of 20 students took part in the study. Five students at Concordia were in the art education program and two were in visual arts. Three students were studying towards a teaching diploma and three were taking a specialization. Two students were not planning a teaching career. At UQAM, all 15 students were in the art education program. In each group, two males students participated. This represented almost 100% of the male population for each group.

## OBSERVATION

Two courses were observed. My purpose in observing these courses was to look at course organization, attitudinal changes towards the technology throughout the term and the incidence of cooperation between students, the quality of work produced in these classes, and the progress students made using new tools.

I sat in on four classes from each group during the winter term. Between each instructor and myself it was determined when I would be present. Students



were consulted and agreed to my presence. For the most part, I attended the classes where they were presenting their work assignments. At Concordia, these assignments were video productions. At UQAM, assignments were designed and presented with the computer. I acted as an observer for the first part of the class, and as a participant observer when I gave feedback on the works presented. At UQAM, I also volunteered some help with the computer programs when students experienced difficulties.

## **MATERIAL**

A portable audio tape recorder was used to permit transcription of the interviews. The format of the interviews involved open-ended questions. The following topics were explored: participants' personal academic background, course content, teaching approaches, and personal visions of technology in art education. (see sample questions in Appendix A)

The questionnaire was comprised of two sections. The first section investigated 1) reasons why students use new technologies in their work, 2) students' access to equipment (video and computer) and their level of satisfaction with its availability, and 3) students' knowledge of the new technologies before and after taking the course and how they acquired this knowledge.

In the second section, students were asked to indicate whether they agreed or disagreed with 15 opinion statements addressing the place of new technologies within the teacher's training program. (See questionnaire in Appendix B)

## PROCEDURE

Interviews were conducted on a one to one basis between 1993 and 1995. (See dates in bibliography) The place and time for each interview was previously arranged by telephone, depending on the location and availability of the participants and the researcher. Participants were informed of the purpose of the study prior to the interview.

Transcription of the interviews was completed during the summer of 1994, except for the interview with Stanley Horner, which took place in 1995. Interviews carried out in French were translated by the researcher. The data was codified, analyzed and discussed by theme and/or questions. Approaches described in the interviews were comparable to those found in the literature. Since Woodlock's answers were basically the same in content as Cooley's, I decided not to include the former's contribution to the data in the results section. After the Results and Analysis section was completed, I sent a copy of it to each of the participants asking them to verify if what I was quoting or rephrasing from the interviews accurately reflected what they had meant to convey. After they had read it, I contacted them to obtain their approval before proceeding.

I distributed the questionnaires to students, who upon completion, returned them to the instructors. The results were analyzed using the comparison-contrast method in order to illustrate similarities and differences between the two groups. This measure helped to infer the extent to which Québec art teachers in-training are prepared to incorporate and use media technology. It offered a comparison point between what is available in the two art programs with respect to the new technologies, and how art teachers

in-training envision the presence of these tools in their future practice.

Data from class observation were written on a simple note pad, then analyzed and codified under four different themes which generated headings for my discussion. This information helped to answer my second question, "What is being done?" by describing the existing conditions. It also gave me a sounding board for my last question; "What should be done?" and facilitated comparisons between ideal standards and existing conditions.

## **RESULTS AND ANALYSIS OF THE INTERVIEWS, OBSERVATIONS AND QUESTIONNAIRE**

This chapter begins with the results and analysis of the interviews. Section 1 introduces the participants. It explains how they became aware of the significant role the new technologies were about to play in the arts of the postmodern era.

First, I present Stanley Horner, Micheline Couture and Louise Poissant. Horner and Couture pioneered the two courses which I investigated for this survey. I continue with Louise Poissant from UQAM who, like Stanley Horner, has been active in designing postmodern aesthetic frameworks. Poissant is an important figure to consider when we look at the pedagogical material produced in Québec. She is followed by Georges Baier who has created a multimedia teaching environment in a secondary school where pre-service teachers can do a "stage" and have a first hand experience teaching with the new technologies. Finally, I speak about two art education teachers: Rémi Bergeot and Miriam Cooley who were teaching the two courses under investigation at the time of the interviews.

The presentation of these last two participants led to a description of the course content including objectives and types of assignments, teaching approaches, and available equipment.

The third section results from a discussion format wherein the participants offered opinions and reactions concerning the impact of new technologies on modern art, their understanding of the milieu's reaction to these changes, and gender differences with regards to new technology.

In the last section, the theme is "planning for the future" which concludes with what could be the ideal teaching situation in view of political realities.

## **INTERVIEWS**

The interviews are presented in four sections under the following headlines:

1. Multimedia technology in art education: a theoretical and practical context
2. Preparing future art teachers for the new technologies
3. Reactions and opinions of the teachers/art education milieu to the introduction of technology
4. Possible scenarios: ideal teaching situations and the political reality

### 1. Multimedia technology in art education: a theoretical and practical context

This section describes participants' experience with integrating multimedia technology in art education. It also presents their opinions on changes triggered by the arrival of these technologies in art education, both on practical and theoretical levels.

## Stanley Horner

In the late 1960's, the notion that media were important for art education was in the air. Stanley Horner was reconceptualizing the history of modern art in terms of the paradigm shift that was taking place from Modernism to Postmodernism .

*Postmodernism was proposing a totally different way of looking at things. There was a shift from the elitist idea that art was a separate object distinct from everything else in the context of the museum which held some hidden meaning known only to the artist; towards the contemporary idea that the viewer becomes artist and the artist becomes viewer and where all parties find their personal meaning. The whole concept of genius that Modernism had favored was being challenged by the new technological media and the idea of reproduction. There was the possibility of using different media, even using layers of the same media or even using layers of different media in combination. ( Horner 1995)*

From this standpoint, the autonomous art object or image, with no social or political implication, was becoming what Horner calls a transitional object existing between artists and viewers.

In 1970, Stanley Horner created the course "Multimedia" as part of Concordia's art education training program. During the first two or three years of its existence, it was offered at the graduate level as part of the diploma program. Before long it was moved to the undergraduate level, prior to the diploma year.

*This course would not only help the students deal with media in their teaching, but it would also give them the chance to use these media in their own art development... Multimedia became an art form, a medium through which students could work with images, sound and all of the senses together. (Horner 1995)*

"Multimedia" was the course where applications of Postmodern strategies were pioneered. It was the place where students could move from a traditional

medium (drawing, painting and sculpture) which carried all the "baggage" of the autonomous object, to the possibility that one could directly address and articulate the things happening in one's life by means of multimedia innovations.

*Media is the perfect way with which you can bypass those traditions, because now, we can ask the question: I have something to say, what is the best way for me to say it? Rather than the other way around: I am a specialist painter, I will always see the world through painting and I will always do paintings. (Horner 1995)*

### Micheline Couture

In 1982, Micheline Couture began using the photocopying machine in her course, "Impression des tissus" because she needed and desired to create repetitive patterns in textiles design. In 1985, she decided to investigate the computer. Her first reaction to it was resistant; she found the basic training to be very long and the results obtained not very appealing.

*It didn't seem to add to our technique which was already complex enough and I didn't want to make our life more complicated by having to learn to send mathematical commands to a machine in order to obtain a form which we could easily draw with only one gesture. (Couture 1994)*

She became more interested once she sat in front of a color screen with a mouse and a simple drawing program in which the hand still draws. She then understood that the computer was the natural next step to take beyond the innovation of the photocopying machine. With the help of the computer, she could not only reproduce an image to create a pattern, but could also create the image.

At UQAM, the fine art department already had a course in "art et ordinateur". This course was initiated in 1984 by Andrée Beaulieu-Green, who had studied at MIT, where she completed a doctorate degree. In 1988, a second

fine art course in "art et ordinateur" was created. There were three teachers: Micheline Couture, who gave the introduction, Louise Poissant who presented theoretical aspects, and Michel Martineau who supervised the creative studio. The following year, Couture was asked to create the course "Enseignement des arts plastiques et ordinateur". The course was already in the program, but had never been given. She designed a syllabus in which the focus would not only be on exploration and creation, but also on direct application of pedagogical objectives. The first time she taught the course, it was held twice a week during a summer session and was full. Rémi Bergeot, who teaches the course now, was her assistant at the time. The course is now part of the regular program and is filled to capacity every time it is offered.

Couture considers that the notion of "art for all" as introduced during the 1960's in Montreal at Concordia, l'école des Beaux arts and UQAM, had a very good theoretical framework. These programs had developed according to the concepts of people such as Herbert Read, Irène Sénécal, and Viktor Lowenfeld, and were influenced by their methods for children's art education. These methods which Modern Art had fostered, allowed children to have authentic art experiences.

With the introduction of the computer in the classroom, Couture shifted to a "hands-on" or structuralist approach wherein all the elements which comprise a production; artistic, pedagogical, theoretical and technological, are simultaneously present. They cannot be treated in a linear fashion. The students have to learn how to use the basic tools while incorporating them in their creative process. Couture further explains this approach by contrasting it with a



more Cartesian way of teaching based on outlining principles without recourse to images or machines. *"You can have nice sentences to explain something, but no tools in people's hands. These words don't make any sense. Many teachers rely on that type of teaching, but I think in arts it cannot work."* (Couture 1994)

Another important feature of the computer, according to Couture, is that all the different stages of a production can be kept and used as a reference.

*When we make a painting, we can superimpose layers of paint as we change our mind. But with the computer, we can keep the old image and make this image evolve... we can be sure that this will become a new field for the study of the image structure and its possibilities for transformation. The ways are many with the computer and we can imagine that it's a big revolution of the means for creating images.* (Couture 1994)

### Louise Poissant

For Louise Poissant, the difference between multimedia and mixed-media lies in the tool being used and what we do with it. To her, multimedia is constructed via an electronic media incorporating references to an art form and doesn't necessarily have to be interactive. *"There is no immersion in multimedia, the spectator doesn't enter the program like with the hypermedia where there is a computer platform which controls all inputs and outputs and determines the navigation axis available for interactivity with the spectator."* (Poissant 1993)

Poissant approaches the media from a philosophical and theoretical academic background. The research project she is coordinating emphasizes that it is important for multimedia technology to be integrated into an aesthetic theory linked to media art.

*The project is called `media art` instead of art and technology or electronic art, because rather than focusing on the tools, the research group decided to put the emphasis on an aesthetic and an expressive mode which is done with technologies but*

*not necessarily made with technological tools.* (Poissant 1994)

Part of this project involved the production of three television series on media art. The series were a co-production between UQAM and two educational networks, TV Ontario and Télé-Université. The first series, which deals with the topic in general, was completed in 1994. Two more series, one on video and one on computer, were completed in 1996. These television series were conceived partly in response to the question of what can be achieved with the new technologies. A large part of the series deals with technologies such as the photocopying machine, its history as an art tool and the aesthetic questions it raises. The last five minutes of each documentary presents experiments with video and multimedia in schools such as Collège Brébeuf and Polyvalente Lucien Pagé where Georges Baier teaches art and computer.

The target clientele are mostly primary, secondary and college level art teachers who have received most of their training from fine arts schools and who have never received any instruction in technology. *"Often, they have technology in their schools, but they do not have the slightest idea of how they can do an artistic project with these tools... Art teachers are curious about new technologies, but there still isn't many references in that field"*. (Poissant 1994)

### Georges Baier

While he was studying for his masters degree in art education at Concordia during the 1970's, Baier took courses in television and cinema in the Communications department, instead of studio courses with traditional art tools. Later, he was able to integrate his experience with media into his teaching at the secondary level, which he first did as an extra-curricular activity. (He and his students produced some animated films in collaboration with the Office

Nationale du Film).

Lucien Pagé High School, where Baier has been teaching since 1966, integrates deaf students into its regular curriculum. As soon as the school opened its doors in 1965, deaf students had access to technology which facilitated the possibility of personalized tutoring. In 1992, CECM offered to buy 32 computers for Baier's lab with the intent of encouraging the school to specialize in art and computers. Instead, he proposed to keep only 5 computer stations which CECM would then keep upgrading with the most up-to-date equipment. If the computers became outdated, they could be sent to other schools, and more recent models with more powerful technology would replace them. The rationale behind this proposition was that Baier did not want to find himself with 32 obsolete computers in 2 years, while *"watching the bandwagon pass by and not being on it"*. (Baier 1993) In fact, what he has actually instituted is an evaluating center for new software and new equipment, a lab where pre-service teachers can do their apprenticeship, and a formation center for computer imagery where exploration and research in art technology can take place.

### Rémi Bergeot

Rémi Bergeot has always incorporated technology in his artwork. He began as a technical adviser for artists who wanted to work with photocopying. During that period, he became fascinated with the mechanical and technological aspects of machines which could reproduce imagery. Through his collaboration with artists, he also became interested in the creative aspect of what these machines could do.

His first contact with computers occurred in 1984, when he took the first

course in "art et ordinateur" at UQAM with Andrée-Beaulieu Green. Now a primary school art teacher, Bergeot uses the computer to teach art. In the past few years, he has observed that technology is forcefully infiltrating the school system, bringing with it the return of the traditional coloring book which art education had fought so hard to get rid of.

*I am not talking about art classes, I'm talking about the application of the computer by people who don't have any art training and use the images already contained within the computer. They use the computer like a coloring book. Already made images are proposed to children; they pick one to make a card for their mother. There are images for every occasion. Real big clichés, Santa claus... everything is there! This means that some people are using recipes which run counter to the creative development of authentic imagery. In this way, the computer presents a danger, because it can undo what fine art education has done up until to now. This is one reason why it is important that people who teach visual arts should have a certain control, or at least be consulted, in what is presented to children. (Bergeot 1994)*

This consultation is not happening now, at least not in the school district where Bergeot teaches. With regards to the issue of children's fascination for machines, computers and electronic games, Bergeot thinks we have a responsibility to help them develop their critical sense. "As educators, we need to have a vision of how we can bring this tool into the art room and use it to teach art." (Bergeot 1994)

### Miriam Cooley

Miriam Cooley taught a course in multimedia for a period of four years. In her teaching Cooley has been trying to change the pervasive notion that art is still only about painting, drawing and sculpture. She says many students still have a very traditional notion of what being an artist is and what art making is about. In her course, students have to go out, look at works and write a brief report on

what they see. As they begin to be exposed to more contemporary art forms, they start to realize that there is a wealth of new possibilities.

## 2. Preparing future art teachers for the new technologies.

This section contains a description of Concordia's Multimedia and UQAM's Enseignement des arts et ordinateur courses. It presents the content, goals, objectives and teaching methods of these courses. It also outlines what is available in terms of equipment and facilities in both universities.

*Multimedia "is an introduction to photography, super-8 filmmaking, video and sound. It deals with the practical and theoretical aspects of these media and explores their potential for the artist and art educator." (Concordia, Art Education and Therapy, 526)*

At Concordia, Multimedia is the only course in the art education undergraduate program which directly addresses the use of technology in art making. It is a 6 credit third year level studio seminar which runs all year and is compulsory for students registered in the BFA with a specialization in Art Education. The course is optional for Major students. Students taking it can be in the second or third year of their program. This course is also open as an elective to students from other disciplines within the faculty such as: studio art, sculpture, inter-related art or inter-disciplinary studies. Basic content guidelines are spelled out as follows:

*Students will be involved in various sorts of in-class presentations ranging from performance pieces to installations... Students will prepare projects and, on occasion, read and discuss assigned materials. Evaluation is based on attendance and participation; basic competence in handling each of the media introduced; completion*

*of assignment; presentation of projects; personal reports (in the form of a journal); evidence of involvement with, or attendance at, `art-related` events such as galleries, performances. (Concordia University, Faculty of Fine Art's art education guide 13).*

(NOTE: Since the fall of 1995, Miriam Cooley has not been teaching the multimedia course. The course is now given by Richard Lachapelle and Aiofe MacNamara. Since fall 1995, due to budget cuts, MITE Avista (Multimedia Interactive Technology Environment, Audio Visual In-Service Training Areas) is no longer available for teachers to bring in entire classes for video editing workshops. Students must now attend sponsored workshops (\$20.00 each) to learn how to use the technology. Workshop space is limited. Furthermore, since the fall of 1996, MITE AVISTA no longer exists under that name. It is now called "**Media Labs**". It offers the same multimedia services Avista used to offer with diversified types of computer platforms. Mark Scofield, director of Concordia Audio Visual Department, and his team, continue to support the same interdisciplinary vocation while servicing the University population).

During this course, students produce a piece of work in each of the introduced media. In the second term, an initial video assignment involves the production of a three-minute documentary with personal content. The purpose of this exercise is to explore and learn to operate the video camera, using in-camera editing with no additional soundtrack. These videos are discussed in class, in terms of the relationship between camera work and content.

Later, students create a more refined video which involves in-lab editing. A workshop is organized at MITE Avista, where students learn what the equipment is, how they can use it, and the protocol for practicing on it. They are

also given an introduction to the computer but with no "hands-on" experimentation in class.

For their final project, they have to create a major project of their own choice, which may involve the use of video, computer or any of the other media introduced in the course.

The course also looks at the possibility of using computers interfaced with video for editing and special effects purposes, but again without any hands-on experimentation. Due to the number of tools being explored, and in large part due to there being no computer available for teaching in the art education department, the computer component has been the weakest link of the course so far.

Although the MITE Avista lab is available to students who wish to investigate computer technology, it is difficult, with their course load, to adapt to Avista's workshop schedule and limited access to equipment. This is far from a perfect arrangement, especially for beginners, because it puts pressure on the people working at Avista as they have to supervise people who don't know how to use their equipment. In an attempt to alleviate the situation, the art education department has hired a student assistant to help students who need support when they are doing their first edit and/or working at Avista's computer lab. Even then, it is difficult to coordinate schedules between the assistant, the student and Avista, which is open to all the university departments and is often over-booked.

Concordia's art education department has 4 Sony video-8 cameras with different features and a monitor, for which the Multimedia students have

borrowing priority. Otherwise there is no budget available to buy equipment, although some additional equipment has been purchased through faculty research grants.

Faculty members have been involved in different ways. Cathy Mullen uses photography in her research and teaches about the relationship between the two. Stanley Horner has been very influential in terms of examining video and looking at the response to it. Elisabeth Sacca has been active in engaging a number of graduate students with E-mail by organizing workshops and encouraging people to get linked up. Art librarian Loren Lerner has conducted several workshops to introduce graduate students to on-line CD ROM research.

Enseignement des arts plastiques et ordinateur is a one term 3 credit elective course designed for UQAM's undergraduate art education students.

*This course is the study of the potential and of the pedagogical qualities of the computer for creativity in visual arts. It also deals with the analysis of different strategies for graphic programming which, through discovery games and creativity, favors interdisciplinary comprehension. This is done using references to graphic evolution and developmental psychology. (From the course synopsis)*

(UPDATE NOTE: Since fall, 1995, this course has gone through several changes. It has been moved to a new lab equipped with MacIntosh computers which are loaded with new programs. These programs are: Director V4.4, a multimedia authoring program; 2D programs: Apprentice V1.0, Super Paint, V3.0, Color it V2.3, Painter V3.0. The students also work with Photo Shop and MacIntosh Hypercard where they can store information. They have access to a frame grabber, a sound digitizer, an image scanner, and an inkjet color printer. The lab is set up with 12 computer stations plus one master station with one giant screen.



The computers are linked to internet where students can do museum research for example, and to the university central computer center.

One of the main problems to stem from this transition is that none of the new programs were designed for direct educational application. The teacher giving the course was neither consulted nor notified in advance about these changes. Rémi Bergeot, who teaches the course, notices that every year new students are more familiar with the tools. One reason for this is that many of them have already taken other courses in art and computers offered in the "arts plastiques" program. He foresees that this tendency will only increase. The course Enseignement des arts plastiques et ordinateur is offered only one term a year and is not compulsory).

The main objective of this course is to look at how the computer can be integrated into the art studio and lab. Issues are discussed such as the basic knowledge and practice a teacher needs to have in order to manage the integration of the computer in an art class of 20 to 30 students.

The course begins with an introduction to the computer. Students have to be able to name the different parts of the computer and understand what these parts can do. After basic initiation, they progressively enter the system. It begins with very simple exercises, such as formatting and creating drawers. *"It is very important to know that a computer functions with commands and that when one creates something on the computer, it has to be put away in a given place, from which it can also be easily retrieved when needed."* (Bergeot 1994)

Once the students have entered the system, they are presented with an

animation program called Deluxe Paint. With this program, students explore some of the graphic possibilities the computer offers for designing, drawing and creating animations. Then they are introduced to an authoring program, Amiga Vision, with which they can create multimedia presentations (image, sound and animation). In this course, the most important aspect of class production is to create computer-generated images. Bergeot sees the multimedia aspect as an interesting complement.

For the mid-term assignment students have to design five basic drawing exercises for the primary or secondary level, using the computer and the options they've explored on the Deluxe Paint program. These exercises have to be designed using only one element, such as a point or a line. Once they have chosen an element, they have to stick with it. What has to change is the function, such as juxtaposition or repetition of the basic element. When doing the exercises, decisions and choices have to be made within a limited time frame (5min). This first series is a warm-up exercise with no specific theme. For the presentation which uses the multimedia program, they are allowed a limited use of text. Bergeot suggests that they design a presentation page on the computer. For their final project, students plan a complete class in which the computer is the primary tool for organizing, presenting, giving the class and creating the artwork. This class must contain basic art-making and perception exercises, plus examples of art works which could emerge from the exercises.

In this course, students have the tools to create and present a well documented and articulated class design. If they desire, they can use digitized images and sound. These can be taken from a public domain image and sound

library, or they can be of their own creation; their voice for example, or images captured with the video camera. These images are digitized with a frame grabber and imported into the computer to be integrated in the presentation.

Even though the system is very slow, limited and outdated, it possesses enough potential for initiation to computer design and multimedia. The hardware being used is ten Amiga 2000. Additional equipment involves one frame grabber, one sound digitizer and one Fuji dot matrix printer. The students have access to the computer lab from 21:00hrs to 23:00hrs, Monday to Friday. They can also use equipment from the audio-visual department such as video cameras, monitors and VCR playback recorders.

Bergeot insists on the necessity for students to work on the computer outside of the course schedule, if they want to benefit from what they learn during the course. He stresses that if one doesn't work with the computer on a regular basis, it is impossible to think of pedagogical strategies which would incorporate it. He emphasizes the need to develop a good classification order when working with such a complex tool. He explains how easy it is to get lost if proper precautions are not taken first. He compares the university lab to the reality of being in a large classroom with 30 children where the teacher has to keep all the artwork produced in the class organized in the computer. He further explains how working with the computer involves working with immaterial things.

*Creating things and organizing them in places that we cannot see demands the ability to work in abstraction which is a difficult exercise to do at first, but if students start with that, they can move to another system and already understand many things such as how to save a document, and how to delete it. One of the tasks these future teachers will be confronted with, is to organize and classify every artwork inside the*

*computer while quickly becoming familiar with any system a school has. (Bergeot 1994)*

In the classroom, a computer is connected to a large video monitor facing the students, on which they can see what the instructor is doing. There is no budget, nor technical support from the department for servicing the ten Amiga. They have a "UPE", who is a student assistant hired for forty to forty-five hours per term to offer support and help students. When a computer breaks or has a technical problem, Bergeot must repair it himself or have it fixed at his own expense. He also has been doing the maintenance; things like cleaning the insides of the computers and the mouses at the beginning of the term, making sure the hard disks are in good condition, and making backup copies. (It's not in his job description, but he knows that it has to be done and that if he doesn't do it, nobody will).

*Teachers have to be prepared to deal with whatever problems occur from bad manipulation. For instance, specific access can be protected, mostly while working with children; accidents can happen, such as the loss of file or the erasing of a program. This can happen on any system. Even the most protected ones can crash. A minimum of precautions must be taken by the people who install and service the systems. (Bergeot 1994)*

### 3. Reactions and opinions of the teachers/art education milieu to the introduction of technology

This section presents the teachers' opinions and reactions triggered by the arrival of the new technologies in the art education system. It also briefly addresses gender differences in reactions to technology.

Louise Poissant foresees that the new technologies will change the face of

the arts. She compares their impact to that of writing or printing on our civilization. She doubts that painting as we know it today will continue to exist. (Poissant 1994)

Micheline Couture also wonders how long modern art will continue to hold its own. *"Without the new technologies, the artistic disciplines will still be `charming`... People will still do graphic art and paint and there will always be reproduction of authentic images, but reproduction will have to go through the new technologies."* (Couture 1994) She compares the reaction some people have towards the new technologies to the disregard the academy showed towards Cezanne and the Cubist painters.

*Perhaps we can cry that painting is dead. Many painters feel threatened by it. They say that they are not interested in technology while brushing it away with a large gesture of the hand. It's like with modern art, there were these artists and the others. It did not keep modern art from continuing. The art school as we know it needs to question itself about what are its aspirations.* (Couture 1994)

While Georges Baier insists that human beings cannot be replaced by any machine and that the computer still doesn't offer the sensuality of traditional tools, he also thinks that *"even though a good teacher doesn't really need it, now a days, not to know anything about it is wrong"*. (Baier 1993) He perceives the teaching milieu as being very hostile to change, closed to the idea of learning anything new and wanting to maintain the status quo. *"They want to invest in something solid, which already exists. As soon as something new is proposed, they throw it out the window."* He anticipates that in the near future...

*With the practical changes being brought on by technology in almost all fields of activities and disciplines, people who are not able to work with computers in their respective fields and in interrelation with other disciplines will simply be left aside...*

*This situation does not prevail at the moment, because we are still at the beginning stages, and the schools don't have much budgets for technology. (Baier 1993)*

Although she understands the threat technology may represent for some, Louise Poissant thinks it is important that some art educators engage in the struggle of learning how to create with these tools. She considers that if we want present day teachers to integrate technology, there has to be room for the traditional tools as well. She says that we cannot ask a teacher to become something else from one day to the next, and to negate what he/she was before. To her, this option is neither possible, nor interesting. On the other hand, she offers a warning for the ones who enjoy working with technology: *"They need to have an interest which is big enough, because the ones who don't like it will be like `sticks in a wheel`."* She describes people who are involved in introducing technology in the art education system right now *"as pioneers who have an extremely large sum of energy, give a lot of their time and have an attitude of generosity."* She says that computer technology encourages this type of attitude. *"For example, it may take two seconds to `unbug` someone or it can take two hours to find a stupid bug and solve the problem. There is a convivial rapport which is easily established between people."* (Poissant 1994)

An argument which is frequently put forward when discussing the computer as an art tool, is that if we introduce the computer, it will be at the expense of drawing and painting studio time. Rémi Bergeot agrees that it is a problem.

*First of all, the computer will never replace traditional art teaching tools. Fine art is the transformation of the matter, it is the understanding of a language which is expressed through gesture. Color has to be mixed, it has to stain, it has to be touched. We must teach children to touch glue and paper, to shape, fold, mold, make gesture.*

*The computer does not provide this degree of tactile expression, but it can be useful towards acquiring certain abilities, particularly for understanding the image and its construction. We cannot say that we'll be teaching fine arts with the computer and that's it, but I think it is an indispensable complement.* (Bergeot 1994)

Bergeot understands that for teachers who have been teaching art in schools for many years, using a computer is a big obstacle. *"There are people, who, because of their type of personality, will have a lot of difficulty adapting, even though computer systems are user friendly and highly performing"*. On the other hand, he regards the gap being created between users and non-users as *"a bit dramatic, ...often there is a lot of aggressiveness around that. There is a lot of resistance in the fine arts milieu and much of it is among teachers."* (Bergeot 1994)

In the primary school where he works, teachers are perplexed about what Bergeot does with the computer. He says they are interested, but that they don't want to get involved, because they only see technology as creating problems. *"They are very afraid to take a step and to learn. They are also afraid of appearing ignorant, because it can be difficult, if one is not attracted to technology"*. (Bergeot 1994) He hopes that today's art education students will at least acquire some awareness of technology.

Miriam Cooley notices that technology induces a lot of anxiety in people. *"They see something with a bunch of buttons and knobs on it and they get very nervous."* (Cooley 1993) As a teacher, she has learned one just can't say: *"Oh! don't worry about it"*, because people do worry about it. She perceives that without proper guidance, students can become very frustrated, and that this frustration can inhibit their creative process.

On the gender issue, Horner says that women were terrified of buttons

fifteen years ago, but it is not the case anymore. He anticipates that it will soon be second nature for most people to use the computer. He considers that technology is a problem only when dealing with people over a certain age. *"They're afraid to be made fools of or that they won't understand."* (Horner 1995) His concern is more about how we relate as humans to technology.

*Because machine are external things which have a life of their own, we have to be careful how we interface with them. It is natural that people who didn't grow up with them will have more difficulty overcoming that barrier of mechanistic extension... There is a loss for people who are seduced by the machine of some of the haptic, somatic qualities of the `hands on` which the art education faculty has. So they have something to teach each other through the skin which is very important... with the computer one achieves through the virtual that which is lost in the somatic. (Horner 1995)*

Couture says that with regards to technology, men are generally less afraid. *"They approach it with less apprehension; they are more relaxed. Men don't seem to be afraid to not understand. They absorb the information more easily. It doesn't mean they are better at it."* (Couture 1994) In her teaching approach, what the students already know is put to use. Sometimes knowledge that has been traditionally attributed to women, such as the ability to use a keyboard, can be a reassuring element of computer mastery.

Art education classes are mostly comprised of women. In terms of the relationship between gender and technology, Cooley found men tend to be less forthright about expressing their anxiety towards new media. She also feels that men are not 100% confident of their capabilities. She suggests that while some men possess a lot of experience in one media, occasionally to a very sophisticated degree, their skills don't automatically transfer to other domains. Sometimes,



this will be revealed later in the year through random comments: *"You know, I was really scared to do that first photograph because I had no idea about what the results would be."* One of the aspects of using technology which women tend to be a little nervous about is the traditional view that it is a male domain: *"You know, it's a guy thing, these pieces of equipment with buttons, knobs and blinking lights on..."* On the other hand, Cooley observes that women are not resistant to taking it on: *"They admit to their anxiety, but they go ahead and use it"* (Cooley 1993)

#### 4. Possible scenarios: ideal teaching situations and the political reality

*If imagery is to be generated by technology, perhaps this poses consequences in the teaching of art. Art education has to adjust to this new reality. It is only natural that future art teachers be trained to assist children towards learning and furthering of any new and interesting tool. If this can be achieved, they will develop into critical and better consumers.* (Couture 1994)

In the "Département des Arts Plastiques" at UQAM, one of the objectives is to develop the new technologies sector. Micheline Couture thinks there should be a multimedia lab set up with new equipment, where people can experiment with it. Unfortunately, with the economic situation being what it is these days, it is almost impossible for the university to find the money to promote this. *"What art education has right now is still just a classroom."* (Couture 1994)

At Concordia, the financial situation is even more critical. The purchase of a computer station for art education has been part of the budget for almost three years now, without it materializing. In the past the department has relied upon the facilities provided by Avista and the audio-visual department. Stanley Horner describes Concordia as having a tradition where people have had to find

human resources rather than financial assistance. In that sense it has been very creative. However, he now considers a basic computer training program with a "hands-on approach" to be an essential expense.

Even though organization of the program and modification of the curriculum is a complicated and costly procedure, all participants agreed on the importance of offering training in art and new technologies to pre-service teachers.

Georges Baier is not sure this training should be mandatory, but he is certain it will become compulsory as all schools are now integrating computers. In his opinion, the real problem with the computer is that as a multimedia tool which breaks down barriers between academic subjects, it poses a challenge to the educational process as a whole. Baier's perception of the situation at the moment is that the school system is cloistered and often disconnected from the outside world and collective global projects. He stresses that in order for things to evolve, the profession must first define clear and unified pedagogical objectives. Also, educational institutions must be able to create links between themselves and existing local industries which are vibrant and successful. *"Whether people like it or not, the technological project will develop regardless of their involvement"*. (Baier 1993)

Rémi Bergeot thinks the course he is teaching at UQAM should be compulsory because computers and video are now essential tools for creation. Even though one may choose not to use these tools in the process of artistic creation, he feels it is at least necessary to be aware and informed of the possibilities they offer. Those already teaching must be trained on the equipment

once it is made available. Time for this, let alone money, will not be easily found.

Louise Poissant observes that while many people talk about implementing technology, they are not always sure how to approach it. Every person involved in orchestrating these changes is working in a gray zone. Furthermore, all these people are not sure their visions are concordant. *"Most of the time they agree because they have a global cause to defend, but that doesn't necessarily mean there is agreement on all the essential points."* (Poissant 1994)

Increasingly at Concordia, there are other studio courses which are beginning to link technology with more traditional art forms. Cooley observed that some of the work produced in the multimedia course has rubbed off on other courses' production methods. She senses that some of these changes have been instigated by student demands to explore these possibilities. Many professors appear to be receptive.

Cooley thinks it is very important that art teachers graduate from the program with a different perspective of what art making can be. *"If the general public is to have any kind of receptive attitude toward contemporary art and art which is outside of traditional notions of the public imagination, it has to come from our teachers."* (Cooley 1993)

While it might be important for some teachers to integrate new technologies into their practice, generally most of them are still working within traditional media, and may not necessarily have access to a computer or a video camera. This appears to be the case at the secondary level, where increasingly there is a division between "arts plastiques" and "media art". (Poissant 1993)

At Concordia, except for the Avista lab, there are no primary resources for

faculty members interested in taking workshops or courses in computer technology. However part-time faculty can apply for a professional development grant from the part-time faculty association and stand a good chance of receiving it.

Rémi Bergeot considers that there has to be some support from the school board regarding the issue of technology in education. There is a need for resource people who know how to implement computer systems correctly. *"This is what Georges Baier does; he makes sure that the systems function before sending them to other schools."* (Bergeot 1994)

Georges Baier imagines the educational system of the future as one in which the computer will be a multidisciplinary platform where students can do art work yet simultaneously incorporate elements of math, science or geography into their work. He is convinced that students will still need to know how to read and write because at one point they will want to add text or commentaries to their work. Other art forms and/or artistic approaches such as music and sound design, will also be active components.

*Art will be a visual resource, a way of thinking, a function, a philosophy. It will be another way of learning. The issue of authenticity will arise. Teachers will question student presentations in terms of the amount of originality invested into the work, or of their approaches in utilizing borrowed material. With this, we come back to the same issues art education and the fine arts have been concerned with for a century: the function of image analysis, the dynamics, the grammar and creation of the image.* (Baier 1993)

Louise Poissant anticipates that the computer is something that will insinuate itself rapidly. Because it uses different modes of implantation such as writing applications and the practice of visual, audio and performing art, *"its*

*integration will be much easier and direct than that involved in the beginning of writing and printing... It has to be something that we feel like doing, not just something which we feel a responsibility to do."* (Poissant 1994)

She is convinced that the predicament of people who feel isolated by technological expertise is only temporary, because until recently, courses were given to people who otherwise had no previous computer experience. However in just a few years, she speculates, this won't be the case anymore. People will receive the necessary basic training in Cegep or at the secondary school level. *"Soon the majority will have experience with the computer, although this doesn't necessarily mean that the computer will be the tool students prefer."* (Poissant 1994) She hopes that in the future teachers will be able to combine traditional artistic means of expression with the computer and/or the video.

Miriam Cooley stressed the importance at this juncture for an open workshop lab in computer training located at the visual art building; a workshop available to teachers which would be supervised by qualified and trained personnel.

Rémi Bergeot perceives that every fine art student and more specifically every art education student, should have access to basic formation on computer and video equipment. He also thinks that one term is not enough for such a comprehensive field. He is convinced that a second level would be beneficial for training students because there is so much information to assimilate and it takes time to learn new programs. With a second level, students could integrate the skills and tools they have acquired in the first term. Even though he wishes his students could move on to a more advanced level, Bergeot hopes that at least the

one course he teaches will inspire some to become more involved with technology and its pedagogical applications.

## CLASSROOM OBSERVATIONS

The observations are presented under the following headlines:

1. Course organization
2. Attitudinal changes towards the technology throughout the term and incidence of cooperation between students
3. The quality of work produced in these classes, and the progress students made using new tools

### 1. Course organization

#### UQAM

The first thing I noticed was the instructor's command of the technology. Rémi Bergeot also has the ability to communicate information clearly and dynamically. He knows how to simplify course content so that students are not afraid to work with the computer. His experience in teaching art with computers to primary school children made him aware of the crucial issues to consider when introducing technology to novices. He outlines the tasks he assigns in a very organized way, with each step being mastered before moving to the next.

Throughout the class session, he continuously refers to "tricks of the trade" such as knowing that the color on a photocopy print is more stable than the color obtained from a laser or an inkjet printer. He insists on the importance of introducing the tools gradually and using different files for each element, such as image or sound.

## Concordia

At Concordia, the video equipment students use to record and present their work belongs to the art education department. When it comes time for "out of camera" editing using more than one source, they use equipment from the audio-visual department.

The classes began with reports and discussions on exhibitions or art events students had seen during the week. During the presentation of their work, Miriam Cooley helped provide an environment where students were encouraged to talk about any difficulties they encountered while working with the equipment.

## 2. Attitudinal changes towards the technology throughout the term and incidence of cooperation between students

### UQAM

The first time I participated in the class, I found that some of the students felt easily frustrated when trying to get the computer to do what they wanted it to do. Because I was fairly comfortable with some of the programs they were using, I volunteered some help, which they accepted readily. Once the basic commands were learned, their frustration was transformed into curiosity and excitement. Understanding how the tools functioned seemed to promote increased self-esteem and class cohesion.

Students have to adapt by finding solutions for sharing equipment. For instance, when students want to use the only frame grabber, they have to learn to be patient, work together, wait for their turn on the equipment, and help each other when needed. This specific group of students had a very good team spirit;



they collaborated easily and shared their knowledge. The ones who quickly understood spontaneously helped the ones who had more difficulty. With new technology, one of the main problems appears to be the lack of access to equipment combined with the need and desire to have better-performing tools.

### Concordia

Throughout the term students appeared to increasingly feel secure about showing their work and they welcomed critical responses.

Occasionally, just getting the VCR equipment to work was problematic, due to the lack of experience in handling it. When this happened everyone including the teacher would work together to find solutions, which they usually did after an initial trial and error period.

### 3. The quality of work produced in these classes, and the progress students made using new tools

#### UQAM

With the help of the computer, students develop and demonstrate the ability to employ visual language. They have to discover specific computer formats for creation and teaching. They also have to define goals and objectives before they start their project.

For the mid-term assignment students had to design five basic drawing exercises for the primary or secondary level, using the computer and the options they've explored on the Deluxe Paint program. In their final project, students planned a complete class in which the computer is the primary tool for organizing, presenting, giving the class and creating the artwork. This class must

contain basic art-making and perception exercises, plus examples of art works which could emerge from the exercises. For example a student project involved working with a portrait Matisse painted of his wife: "La femme à la raie verte". The class objectives are for the children to draw their own portrait using the computer tools. Then they can use a program command called "morphing" available in an animation program and watch their own portrait transform into Matisse's painting and vice-versa.

When I observed the final class presentations, each student had managed to meet the course requirements with some of them attaining a professional performance level. Where just few weeks before they could not open a computer file, the students were now orchestrating multimedia pedagogical application of the computer, successfully mixing sound, images and animation while leaving room for interactive learning and creative action to take place between students and the computer. The hesitation towards the computer I had seen at the beginning of the term had completely vanished. Many of them wished they could have continued to another level. At UQAM there is in fact a choice of more creatively oriented courses (see page 68 for a complete list of these courses).

### Concordia

Emphasis was placed on the creative content and its meaning for the artist as well as for the spectator. The most important aspect of the course seemed to be the content and the issues raised by student work.

How to improve technical abilities while working with the instruments appeared to take second place. In the video presentations, there were often obvious flaws caused by a lack of command of the tool. Some suggestions were

made by the instructor, but since the editing equipment was only accessible through the audio visual department, which is in another building, there was no hands-on problem solving.

In spite of these obstacles, students did manage to acquire more ease with the medium and kept turning out increasingly polished works throughout the term. Since no pedagogical application of the technology was explicitly required for the assignments, the students' work was usually self-referenced, as were the discussions pertaining to it.

## QUESTIONNAIRE

Table N. 1 showing: Make up of classes observed

<u>CONCORDIA</u>		<u>UQAM</u>	
<u>GENDER</u>			
Males	2	Males	2
Females	5	Females	13
<u>STUDENTS' FIELD OF CONCENTRATION</u>			
Art Education	6	Art education	15
Fine-arts	1		

N= 22

Data gathered from the questionnaire elicited the student perspective on the presence of new technologies in art education. The questionnaire covers the following four themes:

1. Reasons why students use new technologies in their work
2. Students' access to equipment (video and computer) and their level of satisfaction with its availability
3. Students' knowledge of the new technologies before and after taking the course and how they acquired this knowledge
4. The place of new technologies within the teachers' training program

At UQAM, students from both concentrations, "Arts plastiques" and "Éducation des arts plastiques", have access to a number of other media art courses where the focus is on creativity and self expression.

Table N.2 showing: How many UQAM art education students were interested in taking studio courses in the new technologies

1. Arts Plastiques et ordinateur I –	10
2. Arts Plastiques et vidéo I –	6
3. Arts Plastiques et ordinateur II –	6
4. Arts Plastiques et vidéo II –	3
5. Intermédia –	0
6. Arts Plastiques et ordinateur III –	0
7. Arts Plastiques et vidéo III –	0
8. Audiovisuel: langage –	0

N= 15

Results show that students were not interested in taking courses 5 to 8. A possible reason may be that many of the students were in their last Baccalaureate year. Therefore it became impossible to even consider taking these courses. Furthermore, access to a Level III course implies that the student has already completed Levels I and II. This again becomes a question of time. On the other hand, the interest shown in Levels I and II demonstrates the desire students have to continue exploring and working with the technological tools.

In contrast, the Concordia Multimedia course is the only one open to art education students which facilitates the use of new technologies. Still, it is possible for students to take a course which uses the new technological tools in

another Fine Arts department such as Design Art. Only a small percentage of students can be granted this privilege, however. Furthermore, the emphasis in these courses is on creativity and not on how to use the computer for pedagogical purposes.

The following tools were investigated: video camera, video editor, playback (VCR), computer and computer programs, and the computer printer. Whereas at Concordia the focus is on creativity and self-expression using video camera and video editing, at UQAM the focus is on planning and teaching art classes with the use of the computer.

#### 1. Reasons why students use new technologies in their work

At Concordia, students used the video camera and editor for inquiry and expression, and the video monitor and playback (VCR) for class presentation..

At UQAM, students used the video camera for inquiry, expression, and classroom planning. Only a third used the editor in other media courses, and less than half used the video monitor and playback for inquiry, expression, and/or classroom planning.

At Concordia, less than half used a computer and computer printer, and less than a third used it for creation.

At UQAM, all used a computer for expression and classroom planning.

## 2. Students' access to equipment (video and computer) and their level of satisfaction with its availability

A third of students at Concordia and half at UQAM had access to a video camera outside University facilities.

Two Concordia students had access to a video editor outside the University while three students from UQAM owned their own.

While at Concordia all had access to a video monitor and playback outside University facilities, at UQAM, only half did.

At Concordia, all had access to a computer and a computer printer outside University facilities. One student owned one. At UQAM, three quarters of the students had access to a computer, and half of them to a printer. Half the students owned the equipment.

At Concordia, more than half the students were satisfied with video equipment facilities. At UQAM, a third of the students were satisfied with video camera availability, but dissatisfied with the editing facilities.

At Concordia, almost all were satisfied with video monitor and playback facilities. At UQAM, only half were satisfied.

In both universities, three quarters of the students were satisfied with computer facilities. Whereas at UQAM, almost all had used a computer before entering the course, at Concordia only half had ever used one.

A third of UQAM students had no opinion on four of the five tools investigated. A rationale for this may be that since they do not necessarily use these tools in their courses, they have no practical reasons to form an opinion on the issue.

### 3. Students' knowledge of the new technologies before and after taking the course and how they had acquired this knowledge

In both universities, half had learned to use the video camera on their own, while the other half had learned through university courses. One third had never used a video camera before entering the course.

A third of the students at Concordia and a quarter at UQAM had some experience in video editing before entering the course. At Concordia, three quarters of them had learned to use the video editor through university courses. The others had learned at college level or on their own. At UQAM, a third of the students had learned to use video editing through the university, and one student at college level. The rest had never used it.

At Concordia, only one student had learned to use the computer through university courses; a quarter of them had never used one. At UQAM, half the students had learned to use the computer at the university.

At Concordia, approximately half the students had some experience with a computer paint and animation program. A quarter of them had occasionally worked with desktop publishing and the Video Toaster. Besides a workshop they had attended at AVISTA, none of them had any real training. At UQAM, four students had learned desktop publishing at the university. All had learned to use paint and animation programs, and four had learned to use the Video Toaster at their university. At Concordia, one respondent had also used "Photo Shop" and "Photo Styles" computer programs.



#### 4. The place of new technologies within the teachers' training program

Aside from three students at UQAM, all the others thought that by the time they graduated they should have acquired some basic knowledge on how to use a video camera, video editor, video monitor and playback, and computer and computer printer, along with some art and design computer programs. They also agreed that more art educators should get involved in creating computer art and art education programs.

Whereas most Concordia students agreed that an introduction to computer art courses should be compulsory, three quarters of the students at UQAM thought it should remain an elective within an art education program.

They all considered that studio courses should encourage students to create bridges by mixing traditional media with the new technologies. At UQAM, most students judged that computer art should be taught in concert with the traditional tools. At Concordia only half the students felt that way.

Students from both universities agreed that each faculty should have access to its own technology lab instead of sharing a lab among disciplines. It was universally concluded that since computer technology is rapidly becoming an important part of our lives and increasingly becoming a standard professional tool, it should not be excluded from any contemporary art education program.

Concordia students estimated that at least two different levels of "computer art applied to art education" should be taught, to correspond with different levels of computer literacy. Half the students at UQAM would like a greater choice of courses with new technology content in their university.

## Summary

The questionnaire results and class observation indicated that by the end of the term all the students had gained basic to good knowledge of how to use a video camera. Generally, they were satisfied with the availability of the equipment. One third of UQAM students, however, wished they had more access to video editing facilities.

With regards to the computer, all of the students at UQAM had gained a working knowledge of how to use a computer for classroom planning, multimedia presentations, and creating imagery. By the end of the term, a quarter of the students at Concordia had never used a computer and less than a third used it for multimedia or imagery alone. The few who did had learned on their own or through Avista workshops.

From the results of the second part of the questionnaire (agree/disagree), I found that most students think that basic knowledge of the new technologies should be acquired by the time they graduate. The only real difference between the two groups is that while Concordia students think that a course introducing these technologies should be compulsory, UQAM students think it should remain an elective course within the art education program.

## DISCUSSION AND CONCLUSION

At the beginning of this thesis I posed three questions, which now can be readdressed from a more informed standpoint.

In response to the question "What has been done?", I found that since the 1960's, the American and the Canadian school system has gradually been encouraging the development of school facilities for media. Purchase of photography, audio-visual, film, video and computer equipment has increasingly been part of education budgets. However, there has been very little done to systematically train teachers on how to use and incorporate this equipment in their teaching practice. Generally once the equipment is purchased, it is left to the teacher to familiarize him/herself with it and put it to use. Often the equipment ends up sitting on shelves. There is another reality to acknowledge when looking at the use of technology in the present educational system. Most contemporary teachers had their training at a time when one could graduate from a university without ever having worked with a computer.

Nevertheless, recent surveys in the States (Grey 1993) and research centers in Montreal (Polyvalente Lucien Pagé) demonstrate that new technologies are successfully being used in the art classroom to teach and to create art. Again, there is a general call from the community of art teachers for more information about what can be done with these tools.

At the undergraduate level, courses using computer interactive programs have been successful at redefining the teacher's role as "one of a guide and critic rather than director of activities". (Hubbard 1995) Researchers and art teachers have been collaborating by designing art curricula which incorporate the new media, (Mones, Hattal, O'Connell, and Solokove 1990) as well as by developing a postmodern framework for critical discourse. (Horner, Poissant)

At Concordia, in 1970, Stanley Horner created the Multimedia course. At UQAM in 1984, Andrée Beaulieu-Green initiated the Art et Ordinateur course, followed by a second level in 1985, taught by Micheline Couture, Louise Poissant, and Michel Martineau. Finally, in 1989, the first course in Enseignement des arts et ordinateur was created by Micheline Couture.

At UQAM, there always has been a "hands-on" approach to these courses, whereas at Concordia, access to technology was limited to video equipment since there was never a computer available for the multimedia classroom.

On the other hand, Concordia Audio Visual Department has been involved with technology since the early 1960's. At that time, under the influence of the American Defence Act which promoted the introduction of technology to education, Sir Georges William University hired Georges Albert Baker Moore, Ph.D.. He set up a media lab which was meant to support teaching with technology. Unfortunately, the project never really took off and AV (Audio Visual) became a conventional service with the exception that it also serviced students. This was unusual at the time, since most audio visual departments only met the faculty's need.

A main issue to emerge from this era concerned who was responsible for teaching students how to use the equipment. Was it the responsibility of the person teaching the course in which they are using the equipment?

The issue was resolved in 1976 by the creation of Avista Lab at Loyola by media specialist Paul Mc Guire. A few years later another Avista was also set up on the Sir Georges William campus. The latter went through many transformations, especially with the arrival of the computer platform. This is when Helen Workman provided direction. Using the MIT interdisciplinary multimedia lab as her model, she and her team installed a lab equipped with computer stations and video editing facilities, where students from all disciplines meet and have access to equipment.

In order to answer my second question "What is being done?", I went into the field, observed and asked questions. What I discovered is that Concordia has been strong in developing theory, yet appears to urgently need a more "hands-on" approach. In my investigation of the art education department, I found that (aside from the multimedia course) significant change is lacking in the last twenty years with respect to the introduction of new technologies in the curriculum. I have seen from my own experience as a student as well as from observing classes, that when the tools are there, students respond with enthusiasm and creativity.

In the past few years, major budget cuts have forced the Concordia Audio Visual Department to reduce the formation program and open lab hours. Still, the AV Department continues to offer their students remarkable services. "Media Labs" (formerly Avista) are now fulfilling the needs of art education

students interested in technology. They continue to provide an environment in which students and teachers can have a "hands-on" practicum. (from an interview with Mark Scofield, director of Concordia Audio Visual Department)

At UQAM, it is well understood that art and technology programs have to be developed. We have seen that there is already a good choice of courses being offered there and that students are showing interest. UQAM has already been active in defining policies, creating alliances, obtaining research funds, and developing a dynamic program for introducing the new technologies into the art education system.

In the broader field (Polyvalente Lucien Pagé), individuals such as Georges Baier are providing opportunities for student teachers to have an invaluable experience teaching art with computers.

On the other hand, current training *"continues to encourage and to invest strongly in traditional practices oblivious to the present and emerging mental environment created by the newer media technologies that surround us."* (Loveless 1990, 201). Generally, it seems that non-artists or other types of artists such as musicians are more open to experimenting with newer media than visual artists. (Fournel 1984)

In response to my third question "What should be done?", a comparison between Concordia and UQAM may be helpful. Based on my observations and other data gathered for this research, it appears that at Concordia opportunities for informal learning may have been better adapted to student and faculty needs in the past, whereas UQAM's approach which encourages both the structural and the creative aspect now seems more appropriate.

New art teachers must now have the ability to work in a highly competitive technological context. Having these abilities will increase their chances for employment. Once in the schools, these teachers will be better able to promote the current aims and objectives of art education.

Informal computer training such as the kind Debbie Greh put herself through in the early 1980's, when she could not find a computer art course to fulfil her needs, is almost impossible because of time limitations. Fortunately today, more and more courses are available in educational institutions to prepare students before they enter the work force. We need to praise the initiative of a few dynamic individuals who fought to introduce these courses into art curricula. Yet, many of these courses are given only within graphic design or design art departments, or are not compulsory. Therefore few art education students entering the profession are prepared to use and introduce multimedia technology in their teaching practice. As a consequence there may be an increasing gap between the "media consuming reality context" of children and the art classroom.

Alternate avenues must be explored and new alliances have to be formed. Breaking down walls between disciplines and sharing of equipment between departments, faculties and possibly universities may be alternative solutions.

For most of this century, Art Education has fought to secure its place in education. We need to appropriate these new tools, create methods for teaching with them, and continue to improve and define the relevant policies. Technology is a culture of the visual and we are specialists in visual language. The opportunity is open to reinforce our position in the curriculum. We may also

gain crucial leverage in the defence against budget cuts which always threaten the arts and art education. While governments are demonstrating a will to incorporate new technologies within the educational system, it is important that our institutions, and more specifically our profession, turn out informed practitioners who are well qualified to make decisions and define policies.

We also need to continue to develop a discourse which relates to how our perceptions and esthetic parameters are transformed by the presence of these new technologies in the arts. The influence of the postmodern and constructivist movements is a thread found both in the literature and the interviews, and has helped develop this discourse.

For constructivism and postmodernism, the discourse is as important as the art object. (Fehr, 1994) Both recycle material for creation which is given new meaning as they construct new models for reality. However, unlike postmodernism, constructivism has inherited a Cartesian approach; moving from the simple to the complex while constantly striving for unity and perfection. (Railing, 1995) Whereas postmodernism dissolves the walls between disciplines, constructivism relentlessly searches for unity and inter-connections between them. Constructivism has a holistic ideal. Its object and text are constructed and subject to transformation in the light of a final perfection or perfected finality.

Postmodernism along with emancipatory constructivism, allows for multitudinous truths. Like the computer platform, it offers the possibility for a multitude of pathways which in turn can develop exponentially. Due to its "*deliberate ambivalence*", postmodernism doesn't offer the immutable ground for



interpretation that early constructivism and the scientific method have historically offered. Instead it engenders multiple points of view.

Low cost multimedia interdisciplinary projects for education which would have been unthinkable without the computer platform are now possible. Educators using this technology can participate in collective projects if they realize the value of cooperation between disciplines and interdisciplinary dialogue among colleagues.

Each new era brings its share of changes. Fear and anticipation are always part of making new choices and taking risks. This is the case with technology. What is the consequence of not getting involved? Peter Bloch, in his presentation at the Getty Conference in 1991 warned that "*waiting for the ultimate solution is futile, because systems and programs change constantly.*" (Conference summary 1991, 39) He encouraged us to better articulate our demand for systems and programs from the educational market.

There are still steps to take before the extended community of art education recognizes and embraces these changes. However, we first need to acknowledge the extent to which the technology of our time is shaping the arts.

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Poissant, Louise, art teacher.

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Scofield, Mark, Director of Concordia Audio Visual Department and faculty at  
Concordia Educational Technology Department.

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Woodlock, Carol, art teacher.

interviewed by author, 25 November 1993, Montreal, tape recording.

## Appendix A

### OPEN-ENDED INTERVIEW QUESTIONS

1. How do you envision the introduction of multimedia technologies in the university art education curriculum?
2. Should we wait for students to show interest in technology before introducing it or should learning how to work with it become a required skill?
3. How can we convince administration and faculty members that incorporating new technologies in the curriculum may be an important priority if art education is to continue being a leading discipline in the Fine Arts?
4. How important is it for us to empower ourselves with this technology?
5. What is your definition of multimedia?

# Appendix B

## GENERAL INFORMATION

Please do not write your name

**What is your field of concentration?**

- Art Education     Visual Arts     Design Art     Other, Please specify

**Are you studying towards a teaching diploma?** Yes  No

**Are you taking a specialization?** Yes  No

**Which one?**.....

**1. In the courses you are taking in the art education department, are you using a:**

- 1. video camera
- 2. video editor
- 3. video monitor & playback (VCR)
- 4. computer
- 5. computer printer

**2. In which course(s) are you using this equipment ?**

- 1. Art ed. 200
- 2. Art ed. 201
- 3. Art ed. 300
- 4. Art ed. 400
- 5. Art ed. 430

For the next question please circle the number(s) corresponding to your answers

1. Inquiry    2. Expression    3. Classroom planning    4. Other, please specify

**3. For what purpose are you using or are you planning to use the following within your course(s) requirements ?**

- |                                   |   |   |   |         |
|-----------------------------------|---|---|---|---------|
| 1. video camera                   | 1 | 2 | 3 | 4 ..... |
| 2. video editor                   | 1 | 2 | 3 | 4 ..... |
| 3. video monitor & playback (VCR) | 1 | 2 | 3 | 4 ..... |
| 4. computer                       | 1 | 2 | 3 | 4 ..... |
| 5. computer printer               | 1 | 2 | 3 | 4 ..... |



**4. Other than the University facilities, to which of this equipment do you have access ?**

1. video camera          VHS          Video 8          Hi 8          SVHS          Beta Cam          Beta          Other
2. video editor          VHS          Video 8          Hi 8          SVHS          Beta Cam          Beta          Other
3. video monitor          VHS          Video 8          Hi 8          SVHS
- & playback (VCR)          Beta Cam          Beta          Other
4. computer          IBM          IBM Compatible          Mac          Amiga          Other
5. computer printer          Laser          Postcript          Inkjet          Dot matrix

- 5. Which of these listed above do you own?**                     1         2         3         4         5

**6. At this univer sity, are you generally satisfied with the present level of accessibility to:**

1. video camera                                                         Yes  No
2. video editor                                                             Yes  No
3. video monitor & playback (VHS)                                 Yes  No
4. computer                                                                Yes  No
5. computer printer                                                        Yes  No

**7. Prior to taking this course have you ever used, or become familiar with any of this equipment ?**

Please use the following scale:

1. no   2. tried it once   3. used it a few times   4. used it regularly   5. was very familiar with

- |                                   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|
| 1. video camera                   | 1 | 2 | 3 | 4 | 5 |
| 2. video editor                   | 1 | 2 | 3 | 4 | 5 |
| 3. video monitor & playback (VCR) | 1 | 2 | 3 | 4 | 5 |
| 4. computer                       | 1 | 2 | 3 | 4 | 5 |
| 5. computer printer               | 1 | 2 | 3 | 4 | 5 |

**8. How did you become familiar with this equipment ?**

Please use the following scale:

1. in this university program   2. courses in another faculty   3. through the university audio visual department   4. at college level   5. through friends   6. on my own   7. other

- |                                   |   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|---|
| 1. video camera                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. video editor                   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. video monitor & playback (VCR) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. computer                       | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. computer printer               | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**9. Have you ever used or are you familiar with these software packages ?**

Please use the following scale:

1. no 2. tried it once 3. used it a few times 4. used it regularly 5. very familiar with

1. Desktop publishing	1	2	3	4	5
2. 3D modeling and Animation programs	1	2	3	4	5
3. Paint programs	1	2	3	4	5
4. Video toaster	1	2	3	4	5

5. Other programs, please specify

**10. How did you become familiar with these software packages ?**

Please use the following scale:

1. in this university program 2. in other faculty courses 3. through the university audio visual 4. at college level 5. through friends 6. on my own 7. not familiar

1. Desktop publishing	1	2	3	4	5	6	7
2. 3D modeling and Animation programs	1	2	3	4	5	6	7
3. Paint programs	1	2	3	4	5	6	7
4. Video toaster	1	2	3	4	5	6	7
5. Others,	1	2	3	4	5	6	7

**11. Do you think that a basic introduction course in computer art (from how to turn the computer on, format a disk, use a printer, familiarize yourself with some drawing/painting and authoring programs, and plan an art class using the computer) should be included in the undergrad art education program? Yes  No**

**Agree  Disagree**

**1. Every graduate art educator should have some basic knowledge of how to use a**

- |                                   | <b>A.</b>                | <b>D.</b>                |
|-----------------------------------|--------------------------|--------------------------|
| 1. video camera                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. video editor                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. video monitor & playback (VCR) | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. computer                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. computer printer               | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. drawing/paint program          | <input type="checkbox"/> | <input type="checkbox"/> |

**2. Computer graphics deserves a place in the general foundation courses for all art students, along with graphite, charcoal and paint.** Agree  Disagree

**3. More art educators should learn how to create computer art programs.** Agree  Disagree

**4. Art educators should just learn how to use the already designed art programs.** Agree  Disagree

**5. It is necessary to teach the art basics first, with the customary tools and media, leaving the computer for more advanced work.** Agree  Disagree

**6. A course such as introduction to computer art should be an elective only in an art education program.** Agree  Disagree

**7. Each faculty should have access to its own technological lab.** Agree  Disagree

**8. Each art major should have access to their own technological lab.** Agree  Disagree

**9. A technological lab should be shared between disciplines.** Agree  Disagree

**10. Computer art should be a specialization within the art education program.** Agree  Disagree

**11. As computer technology is rapidly becoming an important part of our lives and increasingly becoming a standard professional tool, it would be difficult to exclude it from any contemporary art education program and maintain the standards of higher education.** Agree  Disagree

**Agree  Disagree**

12. Studio art courses should encourage students to create bridges by mixing traditional mediums with technological ones such as video and computer art. Agree  Disagree
13. All art education students should have basic computer literacy. Agree  Disagree
14. All art education students should know how to use a video camera and video editor. Agree  Disagree
15. At least two different levels of computer art applied to art education courses should be offered to meet the different levels of computer literacy among students. Agree  Disagree

Thank you for participating in this inquiry. Hopefully the information collected will help advance our understanding of what role new technologies should play within an art education undergraduate program.

**Gisèle Poulin**  
Graduate student, MAE  
Concordia University  
Montreal, March, 1994