

# **TECHNOLOGY SKILLS AND THE APPLICATION OF IDEAS**

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A Project  
Submitted to the Faculty of Education  
Of the University of Lethbridge  
In Partial Fulfillment of the  
Requirements for the Degree

**MASTER OF EDUCATION**

Lethbridge, Alberta

February, 2003

## Abstract

The focus of this project is to determine what questions need to be asked in developing the philosophy of multimedia education. Multimedia is a new pedagogy and is a hybrid of design, communication and computer science. While the current curriculum is derived from these disciplines, an understanding of multimedia's potential is essential in developing further curriculum. The project is produced on DVD-ROM and allows the viewer to choose from four key areas: my identity as an instructor in the Multimedia Production program at Lethbridge Community College; the assumptions that people generally have about multimedia; the expectations of my administration, my colleagues and my students; and the possibilities that lie in curriculum development.

## Acknowledgements

This project has been in-process for several years. It is because of the assistance, support and encouragement of many people that it has now reached a stage of completion.

First, I would like to thank my supervisor, Dr. Janice Rahn. She has provided me with endless hours of dialogue, critique and inspiration as we moved together through the maze of new media. Her knowledge of art theory and practice and her understanding of educational issues that surround multimedia curriculum provided a solid ground for me to stand.

Dr. Jim Manis, a treasured colleague and friend, gave me fresh insight into the possibilities that await us in multimedia education. His tireless quest to make concepts come to life for me by explaining past theory and future potential, not to mention the hours spent over the computer in search of fixes for the many bugs, have made this project a reality.

Lethbridge Community College allowed me to work on this project while continuing to teach classes, and offered full support in more ways than I can count.

Thanks must go to the University of Lethbridge. This project is not being delivered in a traditional format, but on DVD, and it is because of their vision that I am able to experiment in this radically new way.

And finally, thanks and gratitude must go to my three children, Courtney, Graeme and Bryde, who have never complained about missed dinners, and have always brought a smile to my face. Their unending belief and support was never far from my mind.

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## Chapter 1: Introduction

### Background to the Project

My original quest was to search for answers to the question “What motivates students of multimedia?” It seems now that I was rather naive in believing I could answer this. It was however, an excellent starting point to guide me to the real questions that needed asking: “What are the issues governing the philosophy of multimedia education?” “What is the structure beneath this emerging pedagogy?” and “How am I navigating my way through?” It was like stepping up to a tap for a sip of water and discovering that the tap is a fire hydrant. In the end, the project I arrived at was a map: one that charts my personal vision of how to teach interactive communications design.

Let me begin with my definition of multimedia, because I have found that there are many different interpretations. My definition is born out my working reality, which is teaching in a multimedia production program. Although each of the faculty members has her or his own area of expertise, we are all expected to know and understand every area of production, from the capturing of images and sound to the final output of a full-fledged, interactive website, CD or DVD-ROM. I would define multimedia as the combination of different digital elements, including text, graphics, motion, animation, audio and video, which are programmed together in such a way as to involve the viewer in the way the information is received or consumed.

Multimedia as a discipline is a hybrid of computer science, art, design and communication. Each of these disciplines has its own philosophy, some of which are at odds with others. For instance, art is generally taught using an inquiry-based approach;

that is, a student will analyze a problem and devise a way to solve the problem in a visual manner, using whatever means possible. This means that there can be multiple solutions to any problem, and that while the medium the artist uses sometimes enhances the work, it often plays second fiddle to the content of the work.

The technical side of multimedia demands a logical approach. While there may be several options to the “why” of programming, there is generally only one “how.” For example, if a multimedia screen needs to wait for user interaction before continuing on, the developer can choose to A) wait for one minute and then remind the viewer to make a selection, B) wait for user interaction and proceed, or C) wait for user interaction, and if there isn't any after a certain amount of time, move ahead to the next screen. While these choices can be “designed,” the writing of the code is finite. There is a definite “right” and “wrong” in a programming language, a binary equivalent to a true or false statement. Writing code improperly can lead to endless hours of frustration.

This marriage of visual image and deliberate programming is still finding its way in pedagogy. Although students from kindergarten through grade 12 are all working on developing multimedia skills, the teaching of multimedia is sometimes taught in art classes, sometimes in science classes, and most often through business classes. The stress associated with learning and teaching technology is enormous, and until a solid understanding of the curriculum is formed, we will continue to flounder; bad habits will form and an acceptance of poorly built multimedia will prevail. I have always had a certain anxiety in the classroom, because while I understand how to teach an art class, and I understand how to teach a programming class, to combine the two together is difficult. I was never sure where the focus should be: would students be more motivated

to make intriguing screens if they knew they could program them to interact in a particular way? Or would the creation of a complex design drive them to program beyond the expectations of the assignment? I realized that before I could understand how I could motivate students to do their best, I had to completely understand the medium itself, and also my personal relationship to it. This project was my personal quest in searching for an understanding of what multimedia is, what it might be, and how I feel comfortable teaching it.

### Project Overview

This paper is a summary of my project presentation, which was delivered on DVD-ROM. The DVD is comprised of an interactive menu that leads you to four sections of the project: the City of Identity, the Port of Assumptions, the Swamp of Expectations, and the Sea of Possibilities. These place names appear on a map, which displays the Island of Multimedia. The map metaphor was derived from my project being a journey of understanding what my personal philosophy of education was. Each section has a selection of videos, animations and text that illustrate how I came to terms with each of these areas. I have provided a description of what is being displayed on the screen in italicized brackets.

Presenting my project on DVD was fitting for the content, as one of the main barriers to teaching interactive technology is dealing with people's assumptions about the medium. As my journey unfolded, I came to believe that the strength of the medium lies in allowing the viewer to become directly involved and to make choices about the way they receive information. During my presentation, I encourage participants to interrupt

and ask questions at any point. I envision the whole presentation as being a conversation. By this I mean that while participants can actively discuss what is appearing on the screen, they should also feel free to control the DVD through use of the remote control.

### Glossary of Terms

#### **CD-ROM**

a compact disk that is used with a computer (rather than with an audio system); a large amount of digital information can be stored and accessed but it cannot be altered by the user.

#### **DVD-ROM**

Similar to a CD-ROM, but offering more disk space (4.7 GB) which enables the use of video. This medium can also be played on a variety of playback media, including DVD players that are connected to television monitors.

#### **Interactive Website**

A website that requires the viewer to have certain “plug-ins” installed. While plug-ins are readily available on the web, it generally takes an understanding of computer systems to download and install them. True multimedia websites are interactive, and it is this type of website that our students in the multimedia production program create.

## Chapter 2: Identity (*Video of my footsteps walking*)

I have a degree in Fine Art, I have a Diploma in Multimedia Production, and I have been researching design for several years. I teach primarily design classes for students in the Multimedia Production program at Lethbridge Community College, but I also teach courses that involve programming and interaction. While some of the courses rely on principles drawn from disciplines I was trained in, the reality is that multimedia is evolving using uncharted curriculum. I was finding that there was a very blurry line somewhere in between where design and programming meet – a place that for the first time was involving the viewer in ways not heard of before. To teach design for interactivity was confusing to me, and I struggled to understand where it belonged and how to approach it.

I'm not alone. Melissa Niederhelfman (2001) is asking the same questions as I am: “Do students really understand the principles of designing for interactive solutions, regardless of the product or outcome? Can they identify the elements of design in an interactive environment that make it unique? Is it possible to teach design for interactivity as theory first and application second?” (p. 14)

*(Orange and red cryptogram that cycles through phrases)* I conceived and produced a cryptogram in my search for understanding. Allowing that I am navigating my way right along beside my students, it reminds them that we are all explorers. As the three panels change and the cumulative phrase evolves, it always comes back to the beginning phrase of “we are all in this together” – a suggestion that multimedia can only

be successful if it is based on collaboration. It is also a good example of how difficult and complex multimedia can be. This cryptogram used no less than six applications to create it, eight to bring it to this version on DVD. Words were typed into the computer and printed, a digital camera photographed them in several different states, color was added in Photoshop, they were brought to life in an animation program, and finally programmed to display and be heard in an authoring environment. Finally, a web-editing program embedded it into HTML format and an FTP application transferred it to the World Wide Web. To display it on this DVD, it needed to be transferred to a video format. At each step of the way, file format and compatibility are at issue. (An interactive version of this cryptogram can be seen on my accompanying website:

<http://www.abbeymedia.com/leanne/work.html>).

In the office that I share with four colleagues, we are continually interrupting each other to ask very basic questions about how multimedia works. We liken ourselves to engineers, who not only need to know how the whole project is going to work together, but understand the inherent qualities of each individual element.

*(Website that shows appropriated imagery of students and teacher)* A more lighthearted approach to my identity is seen in the next project, a web site that I produced as a response to students who are attracted to multimedia because it looks fun, sexy and easy. While it takes a less-than-serious approach, it was born out of frustration with the assumptions that students often bring, which are that the design classes will be less work and more fun than the programming classes.

### Chapter 3: Port of Assumptions (*Video of slow-motion journey, three students have signs*)

Ah, the long, bumpy road to assumptions: to understand where the entry point for my teaching is, I needed to understand what people already assume about multimedia.

The over-arching assumption is that creating multimedia is easy. While this may sound simplistic, it is a reality born out of several facts: the consumption of multimedia is ubiquitous, accessible and aimed at youth culture. What we tend to ignore is that multimedia, as a tool, can be used in both the *creation of* and the *presentation of* imagery.

Multimedia is ubiquitous. Ten years ago, manipulating images for the movies was considered "special effects," and required specialized hardware and software. Today, every single movie, every television show, every commercial, and every print ad has been digitized and adjusted, often on equipment that consumers have access to. In addition to traditional media, we all view multimedia on the web and CD-ROM. In an amazingly short breath of time we no longer trust any image we see, and assume, rather than guess, that what we are seeing is not "the truth."

Multimedia is accessible. In North America, 99% of schools have computers, 98% have Internet access, and 90% of teachers have some level of computer training. (<http://atto.buffalo.edu/registered/ATBasics/Populations/UDesign/stats.php>). Even students that don't have a computer at their own home have access: here in Lethbridge, there are over 30 public access stations offering high speed Internet that can deliver full-fledged, interactive multimedia programming, as well as stations at the public library and post-secondary institutions. But it's not just the viewing of multimedia that is accessible; the tools of creation are there for anyone as well. Shareware and freeware programs are abundant, hardware now ships with software installed, and the speed at which the

computer can render leads us all to believe that creating multimedia should be *fast*.

The perception is that if you have the tool, and you can figure out how to use the tool, then you are a multimedia developer. We can liken various activities here, from buying a saw to build a house to owning a pen to write a novel. When I was asking the question, "What drives motivation?" I began to realize that if one of the assumptions is that "I can create multimedia because I own a new computer and have spent thousands on new software," then I was indeed faced with a larger problem than I anticipated.

Most kids know how to use multimedia better than adults. In talking to my own students and family members, I hear that taking computer courses are the least desirable classes to take, because the curriculum is outdated and the teachers "don't know anything." I think about teachers in the public system and how difficult it must be for them to teach something that they feel incompetent with, and yet the school curriculum demands that they teach it. Curriculum theorists suggest that whenever we speak of education, we are speaking of a person's experience in the world. What, then, does this insecurity that a teacher has bring to the classroom? How difficult would it be to teach students something that you know little about, while they know plenty? How can teachers expect to be taken seriously when giving assignments that they barely understand? At the College, we are encouraged to teach using constructivist philosophy, where the knowledge that comes from teachers is seen as only one "part" of the student's learning process. This is enormously helpful to us in the classroom, because we can actively encourage students to teach us. However, for teachers in the public system this is generally not the case. Of course, this points to an enormous problem that we are all faced with: climbing the steep learning curve of technology. This is probably one of the

reasons that the people with the knowledge of the tool – the "computer" teachers –are given the task of teaching multimedia.

These assumptions about the creation of multimedia lead to some insanely poor usage, and I know that we have all sat through presentations that focused far more on the presentation mode than on the content. I simply couldn't list people's assumptions without including what I see as the worst offender in the arena: people using Microsoft's Power Point. Their lecture goes something like this: they turn down the lights (inviting us to sleep), they fuss with the computer (and more often than not, something doesn't work without a lot of fuss), and then they finally deliver badly designed (red text against a blue background) and loud (unsupported audio alerts) information that is accompanied by super-large, animated phrases (bulleted text files in from the side). The presenter then proceeds to read from the screen.

This type of presentation insults us. It says that we are too unsophisticated to read by ourselves, and it assumes that we are interested in seeing how little the presenters know about visual communication. In a world that is dominated by media images that are produced at great cost by professional designers and artists, we are all pretty savvy about what looks good on a screen and what doesn't. At issue here is that multimedia, when used as a method of presentation, should be supportive of the content, but not the content itself. It is time to stop being seduced by the technology and begin to critique it.

#### Chapter 4: Swamp of Expectations (*Diagram of explanation*)

This, for me, is the place in my journey where I had an epiphany, a complete and utter understanding of how multimedia is different than other mediums; of how multimedia education needed to flow, and of how I might begin to motivate my students. It came to me through several ways, but it began by me thinking back to when I first started teaching multimedia. I dug out the CD-ROM that I had produced for my job interview four years ago. I had been asked to prepare a short lesson on a multimedia task to deliver to the hiring committee, and as an introduction to the lesson, I gave my definition of multimedia. It was, I offered, a new medium, one that differed from anything we had ever seen before because of the *involvement of the viewer*.

After watching the CD, I got excited by revisiting this idea. I showed it to my colleagues, and it led to some intense conversations around the lunchroom table. As we talked, we realized that all elements we teach with – the “building blocks” of multimedia – have their own history and their own radical of presentation. And each time we began at the beginning, we found ourselves talking through to a new end, depending on what sort of outcome we were looking for. We realized that no matter how finite the programming is, the way a viewer navigates through a project is what makes it unique. This idea was not new, but a new look at it showed me that it points the way to how our teaching could be improved.

If we deconstruct what multimedia is: how it is created, delivered and interpreted, a structure begins to emerge, one that we can begin to build a philosophy of education around.

First look at the elements of media: in most cases, we choose from audio, motion graphics (video, film), type, animation and image. Each of these elements comes with its own radical of presentation: type had been presented in books, for example, motion graphics on TV or in cinema. And each of them comes with its own critical discourse and its own esthetic.

These elements are combined together by a person or team, each of whom has its own personal or historical influences. In combining them, they come under scrutiny of a new criticism, that of media culture. And finally, there is a collective consciousness: something we all agree on; we understand this product in a certain way.

Next is to program the interaction – and it is here that multimedia offers its greatest possibilities. There is no medium like this, where the collaboration between the designer, the programmer and now the consumer share the responsibility. If one grants the argument that multimedia is a “mediator of media,” then it is crucial to both multimedia education, as well as multimedia *in* education, that the multimedia practices remain self-reflective regarding the conventions of traditional media production.

For example, the prototype for conventional media is the book. The method of communication here is author > consumer. The model is linear. A TV show or a movie fit the same model – they tell a story from start to finish. And before multimedia “grew up,” it was presented in the same way - something we now refer to (in a negative way) as a “page-turner”.

The new media model is far more collaborative. The viewer is an active participant in choosing which information he or she wants to receive, at what time they want to receive it, and in some cases, how they want to receive it. Understanding this model is

critical to multimedia education, for it provides the structure in which to build curriculum.

Katherine McCoy (2001) says that post-structuralism, deconstruction and literary criticism provide useful strategies for interactive communication design, where each reader negotiates a nonlinear, personal experience. She says, “The post-structuralist understanding of meaning as constructed by the audience, not the sender, is very useful. Ideas about open meaning and multiple readings can create interactive environments full of dialogue, discourse and debate” (p. 4–5).

## Chapter 5: Sea of Possibilities (*Student work*)

What I see in many classes, from Ed5850 to my first semester students, is that people get excited by how "disruptive" the tool can be. They want to place their face on model's bodies; they want to place their children (or their boyfriend or their friend) in amazing situations. Their desire to make it look realistic drives their motivation to learn new tools and techniques, but up until now, I have completely ignored how interaction possibilities might drive their motivation. For instance, if a student wants to "disrupt" expectations by putting her or his head on another's body, how about pushing this notion to have the end user choose which body to put it on? While I admit this is a fairly meaningless example, the concept is clear: involve the viewer.

In this particular exercise, I gave students very little direction: I simply asked them to exploit the technology to create a truth. When pressed for more details, I explained that since no one is expected to believe an image anymore, then they could use this to their advantage and make a social, political or moral statement about their own personal beliefs. After the work was handed in, we discussed how the piece could be made interactive, how the strength of their convictions might be re-interpreted by another, and how media images could be strengthened by interactivity. We talked about what else we might offer on the screen, and suggestions ranged from a "story-starter" textbox (where the viewer could use the image as an entry point for a story they would write and print) to providing various sounds that the user can drag onto areas of the image. This was my first step in re-arranging my curriculum to include discourse on the multiple readings each screen can offer by *involving the viewer*.

We are being challenged to create new conceptual spaces. Our understanding of audience becomes even more important than it ever has been before because we need to view them as a larger part of the design. This understanding requires critical reflection in areas that not only include communication and design, but anthropology, psychology and ethnography. No matter how complex the code, or how well-crafted the design, the true curriculum of multimedia can only be arrived at through strong collaboration, in which the end user – the viewer – becomes part of the curriculum.

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