TECHNOLOGY TOWARDS ECONOMICAL EDUCATIONAL DEVELOPMENT

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Abstract
The National Art Education Association and the National Endowment for the Arts have gone on record supporting the media arts as integral to an art program. Both organizations have advocated the initiation of professional meetings, conferences, and institutes to help upgrade art teacher skills in the use and teaching of the media art. The key element of arts technology education is not hardware or software but rather the social and aesthetic implications of its use. Machines must be available, and students must be able to access them (Iowa Art Council and the Iowa Department of Education, 1990,). Skill development is a means to an end. The aesthetic and critical realms of art content should assume primary importance within the context of technology education. The proliferation of visual images creates inherent relationships between the messages and the world of art. Visual metaphor, visual analogy, and visual transformations bombard those who watch TV and who read and look at picture magazines. The presentation of these messages and their complex meanings directly relate to aspects of Cubism, Surrealism, environmental works, fantasy art, performance art.

Keywords; NAEA, 1989, The National Endowment for the Art, Lowa Art Council and the Lowa Department of Education, Iowa Art Council and the Iowa Department of Education, 1990.

Introduction
Rapid social change and the proliferation of new technologies are affecting almost all aspects of our personal and professional lives. It is the position of this article that as technology increases, aesthetic considerations also become more important. Current directions of change are dictating that greater priority be given to the connections between technology and aesthetic education by art teachers.

There are those in the field of art education who reject the technological changes which are affecting all of us in one way or another. The primary reason for rejecting technology seems to hinge on the perceived dichotomy between human and machine. The assumption is that people make art, machines do not make art. Skill in watercolor technique is OK; skill in developing imagery on a computer is not Ok.

Watercolor brushes and computer programs are tools used to create surfaces of color, but one is traditional and therefore acceptable whereas the other is the new kid on the block and apparently not acceptable. The cost difference between the two is significant. However, the issue in this paper is not expense but attitudes regarding what is or is not appropriate to a quality art pro- gram geared to educating students for the third millennium.

A negative attitude about technology misses the pervasiveness of recent trends moving us rapidly into a new "Age of Aesthetics". Increasing techno- logical change is paralleled by an expanding world of art. If there ever was an either - or model of art and technology, it has been replaced by new connections between the two which increase human potential and provide opportunity for art to take its rightful place in the schools as an important "basic". The National Art Education Association and the National Endowment for the Arts have gone on record supporting the media arts as integral to an art program. Both organizations have advocated the initiation of professional meetings, conferences, and institutes to help upgrade art teacher skills in the use and teaching of the media arts. (NAEA, 1989) The term media

arts is typically equated with new electronic technologies rather than traditional materials such as paint and clay. Media arts, as defined in this paper, include 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 arts, 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.

"Educational Issues in the Nineties" was the title of a special government funded symposium held in 1989. One of the challenges for American education proposed an increasing dependence and need to understand technology (Crim,1990). 'The concepts behind restructuring the education system the technology that can contribute t that effort are both part of the Information Age. Together they rein force a new viewpoint that magnifie their potential to change education" (David, 1991. P). Intermedia Arts Minnesota and the Minneapolis College of Art and Des co-sponsored a technology and art exhibit and a conference titled, "Exploring New Developments In T Relationship Between Art and Technology". A book of essays was compiled from that meeting which p vided a new viewpoint about the relationship between art and technology One basic view supported at the conference was that quickly developing technologies have had an extraordinary impact on visual artists and their creative process (Sielin 1989). Support for including the media art in existing art programs is strong, both from the world of art and from major advocacy groups. Aside from the outside support being provided, however there are three important reasons based on cultural change why art program need to include technology and the media arts as well as the traditional arts.

A Crucial Synthesis

One reason is the growing importance of visual symbols, iconography, and complex communication systems throughout the world. Much of our communication increasingly has become multidimensional, or defined as a system which incorporates more than two languages and more than one mode of delivery simultaneously. Multidimensionality implies that more information is being sent to the receiver because of multiple languages and multiple means for delivering the information. Examples include a TV one-half minute advertisement, MTV, an instrument panel in an airplane, an automobile dashboard and kitchen appliances. Any type of machine using microchip technology speaks with multiple languages. Not only are visual images integral to these communications systems but so are other aspects of art, including metaphor, transformation, fragmentation and synthesis, and abstraction. A second reason for including technology in the classroom is the growing importance of technology-related aesthetic decisions, both on individual and cultural levels. Ergonomics, or user friendliness, now is synonymous with aesthetics. Customers are interested in choices, performance, convenience, and personal identity. Choice and identity relate directly to the aesthetic realm. We no longer kick tires or turn furniture upside down to determine quality. Furniture companies such a Herman Miller focus their attention on selling aesthetic environments rather than separate items. Many restaurants are successful because of ambiance rather than the quality of their food. The Ford and Mercedes companies have touted "form over function". People do not buy family cars any more, they buy or lease a personal statement or an aesthetic identity. It is vital that they be aware of, and educated in what is being offered. The third factor is the growing social need for "connectionism" or the emphasis on how phenomena relate to one another. Interactivity or inter-connectedness has become a phenomenon of survival. Cellular phones, satellites, and fiber optic systems are moving us ever closer to a web of connections we can- not ignore. We have moved from an industrial age bias for analyzing parts to an information age need for meaning, holistic thinking, and a synthesis of information and ideas. Information and ideas are synthesized in an art class-

room when programs focus on creativity, problem solving experiences, and the products which result from those experiences.

 These three reasons help provide a new context for art in the schools. Art becomes a basic content area; it becomes a social survival component for the future. The worlds of art and art education have absorbed technology throughout their respective histories. Winslow (1989) has made a strong case for the inevitability of combining the new technologies with traditional forms of art. Winslow allows for intermediate positioning between the two poles, and for "cognitive dissonance", or holding both positions simultaneously. He believes we must mirror the old with the new and that in the process of relating technology with tradition, new and important perceptions will evolve. His viewpoint fits the needs of the 1990s. Logic tells us that a non-vulnerable viewpoint should include the entire range of variables, both old and new, or we diminish our potential rather than expanding it. The key element of arts technology education is not hardware or software but rather *the social and aesthetic implications of its use*. Machines must be available, and students must be able to access them (Iowa Art Council and the Iowa Department of Education, 1990,1). Skill development is a means to an end. The aesthetic and critical realms of art content should assume primary importance within the context of technology education.

Multidimensional communication
Art, as language, goes back to the cave dwellers, but the current age of information and communication brings with it the need for a renewed consciousness about the communicative role of visual imagery. The increase in visual languages of all kinds used in multiple communication systems com- pounds the importance of art. The proliferation of visual images creates inherent relationships between the messages and the world of art. Visual metaphor, visual analogy, and visual transformations bombard those who watch TV and who read and look at picture magazines. The presentation of these messages and their complex meanings directly relate to aspects of Cubism, Surrealism, environmental works, fantasy art, performance art, assemblage, and mass media art forms. For many viewers, however, sub-surface meanings and allusions remain inaccessible. They do not know how to examine the images critically; their role is that of "acted on" rather than being "interactive" with the information. This in one reason why art programs should become more important. 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.

The implications for future art classes are two-fold. One, the curriculum must emphasize thinking skills, new associations, new realities, problem solving and the creation of problems to be solved. Design remains important, but as a means to an end. Any dogmatic, formalistic approach to teaching design that was adequate fifty years ago (perhaps even twenty years ago) is inadequate today and may even have a negative impact on students. Secondly, emphasis must be placed on the aesthetic and critical domains of art content, and those domains must be expanded. Beauty needs to be redefined based on new kinds of collaborations and relationships. More cross-cultural connections need to be made in the field of art history. Both aesthetic education and art history should be more closely related to changes taking place today of art history. Both aesthetic education and art history should be more closely related to changes taking place today. Given the social and individual needs facing them in the future, students should be spending as much time discussing art and the implications of art as they spend on the art work itself. For students of the year 2000 and beyond, discussion should be defined as: analyzing, interpreting, making

new connections, playing with ideas, extrapolating, evaluating and/or criticizing. Individual, small group, and class strategies can and should be used. Cooperative and collaborative learning opportunities should be included. The other half of the time allotment would include: making art, creating personal expressions, relating ideas and feelings to art work, and solving problems visually. Students should be learning design or the languages of art through doing and responding modes (Ohio State Department of Education,1990) In the fast paced world of information and communication, art programs must provide students with opportunities to answer "Why?" and "What's the context?" more than ever before. This leads to aesthetic education.

Aesthetics
Aesthetics has been defined as sensitivity to beauty, appreciation of beauty, concern with beauty or the study of beauty. It is considered to be a philosophy of beauty; it may be defined as a set of rules governing what is beautiful. The inherent problem today to be the inability of art teachers to move from a more traditional mindset about aesthetics to one which redefines the parameters of aesthetics: that is, allowing for diversity, increasing connections with technology, and providing greater personal and social relevance. Aesthetics redefined within the contex of an information age would include an extended vocabulary, a greater focus o process, openness to collaboration and cooperation, a revised definition of originality, greater focus on spontaneity and the unexpected, an expectation for greater diversity of imagery, greater focus on cross-cultural and cross technical connections, and a look for closer relationships between art and science, mathematics, engineering, and even manufacturing. Art teachers have emphasizes student. products and skill development in their classes for over 100 years. In the past quarter century, increased attention has been given to the need for aesthetic education as an integral part of the total learning package. We are now at a point when the aesthetic domain must share centerstage with art production. The historic paradigm of aesthetic education fits the prevailing public attitude that art and aesthetics are nice but not necessary; to put it another way, they are elitist rather than for everyone. This paper attends to growing aesthetic involvements within a changing culture and emphasizes the primary role of aesthetics in our everyday lives - particularly with the pervasiveness of mass media. The following example may help explain this point of view.

Nine years ago a small furniture dealership had a staff of eight sales and secretarial people. Five years later the company had a staff of sixteen. Seven of the eight new employees were artists. The senior executives of the company did not anticipate any need for artists, but all of a sudden they were there. What happened to create this major change? One key factor made the difference. In five years the company went from selling furniture to selling aesthetic environments. The customers had reached a point where the furniture and the quality of the furniture were "givens". A given means a phenomenon or object is accepted automatically no longer of concern. Holistic attention was focused on environmental beauty and personalization rather than on function alone. The company had gone from selling parts to selling wholes. The bottom line was competition and profits. To be competitive, the company had moved from an "art is nice but not essential" rationale to an "art and aesthetics are essential" rationale. Artists became important as salespeople as well as artists. The initial sales were made by artists; the wrap-up sales were made by more traditional sales types. The old stereotype about business being outside the domain of the art world had been shattered. The Bauhaus motto "Form lows function" has become obsolete. The reverse is true in an information age- "Function follows Form" (Hicks, 1987). The business world has made the art world a partner. If we have entered an age of aesthetics in society at large, then how can we ignore aesthetic education in art classes? The answer is, 'We can't!"

Connectionism

One key to teaching in the future is how teachers will integrate traditional tools, processes, and ways of thinking about art with new tools, new processes, and the thinking skills needed to synthesize a diversity of concepts and a world of complex information. Nichols suggests that the computer represents more than just another piece of hardware. "It is also an icon and a metaphor that suggests new ways of thinking about ourselves and our environment, new ways of constructing images of what it means to be human and to live in a humanoid world" (1989, p. 4) The "what" of art becomes a means to an end; the "why" takes precedence. This means that art technique, design, and the products created by students become integrated into a "why" package. Technique and skill development may remain a priority for those students who want and choose to move beyond the introductory levels, but the qualitative "why" must remain a teacher priority. One intent of advanced programming is the absorption of art program rationales by students to enable them to attain higher levels of quality in their work. An example of a lesson using traditional and high-tech processes and media involves self-portraiture at the ninth grade level. The students do a series of self-portrait experiences integrating:

Media

pencil drawing collage, magazine cut outs paint: tempera, watercolor, or acrylic computer graphics and/or animation camcorder cabled into the computer; scanning and digitizing laser disk technology. Emphasis.

visual perception; study of form self-identity; design; creativity style; color theory; emotion style; texture; movement; commercial possibilities; manipulation of imagery; integration of traditional and high-tech drawing modes; commercial possibilities; art history connections - National Gallery; Louvre, and other collections.

This example may help explain why integration of new technology with traditional art programs can create a positive psychology and environment for the integration of content. The art history component becomes a fascinating part of almost any study undertaken with various media, but it differs from traditional art history practice in that access to a huge body of information is sought routinely in the course of any lesson. This is why a laser disk or CD ROM system, along with other multimedia equipment, is a requirement for every art classroom, including those at the elementary level. With traditional and high-tech combinations of curriculum in evidence, there is an increase in career potential for students. The world of art expands, as technology expands, which translates into more art related career opportunities. Most of those opportunities are tied to the new technologies. This trend will increase. There is a fourth reason why art programs have become more important. The reason is partly philosophical, in that it ties directly to the concept of life- long learning, but in this paper attention is given to a new reality of the workplace. Corporations spend megabucks training new workers and retraining experienced workers. This need for re- education is a growing trend because of rapid social change and will increase as new technologies evolve. Focus on training and retraining for industry is on technical skills. However, Toffler, Naisbitt, Postman, and other authors writing about social change see a growing need on the part of workers for more creativity, problem solving skills, perceptual development and evaluation skills. There has been a significant shift of power in the workplace because jobs have become more individualized and less interchangeable. Years ago, every worker might have been doing the same thing. Today, if a worker is unavailable, it creates a dysfunctional team and it may take extra time to hire or train someone to fill that specific void. Thus, in many manufacturing situations, where flexibility is lacking, the fragmented part (worker) has become as important as the whole.

In our economy today, innovation and bringing new products on line are necessary for survival. Innovation demands that ideas are free flowing, which in turn requires that workers need to be creative and well educated. Worker ideas are eagerly sought by many companies. A more spontaneous support orientation of employees within a diverse context will tend to create more ideas. The "innovation imperative", as Toffler called it, requires a diversity of ideas for survival (1990). In a society where new fragmentations and new forms of synthesis occur often, both workers and leaders need to develop the ability to cope by becoming more comfortable with ambiguity and less fearful of the unknown. The point is that industry has focused on technical training programs and not on perceptual development, creativity, and problem-solving skills. On the other hand, these increasingly desirable attributes by workers in a global economy are inherent in a quality art program. A person with the ability to demonstrate art knowledge and art proficiency will have a better chance of get- ting a job in the workplace of the future than a person who does not have such skills.

Peripheral Connections
Technology in the art classroom has the potential (and probability) for improving the status of art programes and art teachers for reasons other than those mentioned. Administrators, parents, and the general public tend to think of art as a frill. Technology, on the other hand, is considered by them to be an important part of society. Technology is perceived to be important to business, the medical profession, and all science and mathematics fields. In Iowa, TV ads for agriculture emphasize "brain over brawn"; technology is related to the brain category. Technology in an art classroom fits into this "technology as mainstream" mold. Art becomes a part of the mainstream if, in the minds of the public, art programs include the new technologies. The following incidents actually took place and involved two separate events in the life of one art teacher. Scenario A : the art teacher, working at an easel in the art room after school, was asked by other teachers to join them in the teacher's lounge. Scenario B: The art teacher, working at a computer station in the art class- room after school, was not asked to join other teachers in the lounge. The art teacher interpreted the reaction of those other teachers to painting at an easel as being hobby-oriented or not vitally important. Peer reaction to the computer activity by the art teacher was interpreted as an acknowledgment of the necessity for concentration and, therefore, an important activity. This attitude problem focuses attention on the importance of art teachers helping others redefine the art experience. Stereotypical attitudes about art by various populations (including students) certainly need art teacher attention. However, technology provides new access to eliminating negative stereotypes about art. It provides access to improving positive public reactions to art as a content area.

 Another reason why technology can help improve status for art programs relates directly to funding and budgets. Art departmnent budgets will increase if administrators see that technology is important to the art program. Administrators are likely to be able to justify increased art budgets, to them- selves and others, because of their attitudes about technology. Also, grant monies received by school systems are more apt to include art programming if art programming includes the new technologies. The need for greater relationships or connections between content areas of a curriculum has been mentioned already. An art program is essential to the connectionism processes because of its visual and aesthetic base. Visual learning and aesthetic education increasingly have become more important to other content areas. Part of the reason for this is the increasing use of technology in all classrooms. Teachers of English, for example, are allowing students more choice with assignments. In addition to written reports or term papers, acceptable out- come responses by students may integrate video and computer imagery as well as other forms of visual information. As students become more involved with desk top publishing, they become more involved with design and aesthetic decision making. They learn that space on a page is as

important as the copy. Whole language programs encompass visual elements and visual experiences. Interdisciplinary trends are increasing as content and classroom isolation are seen to be inadequate to meet the needs of a global society. Of course, art teacher initiatives and involvements are crucial to helping others understand these new relationships between art and technology. New school roles are opening for art teachers which go beyond the art classroom. District-wide positions in the computer graphics field, interdisciplinary consultant positions for elementary schools, talented and gifted programs and certain special education situations increasingly require the expertise of art teachers. These roles, in many cases, may improve the status of art teachers. The art teacher must be open-minded and ready to fill new slots of responsibility. A final reason why technology will add status to the art program involves public relations and publicity in general. Editors of newspapers, television news spots, and even local radio shows will tend to give more importance to computer graphic involvements and to other new technology skills that students will have acquired in the art room. The public relations potential fits the "technology as mainstream" context. The answer is '"yes" to the question, "Should technology be used as an avenue for art pro- gram advocacy? These peripheral connections may not provide a comprehensive theoretical base for changing art education paradigms. They are, however, part of the trend which takes art out of the ivory tower and places it right in the middle of the social and educational mainstream.

Conclusion
The overall impact of art programming will increase during the 1990s and into the Third Millennium. That impact will be much greater if art teachers can shift from an historic "ought to be" art program to a current "needs" program base. Information age changes are dictating that art programs are essential. Art teachers have become very important people. A reorientation of consciousness on their part is in order; I don't think they realize how important they are in an age of technology and aesthetics.

References
1. David, J. (1991). Restructuring and technology: Partners in change, Phi Delta Kappan.. (September. P 82.)
2. Hicks, J. (1987). Missed Trends by the Futurists: Socio-aesthetic Connections, Das Bild Der Welt in Der Welt Der Bilder. XXVI - INSEA World Congress, Hamburg, Germany.
3. National Art Education Association. (1989). A study of the report on art education, *Toward Civilization. Implicationsfor the NAEA*. Presented at the NAEA National Conference, Washington, DC.
4. Nichols, W. (1988). The work of art in the age of cybernetic systems, *Screen Magazine.*
5. Sieling, N. (1989) *The techno/logical imagination: Machines in the garden of art*, Intermedia Arts Minnesota, Minnesota college of art and design.
6. Toffler, A (1990). *Powershift,* NY: Bantam Books.
7. Winslow, B. (1989). A Mirror for Brunelleschi, *in Sieling, N. (Ed.) The techno/logical imagination: Machines in the garden of art,* Intermedia Arts Minnesota, Minnesota College of Art and Design.