Université de Montréal

Phénoménologie et réflexion dans la recherche en design : l'utilisation d'un journal réflexif dans la mise en place d'un programme d'ordinateur portable

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Using a Reflective Journal in the Implementation of a Laptop Program
in Design Education

présenté par
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Résumé

En tant qu'étudiant en recherche en design et venant juste d'obtenir un poste de gestionnaire en charge du programme d'ordinateurs portables à l'Ontario College of Art & Design, j'ai cru voir ici une opportunité d'explorer cette situation en tant que projet de recherche. Je me suis rendu compte que mes activités étaient porteuses d'espérance auprès des parties prenantes, des étudiants, du corps enseignant et des gestionnaires (dont la plupart avaient des visions de désastre imminent).

J'ai eu une vision d'un futur bien planifié où l'éducation réussirait à trouver une place significative. J'ai jugé qu'en communiquant ce concept aux parties prenantes, je me dirigerais vers une meilleure proposition, mieux planifiée que celle que nous connaissions à ce moment.

D'où vient notre vision du design et comment pouvons-nous l'orienter vers une nouvelle réalité ? Comment pouvons-nous la communiquer aux administrateurs, aux parties prenantes et aux chercheurs ? Pouvons-nous établir une base de méthodologie et d'épistémologie pour cette vision ? L'acte de concevoir peut-il favoriser cette vision ? Si la réflexion sur le côté inévitable et la communication avec les parties prenantes était maintenue, un futur meilleur serait assuré, un futur meilleur que celui –non planifié– qui pourrait émerger autrement.

Les mots clés :

Recherche en design, journal de recherches, phénoménologie, intentionnalité, ontologie, épistémologie, méthodologie, programme d'ordinateur portable

Abstract

As a student in design research and having just been hired as the laptop program manager at the Ontario College of Art & Design, I saw an opportunity to explore this as a research situation. I saw that what I was doing was loaded with expectations from the various stakeholders, the students, the faculty and the administration, most of whom had visions of impending disaster; but I had a vision of success, of building a well planned future in education that would come, whether it is built or not. If reflection on this inevitability and communication with the stakeholders was maintained, I felt a better future would be ensured, better than the unplanned one that would emerge otherwise.

From where, inside of us, does this designer's vision come and how is it used to build a new reality? How will this guide the way stakeholders, researchers and administrators act? Can a foundation for a methodology and epistemology for this vision be built? Can the act of design promote this vision?

In this paper, this vision, through the eyes of the phenomenologist, will be explored and grounding laid for our laptop program case study and the reflective methodology to be used.

Key Words:

Design research, research journal, phenomenology, intentionality, ontology, epistemology, methodology, laptop program

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Table of Abbreviations and Acronyms

DESCO – Design et Complexité program at Université de Montréal

OCAD – Ontario College of Art & Design

This thesis is dedicated to my wife and proof-reader, Helen, my two boys, Alex and Blair, to the closest person I have ever had to a mentor, Alain and to my greatest defender Manu.

I offer my sincerest thank you to:

Alain Findeli

Philippe Lemay

Pierre De Coninck

Jean-Christian Knaff

and Philippe Lalande

Foreward

A great deal of thought went into how this thesis would be structured and how the research would in turn be structured. I originally wanted to base it on four simple sub-headings:

- Research questions related to design
- Research methods
- Data
- Interpretations/conclusions

However I found that this would not be so simple as I thought about some of the philosophical questions about design research or research in general. One of my fellow students asked me to explain to him the difference between philosophy, epistemology, ontology and methodology. I found that I could not answer this question in any way but the dictionary definitions and realized that I would have to be able to grasp these concepts in a deeper way to understand what and how I was researching. Philosophy was easy to tackle, in a sense, in that all these are a segment of philosophy.

We, as graduate students, were concerned with the idea of what we were, in terms of our philosophical leanings, partially because we did not know what this would mean to us. I decided to look at this more deeply, since I could not read anything without encountering these terms. The four main sections are an examination of:

- Ontology: a designed reality
- Epistemology: converting information into knowledge
- Methodology: how to gather the information
- Teleology: the purpose of the research/project

However I would not say that these define me as much as they define an approach that I felt was a design approach. I have interspersed contextual information throughout the thesis to try to keep it as grounded as possible;

however the sections may be read in, if you prefer, from most grounded "methodology" to most theoretical "ontology".

> "Life can never be understood in time simply because at no particular moment can I find the necessary resting-place from which to understand it — backwards."
>
> (Kierkegaard 1959: 89)

I am reminded of the above quote because of the question of the order in which things occur. Like time, the order that things happen in our consciousness is in doubt. The natural way one would think research is ordered is that a methodology is developed, the data is collected, proof or fallacy of the theory is examined. This may be the scientific, or positivist approach, but in design, designers are not proving a theory, but satisfying the client's desire.

This thesis is a case study but not in a sense it is a study of the Laptop Program as much as it is a study of the methods used to achieve the results of the project. The project was a conduit for the study. The assumption is that our methods are based on somewhat universal truths.

- The integration of technology is not centred on the technology itself.
- Design students' use of technology is a good case study in education.
- Use of methods that fit in a design culture.
- Design logic is different that of the positivist/scientific world.
- Design methods can still be rigorous.
- Design thinking is not only for designers.
- The project gave the grounding to understand the theory and was a catalyst for action.

Voices

There are many voices to this thesis. Some of these voices are mine and at times I speak for others, some are voices of reflection, some are voices of academe,

some are voices of expertise. In the reflective voice the reader will hear fear, doubt, defensiveness, revelation and finally the calm of caring and benevolent control and maybe a touch of humour. In the voice of academe the voice is detached and studious, reporting what I have read, touched by what I believe. In the voice of expertise you will undoubtedly hear bravado since it is representing knowledge through what I believe and through my own experiences.

I have separated these voices through italics. Italicized text is the reflective voice. I am at greatest pains to separate the voice that is reflective, since it is the voice of the affective rather than cognitive side. But it is important to note that the affective one is one that I listen to frequently since it is the voice of ethics, understanding and of what I feel is right. It is who I am.

In the section dealing with ontology these positions will be examined: the stance of the designer as ethicist, as aestheticist, as an individual in the community and the creator of what we must believe to be a better world.

It was unusual for a designer to take on a position of managing an educational program even in a design school but I rarely see myself as a traditional designer. In a class at DESCO, I said once that I am not a designer at all. I said that I am a facilitator. I make things happen. I make ideas come to life. It has never been a necessity that all the ideas be mine. What is necessary is to see the world that we are trying to create, to envision a reality in which our ideas can be truth.

This is a new view of the designer, one that sees the designer in a bigger role, no longer just a creator of artifacts and consumer products. We are designing a social context for a better life.

Summary

The Goals

The goals of this research and the goals of my job as the Laptop Program Manager at the Ontario College of Art & Design (OCAD) are separate but inextricably linked.

Designers and design educators however have a different view of the goal setting process. The result, the final design, is not, itself, the goal. A solution to the design problem, a response to the design brief is the goal. That is to say that the solution cannot be defined in the brief; there is no hypothesis to prove. If the artefact were known in advance, if there were one, what would we be designing? The solution will be a "creative" one not necessarily an "intuitive" one.

In the popular book Blink (Gladwell 2005), Malcolm Gladwell extols "thinking without thinking". He promotes intuition or "thin slicing" but his conclusion is the training and experience increases your chances of successful "thin slicing" abilities. Is experience and practice the same as intuition?

If a non-intuitive methodology for design were to be explored in this thesis, there would then be a two-fold goal, which could be explored through a project as a case study. These would represent the project goals and the research goals.

Then add a social context to the project; to desire good for the stakeholders involved in the project. This becomes another part of a tripartite set of goals.

The Project

This project was to launch a Laptop Program in the second year of Graphic Design and Advertising at the Ontario College of Art & Design. This involved a number of stakeholders and a variety of interests for each of these groups and the individuals involved. There were approximately 300 students, twenty two professors, various administrators and even some quite vocal parents.

The goal of this project was specified in the Laptop Program Proposal to the Board of Governors in February 2004:

> "Preparing Graduates for Careers - The employment opportunities for OCAD design students will soon become limited, unless they are able to graduate with considerably more digital knowledge than at present. In Graphic Design, Advertising, Industrial Design and Environmental Design, the "studio-based learning" of which OCAD is justifiably proud, becomes more and more compromised with each passing year."
>
> *(OCAD Laptop Program Proposal, 2004)*

This goal was accepted but another was developed during the launch of the program. Putting ubiquitous computing in the hands of the students became the model for the laptop program. The laptop computer was seen as a social and cultural equalizer and as a help to our many learning disabled students who had simply been labelled as "visual learners" as well as our students who had the official learning disabled designation.

Another instruction was clear, "You must not fail." There went my fear of a positivist reality and of avoiding an objective method of research. We **must** intervene; make changes if what we were doing was not working. There were many predictions of failure from faculty, student publications and websites but the most public was a Toronto Star article , "Art school's laptop plan plain ugly Costly laptop lease shocks students", that stated:

> "What this all comes back to is a lack of choice. Life is about choices. Trouble-shooting is what life is all about. And our post- secondary institutions are supposed to prepare us for real life, and all the complexities, differences, and difficulties that come with it. It's easy to pump out little robots that all do the same thing and work with the same parts and tools. It's not art, but it's easy."
>
> (Hamilton 2003)[1]

[1] By the time I had started as the Laptop Program Manager the lease based program had

If these goals were of a technological nature, why did they hire a designer to launch the program?

This was because of two reasons that speak to the goals of the project. I was an entrepreneur, someone who had made projects happen. I was focusing on doing not just on researching or managing what had already been done.

I was also a "friend" of the College. I was a graduate of the College; I had taught software there previously and I knew a great number of the faculty socially and through my previous business. This was not nepotism but an awareness of the appointee's need to quickly fit in. I was already part of the OCAD community.

Being a designer, and a software instructor, gave me an insight into the digital curriculum component of the job.

The College saw a need for a designer's approach; one that was inclusive and collaborative but in a project action was required because without action none of the goals would be met. The design goal would be the key to how we ought to act.

Why is this "a designer's approach"? It is because this calls for design logic whether it is for an artefact, a product or a program with a social, community objective. Some references refer to this as an intuitive approach but McClelland gives us the formula for the scientific approach:

> "The scientific approach is based on two assumptions: (1) that reality (or truth) is derived from observation and (2) that all variables observed conform to lawful relationships."
>
> (McClelland 1995: 40)

---

already been scrapped. We then restructured other aspects of the program to include a software ownership model and an onsite store where the student could purchase their computers.

The designer builds a designed reality, one that reflects the designer's desires and goals. That compares favourably to McClelland's systems approach that establishes goals and the desired effect (Zeisel 1981)[2]. The approach to which this project will adhere is Peirce's abductive logic (Niiniluoto 1999) to maintain the observation of lawful relationships.

Learning organizations and goal setting

Other literature that gives a goal setting approach is on learning organizations (Thompson and McEwen 1958). It must not be assumed that being an organization for learning – a teaching organization – automatically makes OCAD a learning organization.

Goal setting and evaluation is used in the "Management by Objectives" approach (Carroll and Tosi 1971). The greatest correlation to a number of success factors was the frequency of feedback. In a 1958 paper (Thompson and McEwen 1958) encouraged reflection on goal setting as a recurring and necessary task rather than one that is complete once it has been done once. They recognize an organization as containing a complex social structure. However, these papers see an organization from a top-down perspective.

A more participative approach was desired, a design viewpoint. The hierarchical structure that exists in most organisations may not be the most appropriate for the next approach (Zuber-Skerritt 1996) and might therefore be more comfortable for the design.

[2] The systems approach to assessment design, facilitation, and analysis is more analogous to and representative of the scientific approach because (1) it seeks to define the problem (effect); (2) it establishes a goal or goals; (3) it identifies the most appropriate data-gathering methods to use to address causality (the causes of the problem); (4) it provides feedback on a variety of variables and values related to the cause(s); and (5) through the analysis and the formulation of recommendations, it seeks to address causality in a more efficient and cost-effective manner. McClelland, S. B. (1995). Organization needs assessment: design, facilitation, and analysis. Westport, Quorum Books.

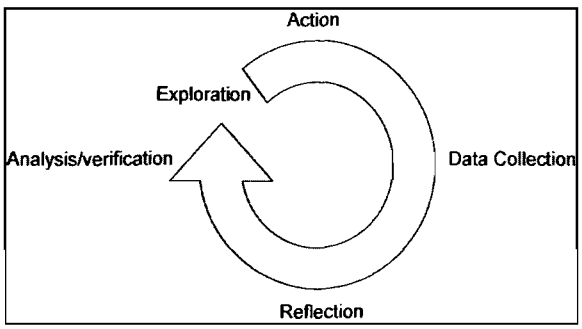

Figure 1: A model of the iterative process used to manage the initiation of the Laptop Program at the Ontario College of Art & Design in 2004 (Desjardins and McAllister 2005)

Participative Action-Research

Action-research is how I saw implementing Alain Findeli's project based research. Jarvis (1999) outlines similar tripartite goals and the same grounded theory development from practice. Practice is the focus of Donald Schön (1983) as well but from an epistemological rather than a methodological approach.

Schön suggests reflection as the method of converting practice into knowledge. In this thesis, writing is explored as the "reflection-in-action" (Schön 1983; Jarvis 1999) as the method of doing this and exposing our tacit knowledge through the ensuing "reflection-on-action".

It would be nice to believe that intuition is being debunked; we, as the administrators, are acting on what we know through experience and reacting through what we are observing. Figure 1 shows my interpretation of the action research cycle adapted from Kurt Lewin (plan, act, observe and reflect) (Swann 2002). This is an iterative cycle and in order to start the exploration goals (plan) exploration needs to be reset. Administrators or designers need to understand the world, the reality, or root goals of the project.

Cal Swann (2002) writes of the new role of the designer in today's society and compares the design cycle of problem/research – analysis – synthesis – evaluation to Lewin's plan-act-observe-reflect. Swann states that action research is a "program for change in a social situation" using participation and systematic reflection.

> "Design is for human consumption and not bounded by the quantifiable 'certainties' of the physical world."
>
> (Swann 2002: 51)

The World

In the world of research, our subjectivity is sequestered so that research/exploration is not mired and lost in introspection. The new world of design may not be as positivist and objective as the world of pure science but it is also not the internal world of solipsism.

Neither is the design world a world "as given". It is the world that is specific to the design problem. It is assembled around the community that is affected by us, the designers. It is, to some extent, an ideal, the world we desire.

We must first establish the boundaries of this research. The time boundary was set by the duration of my research credits for my masters program. I started this project in April of 2004 and would finish at the end of September of the same year. The declared research project was to write a research journal documenting the process of launching the Laptop Program but this would open many doors to the world of **this** research.

This thesis begins by exploring this reality.

Ontology

Introduction

Phenomenology is and has been many things to many people from Husserl's view that it is the science of philosophy to Daniel Dennet's method of "heterophenomenology" (Dennett 1992) as a solution to finding neutrality. They all have one thing in common; they are all methods of reducing the irreducible or reducing **to** the irreducible. Phenomenology is a method of finding the perfect place between the objective and subjective viewpoints, a way of viewing complexity without putting humanity aside.

This is concerning design, a profession ultimately focused on the production of a physical object, even if designers are only producing an idea. Since this is the case, a pragmatic viewpoint will be used to look at phenomenology.

As William James put it, pragmatism is:

> "... a method of settling metaphysical disputes that might otherwise be indeterminable. ... What difference would it practically make to any one if this notion rather than that notion were true?"
>
> "What is Pragmatism" (James 1995: 54)

People are complex. One could probably figure out how my car works by taking it apart, however enormously complicated it is, but no amount of disassembly will help one discover how people work.

If people are complex, communities are probably more so, as is society, nations, ... and humanity as a whole. It is this complexity that becomes the crux of the design issue. In the Masters program, Design et Complexité, at the Université de Montréal, Alain Findeli and Pierre De Coninck asked their students (of which I was one) what the difference is between complex and complicated. That people are complex is an a priori in this discussion. The answer came as something very simple, straightforward and ultimately pragmatic. Things that are complicated can be simplified without changing what they are. They can perform

the same function or they can achieve the same pragmatic result. They are always what they were designed to be. Things that are complex cannot be simplified without changing them. They cannot be reduced to their parts, their separate functions, their systems, or, in the case of people, their psychological components.

So how, therefore, do designers design things for this complex world? How do researchers research for design? How does one embrace the complexity?

Phenomenology will be explored as ontology of design and design research. This is not a *method* of design nor is it a method of reduction, but a way of seeing phenomena (things, objects, happenings...) as what they are and phenomena as they exist in the world.

"Part of the problem is the vision of vision rather than dealing with technical matters."

July 8, 2004 (Desjardins 2004)

This is the first time, about two months into launching the Laptop Program at the Ontario College of Art and Design, that I used the term vision to describe the design of the Laptop Program in my journal. The journal would become the documentation of the conscious/subconscious process of the creation of the Laptop Program. My research progressed in several parallel paths and the journal captured a path that would have been lost otherwise.

These paths were as follows:

The "Doing", that was doing my job. Regardless of my research, I needed to launch a mandatory Laptop Program in the second year cohort of Graphic Design and Advertising students. Without results this would be pointless. Even documentation or research into failure has value but research as a replacement of action would have no value whatsoever.

The "Experience" of what I was "Doing" would turn out to be more than I had originally thought and the journal would help reveal that our paths are often

more directed than we believe.

The "Documentation" of this experience, or the action or writing would help tie it all together.

"Reflection" on the writing, on the experience and on my actions was the glue that would bind it.

We would end up with a cohesive hindsight of the process of creation of a successful program. Although we could not envision this process in advance we did envision the desired results. We realized that we were creating something more that the assembly of technical requirements; we were creating an educational goal or at least what I thought the goal ought to be at that time.

HUSSERL AND THE BEGINNINGS OF PHENOMENOLOGY

Husserl was not the first to use the term phenomena. Both Hegel and Kant used the term, as did C. S. Peirce in his parallel, but separate attempt at creating a science of philosophy. Kant describes a phenomenon to be an "object of possible experience," (Collins 1999) but makes a distinction between that of a nomenon, which cannot be knowable. Phenomenology does not make this distinction. Both Hegel and Peirce use the term in their tripartite methods of categorization of objects. Although Peirce figures quite strongly in design research, with his semiotics, (Pape 1990) and particularly with his work in the process of discovery (Lugg 1985) and logic, (Niiniluoto 1999) his phenomenology does not.

Husserl outlines phenomenology as a "science of experience" in the second volume of the Logische Untersuchungen. He describes three of the characteristics in phenomenology of which will be investigated (Spiegelberg 1956):

- Purity or essence
- Reflectiveness (intuitions)

- Intentionality

To Husserl, this experience is described from the first person perspective but this needs to be investigate as the dualistic view and its permutations, **"I" and "the other", "I" as "the other" and "I" through "the other".** More importantly, the pluralistic perspective needs to be shown, **"I" as part of the other** through belonging to community. This pluralistic view as an **intersubjective** stance must be explored, although this word encompasses the dualistic view as well.

Although Husserl was attempting to build an epistemology, a method of phenomenological reduction, here a reality is sought, a view of the world that embraces complexity. A way of collecting or categorizing data is not needed but a way of understanding and, later, interpreting what is found. He suggests that this be done through intuitions. Although this should not be interpreted as the common definition of intuition being guesses, it is still a somewhat mystical process.

In the last reflective portion of this thesis, I stated that we were creating an educational goal rather than describing the resultant educational program. This because we were not in sync with the other stakeholders over what the results should be nor what the goals were, although they were stated in the proposal.

"While the computer is just one tool designers use, it is a key one. The advertising and graphic design industries rely almost entirely on computer-generated design, as do the industrial design and interior design disciplines. OCAD's unique focus has always been conceptual thinking and the development of a strong creative methodology, but the College must place more emphasis on the development of skills in the contemporary technology [that] is used in these disciplines."

(OCAD Laptop Program Proposal, 2004)

The faculty saw this as change and the students saw this as a way of changing the funding structure of the University and download hardware

cost onto the students. Although the funding formula was subsequently changed to address the costs to the student there were still many complaints and concerns from students, parents, faculty, administration...

We thought that these goals must be clarified. How would we find a perspective from which to do this?

INTERSUBJECTIVITY

The Objective/Subjective Dilemma

Objectivity is the centrepiece of the scientific method and, for centuries, has been at the centre of many philosophical discussions. To many, the answer to the objective/subjective dilemma was thought to be our faith is science, logical positivism for example. Their idea of data was significantly different than the data of human experience. I believe our perceptions can be trusted but not the psychology behind them. However, embracing subjectivity is not the solution either. The trap of solipsism, becoming the subject of your research, is insurmountable. The researchers' emotions, desire to belong and self-interest are equally as problematic.

For the objectives of science, objectivity is an indispensable tool, but design includes the complexity of the human being. In the most extreme view, objectivity is the reduction of the researcher to a mere automaton. What is man without emotion, without the complexity that makes him what he is? What type of designer or design researcher would this be? Design without complexity is engineering, typesetting or decoration. Design research without complexity is merely categorization and quantification.

Merleau-Ponty said that, "The existence of other people is a difficulty and an outrage for objective thought," (Merleau-Ponty 1958: 349).

It is these "other people" that also provide the solution.

A student recently interviewed me for an assignment on the brand identity of the Laptop Program. She asked me to describe the difference between me

as the Laptop Program Manager and me in my personal life. I explained, probably poorly, that there was no difference other than that of the community to which I belong in both places. I cared for my job and my duty towards my students in the same way that I cared for my duty towards my own children.

Our new Dean of Design, Anthony Cahalan, recently used the same term in a meeting, stating that we have to consider our "duty of care" towards our students. At issue was the question whether the instructors should give up the flexibility to move furniture in order to allow students to safely plug in their laptop computers in class. Dr. Cahalan reminded everyone that the "duty of care" for the students' needs for safety and security should come first. This reflected the intentionality that I had been trying to establish towards the goals of the Laptop Program.

Care and community

Heidegger, a student of Husserl's, (Raymond 1990) considered himself to be a phenomenologist but differed enormously from Husserl's point of view. He considered this, as I propose, to be an ontology rather than an epistemology. In "Being and Time" he describes his ontology as only achievable through phenomenology. To Heidegger "human being" is the start of Being since it is undeniable that human beings exist in the world. Heidegger describes being-in-the-world; "The analytic of Dasein ... is to prepare the way for the problematic of fundamental ontology – the question of the meaning of Being in general." (Heidegger 1962) This would lead us along an existential path with the analysis of Dasein as being-towards-death but it is "Sorge", a fundamental property of Dasein, which I wish to examine. Sorge is the property of care. To be human, care is an integral part of our understanding of being and as such this is fundamental to finding our position of subjectivity.

Sartre's intersubjectivity reveals the trap of the goal of knowing ourselves through "the other" (Owens 1970). He describes the goal of, metaphorically,

absorbing the other. Knowing our own intentions becomes paramount to avoiding this form of solipsism.

Max Scheler's phenomenology is one of man-in-community (Owens 1970). With this, the intersubjective stance can be understood as one of through-community rather than Sartre's negative view, through Heidegger's metaphysics or through religious ideals. With this stance, must come certain obligations. It is understood that man is a social being. This is an a priori to Scheler. It is essential to assume that everything that is done, of importance, has a social effect and therefore ought to be directed towards good.

In the interview with the Advertising student I paused to think of the identity of the Laptop Program and realized that the link between my Person and the identity of a faceless bureaucracy may be linked. I realized that I was not merely building a technology-based program but an identity not just for the program but my own as well. I was not, at this point, considering my image but how others see me through my work as well.

Maybe this was not a faceless bureaucracy but an extension of the people who support it.

Understanding the Person

To understand Scheler's intersubjectivity, his ethics and his concept of the Person must first be explained. Scheler divides man into his Ego and a higher level of being, his "Geist" (spirit).

The Ego contains the functions of man, such as his senses. The Ego can be studied and made the subject of objective knowledge. The essence of man, his Geist, is contained in something that cannot be objectified. Geist raises man to a level above mere consciousness to self-consciousness. Although he cannot be objectified, he is capable of objectifying his own experiences. This is the Person.

The acts of the Person become part of his essence, belong to the person, so neither can they be objectified. Much of Scheler's theories were formed around

his criticism of Kant and this includes his Person. Scheler's Person, although not an object of study, is not a metaphysical or transcendental entity:

> "The Person is the concrete, essentially undivided unity-of-being that pervades the multiplicity and variety of human acts. This unity-of-being is really, and not merely logically, prior to all that subsequent differentiation which arises from the fact that acts are of essentially different kinds; (such as the noteworthy differences between the external and internal dimensions of perception, of willing, of feeling, of loving and hating, etc.). The being of the Person serves as the unified source from which all these acts, despite their essential differences, stem."
>
> (Scheler in Owens 1970: 65)

Assembling the Ethical Person

The Person expresses himself through his acts. This actually goes much further than that; the Person creates himself through his moral acts. To do this, there must also be a set of ethics for this Person to follow. The source of these values must be studied.

Again, Scheler develops a set of ethics in reaction to Kant. (Owens 1970) It stems from reason that this concrete Person will need a set of values that is as equally concrete. This concerns the acts of will, emotion and concreteness. Scheler believed that material-values were needed that were not possible in Kant's formal ethics. Kant based his Ethics on universal, a priori and subjective factors; it was a rationalist's approach existing in the thinking-self rather than in the world. (Owens 1970) Material factors were a posteriori, and linked directly to sense, things can be touched, smelled, tasted... What about things that are emoted, intentional acts? Can these things not express/evoke a priori, material values? Scheler would turn this around; he states,

> "All acts of willing have some *"material content"* as a foundation. This "matter" however can be a priori, and is so whatever it is value-qualities

that determine the receptivity of the will. Such acts of willing are therefore not in the least determined by sensory-based feelings."

(Scheler in Owens 1970: 57)

Scheler determines that the a priori is an emotional rather than an intellectual one. Kant's "pure thought" is replaced with *"pure perception and feeling, pure love and hatred, pure striving and willing*, all of which taken together, are as independent of the psycho-physical structure of the human being as is pure thinking," (Owens 1970: 59).

As is everything in the social human world, moral judgements are complex. We do not make these decisions lightly but we often know immediately what the decision will be. They are not based on rationality or pure reason. We know that something is right because it "feels" right.

These values, even though they are universal, are not, however, something with which people are born.

Sartre's view was that we were building ourselves into God (Owens 1970). Scheler's was that we were assembling ourselves into our Person-value, the ultimate self-actualization and this is done without sacrificing the individual.

"Even given a similar organic, psychic, and environmental situation, each *Person*, ethically considered, comports himself differently and is related to different ethical values."

(Scheler in Owens 1970: 67)

Scheler's ethics culminates in the goal that the ethical-Person ought to strive to achieve good-for-itself and good-for-me simultaneously.

Scheler's human is a complex individual not reducible except through his properties and functions, his Ego. He is born with a mission of self-actualization. It is his personality that sets him apart from others. But he is still a social animal and that gives him another dimension. He is a complex individual in an equally complex society.

The Laptop Program Community

> *Early in the Laptop Program, there were very few of us. There were my technician and I; there was the Faculty Support Technician and the IT Director but when it came to dealing with students I was pretty well left alone. I had some limited feedback from students; it was mostly in the form of emails asking for information.*
>
> *Students needed to purchase computers and we needed to provide them with the software they needed already installed. This would be straightforward; it started with communication. A mailing was prepared with the purchasing and program participation information and we launched the Laptop Program website with the same information. The difference between the two was that the website would change, grow and respond to change. We made the Laptop Program website the home page on the browsers on the student's computers with the hope that this would bond a community together.*

Man and Community/Man-in-Community

What is community?

All definitions of community (of human beings) consist of two components: individuals and commonality. This commonality may be living on the same street or neighbourhood, possessing the same interests, job title or friends. There are communities of practice such as user groups, trade unions. There are now on-line communities of all varieties. Scheler believed that there were many levels of community, starting with the most basic, two Persons, to the most spiritual.

To understand intersubjectivity through community, pragmatism demands a departure from Max Scheler's intersubjectivity but he has given us a foundation for our ethics and our sense of self. This sense of our Personhood is necessary to examine the next aspects of the phenomenology of design. A return to Husserl and his theory of empathy (Owens 1970) is needed, but Scheler has one last word. In his criticism of empathy theory he asks, what of vengeance? When

someone in, for example, your family is hurt by another, what do you feel? It is as if you were hurt yourself, but you are not feeling empathetic pain. Your reaction is an irrational emotional one to the hurt in your community, your family.

Husserl, however, does not claim that empathy is only the understanding of the emotions of the other. It is the understanding of the motivations of the other, both the emotional and rational motivations (Smith 1995).

A model of the simple reality of our world is being constructed but it is necessary to add social reality to this model. Our relationship to community and our intersubjectivity is a complex, circular and pluralistic one. Exclusion from community is felt as strongly as inclusion, if not more so. For example, a teenager's self and self-projected image is often formed around his **desire** to be "cool". Our sense of self is built with community as our mirror. Sense of self and community are interdependent; it is from this that our intersubjectivity emerges. We see ourselves through our own lens, then ourselves through what we think is the lens of our community. Our view of the community is from the equally distorted lens of our desires and our goals of self-actualization.

In design, "needs analysis" is often discussed but this view of intersubjectivity turns this on its head. In Maslow's classic pyramid of needs, (Wikipedia 2005) he puts self-actualization at the apex, but the circular approach to man-in-community flattens the top three levels of this hierarchal approach into one since self-actualization is the constant goal of building the Person.[3]

> *We speak here of building a picture of reality but in design, our picture is that of a desired reality. In the case of the Laptop Program we gain a vision, in the metaphorical sense, of the Laptop Program community. I could say that I knew intuitively that the success of the program would hinge on this. But we could build community in negative as well as positive ways. We focused our thoughts through creating a program that would serve the good of the*

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[3] Maslow's Pyramid of needs is: 1. Self-actualization 2. Esteem 3. Love/belonging 4. Social security (safety) 5. Physiological (oxygen, food, water...)

community and the contributions, or fees would going to benefit the whole rather than the individual.

However I doubt that there was anything intuitive about this but years of experience that informed my decision.

INTUITION

This is one of the most troublesome words in Husserl's phenomenology (Smith and Smith 1995), especially in the field of design and design research. The common interpretation of the word is that intuition is something that "pops to mind"; something that is intuitive is "easy to use". Commonly it is used as a somewhat mystical method of understanding meaning or perceiving with a lack of empirical evidence.

Intuition is often viewed as the design process, as creativity, something that cannot be explained as a conscious process, the black box (Zeisel 1981). However, to many, design is a thoughtful conscious process. It has a goal, a purpose and needs to be guided by a conscious methodology (Dewey 1938).

The process of establishing the Laptop Program shares many of these aspects including the appearance of being intuitive.

Husserl's intuition is seeing an object **as it is immediately given** (Philipse 1995). Husserl outlines several "intuitions" including that of categories and essences. These are things that are not immediately available to the senses. Husserl distinguishes between these and the sensory intuitions.

This concept of what is immediately given is an important one in the Phenomenological world. The reality being built may, however, have more in common with Dennet's "phenomenological garden"[4] (Dennett 1992) than Husserl's transcendental reduction. This is a reality that limits what can be seen and built. It sets rational boundaries rather than reduces and simplifies.

[4] A play on words with "zoological garden"

Although Husserl claims that it is through intuition that meaning is found, but where this will take us? Like Dennet, the reality being constructed is outside that of actual reality. This will be the research lab, the "Phenomenological neighbourhood".

The "phenomenological neighbourhood" represented the ideal Laptop Program. This was Plato's Utopia of Laptop Programs. What was the purpose of creating this idea of perfection that was obviously unachievable? Regardless of its achievability this was the goal, this was the desire, this was the design. We do not design the flaws in the system; we do not design ill will.

In the following section, we discuss the idea of essence, the irreducible form. This differs than Plato's ideal form in that it does not represent perfection. It is a representation of the form after the fact, quidditas.

ESSENCES

Husserl's phenomenology was an epistemology, a way of extracting knowledge; to many others, including Heidegger, phenomenology was ontology (Raymond 1990). To phenomenologists like Dennet (Dennett 1992) it represents a stance. It is a position of neutrality. In this thesis, we will explore an intersubjective reality; it is not a method of research but a method of defining the boundaries of our study.

In this phenomenological neighbourhood, there are neighbours, friends, community, but there are also objects, our things. Are these things the objects of our study or are they merely our stuff? Regardless of the answer, these things are there; they carry meaning; they help to define us the researcher, since we are the creators of this world. There are also objects that are not directly available to our senses. Such objects are objects of our psychology, our desires, our moods, and our attitudes. They belong to our Persons and our community.

Regardless of whether these objects are available to our senses or not, their essence is something that is available only to our intuition, according to Husserl. Through Scheler's intersubjective stance and through Dennet's neutral stance (Dennett 1992), the essence of these non-sensory objects is not available to us at all, if they belong to another Person. The essence of a Person may be his psychological possessions. The information needed to make these determinations is not accessible to the researchers.

Essences of a sort can be detected. "Intuitions" are gained through lived experience; Scheler's feeling of rightness (Owens 1970) is, indeed, experienced and used to determine qualities about an object. It does feel like people possess an innate objectivity although, personally, I would prefer the word tacit over innate. This is the epistemology, how to interpret, bring knowledge from, our reality rather than the ontology, how to see it. Intuitions, whether they are the common variety or Husserl's, cannot be an innate objectivity since it is based on our experiences, our previous understandings and interpretations.

An important aspect of essence is Husserl's "bracketing" in his eidetic reduction, (Hintikka 1995) but what is being bracketed? In any Phenomenology, our immediate interpretations of an object or action is put aside to allow the finding of a truer meaning.

A component of the object that is central to answering our concerns of how we see this world is, however, still missing.

What then was the essence of the Laptop Program to be?

We could not answer that since the students were not even there yet. The duration of this study was intended to be the four-month period preparing for the launch of the program, although we would look into this aspect at the end of the first year. All we could see at this point were our intentions. The Laptop Program was an idea. Unlike the ideas of Plato it did not exist in nature but as an intention. The essence was not the quidditas of Aristotle since its form did exist as an idea first.

Our intentions inform our actions and the eventual form of an object to be.

INTENTIONALITY

Intentional Objects

Phenomenology is the science of intentionality. Later in his Phenomenology, Husserl would say that it is a motivational science rather than a natural science (Smith 1995).

> "Phenomenology does not investigate the objects investigated by the researcher in other sciences; on the contrary, it investigates the total system of possible acts of consciousness, of possible appearances and meanings related to precisely those objects"
>
> (Husserl in Smith 1995: 428)

Dennett disagrees with Husserl saying that Intentionality is "aboutness", (Dennett and Haugeland 1987) but does not "whatness" answer the concerns of aboutness?

In her book Intention, Anscombe asks:

> "What distinguishes actions which are intentional from those which are not? The answer that I shall suggest is that they are the actions to which a certain sense of the question "Why?" is given application..."
>
> (Anscombe 1957: 9)

For the purpose of discussion, the assumption is that an object has quiddity (quidditas, whatness) and "whyness". The assumption is that the object is the consequence of the actions of someone. In our phenomenological neighbourhood (our research lab), do all objects have whyness? Do they have intentionality? Do they reflect the actor/creator's intentions?

Norman speaks of the affordances of doors and door hardware in The Design of Everyday Things (Norman 1988). A push bar or a handle for pulling show the

door is intended to be pushed or pulled. This is certainly not an intention that belongs to the door, but of the industrial designer who designed the hardware or of the interior designer who specified that door hardware.

Whether objects project "whatness" or "whyness" is inconsequential to the conclusion that objects are the product of people's intentions and do not have intentions unto themselves.

Intentional Actions

If I did something intentionally, is that the same as doing it with intentionality (Anscombe 1957)? If I reach over a table to pick up a book and spill my coffee, I did not intentionally spill the coffee, but my action did have intentionality. My intentions were simply to pick up a book and the coffee was spilled as a consequence of my intentional action. So I did something with intentionality but not intentionally.

If I pray to God before each meal, what then are my intentions? Is the act of prayer an intentional action? If so what is the consequence? If Husserl's word, motivation, is used, it is my belief that I will go to Heaven that motivates me to pray. My intention is directed at a belief rather than physical, worldly goal or object.

To further understand our intentions, look at a child writing a letter to Santa. His intentions are aided by his belief in Santa Claus but this belief does not cause him to write letters. It is a material goal, his desire to get certain presents that direct his actions. Since Santa does not exist, there can be no consequence of this intentional action. Was this truly the root intention? The child's parent wished to know what he wanted for Christmas. The action was getting the child to write a letter, the intention was directed by the parent's desire to know what the child wanted. Knowing is the consequence.

In the coffee-spilling example, our intentions are the whyness of our actions. In the example of prayer, even though it can be said that our belief is why people

pray, it would be more appropriate to say that our prayer is "about" our belief, since there is no directed goal at the time of prayer.

There is clearly no "whyness" of Santa, but the actions of the parents and the child tell us about Santa. In my world Santa does not exist, so I have no need to know about Santa. What I am learning is about the desires, beliefs and intentions of the people involved in the situation. In a complex world, what is seen cannot be accepted at face value, at first glance. The child may actually be writing a letter to his parent, knowing that the parent gets a certain satisfaction in this perceived belief in Santa. So the child may have a mix of intentions, which include getting what he wants and pleasing his parent in the process.

Whether it is aboutness or whyness the commonality is that our intentions are about an action directed towards an objective. This objective may be an indirect one and may even be hidden from ourselves. This may be a desire, a belief, an idea and so on; our intentions give these things meaning. What needs to be seen, as well, are the consequences of our intentional acts and whether our goals are honest ones.

A Synopsis of Intentionality

Looking at our phenomenological neighbourhood again, is it complete? It contains the researchers and our position of intersubjectivity, our position within the community. It contains people, or persons. It contains things, which are both perceptible and non-perceptible. We have also established a set of rules of the community.

- Research is not able to use Persons as objects of study
- Research cannot access the non-perceptible objects of a Person
- This includes their intentions
- The Persons in our community, the neighbours, are bonded by a commonality
- This could include exclusion from the commonality
- This includes us, as researcher, and defines our stance

- The researcher's intersubjectivity is an "intentional stance" which includes all of the above
- Intentionality is revealed in actions
- Root intentions are the goals of the research just as finding root problems are the true goals of design research (Rittel and Webber 1984)

Why does this matter?

What we found was unhappy students attributed intentions to our actions and I believe that our actions revealed our true intentions. Fortunately these intentions were for the good of the program.

Our decisions, on which software we would support and why, were questioned most aggressively.

Were we buckling to corporate pressure/graft from Apple or Adobe?

How was the University gaining from this relationship?

Were we training corporate clones?

Who owned the software after the three-year program?

When the students were informed that they would own the software, a change from the original plan, many of these concerns disappeared. This certainly made us question the intentionality of some of the complaints. Were they genuine concern for our motivations or merely concerns of self-interest? This made us look at the self-interest factor even questioning our own motivations.

THE BOUNDARIES OF THE PHENOMENOLOGICAL NEIGHBOURHOOD

Until now, no actual reduction has been achieved; complexity was embraced.

Husserl's reductionism must not be entirely accepted because of its mystical nature; another method of reduction must be found. As I stated before,

complexity cannot be reduced in reality neither can the complex objects of our phenomenological neighbourhood although defining the boundaries of our neighbourhood, our research lab can be done.

Husserl's eidetic reduction is through bracketing. The term bracketing can be adopted but what is to be bracket must be redefined. To a great extent the goal is the same as Husserl's. Is it possible to look for the object in its raw form, the thing as it is, without interpretations, without implications, and without assumptions? One more thing must be bracketed, ourselves.

Avoiding Solipsism

Since the researcher is the builder of this phenomenological neighbourhood, it must be he/she who sets the boundaries. The first boundaries to be built will be those around ourselves, as researchers; the intersubjective stance must further be defined. Becoming nothing more than an argument of semantics must be avoided z. To Husserl everything is in first person; it is through our intuitions that we see, understand (Raymond 1990). Dennet insists on the third person since neutral must be maintained even if we, as researchers, cannot be truly objective (Dennett 1992).

It is here that I stop for a reflective pause. This particular pause is being added during the first revision after my directeur de recherche, my thesis advisor, Philippe Lemay had read the thesis. One of his criticisms was the prolific use of the pronoun we. He asked who "we" were. Were we the collective "we" of humanity? Were we my colleagues and I? Were we the collection of educators, design researchers or designers? All of these are true depending on the context of the use, but this was understandably confusing. Where this perspective was important the "we" was left in and specified e.g. "as designers".

The other place that this pronoun was left was in these reflective writing where my "style" of writing is appropriate, although I more often take the first person stance.

However "we" were, for the most part, us, my readers and me. I found it helpful to write from the perspective of the reader or from the perspective of a conversation with the reader as if writing is an experience I share with my reader. Why is this deserving of this pause?

Writing **is** *"An Experience" (Dewey 1934). It has been how I have promoted reflection and this thesis has been no exception. The other writings, my journal and the policy document, however, were not intended for publication. This is* **my** *experience. I can certainly hope that it is one that we somehow share but I cannot assume that this is true. The purpose of these reflective pauses has been to allow for the inclusion of my other voices; the "research" portion of this work was not intended to be a pluralistic view. I will embrace objectivity with the enthusiasm with which I have embraced complexity but I am glad of these pauses.*

As stated earlier, my stance is a pluralistic one. This complexity is not, I assume, the focus of my research. In the phenomenological neighbourhood the researcher is not building his/her Person; this goal must be bracketed. By bracketed, I mean acknowledged and removed from the research lab. In our epistemology, a method will be explored to achieve this goal through reflection. The act of building the Person cannot actual be stopped. Care, even though it must be applied in the epistemology, in the phenomenological neighbourhood, it must be bracketed. Our Personhood, itself, what makes us who we are, must then be bracketed. This achieves the neutral stance of which Dennet speaks yet we are free to speak in first person since we, as a participant, as part of the phenomenological neighbourhood, have not been removed from the study. Our actions in the community are left as are the actions of the community towards the research goal.

Our bracketing is a pragmatic one; in our acknowledgement of our existence, of our qualities, of our care, it must be asked, does it matter? Does this change the nature of our study? In defining the neighbourhood, the terms are defined; our intentions are made clear.

Natural Objects in the Phenomenological Neighbourhood

It can be argued that in the modern world of man there is no nature, certainly none in which people can live. Humans live in an artificial world(Simon 1996), or in a world surrounded by man-made objects. In the phenomenological neighbourhood, this is even truer, since this is simply a world of intentionality. A natural object cannot be an object of our intentions *in this world*; as soon as they enter our phenomenological neighbourhood, they cease to be natural. This is not intended to be a denial of nature in the *real wo*rld or of that of the validity of natural science, merely that the phenomenological neighbourhood is a world of our making.

Although it is important to understand that "worlds" can be separated by categories, these are fleeting movable boundaries to be used for understanding. For example, Appadurai uses five "landscapes", ethnoscapes, technoscapes, finanscapes, mediascapes and ideoscapes, for a similar effect (Appadurai 1994). One cannot live in one of these worlds at the exclusion of all others. The nature of the phenomenological neighbourhood is to allow for a more open mind set. The exclusion of nature is to allow for the understanding of the intentional nature of man in today's society.

Artificial Objects

Objects in our phenomenological neighbourhood are there by invitation only. They first must answer to pragmatism. Do they matter? Then, they are stripped of the assumptions that are projected upon them. They become artefacts of our intentionality? For example, in a popular Heidegger paraphrase, a hammer gains its "hammerness," as a tool, when it is used for hammering:

> "The being of something we use, for instance, a hammer or a door, is characterized by a specific way of being put to use, of functioning."
>
> (Heidegger 1988: 292)

A hammer may become, through other actions, a symbol of oppression, a weapon, or, used on a flag, a symbol of labour in industry, just as the sickle is a

symbol of labour in agriculture. This is ontology, rather than epistemology; this is a process of stripping and bracketing rather than searching for meaning. Reduction to complexity is achieved through our intersubjective stance. We are increasing the number of possible perspectives with which we can view the situation.

What can now be seen are intentional actions towards objects; from these actions meaning is gained. The researcher is able to see what the meanings are through his/her community and through the individuals in the community, not to mention through watching his/her own actions and the community's view of his/her actions. The pluralistic, intersubjective stance is achieved:

- Through the researcher's own eyes and actions
- Through the eyes (intentional acts) of community
- Through the eyes of the other communities of which the researcher belongs
- Through the eyes of the individuals in the community
- Through the responses of others to the researcher's actions and his/her own responses in return

This is an unending and circular perspective.

Now watch as objects and actions become a jumble of meaning. As designers, we juxtapose, use allegory and analogy, compare and change the meanings to create new ideas; as researchers we watch and see what meanings emerge.

The Situation, Not Situational Ethics

The boundaries in design research and design are always around the problematic situation and this must coincide with the boundaries of the phenomenological neighbourhood. These boundaries are open to the outside world; it is as they are constructed as a semi-permeable fence; everything can pass through in one direction and be seen as needed or allowed to move back through. There is not an attempt to change or otherwise affect the people who pass through the study but the goal is to change their situation. It is crucial to

change or affect the community, society or even the world, but this must be done for the sake of good.

This is a material change often in design but I will offer an acknowledgement to the transcendental and the metaphysical. If the task of building the research lab is achieved the world is already changed; the researcher should now be able to see what he/she could not before. Simple objects have been allowed to become something other than our narrow interpretation. The researcher has allowed another existence, one of being in the phenomenological neighbourhood.

The lab is based on a priori material ethics and built around a problematic situation. Even though pragmatism is used to reduce the metaphysical arguments around the situation, this should not be confused with allowing the situation guide our ethics.

> "Action researchers are part of the situation in question..."
>
> (Winter 1996: 22)

Regardless of the type of research that we do, as long as it is phenomenological, we as researchers will be part of the situation. It is incumbent opon us to leave a situation better than we found it.

On Language

As data is gathered, as attempts at understanding (gathering meaning from) that data, and as those understandings are documented, language becomes the crucial tool of these processes.

In Wittgenstein's Tractatus Logico-Philosophicus (1961) he writes about language:

> "4.002
>
> Man possesses the ability to construct languages capable of expressing every sense, without having any idea how each word has meaning or what its meaning is just as people speak without knowing how the

individual sounds are produced.

Everyday language is a part of the human organism and is no less complicated than it.

It is not humanly possible to gather immediately from it what the logic of language is.

Language disguises thought. So much so, that from the outward form of the clothing it is impossible to infer the form of the thought beneath it, because the outward form of the clothing is not designed to reveal the form of the body, but for entirely different purposes.

The tacit conventions on which the understanding of everyday language depends are enormously complicated."

(Wittgenstein 1961: 22)

The concern in design and design research is to understand the given problem in a human/social situation; but language must be used as a tool for communicating this information. Even visual models and iconic symbols (hieroglyphics) are explained through or represent language. Wittgenstein goes on to state that:

"A proposition is a picture of reality.

A proposition is a model of reality as we imagine it."

(Wittgenstein 1961: 23)

Finding a way of using this to understand this reality is the goal, after all, having a thought is not the same as understanding it. In *Investigations* he states that, in philosophy a way of describing rather than explaining is sought. He expands the problem of language to being one of "surface grammar" and "depth grammar" (Grayling 2001).

"4.003

> Most of the propositions and questions to be found in philosophical works are not false but nonsensical. Consequently we cannot give any answer to questions of this kind, but can only point out that they are nonsensical. Most of the propositions and questions of philosophers arise from our failure to understand the logic of our language.
>
> (They belong to the same class as the question whether the good is more or less identical than the beautiful.)
>
> And it is not surprising that the deepest Problems are in fact not problems at all.
>
> 4.0031
>
> All philosophy is a 'critique of language' (though not in Mauthner's sense). It was Russell who performed the service of showing that the apparent logical form of a proposition need not be its real one."
>
> (Wittgenstein 1961: 22-23)

In *Investigations*, he calls this "language-games" (Grayling 2001). Language must not be interpreted just through its surface meaning, but as an intentional act. Language is an enormously complex act and meanings change with the nature of the activity. If someone is asked, "What do you think?" of a situation, a much different picture is given than if we ask, "to describe" or "how you feel", about the same situation. Or what if it is left up to the individual to choose the nature of the language to utilize? Does that choice illuminate something of the situation, or the individual?

If language is an intentional act, is the corollary true; is intentionality also a language? Body language is an example of this, the tightly folded arms of defensiveness or the thoughtful pose of Rodin's *Thinker*. Anscombe (1957) briefly looks at intentionality of animals in *Intention*. She describes the stalking crouch of a cat hunting a bird. This is clearly not language, as the cat is not expressing a thought; the viewer is merely reading into its action, however

correctly, that it is stalking the bird. But what of a dog lying beside its empty water dish?

The games of language include intentional acts and acts of language in leading statements, intending to achieve another agenda, semantics, intending either to obfuscate or clarify, pointless chatter, intended to fill time or emptiness. These acts, and many others, have meaning besides what is actually stated.

Language must be looked at for what it is, given its context and the speakers' intentions.

On Categories

> "Ideology can be a loose mesh rather than prison walls, if we make a distinction between two types of thinking:
>
> the act of interpreting experience in terms of a set of categories; and
>
> the act of questioning the categories in which the interpretations are presented."
>
> (Winter 1996: 18)

Categorization is an effective way to reduce complexity to something around which the mind may be wrapped.

In many phenomenologies, including those of Peirce and Husserl, (Spiegelberg 1956) categorization is the end goal, to produce a scientific result; but the goals of design research fall outside those of "normal science"; this is an "extraordinary science" (Kuhn 1970). Using existing categories, no matter how extraordinarily complicated, as with Peirce's (Spiegelberg 1956), will always lead us to reproduce the thoughts that created those categories in the first place (Kuhn 1970).

Design is often seen as a convergent/divergent and iterative process (Nettleton and Mazzucca 2005). Categorization is one of the convergent methods, along with analogy and other methods of comparison, symbolism, representation and

juxtaposition. Our phenomenology is one of complexity and fluidity, one where categories are not fixed, since the goal is new ideas and new meanings. If new ideas and new objects are to be created, innovation cannot come from studying only what is already known.

Although "design research" is spoken of, this implies that design is a method of research unto itself (Frayling 1993/4). This phenomenology of design is a way of seeing the world, an ontology. If one is to see the world one must know how to accurately describe it.

On Cause and Effect

To draw the final boundaries, in this thesis, one more bastion of science and discovery (Hanson 1958) must be attacked, that is cause and effect and, in consequence, the foundations of logic itself. It is not proposed that cause and effect does not exist or is not important but that it is often an intuitive solution that we should not accept on the face of it. Like Husserl's intuitions, for example, that of categories, it is a natural and immediate action of thought to link coincidence with cause and effect rather than look for a circular and more complex logic.

The logic of design is the reverse of that of normal science. Designers are designing a cause for a desired effect but in this essay we are exploring how that desire is identified and how to discover if the consequences of that desire are indeed desirable. In technological change, design often has such a shallow scope (i.e. design a method of emailing from a cell phone) that a failure to see past the immediate goals occurs. What is the causal chain that is started? What are the consequences of this act of design?

In social research and design, what are the root causes of a given phenomena? Is a problem being solved or a new one being created? Is the problem even solvable in a traditional sense or worth solving?

I would prefer to think of intention (intentional acts) and consequences. As the lab is the phenomenological neighbourhood, does a given intentional act change a

community? How does this change affect others? What are the ethical consequences of this?

On Consciousness

Husserl saw phenomenological reduction as the route to consciousness. What is left after the bracketing process is consciousness; this is the consciousness of intentionality. Intention is "to be conscious of something..." (Raymond 1990) If the mysticism and introspection is reduced from this, I believe we are reduced to Peirce's "pragmatic maxim" which states:

> "Consider what effect, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object."
>
> (Peirce 1995: 44)

What can be seen is the intentional actions of others and ourselves. Dennet proposes that phenomenology is an intentional stance with which solipsism and bias are removed. Husserl describes phenomenology as a descriptive theory of "pure" transcendental experiences (Philipse 1995).

The phenomenological neighbourhood may be a "pure" description of the research problem. Dennet's view is a very pragmatic one but in design and social research Peirce's Pragmatic Maxim and his abductive logic of effect-to-cause must be considered. The objects and actions of a given research do not yet exist. Although intentions themselves are not predictive, the phenomenological neighbourhood can also be what might be or ought to be. "Then, our conception of these effects is the whole of our conception of the object," states Peirce (1995: 44). It makes sense, that this, in essence, is a large part of the design process. Design is the result of understanding the effects that one desires; ergo, the artefact of design must be the cause of these effects.

> *Our consciousness may be simpler than this on an even more pragmatic level. We can think of the reduction process as something we do everyday,*

our choice of focus.

Obviously we cannot be fully conscious of all things at all times, then be fully conscious of all the symbolism and meaning of these things and be fully conscious of all the consequences of all the acts that we may perform at any given time. This is the stuff of fiction or insanity.

I like to think of us as always somewhat unconscious, somewhat conscious, and backgrounding a certain amount of information below our level of full consciousness, subconscious. Our phenomenological method, in essence, is merely bringing this already existing process to our awareness and adding choice.

Everyday while running the Laptop Program we saw things happen that needed our attention whether it was a cable causing a trip hazard or a misapplication of rules in the helpdesk. It was our choice to act on these in such a way to instigate change for the common good that made our program work. It was also our failure-to-act that allowed aspects to fail, but none of these things came as a surprise; we were conscious of them.

REFLECTIONS

The thought process of which I write is not a new one in any sense. Thomas Kuhn (1970) wrote of new paradigms but this has become a catchphrase; like "thinking outside the box", it has lost so much of its meaning. This is what people do when they are stumped, when tradition and practice does not solve a problem for us. However this way of seeing can be a practice if it is allowed to be. This can be called design, creativity or merely open-mindedness but unless we consciously, intentionally act falling into the trap of intuition and habit is the result.

Are objects, in research, seen for what they are rather than what they mean in the sense of immediate interpretation of meaning? Can conclusions, labelling (categorization), cause implied through coincidence and the immediate acceptance of what is thought to be known be suspended? Can the world be

seen as if it has been seen for the first time? If a reality from which to see the world can be created iteratively, every time is the first time.

Phenomenology Through Reflection

As Husserl (Hintikka 1995) states, the view of what is immediately given is sought, but I do not believe that immediacy is the route to essence. Seeing in the 'real' world, is through previous experience; this colours and changes what is immediately given into what is immediately taken in, including prejudices, interpretations and all of its implied meanings. Seeing the 'pure' phenomena and all its possible meanings is needed, through as many eyes as possible, the intersubjective stance.

In every philosophy of each of the aforementioned phenomenologists, there is an area that cannot be studied, defined or in some cases even seen. Peirce (Spiegelberg 1956) has the mystery of firstness; Scheler (Owens 1970) has the Person; Husserl (Hintikka 1995) has essence; Dennet (1992) has the consciousness of the individual. This is solved through claiming that the root has been reached, claiming that it is not worthwhile, that it is psychological, metaphysical, transcendental or through claims that a scientific process will solve all problems of philosophical nature.

Simon (1984) embraces complexity yet uses the game of chess to be an example of this. This is a game that is strictly rule-based; each piece's moves are tightly structured and the goals are well defined. Chess is not complex but humans playing chess are. The complexity is in the strategy (desires, intentions, expectations and anticipations) of the game play. How would a chess player study the game of chess? To be interesting one would have to study people playing chess. One would have to play.

To do this, reflection is necessary; act (move) then iterate the reflection again in the context of the other player's move and your perceived strategy. In research, design can be that act that allows us to achieve another view. Ask then, "What is the pragmatic meaning of that action?" Dewey (1910) says that induce/deduce is that iteration; Nettleton says diverge/converge (Koberg and Bagnall 1991;

Nettleton and Mazzucca 2005). It is through this mediacy from which new ideas will emerge. It is not a reduction of complexity but a negotiation with complexity; I call this reduction 'to or through complexity' rather than 'of complexity'. After all, complexity is the heart of the human world. Through that, everything is new at each glance. Through complexity, the child-like view of the world and the wonderment that this brings can be recaptured.

Research Methodology

Although this ontology is merely a method of viewing the world and of creating the research lab, many research methodologies are implied. The emic/etic views in anthropology fit well with a phenomenology that recognizes the researcher's subjective role in the research, then brackets and separates that role. In the nursing profession and education, a similar approach to reflection and critical thinking is used. On the University of Worchester website the following definition of critical thinking is given:

> "To be able to make good decisions we must be able to think critically. If we do not engage in critical thinking we make decisions based on false beliefs and muddled ideas. With out critical thinking we fail to fully understand the actions, needs and desires of others. Without critical thinking we are unable to create our specialist knowledge base, to transform tacit knowledge in to explicit knowledge. Our decisions and our knowledge are all affected by our personal perspectives and values, critical thinking helps us to recognize not only how and why our clinical decisions are affected by our own values but also when our personal lives (and families) are affected by our professional values."
>
> (Tim Johnson in Johnson and Wright 2004)

Under 'reflection' Judith Wright points out that their methodology is close to action-research (Johnson and Wright 2004) and suggests using a reflective journal as a tool to assist in reflection (Johnson and Wright 2004). This is a tool that will later be explored.

Thinking in terms of design research and technology, anthropology is followed logically by ethnographic research into design and technological change, but the case study, to follow, is to be one of implementing this change rather than merely observing it.

This view raises many epistemological questions of which have been answered by researchers and philosophers such as Donald Schön (Schön 1983) and Peter Jarvis (Jarvis 1999). The practice of design will be explored, whether the tool can now be used to create new knowledge, solve problems and grow the researcher/designer's ability for the next time or share these experiences with colleagues.

Husserl will be given the last word, in this chapter, as a statement on the goals of our intentional stance:

> "Every interpretation of..., every opinion about 'the' world, has its ground in the pregiven world. It is from this very ground that I have freed myself through the epoche; I stand *above* the world, which has now become for me, in a quite peculiar sense, a *phenomenon*." (Crisis, 152, Hua VI: 155 in Smith 1995)

Epistemology

On Reflection and Keeping a Reflective Journal

> "...clearness is of less use to a man settled in life, whose errors have in great measure had their effect, than it would be to one whose path lay before him."
>
> *(Peirce 1995: 39)*

What is reflection? What is the nature of reflection? What are the tools that help us uncover knowledge from the myriad of thoughts and happenings in our day-to-day experiences? How do we tell the mundane apart from the exceptional?

In pursuing an ostensibly administrative task as a research project, I have, in effect, chosen my methodology as well. It necessitated being a reflective one and would centre, being who I am, on avoiding, and practicing, introspection and solipsism. My goal would become understanding my role of a researcher while practicing my role as an administrator and creator of an administration.

I am, unfortunately, a flawed person. I do not, like Husserl, stand "above the world" (Crisis, 152, Hua VI: 155 in Smith 1995). I started the journal because I was lost; I did not know what else to do. I knew that I would succeed in the task at hand, starting a laptop program but I also knew that this would be a somewhat organic process, emergent (Johnson 2002), so to speak. I had always managed to wrench success out of the direst situations. I had gained somewhat of a reputation for that. But what was, explicitly, the process that I use to do that? This is what I needed to determine, my goal.

I had used writing exercises to help me clarify my thoughts during the time that I was taking classes and had decided that I would keep a research journal as my research project even before I had the position at OCAD. Although I had decided early on that my research would involve technology, the job of Laptop Program manager was more serendipitous than intentional. The other decision that I had made was that action research was the other component that I would be looking at in terms of method. Phenomenology followed about two months into my research but I was now left with several disparate philosophies that needed to be

tied together somehow. Reflection appeared to be the common element to create the package, phenomenological action research, and my journal was an important tool to help me figure out exactly what this was. It was the tool that allowed me to take these various viewpoints, facts, methods, and methodology and convert them to knowledge.

> *June 2004*
>
> *In this diary I am not trying to document every thought and personal feeling I have during my job and my research but to find a way to learn to write and document my research.*
>
> *The research is based on action, on doing rather than on documentation. It is this reflection on action that becomes the job.*
>
> *I am starting to think about how I am going to validate the "data" and what exactly is the data... (Appendix I)*

Charles Sanders Peirce: Pragmatism and Abduction

The late 19th century philosopher, C. S. Peirce (1960; 1995), wrote about two important subjects that will help to explore design as a rigorous process of research: pragmatism and abduction.

Pragmatism was Peirce's answer to a philosophical gap between empiricism and rationalism. This is spelled out in his 1878 article "How to Make Our Ideas Clear". Ideas become meaningful only in action and in their effect (Hookway 2000; Snider 2000).

Pierce's "pragmatic maxim" states:

> "Consider what effect, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object."
>
> (1995: 44)

Peirce claims that there is no thought that is not based on a perceived effect of that action (1995). As oppose to Classical empiricism, which states that, "Nothing is in the intellect which was not first in the senses." (St. Thomas Aquinas in Popper 1972)

Peirce is particularly critical of DesCartes' rationalism:

> "The distinction between an idea *seeming* clear and really being so never occurred to him. Trusting to introspection, as he did, even for a knowledge of external things, why should he question its testimony in respect to the contents of our own minds?"
>
> (1995: 38)

Abduction, or **retroduction**, follows logically (although not necessarily historically) from the concept of pragmatism. This, simply stated, is a logic that is based on an inference from effect to cause (Niiniluoto 1999). Other descriptions of abduction state that it is the logic used to explain "surprising data." In Peirce's collected papers (Peirce 1960) he states that, "abduction consists in studying facts and devising a theory to explain them." (Lugg 1985)

Niiniluoto explains, through examples in a Peirce article, "Deduction, Induction, and Hypothesis", 1878 (Niiniluoto 1999) the difference between deduction, induction and hypothesis (abduction) as follows:

> "Deduction is an inference as a result from a rule and a case...
>
> Induction is the inference of a rule from the case and result...
>
> Hypothesis is the inference of the case from the rule and the result."
>
> (Niiniluoto 1999: S437)

From the Harvard Lectures in 1865 Peirce defines hypothesis a an "inference to an explanation." (Niiniluoto 1999)

Now often referred as the **Inference to the Best Explanation** or **IBE,** abduction is a compelling explanation to the **Black Box** of design reasoning whether it is Jones' "designer as magician" (Jones 1970) or Archer's "creative leap." (Cross 1984)

Although often referred to as the logic of discovery, (Hanson 1958) to a great extent, abduction, even without this Gestalt leap, is the logic of design. When designers design an object, they envision the desired effect, and then design the object that will achieve that effect (Zeisel 1981). This a priori approach to abduction, of designing the cause for a desired effect, is an important aspect of action-research. How is it inferred from a phase of exploration (induction) what action will produce the desired results?

Therefore, in a design **situation** (a description which becomes the rule) what is the object, idea or **action** (the actifact that becomes the case) that will likely achieve the desired result?

As Pierce's pragmatic maxim states, "Consider what effect, which might conceivably have practical bearings..."(1995: 44), abductive logic would then be the process of conceiving of the object of causing that effect.

What is design research?

Is it research into design?

Is it research for design?

Or is it research through design? (Frayling 1993/4)

Not really having an answer to this question, I decided to pursue this research by writing a reflective journal. This was not because I felt that this would be helpful from a research standpoint but that it would be therapeutic.

My first questions happened to be: What is it that I am doing? Where do I start? How do I write a reflective journal? I had decided at this point that I need a way of collecting "data". Doing my job, of implementing a bureaucratic program, was not enough to qualify as "research".

I first looked at my "job", the action, I thought, the thing that needed to be done.

Simply put, I was to start a Laptop Program for the 'double cohort' of students in second year Graphic Design and Advertising. The parameters of this were spelled out in an emailed copy of the proposal to the board of governors (Appendix II).

I reported to the director of IT and therefore acted from a pragmatic standpoint. I was instructed to review a folder of documentation on the program and given a technician who would assist me. The information I needed to do this job was conspicuously missing. Who were the Laptop Students? How was I to contact them? I felt lost.

> *June 2004*
>
> *Start somewhere, anywhere... (Appendix I)*

So I started introspectively...

> *I would like to start my reflective journal with a note on procrastination; it has been 2 months since I started this job and the associated research and have totally neglected to write one word on the subject. I have certainly been busy but I do not think that is the real reason; the written word is still not a natural method of communication for me and it makes me wonder if this is not the true nature of my disability. We put things off because they are difficult to do. Procrastination is often a response to fear, fear of starting, fear of making mistakes. Starting is the blind step off the precipice of progress. Writing anything is that for me; I think that being learning disabled has prevented me from overcoming this fear but I do not believe that it is the cause. This journal may, in the end, be the cure, to make writing an innate action for me, something that handwriting could never be. (Appendix I)*

I felt that if that is what I needed then this was as good a place as any.

William James: On Pragmatism and Humanism

Twenty years after Peirce wrote How to Make Our Ideas Clear, William James (1995), made a presentation on pragmatism which started, he claimed, the "Pragmatist Movement." In his book "Pragmatism", he explains what

pragmatism meant and gives concrete example of it. In the second chapter What Pragmatisms Means he tells the story of an argument he witnessed.

A squirrel is clinging to a tree and a man is trying to see the squirrel. As the man moves around the tree, the squirrel moves correspondingly so that the man could never actually see it. The man and the squirrel are both going around the tree together. The question was; was the man going around the squirrel?

One argument says that the man is north of the squirrel, east of it, south then west of it before he is north of the squirrel again. So clearly he is going around it. The other camp said that the squirrel is always facing the man so he not going round it. It was equally clear to them that they are both just going around the tree.

> James states that, in Peirce's pragmatism, "our beliefs are really rules for action". (1995: 54)

According to the "pragmatic method", the answer to who was correct depended on what one *practically* meant by "go around".

> "To attain perfect clearness in our thoughts of an object, then we need only to consider what conceivable effects of a practical kind the object may involve – what sensations we are to expect from it, and what reactions we must prepare."
>
> (James 1995: 54)

William states that the pragmatic method is:

> "... a method of settling metaphysical disputes that might otherwise be indeterminable. ... What difference would it practically make to any one if this notion rather than that notion were true?"
>
> (1995: 54)

If pragmatism is to be used, it must be applied to concrete cases because it is in application, in action, from which is drawn meaning and truth. The truth in

pragmatism is not, however, an absolute. Truth is only a word until this truth is tested in practice.

> "Theories thus become instruments, not answers to enigmas, in which we can rest."
>
> (James 1995: 56)

James reveals in the view that pragmatism suspends belief in dogma, and is essentially anti-intellectual, accepting neither empiricism nor rationalism.

> *June, 2004*
>
> *As manager of a laptop educational program I cannot help but think in terms of how the laptop changed my life. Without the computer I would not have learned to write at all; the ability to "compute anywhere" has removed the stress of needing to produce something in one place at a given time. (Appendix I)*

I started to use the journal to understand what I was trying to achieve. Like Peirce's abductive logic, I needed a goal rather than a problem. I was still in the problem stage. I was being given solutions. "The solution will be with the faculty," was the mantra of IT. The problem, I felt, was in the consulting: too much consulting, not enough doing. The problem with doing/action was always, "What if we do something wrong?" "What if we offend someone?" What was the goal? The journal was a tool for finding that goal.

The Faculty Support Technician and I started to do something. We asked some faculty to reflect on how a class full of laptop computers would change their teaching.

> *Andrew and I have not presented ourselves as "experts" but as learning peers. The three of us are learning together for the better good of the College, each other and the laptop program. The instructor is learning about curriculum change (although arguably none of us have any expertise on this); Andrew and I are learning about this process of initiating change*

while immersed in it and while improving our process. I am learning about the research process and how to document it.

Our methodology is a reflective one

- *It is a participative process*
- *We are taking the initiative to start the process of change*
- *We are aware of presenting a common front*
- *It is truly collaborative between Andrew and I*
- *Our approach seems to be geared to the comfort of the professor rather than worked out in advance.*

Common professor's concerns

- *Their comments*
    - *And my observations*
- *Scale on the computer screen loses it relationship to scale on paper*
    - *Are we treasuring this too much?*
    - *Is "screen" scale going to be more important than paper scale?*
    - *Is type only 2-D, static?*
- *Students will lose their attention easier with the laptop to distract them*
    - *Has this really change or do have a heightened awareness of it?*
    - *Mark Harris says the novelty will wear off.*
- *Students could lose "the sketch" as a thinking tool.*
    - *The computer does not render obsolete the sketch.*
    - *Can we "sketch" on the computer?*
    - *What about the tablet screen?*
    - *What about the tablet?*
    - *Does this next generation share the same relationship with the screen that we do? Can this be a visualization tool without the*

"sketch"?

- *Will the students know the newer software better than I do? Will I end up looking like an idiot?*
    - *Will I be reduced to being a software instructor?*
    - *Will the student receive software instruction outside the class?*
- *What about Quark?* (Appendix I)

These pragmatic concerns and our actions toward them were a true beginning of this experience.

John Dewey: Experience

> "Without the meaning of the verb that of the noun remains blank."
>
> "Art as Experience" (Dewey 1934)

John Dewey picked up the baton of pragmatism from Peirce and James and carried it forward while revealing its journey back to some of its origins in his seminal work, "How We Think" (1910). Before exploring this early work of Dewey's, it is important to look at some of his thoughts on experience in his book, "Art as Experience" (1934). If action is to be discussed, it is crucial to look at the **results** of action. The result that is most important from an epistemological point of view is experience or, as Dewey points out, **an experience**.

An experience is distinct from experience, in a day-to-day sense, in that it exists as a whole, bracketed by a beginning and a conclusion. A work of art is a series of strokes, colours, ideas and images, yet these represent a whole without losing their individual character. These characteristics are held together by an aesthetic quality, which Dewey compares to a deep emotion. This aesthetic is not even enough to form an experience and "feelings" are not enough to constitute the emotion of which he speaks. The spectator can have seemingly deep feelings in a movie. These are obviously shallow in nature. He describes the conditions to be met as follows:

> "There are conditions to be met without which an experience cannot

come to be. The outline of the common pattern is set by the fact that every experience is the result of interaction between a live creature and some aspect of the world in which he lives. A man does something; he lifts, let us say, a stone. In consequence he undergoes, suffers, something: the weight, strain, texture of the surface of the thing lifted. The properties thus undergone determine further doing. The stone is too heavy or angular, not solid enough; or else the properties undergone show it is fit for the use intended. The process continues until a mutual adaptation of the self and the object emerges and that particular experience comes to a close. ... the close which completes it is the institution of a felt harmony."

(Dewey 1934: 43-44)

Dewey's experience is complex in its nature and seems by his description so far to be something "uncontrolled" and "spontaneous". There is part of the formula still missing. He calls this the "artistic" quality. He uses the word artistic in the sense of an activity that is skilful.

"The doing or making is artistic when the perceived result is of such a nature that *its* qualities *as perceived* have controlled the question of production. The act of producing that is directed by intent to produce something that is enjoyed in the immediate experience of perceiving has qualities that a spontaneous or uncontrolled activity does not have."

(Dewey 1934: 48)

In this "artistic-esthetic" experience both the action of doing and the action of perceiving has merged. In this complete experience the "urge to action becomes an urge to the kind of action which will result satisfying in direct perception" (Dewey 1934: 50). Dewey compares the results of a written work where an author has worked out all the concepts and details before putting pen to paper. Transcription is aesthetically empty and a conception in the head is nothing but a dream until it takes on the public form, whereas the act of writing and creating

simultaneously constitutes an experience. The "doing" gives the writer access to a greater perception.

Dewey gives us a challenge in terms of rigorous research and many design problems such as architecture which must be fully conceived before construction can even start. He uses medieval cathedrals as an aesthetic example of an experience in architecture that differs from that of the 20th century. But Dewey had already stated that an experience has a purpose... intentionality (1934).

In medieval architecture errors in intention, since the *design or plan* did not exist, were self-corrective. He refers to this process as "dynamic organisation" (Dewey 1934: 55). This is a much more pleasing term that emergence or self-organisation since a matrix has already be laid down to guide its growth.

> "Material is ingested and digested through interaction with that vital organization of the results of prior experience that constitutes the mind of the worker."
>
> (Dewey 1934: 55)

In this excerpt, Dewey begins to explain, although not explicitly, how this will fit into this thesis and sows the seeds for experiential learning, organisational learning and learning communities.

> "William James aptly compared the course of a conscious experience to the alternate flights and perchings of a bird. The flights and perchings are intimately connected with one another; they are not so many unrelated lightings succeeded by a number of equally unrelated hoppings. Each resting place in experience is an undergoing in which is absorbed and taken home the consequences of prior doing, and, unless the doing is that of utter caprice or sheer routine, each doing carries in itself meaning that has been extracted and conserved."
>
> (Dewey 1934: 56)

Now that I was acting rather than introspecting I felt that I was getting somewhere, achieving something:

> *Action Research has become one of the key concepts in what I am doing. To do this properly it is necessary to cultivate an innate knowledge of your subject matter. Anything worth studying is going to have a level of complexity that will defy rote learning and statistical coincidence. One of the methods that has been very successful in our laptop program has been to meet individually with the instructors. We have approached them with the proposal that we (Andrew McAllister and I) are studying their methods to adjust to the change in teaching methods with the laptop computer in hands of each student. We are to share their methods with the other instructors. We are offering ourselves as both a kind of sounding board and as a brainstorming team to help the instructor design their curriculum change. (Appendix I)*

The research was reaching a new stage. My writing was achieving the goal of applying reflection to on a regular, if not daily, basis. I look back on this journal and see that introspection has been all but left behind.

> *The reflective journal is a tool for reflection on the activities of the day, week...*
>
> *To make pertinent idle thought*
>
> *To practice my writing skills*
>
> *To practice my thinking-to-writing skills*
>
> *To keep a record of my job and my research (Appendix I)*

My writing is now to become more productive as well as more political. I needed to get a familiarity with the practical aspects of what I needed to achieve.

> *June 25, 2004*
>
> *It has been very difficult to find the time to write in my journal. Procrastination has not been the issue, at least not the main one. I have been busy*

preparing a policy document for the laptop program and a letter to the students, which will be mail on the 30th.

The letter has been a learning experience since I need to be wary of how a student is going to read it and interpret it. I gave the rough draft to Andrew to read and he gave me a number of criticisms, suggesting that I should reformat the paper as a number of action items rather as a presentation of information, rather than "here is the information," it should be "here is what you need to do."

I was beginning to realize as well that I needed to take charge. Leadership was lacking. I was expecting to bow to the wishes of the Design Faculty. This experience was becoming integrated, surrounding a goal that was personal, of self-discovery, and professional, of getting the job done.

Russell, our webmaster, asked me, "What does it mean when you are told to 'take on a leadership role'?"

It made me think about something about which I wanted to write. During our faculty training session, I did take on a leadership role; I answered questions to clarify what we were trying to do; I tried to guide things in a direction that would be fruitful. I did this even thought the dean of design was there and probably should have taken on that role.

I was afraid the following day that she would be critical of me for this but instead thanked me for taking it on.

Alastair has given me similar compliments, saying that I "get it", I understand what we are trying to do.

- *I am trying to guide the faculty into designing their own educational program and taking into account the new tools that they have at their disposal.*
- *I do not want to change the "methodology" only the methods and the infrastructure.*

- *The focus is on thinking skills*
- *The focus is on problem solving*
- *The focus is on inspiration*
- *The focus is on ideas*

We use the words "critical thinking" but I am not sure that every one knows what this means. (Appendix I)

This focus on "critical thinking" would become the "critical" success factor of the program. I would embrace Dewey's definitions of the "how we think", pragmatism and reflection as central to the design research process, although at this point I had not worked out how design was involved.

More Dewey: On Reflection and Pragmatism

The key component to action-research is reflection. Although this has become a buzzword in many areas including education and social research, it is an old word and an old idea.

Reflection is defined by Dewey as, "Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further grounds to which it tends." Dewey points out, in a very pragmatic fashion, that reflection will lead nowhere unless the relevant analogous experience exists from which to draw (Dewey 1910: 6).

Early in How We Think, Dewey discusses error and quotes a passage from Locke's Essay On Human Understanding:

> "'The first is of those who seldom reason at all, but do and think according to the example of others, whether parents, neighbours, ministers, or who else they are pleased to make choice of to have an implicit faith in, for saving of themselves the pains and troubles of thinking and examining for themselves.

> This kind is of those who put passion in the place of reason, and being resolved that shall govern their actions and arguments, neither use their own, nor hearken to other people's reason, any farther than it suits their humour, interest, or party.
>
> The third sort is of those who readily and sincerely follow reason, but for want of having that which one may call large, sound, roundabout sense, have not a full view of all that relates to the question...[sic] They converse but with one sort of men, they read but one sort of books, they will come in the hearing but of one sort of notions...[sic] They have a pretty traffic with known correspondents in the same little creek...[sic] but will not venture out into the great ocean of knowledge.'"(Dewey 1910: 23)

This is a good start to examine the errors of authority, self-interest (Locke's definition implies a dishonesty not present in "enthusiasm") and dogmatism, but it is not enough. There are a great many other errors of logic, thought and argument although many could be squeezed into one of the above if an **honesty** component is included. For example, false dichotomy is a fashionable one in these days (Either you are with us or against us). Dewey's definition of reflection is far broader than this even, questioning one's own belief system. Dewey's broad definition of refection recalls a similarly broad definition of pragmatism.

> "Mr. James himself applied it, for example, in 1898 to philosophic *controversies* to indicate what they mean in terms of practical issues at stake. Before that, Mr. Peirce himself (in 1878) had applied the method to the proper way of conceiving and defining *objects*. Then it has been applied to *ideas* in order to find out what they mean in terms of **what they intend, and what and how they must intend in order to be true.**[5] Again, it has been applied to *beliefs,* to what men actually accept, hold to, and affirm. Indeed, it lies in the nature of pragmatism that it should be applied as widely as possible; and to things as diverse as controversies, beliefs, truths, ideas, and objects."

[5] Emphasis added

(Dewey 1908: 87)

One of two errors that Dewey applies to both thought and experience (1910) is haste or impatience, "excess on the side of doing" (1934: 44). A rushed thought cannot be reflective anymore than a rushed experience can be fully fulfilled. The other is enthusiasm, "an excess of the side of receptivity" (Dewey 1934: 44). This leaves the experience entirely on the surface. "Active, persistent, and careful consideration..."(Dewey 1910: 6) is the key to reflection.

Dewey concerns himself not only with reflection but also with how information is processed into meaning or knowledge. He calls this systematic inference. This is a "double movement" from induction to deduction and back again.

Niiniluoto's explanation of induction, deduction and hypothesis should be revisited at this point.

Induction is a direct inference of a rule through observation of a cause and the effect. This first movement is from "facts to meaning", Dewey states (1922). He makes the point that experimentation is needed to confirm that the inferred rule is always true.

Deduction is a direct inference of an effect from a cause by applying that rule. It is not necessary to see this happen to know that it will be true, as long as the rule is true.

Abduction, the logic of the hypothesis, is an **indirect** inference from an effect (or desired effect) to a cause through application of a rule. This rule of thought is tested through applying the tentative rule or hypothesis. Thinking is the "bridge" between experience and the rules of thought. Peirce's abduction deals with process for the movement back to induction in a way that Dewey does not. But he introduces the idea of the mediacy of abduction, "One of the marks of controlled thinking is postponement of such acceptance [of suggested meanings]."

(Dewey 1922: 31)

In "An Analysis of Reflective Thought", Dewey breaks down the reflective/critical thinking process into five steps:

> "(i) the occurrence of a problem,
>
> (Ii) Its specification,
>
> (iii) occurrence of a solving suggestion, or supposition, hypothesis,
>
> (iv) elaboration of suggestion, or reasoning,
>
> (v) experimental testing"
>
> (1922: 29)

Dewey takes pains to point out that this is not expected to be necessarily distinct steps nor taken in the order prescribed. Even the problem may not occur at the beginning. There should be, in critical or scientific thought, a melding of the steps in the process.

In social research, including design, addressing the root causes of a problem is needed. A shallow assessment, whether it is through impatience or enthusiasm, of what is seen as the problem is often not enough.

In the continuation of the previous excerpt Dewey expands the problem of pragmatism at that time:

> "But yet the situations and problems *are* diverse; so much so that, while the meaning of each may be told on the basis of 'last things,' 'fruits,' 'consequences,' 'facts,' *it is quite certain that last things and facts will be very different in the diverse cases, and that very different types of meaning will stand out.* 'Meaning' will itself *mean* something quite different in the case of 'objects' from what it will in the case of 'ideas,' and for 'ideas' something different than in the case of 'truths.' Now the explanation to which I have been led of the unsatisfactory condition of contemporary pragmatic discussion is that in composing these 'different points of view' into a single pictorial whole, the *distinct* type of consequence and hence

of meaning of practical appropriate to each has not been sufficiently emphasized."

(Dewey 1908: 87)

In a social, community-based situation these objects, truths and ideas are not just diverse from each other but contain diversity within each situation. This is no longer merely diversity; it is complexity.

July 25, 2004

Tired!

It has been a couple of weeks since I have written in the journal and a lot has changed. My focus has been on the Laptop Program website and I am starting to see that everything has been linked to the site and will be well into September. It has been awful trying to write for school while working on content for the site, emailing students (at all hours of the days and weekends they send the emails). Of course family is another area to balance while doing all this. (Appendix I)

This marks a change in what I was doing, where I began to document what I was doing for my job but saw it as interfering with the documentation for research. I was beginning to understand the role of the reflective tools I had used, but had grave doubts as to their validity and rigour. I first wrote of this in early July.

July 6, 2004

Research for the professional ***is*** *about making information or processes tacit. It is about constantly learning your job.*

This creates a problem for me. I have been using various techniques to do this, writing policy documents to do a rationality check (this one leaves a good artefact), timelines to help visualize the problem (this one is useful at the beginning before becomes useless after a while). But would need to correct it after the fact to see what really happened. The diary would help if it was rigorous. There is also the danger of correcting the data to make it look

better than it was or adding a view point that did not truly exist at the time. It is possible though that the viewpoint came about because of the timeline. It is also possible that the timeline allowed us to see things that were always there but hidden. Honesty and documentation is the key, meetings and conferences are also helpful to see other points of view and learn from other experiences. Post-rationalization has a value but I do not feel that post-justification is the same thing. But (to get back on topic) how do we document this well when we are dealing with tacit (undocumented) research. What about research that does not need to be documented or completed because it has done its job? (Appendix I)

But in late July the writing began to become something other than mere research. The focus changed because of the feedback from the students. The Laptop Program was no longer a theory or even a task. Between these two entries, the communication, a letter explaining the Laptop Program policy, went out to the students; the computers went up for sale at our chosen vendor, the U of T Computer Shop, and the Laptop Program website was launched.

The most important thing that has happened in my research has been a discovery of a method. I have certainly had a methodology for a while. Getting to understand what I am doing on a tacit level has been this from day one. The first step was the time-lime so that I could visualize what we needed to do. After that was the policy document to outline policy and procedures. Again as I built this document I needed to learn the content before I wrote it.

It was a type of writing that I had never done before, almost plagiarism, copying from various sources, rewriting some of it as I try to absorb what happened before I was hired. (Appendix I)

My thinking had changed although much of my focus had remained on gaining a tacit understanding. I believed at that point that what I was trying to do was find a tacit way of absorbing rote knowledge while avoiding the problems of sympathizing too strongly with the students.

Dewey specifically states that habit is not part of **an experience** *(Dewey 1934). I did not yet realize that this was to be an experience. It seemed scattered and confused at the time. I felt split between my loyalties to my employer and the student whose interests I served. The Laptop Program was a program that was funded, to some part, by the students.*

> *I had a discussion with Alastair about my discomfort with the situation with [a vendor]. I want to be left out of situations [that compromise] my dealing with the students. I was glad to see that he shared my concern...*
>
> *Alastair indicated to me that it was my sales and business experience that got me the job. I was experienced with computer and software vendors; I was a person who would get something done and I would be able to "sell" the Laptop Program. I think that that [sic] is what has made me so tired recently. Now I am trying to bury the political side and focus on the students. Dealing closely with the students brings empathy. I cannot have secrets from them while dealing with them so closely. They are already suspicious enough the last thing they need is cause. (Appendix I)*

But I found my empathy to become somewhat strained over the next few weeks:

> *I had my first tension with a student on Friday. This had been building up through a series of emails from a student who did not want to buy a Mac. I am glad that I spoke to her though because it erased any sense of empathy with her. She was arrogant, self-centred and full of conspiracy theories. She already has a job in design(I did not ask for details, but she does not have any money) she already knows the software, she just needs the degree... I told her that the Laptop Program is not about software; it is about creating a learning environment where the student can learn [problem solving] skills, creative skills, idea development skills but, MOST OF ALL, PEOPLE SKILLS.*
>
> *She is already burning bridges. (Appendix I)*

This was the beginning of my experience with the software instruction issues at the College. We had already told the Professors that they would not have to provide

software of technical instruction of any kind. Although this would not be an issue I would deal with in the implementation of the program, it would become an issue that became central to my job as it transitions from a specific IT program to one of managing mobile and ubiquitous computing on Campus.

This student brought up several important questions:

> *Where does technological (digital, software) instruction lie in relation to Art and Design pedagogy?*
>
> *Where does brand loyalty relate to our decisions?*
>
> *Where does it relate from an IT service level perspective?*

The answer that was relevant at this point was that the community as a whole would define these parameters.

> *The Website has become an action research tool. I am posting things and I get instant feedback, instant data. But I do not feel that I have 'subjects' as much as I have people who are affected by my actions, by my design, by my research. I have found a neutral stance that is based on pragmatism and action. I have a job to do and I am using design in that job as a communication and research tool. The website is not static; it changes every day in response to student input (mostly emails). It will become invaluable as September comes, as students need to connect to the Internet and to email. (Appendix I)*

This conclusion about the website as an action-research tool has some truth but I see other things happening here as well. What I could not see initially was the stages of the research over the four-month period of the journal. There is a significant difference between writing the journal and reading the journal with the benefit of hindsight and long-term overview. I see in the journal that my concerns are becoming centred (Creswell 1997) on neutrality. This neutrality is based on fairness in my decisions rather than an intersubjective stance in the research. I was beginning to understand that I was not actually going to be studying people at all.

When I started this job I thought that the instructors would be my focus rather than the students because I had a "subject" focus. I [thought] I had to study people rather than people in a situation. I am in a post-justification process again. I realize what I was doing but did not recognize it at the time. I am getting more than enough data in email, about the site, about the program, about the school. (Appendix I)

I referred to what I was doing as "post-justification" rather than discovering theory or grounded theory research (Creswell 1997). The data I am seeking is merely details of the program rather than the data of the research journal itself. This links back to my understanding of modelling a "phenomenological neighbourhood" and my understanding of Wittgenstein's writings on language(1961) in Tractatus Logico Philosophicus. We are building a "thick description" (Glesne 1999; Stringer 1999) of the Laptop Program from which theory can be developed although I did not understand this at the time.

We spoke in school about the common good but what about ***self-interest*** *as a goal or a mode of operation. I spoke to one student [who] insisted that she is an exception to the rule, but, as far as I am concerned, the exceptions are the rule. (Appendix I)*

I was becoming frustrated with the obvious self-interest and the people who felt they could do better at negotiating than I could. My years of experience and volume of purchasing meant nothing to many; they all felt that they were different. Although I was fairly trite here, I was referring to the fact that we are all different. I was cluing in to the fact that it was our commonality that was important.

The fact that the students were not originally going to own the software was a big issue. When people spend money they do not want to "borrow" the thing they felt that they bought. I am pushing that they will now own the software and that it will have a value towards upgrading to the commercial version. I am trying to remain patient and helpful, trying to answer emails VERY promptly and trying to post issues on the FAQs ASAP. Being proactive and aware has been the key. (Appendix I)

Ownership and the decisions and responsibilities that come with ownership were a big factor in the satisfaction of the students. We had however the responsibility to make sure that the ownership was valid.

> *August 1, 2004*
>
> *The diary is not that different than what I was done in the first term with "notes on the train." That was a reflective diary. [It] allowed me to put done and organize my thoughts. It allowed [an] automatic writing process without a specific process or method in mind.*
>
> *I suppose that if you to give it a methodology, it would be introspective.*
>
> *It is helping me read some difficult material without getting lost as I can write down my thoughts without fear of losing them. (Appendix I)*

Again I have drawn a conclusion about introspection. The self-dialogue at which I have engaged is not necessarily introspection; it merely lacked the context at the time it was written. Neither was I looking inward, at the time, nor at myself as the subject. I was being reflective.

I can see a change in my journal writing at this point. I was trying to make the journal more scientific, more rigorous, more controlled and organized. In some ways this is good. I am trying to write to absorb information but in others, I am trying to excuse my perceived lack of use for the journal. I am using the journal to write about my readings. I am using it to take memos really, most of which were a one-time thing.

> *I have begun to add tabs to the diary to keep notes pertaining to important things to remember.*
>
> *Use these in brainstorming sessions*
>
> *Keeps everything in one document (Appendix I)*

These attempts at "rigour" went nowhere. The energy went into the policy document (Appendix II). Alastair had asked me to do some "heads-down" work

on a policy document. He had wanted, what I assumed to be, two or three pages on policies and procedures for the program. I went at this with a thoroughness that was not tenable, if the document was ever to be finished, but quickly realized the impossibility of my task. I referred to this as a "living document" because it would never be able to settle into its final state. The technology changed constantly as did the students, the faculty, the industries and the pedagogy. The website became the stable document, but it was to be a dynamic form of stability, in the sense that it seemed to have a sense of finality. It did not change while one was looking at it, even though it was the fact that it changed constantly which made it valuable.

The Policy Document changed everyday, although the policy stayed very much the same. The job became about defending our policies for fear that it would all collapse under another attack from the media or from the student union. At this point, I had a record of what every rule was meant to control and used the document to look up policies before I made decisions. I had the document open all the time for answering emails or which to refer during phone calls. This was not yet tacit information for me, partially because I either did not understand or did not agree with the policy.

I was split in my loyalties. The lack of clarity and consistency in some of the College's policies made me sympathize with the students at times. The policy document helped keep this in check. As the policies became clearer the document was updated. I came to consider it a "living document", one that was never meant to be finished. In fact, at that level of detail and complexity, it could not possibly be complete. Change was constant.

We were constantly chasing technology. Students' situations were always changing since they were not consistently in one specific year level.

With my work focus now on the policy document, my journal became about "research", notes on my readings. I also started to write about my philosophical musings. These writings, in retrospect, are important to my later understandings of phenomenology and empathy.

This is the perceptual assembly process and a part of our perceived

consciousness. We live part of our lives in artificial space not phenomenal space.

But [Dennet] is right about some aspects of this artificial space. Fiction does live in another space that can feel quite real to us even though it is not linked to perceptual experiences. We feel pain (or the self-protective aspects of pain) when we read about it. We sympathize with the parent of a lost child even it is a fictionalized account. We have experiences that live entirely in our head. (Appendix I)

I start to think in terms of goals. This would become an important factor in my thesis as well as future research

August 2, 2004...

Dennett question[s] whether this is a matter of consciousness or short term memory loss. What is the difference between consciousness and attentiveness.

The goal is the difference in some cases when I am working and someone speaks to me, my goal is to make them stop speaking to me. I am aware of what I need to say to make them go [away]. ("Dad, can I get a motorcycle?"... "sure son...") but my response is not going to be fully aware.

I have certainly gotten into a state where I have not been paying attention to my driving and narrowly avoided accidents but this lack of attentiveness is not the same as safely arriving somewhere with no memory of the trip.

Our consciousness is a process which is constantly taking-in and discarding data, keeping only what it need to perform the goal at hand. (Appendix I)

and the differences between people...

One of the things that makes learning so different for so many people is that we do not all keep and discard the same data.

While typ[ing] this I saw my neighbour knock on his mother-in-law's door and

go into [the] house, a scooter and a motorcycle and several cars drove by[,] my dog barked at a pedestrian. I was finally distracted by loud music in a car parked across the street but I continue to write and discuss the situation with my wife. I am thinking about my thesis, my diary, and the book I am reading... I am conscious of so many things and by noting them [down] here I might remember [them] but if I did not I would surely have forgotten them.

Imagine if you could remember everything you saw, hear, felt... !

I am beginning to understand the difference between perception and experience...

Maybe that is why I am so tired... (Appendix I)

Community and motivation were factors helping to balance my sympathies with the students. I was aware that I needed to find a position of objectivity.

August 3, 2004

I had a great conversation today with a parent about the Macintosh computers we chose for the Laptop Program. He had already purchased a PC laptop for his daughter because being an IT person he has had some bad experiences with Macs and felt they were too expensive. We had already decided on tackling this attitude with certain strategies on the Laptop Website. (Appendix I)

Following is a comparison of our policy of dealing with this problem and the sales strategies I used for selling CAD software against a product that was considered technologically superior.

Post no information encouraging the use of PCs in the laptop program

Don't talk about what the competition can do

Post no specs for acceptable PCs

Don't say why you would buy the competing product

Never say that Macs are better than PCs

Never say that your product is better than the competing product

PCs are better for games

Talk about a frivolous benefit for the competition

Post the reasoning that went into choosing the Mac platform

Describe a champion's reason for choosing your product

Focus on the students' needs

Focus on the customer's needs

Explain how working to our strengths helps the student

Explain how [your] strengths help the customer

Focus on community and lifestyle

Focus on workflow, community and lifestyle decisions

Avoid technical comparisons

Avoid technical comparisons

KNOW WHEN IT IS A LOST CAUSE (Appendix I)

The parent stated that he had looked at the website and found it to be very informative but it was not clear whether a PC laptop would be OK since his daughter had a brand new PC laptop. (We hit the right amount of information, enough to feel informed but not enough to make the phone call unnecessary)

I asked why they had bought the PC laptop when they knew she would need a Mac. I explained that allowing (existing) PCs was an act of compassion for those that could not afford to purchase another laptop, not a

loophole for those that could have bought the right equipment. (This is the first time this had been this clear to me.)

I explained the reason that a Mac is more suitable for graphics. I explained that PC often use resolution enhancement on the LCD screens whereas the Macs render only pixel for pixel. Even this may not be correct so anti-aliasing is used to correct the display but if the resolution is enhanced the correction is applied twice through to different processes. The result is that type does not display as well. This may be crucial in a typography class. I also explained that his daughter will be working in a Mac world. We have made sure that we can get the software and that the fonts will be the same but consumer-targeted (digital lifestyle) software like iMovie and iPhoto may be used as well in the courses.

I explained that, just like he has standards in his business, the graphics business has standards as well. They are as much community oriented as they are technical. Correction MORE to do with community.

The line that really hit home for him on the website was the line about video games on the PCs. We are looking at the computer as a design and learning tool and not at the other aspects that make it attractive for students. The parents want their kids to get jobs after this and he realized that his personal opinions should not harm his daughter's chances of success in life, school and career.

All parents want their kids to have the best chances of success! (Appendix I)

Alain Findeli had asked his students at one point to answer how man and animal differ. That would be where I found a solution. My thoughts were everywhere and I am beginning to understand that I am not alone in this confusion or lack of understanding, like being in a different world.

August 7, 2004...

A dog has consciousness, like a human has innate characteristics. A dog is just a dog like I am only human but I can be a better human through

reflection and a sense of good. (Ethics)

August 29th, and school and the Laptop program is about to start. I am beginning to understand that there really are different realities for different people and it defies common sense and introspective methods.

What should happen is theory. What does happen is science.

So how do I make science out of something that makes no sense? How do I use reflection without introspection? How do I use a third person view when I do not understand it and cannot predict it?

> *Precedent.*
>
> *Expect the unexpected*
>
> *Scenarios*
>
> *Take the 1st person voice from the 3rd person perspective – put yourself in the subject's place*
>
> *Understand that it is not his duty to see your point of view – but it may be his choice*
>
> *Empathize*
>
> *Remember "start anywhere"? – Give your subject a starting place*
>
> *Be flexible – the rules might change*
>
> *While fact might be wrong, there is no "wrong" point of view*
>
> *You might be wrong*
>
> *If a mistake is made once, it can happen again (Appendix I)*

One of my scenarios was to answer why there would be no exceptions to the software fee. Alastair did not want me to introduce the idea that this was even a possibility and I believe that he was right. For the most part we have

dealt with this individually. Most students have wanted to use pirated software. Others that have the software have accepted the fact that they will still get a good deal through the program.

However the thing that I did not expect was for someone to go out of their way to break the rules. One student did this. She bought the Adobe Creative Suite for $550 (with tax) even though the software fee is only $275. I cannot see the logic in what she did since this is obviously twice as much money for less goods (our bundle includes Microsoft Office, Extensis Suitcase and the OS and the next CS upgrades). This defies common sense and the mother still insists that it was a better deal for them. This twisted reality exists because they did not want to rely on someone else is the only explanation that makes sense to me.

They were not the only people who believed that they could get a better deal than we could. There is always "someone with a better connection"; it is what makes them feel special. I think that it is more special to ensure that you (or your child) gets the best education possible! People wanted to [write] it off on their businesses, buy through friends at Apple, get used computers... People complained that they purchased desktop systems the previous year, even though they had been warned. (Appendix I)

I began to understand our bigger goals.

September 4, 2004

I have used the term "complex assembly" to attempt to explain several Gestalt phenomena in the past and to try and get past the idea that our senses can be described by flatten[ed] representations of these senses. Our vision is far more than the sense of sight, cannot be compared to a camera lens and cannot be broken down into forms, volume and edges. Seeing is nothing without the idea of consciousness and the interpretation of this information gathering process.

To simplify the discussion of consciousness I posit the definition of

consciousness as the singular element that makes us human. It is consciousness that allows us to choose, allows us to discern right from wrong and allows our lives to be more than the instinctual pursuit of our needs. We choose an ethical and aesthetic existence. We all live our version of the "good life" sometimes successfully and sometimes not. (Appendix I)

Just before the program would start it began to come together.

September 8, 2004…

I was thinking today how all this is going to fit together. I was going to write a bit recently about the placebo effect and how they work with our expectations. I was thinking about the laptop program and how we used communication and our research to manage our students['] expectations. I believe that this will be one of the keys to my thesis.

I have decided that my next unit of research should be on Phenomenology and the management of objectivity in research.

My weakness has been on this front and staying focused but now I want to discuss the subject of finding focus through research. Great researchers did not suddenly become great researchers. They struggled and worked and searched and built a tacit understanding of their field before becoming great researchers. This is what I am trying to do while being honest with myself and others (maybe not always a good plan…) I think that "curiosity" can look like "lost". I am not apologetic about this; I needed to be lost before I found my way. I need to make knowledge mine before I can even pretend to use it. I probably will never be a great scholar because I do not have the skills to be what I am expected to be as a scholar but graduate school has helped me to be a better professional and I have excelled at my job because of it.

Can I now write a thesis [that] will be scientific? (Appendix I)

Although I did not intentionally stop writing my journal here, I did stop. The Laptop Program began and my experience in creating it was over in sense of which Dewey would have approved.

REFLECTIONS

In the conclusions of the Journal itself, it is interesting that I do not include the research journal as data of the "data" I am collecting:

> *My data[:] the website, email communication, the (living) policy document. The verification... a survey of the students (was it helpful, informative...?) What should we have done differently? (Appendix I)*

This journal is what is informing me as to what really happened. Even though I was concerned about changing my story, about post-rationalisation, the journal is a record of what actually happened. It includes my, the researcher's, thought process and feelings as well as the process and results. It is a record of an Experience and the stages that I went through. Can we now go back and trace these stages and compare them to Dewey's stages of critical thought:

> "The occurrence of a problem,
>
> Its specification,
>
> Occurrence of a solving suggestion, or supposition, hypothesis,
>
> Elaboration of suggestion, or reasoning,
>
> Experimental testing..."
>
> John Dewey, "An Analysis of Reflective Thought" (Dewey 1922)

It is my belief that we get stuck on the first step. There is no specific problem once I was brought in the implement the Laptop Program. The problem for the College was the lack of technical education for our design students and no existing infrastructure with which to solve it. The specifications as well as the hypothesis are outlined in the Laptop Program Proposal (Anonymous 2004). There is no time for testing since the program was to be launched in 8 months. I do not feel it could be considered experimental when failure is not an option.

This is a different type of thinking process than Dewey suggests since I do not have the opportunity to iterate solutions, problem statements or test anything.

There are many things in the real world that are like this. The question is, "What did I do instead?" Is it rigorous and reproducible? Can a methodology be derived from it.

The Original Goals...

The original goal of the research journal was to use writing as a way of giving clarity. There were several areas that I needed clarity:

- *Research issues*
    - *What was the nature of my research?*
    - *What were the goals/desired outcomes?*
    - *What was the data?*
    - *What, exactly, was I documenting?*
    - *How would the journal help me with the above?*
- *Professional practice issues*
    - *Where did my loyalties lie on ethical questions?*
    - *What was the next step?*
- *Personal development issues*
    - *Was I doing research?*
    - *Was I being honest?*
    - *Would I be able to do this?*

It was in the area of research where I received the biggest surprise in the form of ***"an experience"*** *in the form of which Dewey writes. The journal was a record of a process that I would not even had noticed had I not gone back to read the pages that I had written. This gave more that clarity; it gave an awareness that otherwise that would not have been possible. The journal, along with the policy document, became the data of the research. What, it turned out, I was recording was the experience I had had.*

The writing achieved the outcomes that I had desired and helped me stay focused on implementing the program with consistency. This speaks to the issue of professional practice. The level of focus, clarity and documentation helped enormously in determining next steps and insuring that I learned in each step of the process. For both professional and research reasons it was important to convert the tacit knowledge from having the experience into explicit knowledge that I could both repeat and share. The journal helped with the reflection needed to do this both at the time of writing to make my thoughts explicit and upon review.

Personally, the journal allowed me to express my doubts, fears and frustrations so that they could be dealt with in a timely and rational manner. Putting my thoughts on paper allowed me to review them and, even more powerfully, enabled me to let others read them as well.

Next Time...

What would I do different next time? Of course, I am going to say that I will keep better records, make journal entries more regularly, but the truth is that I will not be any more disciplined than I am now. I wrote when I had time or I wrote when I had sometime to say. Hasty careless entries or trivial entries may have actually been more damaging than helpful.

What will truly be different will be my expectations. It will be a challenge to keep the freshness and honesty that was in this journal but it will be worth doing again with more intentionality as long as it is not more deterministic, contrived, as well.

I know now that what I did ***was research****.*

Methodology: Exploration versus Experimentation

Overview

What is research? That is a good question in an environment, like a new university, where there is little or no tradition of research. In "Becoming Qualitative Researchers", Corrine Gesne (1999) states that dictionaries define research as "a careful and diligent search" but rigour is not so easy unless it is clear on how this search is conducted in several dimensions. Our ontology, our sense of reality through phenomenology must be examined. In this search; our epistemology has been examined, through reflection. Methodology, through action research, will be examined in this section.

This research could be called by several other names; it is a case study; it is a grounded theory study and it has aspects of an ethnographic study (Creswell 1997). Much of this depends on how the data is presented. But most of all it is qualitative rather than quantitative.

A Short History

Like the title of this thesis states, this is a case study of an ***implementation*** *of a laptop program rather than a study of the program itself. The question of interest in design is how does one study a thing that does not yet exist? The temporal boundaries of this study were the four months before the start of the laptop program at the Ontario College of Art & Design (OCAD).*

I started at the College approximately six weeks after the board of governors approved of the 3-year Laptop Program Pilot project. What I brought to the job was years of experience starting new, and successful businesses. I was an entrepreneur with no stable work experience in a bureaucratic environment but with expertise in manufacturing, software and software sales and a half completed master's degree in design research. One other thing I brought to the table was a familiarity with the OCAD culture and the world of design. I was a graduate of the College and had worked closely with designers throughout my career. I had even taught CAD software at the College a few years before that. I had done training rather than teaching; the difference being that training was focused on specific

goals defined by my client, my students' boss. This new teaching experience, at OCAD, gave me an insight into the difficulties of teaching software, especially if there was no projected outcomes, goals or desires envisioned either by the instructor or the students.

I accepted this job with the understanding by all parties, OCAD, Université de Montréal and me, that the writing of a research journal during the first four and a half months would become my "projet de recherche". The IT Director and the Faculty Support Technician had already started the research before I had started, although I doubt that they had realized the importance of what they had done at the time. The first thing that I found was that they had held a meeting for students who would be affected by this change; these students, second-year Graphic Design and Advertising students, had also been warned, before their first-year registration, of this impending change. A pop-up was then added to the OCAD website with a list of FAQs based on this meeting. The most important response to student input was that the program was changed from a lease-based program to a student ownership plan.

However not everything that was happening was good. A consultant, someone from another College where there was a large Laptop Program already running, had been hired to help with the implementation. I saw this person as someone who would run the Laptop Program in a very authoritarian manner. I did not see this as a very effective approach at OCAD. Vendors were making a number of other decisions, in the absence of a manager. I took control of the situation by clarifying our relationship with one of our major vendors and discontinuing the relationship with the consultant.

I was pleased, and somewhat surprised, that my director and other executive staff supported my decisions 100%.

> *In a meeting, with a hardware vendor and several staff at the College, I asked some questions to assist us in choosing a third party vendor as described in the Laptop Program proposal. This was not the vendor's agenda since the discount they would pass on to the College was to come from a direct purchase, unbeknownst to us. The senior rep there did not want me to take control of the project since it meant a loss of power for her.*

Her approach was to be condescending and belittling, "Michael, I know you are new here but there is to be no third party vendor. There has already been several meetings on this."

Before I could even lose my bearings, an executive from OCAD came to my defence, pointing out the section in the proposal.

"The third-party vendor will provide a discounted purchase package for OCAD students, discounted financing and insurance options, and service and support." (Anonymous 2004)

She then asked the vendor if she had even read the proposal. I sensed that we were a team supporting each other to reach a common goal.

The research component of this job would become problematic in several aspects. Research was seen as finding quantitative data based on exact models executed elsewhere. We could not find any such data but did ask the IT Director of the School of Design Architecture Art and Planning at the University of Cincinnati to attend our faculty training session. Mark Harris ran one of the oldest and most successful laptop programs in North America. It was Apple hardware ownership based, higher-ed and was at an art school.

Although there were a lot of parallels between out programs, the evidence was, at best, anecdotal. However we were encouraged by the support and the advice Mr. Harris offered us for our upcoming launch. Having someone with his experience at the training session brought out a lot of faculty concerns with the Laptop Program.

Although we were not requiring the faculty to teach software, many felt that they would be unprepared if this should arise. "What if the students are better than us?" was asked. Mr. Harris assured them that the students would quickly become more proficient than them on software issues. "Do not fight it, embrace it," was his advice.

"What about the Internet distraction, email and text messaging?" was asked, "Can we get them to close their laptops when we are lecturing?" Mr. Harris related that

this was a big concern at the University of Cincinnati. It was his opinion that this was a novelty that wore off.

> *Political correctness was not my strong suit at the College especially when questions became tiresome. The idea of having student close their laptops during lectures was one of these issues. I felt that some student would need their laptop open for note taking. In one meeting with the Dean of Design a professor was complaining that the students were no longer listening to his lectures as was made obvious by their activities with their laptops.*
>
> *My response was to ask how he knew that they were listening before.*

For this training session we had also asked two of our professors to prepare a course outline and show how the new curriculum would take into account the presence of laptop computers in the classroom. The Faculty Support Technician and I interviewed one of these faculty several times to help prepare this presentation. Our questions were intended to allow her to verbalize the content and encourage brainstorming. These sessions were very successful and her presentation was well received.

At this point laptop computers were distributed to the qualifying faculty and a discussion ensued about what this qualification should be. The IT Director, the Dean of Design and I had decided that anyone teaching three laptop based classes would qualify for a full-time laptop computer and the rest would be able to borrow a laptop on an as-needed basis. Several complained about this policy but we did not feel that we could afford to give out computers to all faculty members just because there was a Laptop Program. This would have set precedents that would have made further expansion of the Laptop Program nearly impossible. We did feel that getting faculty on board would be paramount but not at this cost.

After the training session we arranged to meet with as many faculty as possible with whom to discuss the technology's affect on curriculum change. This went very smoothly since the technology was not the reason for curriculum change. The Design Faculty was already launching a new curriculum and many of the faculty expressed that they did not feel ready.

We were also opening our new building, in which the Design Faculty would reside. Along with this came a new network infrastructure and the start of a college-wide wireless network. We were not just initiating one change but several.

This posed a problem for an experimental method of research because the individual actions could not be isolated nor could the results end in failure. We could not allow the Laptop Program to fail or be seen as unsuccessful. Although from a faculty perspective many things were changing around them, for the cohort of Laptop students this was all they had known. The students who had fought the Laptop Program were not the students actually affected.

The early complaints from the Laptop students were addressed:

- *The expensive lease program was changed to an ownership program.*
- *Bursaries were provided to students who could not afford laptop computers.*
- *The software model was changed to allow ownership upon graduation.*
- *More software and fonts were negotiated for student ownership.*
- *More choice was offered for Apple hardware.*
- *PC laptops were allowed for a limited number of students. This option was disallowed the following year for new students because of support issues.*
- *A mailing and website were created to address the lack of information and communication.*
- *With the hiring of the Laptop Program manager and technician the faceless administration was given a face. Emails now went to a person as did phone calls.*

We felt that our best defence against complaints would be the fair and consistent application of policy. We had started to develop a policy document from which we based the mailing and the website. This was a living document; it grew and changed as policy was developed in response to issues as they arose. We were often caught unprepared for a question but responded quickly and were never caught contradicting ourselves.

We were always responsive to issues that were seen as unfair and our responses were always based on the good of the community.

> *I do not mean to imply that we did not make mistakes. At one point one of our staff members gave advice on purchasing a PC laptop to a student.*
>
> *We had established an exception that students who already had previously owned functioning Windows laptops would not be required to purchase an Apple-based laptop. Several students circumvented the rules by claiming that their laptops were older. We allowed this since we had only suspicion not proof.*
>
> *In a case when our staff member gave recommendations, we had evidence. We told this student that her new laptop did not meet requirements but since our staff had been involved we paid her restocking fee. She returned the PC and purchased an Apple Laptop.*

By the time September came around we had established a Laptop Program helpdesk and had hired Laptop Students to attend it. It was our belief that participation by stakeholders would help with issues of student acceptance of the program.

The biggest problem we were experiencing was dissatisfaction with our vendor. We had put out an RFI (Request for Information) to choose our Apple hardware vendor and had chosen the University of Toronto Bookstore. The store was already an Apple reseller and was the only vendor who could offer educational pricing to our students.

> *My objectivity had become compromised in my desire to advocate for students' needs.*
>
> *The store was not able to provide "below educational" pricing, as was promised in our original proposal. This became a political issue in my job as I felt very strongly that Apple should have been doing more to help our students and that the College should have done more to push the issue.*

This became a rift in my loyalty to the job, as a manager, as my sympathies went to the students. I immediately saw that problem of my objectivity as I dealt with the students, at this point, on a daily basis and had little contact with my director. We now met only weekly and I felt isolated from IT services. This was compounded by the fact that my office was strategically placed near the Design Faculty and near the Laptop Program helpdesk rather than with the rest of IT.

I also felt isolated through a caste system in the College where many faculty members saw me as little more than a technician because of my frontline contact with students and lack of faculty status. My isolation from IT Services resulted in my being left me out of high-level meetings and committees. The Design Faculty office prevented any input from me on digital curriculum issues since I was not a faculty member.

I was closest to the students but I was very aware that this was potentially dangerous and inappropriate so I took steps to rectify this situation. This resulted in a great deal of soul searching -- read as introspection. I questioned whether my sympathies were misplaced and decided that they were not, I did need to empathize with my clients. I just needed to be clear in my mind that they were clients rather than peers. I needed to understand that my loyalties needed to be balanced between all the stakeholders.

This led to my approach of trying to deal with the students as a community and eventually led to me changing my style of dress. I had initially adopted a casual dress, like many staff at the College, but in response to my need for separation from the students started to wear a pressed shirt and tie.

I felt that I had solved my objectivity problem.

At this point, the research project was complete. We were now in the midst of the implementation, the reflective journal was no longer active and the policy document had reached a stable state. We now were continuing to change and adjust to reality and continuing to grow but with a level of confidence that we did not have when we first started.

The students were now here on a full-time basis and we needed to be the experts, not the explorers.

Insider action-research and honesty

> *Action-research is something that is often done from the perspective of an intervener from outside a community or organization. When, such as in my case, the researcher is one of the stakeholders and represents the interests of the organisation, our honesty must be self-examined. It would be disingenuous to pretend that this does not have an editing effect on the story. We may believe that we are completely honest at times or that we are above the fray and either become the whistle-blower or we put our jobs and our careers before the needs of genuine research or our goals in professional practice. But we do find a pragmatic solution of serving the needs of our stakeholders and this includes the institution itself.*
>
> *One of my goals has been that of greater transparency in the decision making process. We made some important changes to our budgeting process by separating ancillary fees such as Software Fees into its own cost centre and establishing a policy of that Material Fee would not be used to pay staff salaries. No overhead for facilities is charged to the program.*
>
> *However, there have been some high-level negotiations and decisions that I have requested of which not to be informed or involved. I do believe that this has affected my advancement within the institution. It will help to keep my research uncompromised although a little less informed.*

ACTION RESEARCH

Grounded Theory

> "A critical practitioner is in effect a researcher into his or her own practice who develops and redevelops personal theories cyclically, as a consequence of putting these theories, as they arise, into active practice and then reflecting on that practice and the learning which has taken place."

(Melrose 1996: 52)

Action research is the culmination of what I have been studying for this thesis. It has been both the goal and the conclusion although I was not fully aware of it at the time.

I landed the job as the Laptop Program Manager because I was an entrepreneur, I did things, not just planned them. You must start somewhere, even if it is wrong. The feedback from the error will quickly put you back on the track upon which you did not even know you were travelling.

> *The last class I attended at the Université de Montréal was the Project Theory Workshop. It was the worst course I had ever taken but the one from which I learned the most. We were to form a team to research design theory based on an actual project for the city of Montreal but we were lost and remained lost because we were afraid to do anything. Ideas were developed but we never developed a research objective, a goal for the project. Nor did we understand the deliverables for the class or an understanding of what we were to learn. At the end we made a mad rush to develop a paper based on readings and attached, after the fact, actions from the project.*
>
> *I was already struggling with the idea of post-justification versus grounded theory. Was there a difference? The group was insistent that what we were being was reflective. We tried brainstorming but were afraid to develop any ideas. We tried word-sorting exercises but never attached meaning to what we discovered. I argued but failed to get through to the others.*
>
> *During my interview for the position of Laptop Program Manager I was asked how I would approach convincing others on the correctness of my ideas. The class came to mind and my answer was clear. I said that I would find allies, champions for my ideas and if I failed to convince others then I would learn to accept that maybe I was wrong.*

According to Zuber-Skerritt, action research is a tool for grounded theory research (Zuber-Skerritt 1996). She describes three types of action research that define the facilitator's role in the project. Technical action research has an

outside expert in that position. Practical action research places the facilitator in a "Socratic" role. We adopted this role when we worked with the faculty to help with them develop new curriculum.

The final is emancipatory action research, which is a collaborative approach that best describes the role of the Laptop Program Manager:

> "Participants' emancipation from the dictates of tradition, self-deception, coercion. Their critique of bureaucratic systematisation. Transformation of the organisation and of the educational system."
>
> (Zuber-Skerritt 1996: 4)

The emancipatory approach promotes a better understanding of the system and allows the facilitator to initiate change. This deeper understanding also allows the researcher to develop theory as a member as part of a collaborative team of scholars and educators.

We have proposed that this study has a phenomenological approach but now we are looking at it as grounded theory. We are looking at bracketing a priori theory and developing theory at the end of the research. These approaches do not appear to be mutually exclusive. We have proposed phenomenology as ontology but we are reticent to give our epistemology a name yet.

Where does theory belong in our research? Informal theory always exist at the very beginning of a project but that is why we have the phenomenological approach; we bracket these ideas that are not evidence or empirically based and proceed by developing "thick descriptions" (Glesne 1999; Stringer 1999) of our situation. We always have formal theories but these too must be bracketed. We use these to check our assumptions and at times to build a framework for verification (Glesne 1999).

The grounded theory approach speaks to the second aspect of our tripartite set of goals. The first goals are the project goals, the pragmatic goals. The second is the research, the theoretical, which is grounded by the necessity being a reflective process. This is our true epistemological process.

Our third and final goal was to affect social change, leave the world better than we found it.

Models of Action Research

Different models of action research have many things in common. The first of these is iteration. Stringer suggests look-think-act (Stringer 1999) as the cycle of iteration; Kennis and McTaggart suggest plan-act & observe-reflect (Swann 2002; Kemmis and McTaggart 2005) and Desjardins and McAllister propose a cycle of exploration-action-data collection-reflection-analysis / verification (Desjardins and McAllister 2005) in the early stages of the Laptop Program (Figure 1).

The different types of action research that we look at in this thesis are all based on collaborative and inclusive approaches: participatory (Kemmis and McTaggart 2005), community (Stringer 1999) and emancipatory (Zuber-Skerritt 1996).

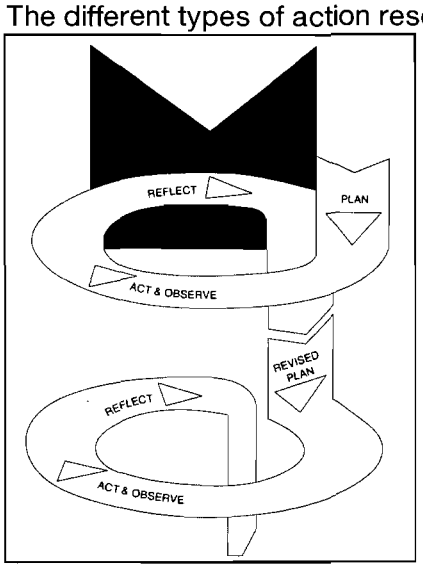

Figure 2: An example of a cycle of iteration in action research (Kemmis and McTaggart 2005)

Cal Swann suggests that action research is the design research approach (Swann 2002). If we look at Zeisel's model (Zeisel 1981) of the design development spiral, we see an immediate superficial similarity to action research. As our research becomes more informed we spiral into the domain of pertinence. According to Zeisel, we, as designers, go through a cycle of image-present-test. This cycle is an action cycle similar to the idea of act-look-reflect (Stringer 1999).

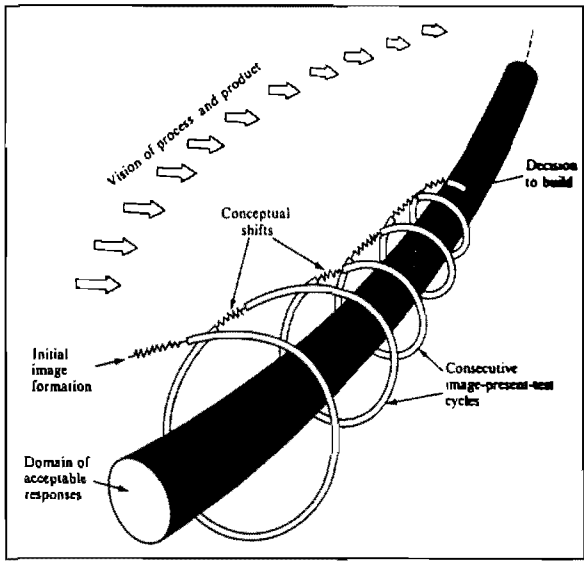

Figure 3: Zeisel's iterative design cycle
(Zeisel 1981)

Zuber-Skeritt bases her iterative cycle for learning organizations on a 'double-loop' learning approach based on Lewin's plan – act – observe – reflect (Swann 2002). She adds the loop re-plan – act – observe – reflect and so on (Zuber-Skerritt 1996) to the iterative cycle.

> "(1) Strategic planning, (2) implementing the plan (action), (3) observation, evaluation and self-evaluation, (4) critical and self-critical reflection on the results of (1)-(3) and making decisions for the next cycle of action research – that is, a revised plan, followed by action, observation and reflection, and so on."
>
> (Zuber-Skerritt 1996: 84)

The researcher must re-strategize rather than make the same mistakes over and over again.

Reflectivity versus reflexivity

> *In the readings that I have done and in many discussions with my colleagues there has been confusion between reflectivity and reflexivity. In one case a professor at OCAD had used the tern 'self-reflexive', a redundancy. In this thesis I have used the word* ***reflective*** *referring to a thought process not 'referring to the self'. Being reflective certainly includes being self-critical as well as critical but entails being thoughtful to try and make the tacit explicit otherwise tacit becomes habit, a process that lacks thoughtfulness.*

The researcher is not merely self-aware he/she is self-critical. He/she is not introspective. Reflection is not as in a mirror but the recognition that the researcher is an integral part of the research data. (Hall 1996)

Reflection

> "... the thesis of reflexivity insists upon modest claims: making judgements depends on examples from various personal experiences, not on representative samples of universally agreed categories. These examples will be analysed, but no analysis will be final or complete, because inquiry will take the form of questioning claims, rather than making claims."
>
> (Winter 1996: 19)

Donald Schön wrote the manual on reflection in the seminal work, The Reflective Practitioner (Schön 1983) but there were works that preceded it. In our section on epistemology we left off with John Dewey's How We Think (1910). Between these important works there were several others including Schön's Invention and Evolution of Ideas (1963) and Hanson's Patterns of Discovery (1958). Although we do not have to go into these works in depth, we mention them because of their significance to the idea of reflection and the eventual development of Schön's epistemology of Design. We discuss How We Think in the section on epistemology; we discuss the logic used in design being the abductive model as featured in Hanson's seminal book; we left off with an idea of critical thinking and that we had had an experience in a Dewian sense. These readings are important to understand where ideas come from but how do they become knowledge?

> *Dealing with students' computers everyday for over two years, it was amazing that, for a long time, we made no real big mistakes, destroyed no student's data. Well, it had to end; to our dismay a class-assistant re-imaged (involves formatting the hard drive) a student's computer before it could be backed-up. In our defense, the disclaimer form had been signed and the computer could not originally boot at all. All the same, we were all upset.*

The student was very upset. I was on vacation at the time, but I emailed her to assure her that we would help recover her files. I also spoke to her department chair to make sure she received accommodations in her classes to let her recover from the data loss. I was then shocked to find out that she had gone directly to the President of the University and lodged a complaint.

Circle the wagons!

I cancelled the meeting the student and I had scheduled since the situation had been escalated. I pulled out the disclaimer form she had signed and determined that she had originally come to the helpdesk and asked for her computer to be re-imaged. The back-up request section was blank. A complicated and confusing situation led to the error. However, we had determined that she was not, entirely, an innocent victim. We clearly had a strong defense.

This did not sit well with me. Something told me that we had been on the right track originally. I rescheduled the original meeting but included the Dean of Design. I met with him in advance and told him that I wanted him to de-escalate the situation and allow me to help her, even though I had determined that I had no obligation to do this. After all, she had lodged a complaint against me.

When she came to the meeting and heard what we willing to do for her she was very appreciative. Then the Dean told her not to lodge complaints before she had run out of options because it makes people less willing to help. Her mother had told her to start at the top and work her way down rather than work up though the system. Bad advice!

How did I know that this would be the case? Why did I expose myself to risk by being totally up front with her, by preparing the Dean for a plan that could have made a fool of both of us?

It felt right.

Reflection is the other key to this decision. It is simplistic to talk about feelings, "it felt right," it would have been just as easy to go with the feeling of spite against a student who lodged a complaint. It would have been easier actually. This is not about emotions but about tacit knowledge.

Schön give the example of learning to play the piano. Initially you think about every move, every action but once you know how to do it you can hold a separate conversation while playing (Schön 1983). Zeisel refers to tacit knowledge (Zeisel 1981) as well, as does Gladwell in his populist view of intuition (Gladwell 2005). All of these are referring to the conversion of tacit to explicit through practice. When we look, as designers, we know what looks right. This is because of our experience and our Experiences (Dewey 1934).

Scheler says that this is also the key to his material ethics but attributes a mystical force (Owens 1970). Husserl attributes an equally mysterious power for his intuitions (Philipse 1995) but Schön give us the credit and the responsibility. It is up to us to build the Person (Owens 1970) that will leave the world a better place, even if it is in the smallest way.

> "The difficulty is that the problems of the high ground, however great their technical interest, are often relatively unimportant to clients or to the larger society, while in the swamp are the problems of greatest human concern. Shall the practitioner stay on the high, hard ground where he can practice rigorously, as he understands rigor, but where he is constrained to deal with problems of relatively little social importance? Or shall he descend to the swamp where he can engage the most important and challenging problems if he is willing to forsake technical rigor?
>
> (Schön 1983: 42)
>
> A society that chiefly esteems order, that finds growth painful and change disturbing, inevitably seeks for a fixed body of superior truths upon which it may depend. ... [Change] disturbs the sense of rest that is attached to the ideas of fixed Truth already in existence. It puts a heavy burden of responsibility upon us for search, unremitting observation,

scrupulous development of hypotheses and thoroughgoing testing."

(Dewey 1920: 159)

Schön calls the acquisition of tacit abilities reflection-in-action but this is not an epistemology because it is not the conversion of abilities to knowledge. He called this process reflection-on-action (Schön 1983). Our third goal is to affect social change to do this we must have the ability to see what we are doing. We cannot be acting out of habit, purely tacitly. Just as this inhibits An Experience (Dewey 1934), it inhibits building true knowledge.

My journal was not as productive as the policy document while I was writing although both were an exercise in reflective writing. The policy document allowed me to put in writing thoughts of which I needed to keep track. The constant reference, review and editing of this document allowed me to gain a full and tacit understanding of the job. I was not, however, making tacit knowledge explicit; I was making explicit information tacit. The policy document was my piano lesson. (Schön 1983)

I felt that the journal was a waste of time. I wrote it with a genuine intention of learning from it but I had my doubts, and I expressed them. While rereading the journal, the reflection-on-action I saw that I had documented a journey, An Experience. I saw the links between the many things I was studying and doing. I had an understanding of I had built a reality, followed a consistent and rigorous methodology, and used this to build a knowledge base. It was this journey that linked it all together and it was the journal that allowed me to see it.

Obstacles to Action and Reflection

According to the "mechanistic world view," states Hall (1996: 37), there is a denial that there is any connection between researchers and what they research. This is the undesirable inheritance of the objectivity that is perceived as needed in the natural science into the viewpoints of social science. Some areas of social science therefore treat people as objects (Hall 1996). Scientists take a cold

disinterested stance denying that they become a part of their research. "These aspirations for objectivity are pursued on the grounds that to be subjective by revealing the self in research is self-indulgent or, at worst, even narcissistic," explains Hall (1996: 37). Introspection and solipsism is a danger of reflection if the researcher does not come to terms with what this means and what it implies. Hall outlines some of her methods as follows:

> "Systematically reflecting on the research method and modifying my practice according to the purpose and context through the empirical phase;
>
> writing myself into the story of the case study and noting my perceptions of the way in which my values and ideological and epistemological positions influenced the selection interpretation and analysis of data. This is a practice supported by both critical theorists and post structuralists;
>
> documenting ... the growing relationship between myself (researcher) and ... (the researched) – a poststructuralist notion; and
>
> recognising and attempting to offset the 'privileged position' ... in my style of theorising."
>
> (Hall 1996: 39)

Hall gives concrete advice on how to deal with the objectivity problem but the 'privileged position' is not that easy to overcome when it comes with a master program(Argyris 1993) and a language (professional jargon) to go with it. "... language structures our consciousness and, at the same time, our relationship with others (Winter 1996: 19)." A consciousness of our privilege which does not change how we act and how we interpret actions, is a false consciousness at best and may make matters worse than no awareness at all of privilege because we have set ourselves above where we were before. "The trouble with false consciousness is that it is patronising and gives one group the power to ignore the views of another (Webb 1996: 149)."

In action research we are all 'stakeholders' but this is a false equality. The use of a word does not confer privilege.

> "'Equality' as a starting point is a myth despite any number of declarations of intent and attempts to set ground rules."
>
> (Webb 1996: 148)
>
> "The current word for those with interests in education (such as students, parents, employers, professional bodies, government and so on) is 'stakeholder'. Teachers are certainly 'stakeholders' themselves, but why should they as professionals, or a particular action research group of professionals, lay claim to the only legitimate view of what is good for education?"
>
> (Webb 1996: 150)

This is a danger for the Laptop Program. The Laptop Program staff, including me, needs to keep in mind that we are running a program with educational intent out of the IT Department. We maintain a service position and attitude towards the student 'stakeholders'. We have our theories of technology education that we sometimes need to keep on the backburner until we can quietly convince others of its wisdom.

Advice:
Don't seek credit
Don't say, 'I told you so.'
Give credit
Wait for ideas to be owned by others (Argyris 1993)

In the day-to-day operations of a bureaucracy, which is what the Laptop Program is at times, theories tend to be based on the perfect world or a world, which if it does exist, we are unable to convince our colleagues of its validity.

> "Early in our research, my colleagues and I learned that there were two types of theories of action. One was the theory that individuals espoused and that comprised their beliefs, attitudes, and values. The second was their theory-in-use – the theory that they actually employed."
>
> (Argyris 1993: 51)

Sometimes it is important that the real theories be applied and a stance must be taken however Argyris's defensive routines are encountered:

> "'Mary, you run the department but check with Bill.' 'John, be innovative but be careful.'
>
> 1. Send a message that is inconsistent.
> 2. Act as if it is not inconsistent.
> 3. Make 1 and 2 undiscussable.
> 4. Make the undiscussability undiscussable."
>
> (Argyris 1999: 59)

Force was suggested as a method of making students buy their computers from the on-campus store. It was suggested that we charge a fee for imaging computers if the student did not have a receipt from the school store. There are times that we are a bureaucracy because we have to deal with other bureaucracies, like software vendors' licence agreements but there is a time that we must stand up for what is right. Our theories must become principals for action, not just theories.

Winter suggest that there are some basic principals for action research. These are not the moral/ethical dictates that I mention above but are important as well. They might help to guide us out of the roadblocks that we encounter.

> "They are:
>
> reflexive critique, which is the process of becoming aware of our own perceptual biases;
>
> dialectic critique, which is a way of understanding the relationships between the elements that make up various phenomena in our context;
>
> collaboration, which is intended to mean that everyone's view is taken as a contribution to understanding the situation;

> risking disturbance, which is an understanding of our own taken-for-granted processes and willingness to submit them to critique;
>
> creating plural structures, which involves developing various accounts and critiques, rather than a single authoritative interpretation;
>
> theory and practice internalized, which is seeing theory and practice as two interdependent yet complementary phases of the change process."
>
> (Winter 1996: 13-14)

Emancipatory Action Research

When we speak of improving the world, when we speak of justice or humanity, we tend to think in terms of socialist ideals. There are undoubtedly those who are underprivileged and those who are privileged; it makes sense that helping to even this out will make the world a better place.

However, I cannot believe that helping our students, who only believe that they are underprivileged, get the best buy on computer hardware and software does that, nor can I believe that protecting the intellectual property rights of the vendors is doing that either, but maybe there is a way of making the world a little bit better than it was before we started.

> "There is also too much baggage added to the word 'emancipation'. Some folks speak about it as if nothing short of the revolution will do."
>
> (McTaggart 1996: 245)

This statement is no less true in terms of action research. It is an approach to social science whose ideals are well suited to Marxist theory, such as Habermas and those of the Vienna School.(McTaggart 1996; Webb 1996)

> "All social groups have an ideology, because sharing an ideology is one of the ways by which a group exists. It must follow, therefore, that social researchers cannot be free of ideology, since they also necessarily belong to a social group."

(Winter 1996: 18)

At one point a student did accuse the Laptop Program of being a communist regime because we encourage students to look at the larger community rather than the benefit to the individual student.

Emancipatory action research is based largely on Habermas' approach to the production of knowledge:

> "knowledge is always produced for a purpose: it is produced because people want to know something. Knowledge is not produced from the 'disinterested' inquiry of minds, it is produced because of the basic needs or interests of humankind. These interests (which he refers to as 'knowledge-constitutive interests') he took as a given or *a priori*. According to Habermas, there are three of them: the technical interest; the practical interest; and the emancipatory interest."
>
> (Webb 1996: 142)

Note that Habermas' approaches coincide with Zuber-Skeritt's three types of action research. It is that knowledge is being produced that makes this research.

> "The technical interest of people is to acquire technical control over the natural world and is the domain of science and technology. The practical interest (somewhat curiously named) refers to the interest of people in understanding each other and interpreting social practices. It is the domain of hermeneutics and the *verstehen* tradition."
>
> (Webb 1996: 142)

We are trying to emancipate someone, but this is something more than a social niceness, more than collaboration. Web writes here on Merzirow's views on Habermas:

> "But it is in the third domain that Mezirow has most to say. Here, Habermas' 'emancipatory' reason for knowledge becomes 'learning for perspective transformation' and is linked to other educational ideas. For

example, 'meta-learning', the process by which learners become aware of and in control of their learning, is said to be common in many learning situations, including the technical and practical. It is a necessary but insufficient condition for perspective transformation. To undertake learning which is perspective transforming (or emancipatory), one must not only be aware of one's own thinking but also 'the cultural assumptions governing the rules, roles conventions and social expectations which dictate the way we see, think, feel and act' (Mezirow 1981). To achieve this appreciation we need 'critical awareness' or 'critical consciousness': we need to be aware of our own awareness and capable of critiquing it."

(Webb 1996: 144)

We are possibly getting beyond the domain of the Laptop Program, which clearly falls into the first, technical, area of interest. We are not trying to transform the students; we are merely trying to be fair and helpful.

Personally, I found myself transformed by the experience of studying the Laptop Program as a researcher and as a student. It made me aware of the scale of the world around me and how little we see of this scale. I looked at the Laptop Program not only as one program, four faculties, or thirty sections but nine hundred people all who are special and unique. They all see the world as just themselves or their close-knit group. They were combined and recombined as hundreds of communities, which were often self-contradictory. I felt as Husserl felt, above the world, above the fray (Smith 1995). These expectations seem ambitious and somewhat unrealistic though. My transformation certainly did not change the world.

Maybe emancipation is sometimes too much too ask for.

"These dismissals seem to be based on an assumption that action research has not always been successful as an 'emancipatory' project, in the terms of critical social science, or from some other point of view. Almost always they are based on an implicit assumption that 'emancipation' is some ideal state to be achieved. This is *not* the

aspiration of participatory action research, which works on critique of current conditions and more of less immediate attempts at concrete improvement. Its referent is 'Are things better than they were?', not 'Are we emancipated yet?'"

(McTaggart 1996: 245)

Communities of Practice

"Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis."

(Wegner, McDermott et al. 2002: 4)

Wegner, McDermott and Snyder (2002) use a garden analogy to community of practice. You can tend it, water it, weed it and fertilize it but it will grow in its own time. In an education environment, as well as a work environment, people will find something to bind them together; communities will form.

In the Laptop Program we were aware that we were building communities although, for the most part, unintentionally. There was a community of helpdesk employees and their friends, and community of nerds and gamers, and a very loose community of those who were unhappy with everything the Laptop Program represented. We needed to build a community of people that were helped by the Laptop Program helpdesk. One thing we recognised immediately as well was that there were a huge number of students who loved their laptops. This was probably the most expensive thing they had ever owned and it contained some of the most emotionally valuable items in their lives: their music, their photos, their email, instant messages and of course the work they were doing for their classes. The most important thing we could do for them was to help keep their data safe.

This was the soil we would tend. I personally would be there to listen to the complaints of students about software and fees and would often surprise them by being able to assist them in some way. Sometimes it was simply by reversing

a fee that had been inappropriately charged or explaining the benefits to them. Often it was just allowing them to vent.

> "Knowledge is tacit as well as explicit... Not everything we know can be codified as documents or tools... Sharing tacit knowledge requires interaction and informal learning processes such as storytelling, conversation, coaching and apprenticeship of the kind that communities of practice provide."
>
> (Wegner, McDermott et al. 2002: 9)

We were aware of the power of the negative stories. We made sure that in the initial year there were a large number of bursaries available to laptop students and jobs were available as monitors as well. The Laptop Program homepage became a story-based page to dispel myths, to promote good things and to prevent the negative.

There is a danger of creating a marginalized community of practice (Wegner, McDermott et al. 2002). Care must be taken that a community of practice does not get united in its discontent. We were careful to resolve issues quickly and quick to rethink practices that were going to be harmful to the community.

> "Knowledge is social as well as individual... Appreciating the collective nature of knowledge is especially important in an age when almost every field changes too much, too fast for individuals to master."
>
> (Wegner, McDermott et al. 2002: 10)

Amongst the professors fear was the biggest factor. Frustration with technology that did not work the way they felt it should was fairly simple to address with patience and understanding because they were often correct. Fear was dealt with the same way. We tried to institute pieces of common knowledge.

> *Do you have your dongle? This was the provocative question we had on posters around the school. The dongle is an adapter that hangs off the computer to convert the digital video output of the Apple laptops to the VGA input of the projectors in the smart classrooms. We have rarely needed to*

explain this since that campaign.

Although we did succeed in building a healthy community around the Laptop Program, this is quickly changing into a ubiquitous tool around the university. The support structure that we have built will last and be noticeably different than IT because it was built around people rather than around technology.

> "Early attempts at knowledge management ... were beholden to their origins in information technology (IT) departments. They tended to confuse knowledge and information."
>
> (Wegner, McDermott et al. 2002: 8)

There are constant reminders, however, that we are part of the IT department and that what we contain is information not knowledge. Any efforts to build community must always place us on the periphery serving the larger educational (faculty) community.

Postmodernism

> "A critique of action research is... mounted which suggests: group privileging is a distortion of critical theory; individual and group identity often blur; power is always already present and cannot be dispersed by rationality; rationality often serves the interests of the powerful, and so too does rational consensus; solidarity can become a drive to conformity; false consciousness is patronising and dangerous; the action research group assumes the aura of the rational, autonomous individual; oppressor and oppressed roles are complex and often combined; construction of difference and the Other is a necessary consequence of action; and the need to contest and dispute an attempted objectification of meanings associated with such terms as emancipation, autonomy, democracy, consensus, rationality, solidarity, social justice, community and so on. It is argued that a preferred stance is that of postmodernity and a preferred practice one which is eclectic and pragmatic."
>
> (Webb 1996: 137)

This criticism makes the assumption that action research is based on critical theory and the grand narratives of modernism. The action research that was used in the Laptop Program project is one based on phenomenology. It is certainly 'eclectic and pragmatic' but not rejecting all modernist theory.

Lyotard in The Postmodern Condition: A Report on Knowledge wrote of the computerization of society, which is very pertinent to the goals of the Laptop Program. There was a belief that OCAD was falling behind technologically and the students were being disadvantaged in the workforce as a result but this did not necessarily mean that curriculum would change except in the instruction in the use of the computer and software.

Lyotard offers a dire prediction of the future of higher education stating the "age of the professor" is dying. Computers will deliver the curriculum; the use of the computer will be the only instruction required. He says, "a professor is no more competent than memory bank networks in transmitting established knowledge (Lyotard 1984: 53)." This dire prediction is accompanied by dire predictions of systems theory. He references Niklas Luhmann's Legitimation durch Verfahren, "...it is possible to guide individual aspirations through a process of "quasi-apprenticeship," "free of all disturbance," in order to make them compatible with the system's decisions. The decisions do not have to respect individuals' aspirations: the aspirations have to aspire to the decisions, or at least to their effects. Administrative procedures should make individuals "want" what the system needs in order to perform well. It is easy to see what role telematics technology could play in this." (Lyotard 1984: 62)

But systems theory is no more the method of implementing the Laptop program than Lyotard's language games or his method of paralogy (Lyotard 1984). Lyotard argues that there are other kinds of knowledge. Modernism only offered us scientific knowledge, knowledge that was verified or resisted falsification; it was universally true. There is no social value in scientific knowledge. (Lyotard 1984)

Narrative knowledge differs from that of science although it, in an "embryonic state" (Lyotard 1984: 27), is contained within science. All traditional scientific

projects start as hypothesis in narrative form. But narrative is little more than myths or fables; anecdotal is the dismissive word of science. (Lyotard 1984)

Can new knowledge, discovery, come from the imagination? Is this the "End of Science" as John Horgan predicts (1996)? If so, then we are left only with invention and the "apprenticeship of the imagination" (Lyotard 1984: 62). Need, in society, will be decided by the technocrats, the new vanguard, since we cannot understand the variables required by the new technologies. Lyotard concludes that the behaviour of a closed system that is dismissive is arrogant and terrorist. Consensus silences the objector, eliminates him from the game. (Lyotard 1984)

Paralogy comes from discussion but that of disagreement rather than consensus. Richness of "perfect information" (Lyotard 1984: 67) will come when it is freely available to all. Lyotard proposes the neologism, paralogy, as a form of argument that inspires new knowledge. Paralogy, like science, thrives on differences and the tensions they create rather than consensus. It thrives on and stimulates the imagination. Lyotard suggests that we had a temporary contract with the closed system which, pragmatically, worked, at the end of the 70's. However, the computerization of society could be the perfect tool to build a technocracy that would use terror, elimination from the game, to control the market system. Schools would teach how to use technology to access content rather than the content. But language games would be the weapon to fight, to keep information open. He saw language as a vast inexhaustible reservoir of knowledge.

Nobert Weiner proposed the same solution:

> "Thus there can be no genuine ownership of a really fundamental idea, but only stewardship of such an idea in trust for the community. How can such stewardship best be facilitated by measures which are fair both to the community and to the creative intellect?" (1988: 94)

Language is the tool of power. It is not merely denotative, interrogative, or even prescriptive. It is dismissive, pejorative, oppressive, cajoling and most of all deceptive. Profit is still the goal. Foucault also notes that along with the

determinism of the teleological factors, there is nothing unintentional in the wielding of power (Foucault 1978).

Language games are a tool in power games. Dualities remain; "true/false", "just/unjust" and efficient/inefficient are all vulnerable to force. When a move, in the language game, is achieved through force or the threat of elimination, this is terror. Force says Lyotard, "appears to belong exclusively to the last game, the game of technology" (1984: 46) Technology, however, is positioned to be our saviour. Technology reinforces reality; science reinforces technology and power reinforces efficiency and decision making authority. "Thus the growth of power, and its self-legitimation, are now taking the route of data storage and accessibility, and the operativity of information." (Lyotard 1984: 47) The cart now pulls the horse; there is no science without technology.

Language games contain a number of traps that lead to meaninglessness or obfuscation. The dualities of modernism support the grand narratives, like that of emancipation, but in the post-modern era they lack the context for relevance. The power structures changed within modernism from the capitalist vs. worker to the worker/investor and the American dream. The narrative of colonialism has changed to the multiple narratives of decolonialism, freedom, civil war and new enemies of democracy. There are new narratives, the micro-narratives of a pluralistic multicultural society.

> "In postmodern thought there is no universal criteria of truth; claims to knowledge are always contextual. The postmodern image of contemporary social institutions is based on the emergence of a consumer society replacing the old productivism.
>
> (Jennings and Graham 1996: 168)

To Lyotard, knowledge was the new product. The knowledge-based economy or knowledge economy is a phrase coined by Peter Drucker in his book The Age of Discontinuity: Guidelines to Our Changing Society (Drucker 1982). The concept is discussed in Lyotard and a warning is inferred in Wiener that knowledge has become a commodity to be bought and sold. Commodity fetishism (Jameson

1984) can be applied to this type of "product" as much as an iPod or the latest computer device. Although the consumers are not the owners of this knowledge, our fetishes are the products of this knowledge.

Lyotard states, "what extra performativity depends on in the final analysis is 'imagination,' which allows one either to make a new move or change the rules of the game." (1984: 52)

From Wittgenstein:

> "A proposition is a picture of reality.
> A proposition is a model of reality as we imagine it."
>
> (1961: 23)

Both Lyotard and Wittgenstein are offering a way of envisioning a new reality through language and through imagination. Phenomenology is the same game. Lyotard suggests that information will be more accessible through technology but it will be through imagination and paralogy that new knowledge will be acquired. New knowledge is the goal of science rather than invention, the goal of technology, whether it is through traditional science or through a social science such as design.

> "...at some point following World War II a new kind of society began to emerge (variously described as postindustrial society, multinational capitalism, consumer society, media society and so forth). New types of consumption; planned obsolescence; an ever more rapid rhythm of fashion and styling changes; the penetration of advertising, television and the media generally to a hitherto unparallel degree throughout society; the replacement of the old tension between city and country, center and province by the suburb and universal standardization; and the arrival of the automobile culture – these are some of the features which would seem to mark a radical break with that older prewar society in which modernism was still an underground force.
>
> (Jameson 1983: 124-125)

Kemmis comments on what this means to society:

> "On the basis of such features, Jameson concludes that a new kind of social formulation has emerged. Arguably, this new formulation is characterised by changing social structures and functions, but this is not its only significance. At the level of the individual and the social group, it is argued, this new period has produced substantial shifts in the way people experience the world."
>
> (Kemmis 1996: 201)

If the way we experience the world has changed and is, as it is argued, constantly changing, action research is well equipped to helping researchers keep up with that change. Habermas would argue that emancipation is what we require to understand that change (Webb 1996), a new way of thinking, a new way of seeing the world as it is given (Smith 1995).

This is not about rejection of previous methodologies or ideals but about accepting new ways where tradition has failed to bring understanding. The Laptop Program has exposed us to new information and we will need to constantly need to find new ways to assimilate this information.

THE METHODS/TOOLS

The tools in our action research project performed several functions: communication and information gathering, information organisation, reflection and understanding, catalysts to action and action as a catalyst to one of the other functions.

The Story

The story is an important aspect of qualitative research in general and performs a number of functions from information gathering, disseminating information and making people feel at ease and welcome. It is crucial in that it is an informal act yet open to so many interpretations from bragging to allegory. It can contain a great deal of truth in the form of confession or a great deal of meaning regardless of truth.

In a meeting on laptops as a distraction in the classroom, Jeremy Bowes, the chair of our Environmental Design Faculty, settled in to recount his experience with a laptop situation that term. This was a story of a single student who brought his laptop to a non-laptop class and Jeremy described how his back was up instantly. To his chagrin the student instantly opened up his laptop as soon as he sat down near the front of the class and started to surf the Internet.

In our meeting, the faculty there were very pleased with hearing this story and smiled and nodded with understanding and agreement. I was confirming the point they wanted to make.

Jeremy's class continued to go downhill as his students were clearly uninterested in his lecture. He was desperate to somehow grab their attention. The laptop user was engrossed in his computer and became the target of Jeremy's frustration. He asked the student to show the class what was so deserving of this level of attention. It turned out to be a site featuring the work of the designer about which Jeremy had been lecturing. A discussion of this work then began and the very thing that had been seen as disruptive had rescued the class. We, the IT people, now were the ones smiling and nodding in understanding.

The story was a welcome addition to the meeting for us and we left vindicated.

At other times the researcher is the one telling the story. In October 2004, it was decided that increasing the promotion the laptop program website was needed. It was necessary to communicate a number of crucial issues of security, care of the laptop and extended warrantees.

A number of personal stories from laptop students themed roughly around the themes of Trick or Treat, bad news and good news were gathered. The publication of these stories helped bond the students with the Laptop staff, increased the awareness of the website, increased the communication of critical issues and provided a great deal more feedback for my research.

The story telling process is a way of understanding, to become more present in another's culture and therefore to have an opportunity to learn (Glesne 1999).

Reflective writing

> "Who are action research reports written for?" Winter asks. They are written for three audiences: our colleagues at our institution, our colleagues at other institutions in our field and "...our most important audience, is ourselves. ... to find out, in the end, what we have learned(1996: 26-27)."
>
> *All writing for me is reflective, as is reading. This is an iterative and somewhat hermeneutical process of writing, reading, interpreting what I wrote and rewriting.*
>
> *In the case of the reflective journal I did not rewrite and waited several months before I reread what I had written. I was surprised at what I had said and what I had seen which was not actually consciously visible at the time. This was valuable for me to understand the research process but not helpful for understanding what I needed to do in the project itself. However it may have been cathartic and helped to clear the mind to think more clearly and to get through and isolate the solipsism and introspection.*
>
> "Data collection methods include:
> keeping a detailed diary of subjective impressions, description of meetings attended and lessons learned;
> collection of documents relating to a situation; ..."
>
> (Winter 1996: 15)

The policy document was the document that became very valuable and this was not fully understood when I started it. It was intended to be a simple 2-3-page document outlining the Laptop Program policies but became a "living document" that was used to answer questions, and prepare other documents and communications to many of the stakeholders. I call it a living document because it grew and changed as our policies became more mature. It became a document

that was never intended to be final since the Laptop Program is in a state of constant revision.

> "Knowledge is dynamic...
> It a constantly in motion."
>
> (Wegner, McDermott et al. 2002: 10)

The document also received reviews by the director of IT services and the Dean of Design.

It was a repository of knowledge that was too extensive for one person to hold. A consistent application of policy was important to have as it would be a way of applying rules fairly at all times. If the program was seen as unfair it would not have been likely met with the success that it has.

The policy document became the source for almost all writing on the Laptop Program. There was a big advantage that it was dynamic and always up-to-date. The Laptop Program website has since taken over that role.

Publication

Publication is simply making information public. In the Laptop Program mail outs were used as a method of communication on mass to students. Erring on communicating to too many as opposed to not enough, with a definition enclosed describing our target audience was an intentional strategy. Mass emails were also sent. Neither of these was truly "public" as a targeted internal group, regardless of how oversized, was used.

The real publication is the Laptop Program website since it reaches many people who are not in the laptop program at all. The site is separated into seven pages:

Home

The home page is like our blog. It is where we post news updates and information about the Laptop Program. This is the most frequently updated page. The information posted can be urgent updates that are also reinforced by email

to items that are merely posted for the students' amusement and to help build community spirit. As items are posted they are added to a list of navigational links to the left of the body frame.

Program Info

This page is targeted primarily to new Laptop Students. Information about the program, fees, policy, hardware and software are posted here as well as the FAQs (frequently asked questions). This page is the most dynamic in that the Laptop Program staff use it to respond to issues that are more than passing.

Helpdesk/Printing/Insurance

These are single purpose help pages. The insurance page is linked to and hosted by an insurance company that insures laptop computers.

Store

The store is another page hosted by an outside vendor. The on-campus store hosts this page to allow the students to order their computers on-line before they pick them up. This page poses a problem at times because it gives student the false impression that OCAD is more closely related to and involved with the vendor than it actually is.

Contact

This page is the most important as it allows students and parents to easily contact the Laptop Program staff and management.

Web Strategy

The site is a result of the reflective writing exercise. The content was developed during the writing of the policy document although it has now replaced the policy document.

The quote below, from Forssman's presentation abstract for CANHEIT 2005, parallels the Laptop Program's intentions in a web strategy:

> "BCIT has aligned its multiple web properties to the "usage intentions" of specific audiences, and facilitated the development of a distributed web publishing community to maintain fresh content that is aligned to needs of those audiences. These web properties include: 1) a public domain web property, with strict brand identification, where all marketing, course and program catalogues and registration processes are managed **2) a public domain "communities-of-practice" environment, where organic information sharing takes place with authentication administered by the users,**[6] and 3) an authenticated portal environment, the access point for all administrative and learning environments, processes and tools."
>
> (Forssman 2005)

The Laptop Program website falls most comfortably into number two. It is not a site that is directed towards the outside nor is it authenticated. It is secondary to the main OCAD site and therefore not maintained by our communication department. The site is intended as an method of communicating to OCAD students and specifically the laptop students. The idea of a "community-of-practice" was strong motivator in the Laptop Program's web strategy.

Stakeholder meetings

For the purposes of this document I am calling all meetings "stakeholder meetings" since everyone in the College had something to gain or lose in the implementation of the Laptop Program. Meetings were always bidirectional; there were things to learn and information to share. What made meetings valuable is that they often encompassed a community spirit. In a group, certain agendas were pushed more strongly than they would on a one to one basis. The speakers were emboldened by the support of their peers. Focus can be lost as emotional issues come to the fore but it is often these types of issues that determine satisfaction levels rather than the rational ones.

[6] Bold style added by author

Annual meetings are held for first year students that are sparsely attended and tend to be presentations with few questions. These questions are always the same:

Do we have to pay the software fee if we already have the software?

Can we use a PC in the Mac only programs?

Do we have to buy the computer through the College?

> *Here is a question that caused a great deal of tension between the IT Director and me. I took job as the Laptop Program Manager with the intention of getting away from my previous job in sales. My position was that I did not care where the students bought their computers. I wanted our on-campus store to be successful but I did not think that I should use my position as the Laptop Program Manager to unduly influence this decision. It was suggested that we charge an extra fee if they bought their computers elsewhere. I refused to do this but agreed to use the website to present a comparison of our store's prices and services to that of the competition. Of course it was favourable towards our store.*

The meetings are something continue to be held even though they do not seem helpful. They often have some unexpected benefits.

> *The IT Director had another idea to push the benefits of our store. He suggested that we hold a "demo days" event where we answered questions and previewed the featured computers. We had models for the students to try and vendors attended the event. This brought in a handful of "keeners" who probably would have bought from us anyway but it had an enormous social advantage. We met two students who ended up working in our helpdesk and had time to spend with our vendors while they were not trying to sell us anything. Although I am not sure if we achieved the IT Director's goals we achieved enough other benefit that we will do it again, even if is to find those keeners!*

Meeting the students and the faculty is never a waste of time. I want them to know who the Laptop program staff are and where to come for assistance with their laptops.

Timelines and visual models

When I first started it was paramount that I get an understanding of the program, what needed to be done and the schedule. I started by preparing a timeline. My director mocked the timeline with the grounds that it was "unrealistic". This was not directed at me as much as it was directed at the tool because of the culture in the IT department. I was unable to communicate that it was not a schedule to be enforced as much as it was to gain an understanding of what needed to be done.

There was a message that I took from this that was very important. Even though change happened in IT when the classes were not running, it was also when the majority of vacations were taken. Even though schedules were made they often were not respected.

Other types of models were used on an almost ubiquitous basis. As an art college the students are, by their very nature, "visual types". As part of the ubiquitous computing model of the Laptop Program, I would have liked to include visual modelling as part of the digital workshops but felt that is would intrude on areas of curriculum.

Electronic communication tools: email and instant messaging

I already mentioned Inspiration Software as an electronic mind-mapping tool but I find little difference in the cognitive use of an electronic drawing tool and that of pen and paper. I think that I would get a lot of argument for that statement, so I will just pursue the tools that I found changed the style of communication for me and gave instant, yet dynamic, access to my stakeholders.

Electronic communication was and is a set of tools that changed my life and my job permanently. Although the Laptop Program staff started the communication to the incoming Laptop Students as mailings it was much too difficult to get mailing

lists for the students and too difficult to pin down just who was a laptop student. The definition was too vague, being a list of several courses, any one of which would define a laptop student. Early in the summer, registration had not started so this was moot at this point.

After the first mailing there was concern that some had not received the information so a blanket email was sent to all design students with a definition of a laptop student so that they would self-qualify. Students who did not receive the mailing were directed to the Laptop Program website and given my email address so that they could contact me. This contact information was also in the mailing.

I established an email policy, which was to answer student emails ASAP regardless of the time or day of the week. This policy was difficult to maintain but, for the most part, was successful. This instant communication ability kept the students who emailed me very happy.

> *Instant messaging was a new experience for me so I did not think of all the consequences of giving out my IM name. I had already been using email as instant messaging through my response policy. I felt complemented that students were comfortable enough with me to chat with me like a peer.*
>
> *This was also a great tool for communicating with my staff. It was faster than email and very efficient at collaborative workflows such as editing our website. Questions from the helpdesk were also handled through instant messaging.*
>
> *One day a student was instant messaging with me and two things happened that made me reign in my IM usage almost instantly. First of all, the "chat" lacked the productive component that I had found helpful and I had found that I did not know how to politely tell the student that I did not want to "chat". I felt that I was allowing my work to be disrupted and that I was beginning to lose my objectivity. I was, frankly, complemented by this acceptance; it made me feel young. This bubble was quickly burst when the student wrote, "gotta go teacher is coming".*

The student was in a lecture chatting with me! I realized that this had gone too far. I now instant message students only if they work for me in the Laptop Program helpdesk. But this was a signal to me that technology has a social importance to this generation that I had not previously understood. This became the first step in changing my relationship with students.

Soon after that, I began wearing a tie every day; this was rare at the College. I decided that although our students are very nice and very likable, they are not my friends. I know it is cliché but I am old enough to be their father.

Blogs, Forums and FAQs

Although a blog was not used nor a forum created, the concepts were borrowed liberally to help develop Laptop Program website and communication policies. Listserves were investigated and broadcast email announcements to students are used but the blogs and forums interest me because of their popularity and the interest they engender from faculty.

In developing the Laptop Program website one component of blogging was used. New information is posted at the top of the page and the rest is allowed to move down the page. Links are put at the side to allow easy access to all the announcements, as they get older and less current. Every once in a while "feature" articles are posted and every spring the page is refreshed to only relevant information. This, like most blogs, is broadcast only there is no feedback from the students that is visible to other visitors.

Questions and some complaints from students are posted in the form of FAQs (frequently asked questions) on the program info page. This has been very helpful since if a question is asked by one student, it will be likely be asked by others as well.

This is like an approach to a forum but without the risk of raising issues the College does not want to be raised. Feedback has been approached in a way which shelters students from negative feedback but this is not for the purpose of creating a lack of transparency. It is to create an environment where information

is easy to locate, where questions are for the purpose of clearing confusion, not creating it.

If OCAD was a different institution, I doubt that I would be presenting the above view. OCAD is a small place where even the most senior individual is accessible.

We have recently had meetings with students and the Dean of Design because of complaints emailed directly to the president of the University. There has not been a lack of opportunity for students to complain but there is problem in that we spend too much of our time focussing on vocal but largely unfounded complaints rather than the ideas that we would like to see through a bottom-up consulting process.

This year we will be forming two working groups to discuss issues related to digital curriculum and mobile computing. One of these working groups will be composed of faculty to assistant deans and students will be the members of the other group.

During the period of study, electronic communication tools were used to communicate to the students in matters related to the technological requirements of the Laptop Program. There is a great deal of interest to how these tools will affect the students' future as designers and researchers.

Design Aesthetic

Design aesthetic is not a tool in the same context as the others mentioned here but it is important to mention as a tool that modifies the implementation of the above-mentioned tools. The aesthetic, in its shallowest sense, of the web site and documents that were to be sent out to the students was a concern since we were a design institution. The technician working on the site, www.ocad.ca/laptopprogram, and I were in agreement that the site had to be "designerly plain", tasteful but bland.

The OCAD website is criticised constantly by students because of the aesthetics of the site. I doubt that any site the school would have designed could be free of this criticism. For the Laptop Program website, a design that was too strong (overly branded, cluttered, or stylish) however well designed, would have become a barrier to communication.

Design in the implementation of the Laptop Program has not been focused on a brand but has been focused on an image (identity). The image is intended to be care and community. We, the Laptop Program staff, are here to help and support this community. This is design since it is a well thought out and intentional image.

The best way to **appear to be** caring and community focused is to **actually be** caring and community focused.

Teleology

> *Teleology was one of the most difficult words to deal with in this research yet in many ways one that has become crucial. My initial intentions were to avoid the word altogether but discussions of goals, causes, purpose and intensions made this impossible.*

In a 1950 paper in Philosophy of Science, Rosenblueth and Wiener rebut Richard Taylor's criticism of their Cybernetic approach to the examination of purposefulness:

> *"Professor Taylor affirms that, in the study of the behavior which we have called purposeful, so long as distinctively human purposes are left out of account, there is no conceivable way of selecting some particular relationship between the behaving object and its surroundings as the goal toward which that object was directing itself."*
>
> *(Rosenbleuth and Wiener 1950: 318)*

The Laptop Program can be looked at in a teleological, mechanistic and systematic manner, with a clearly defined goal but an ill-defined path. The desired outcomes, ignoring any psychological or intentional issues were relatively simple:

1. Start an Apple-based laptop program in Graphic Design and Advertising in second year. This is to increment ahead one year each year to cover an additional year until it is established in second to fourth years.
2. Establish a laptop help desk
3. Implement and collect four fees.
    - a materials fee of $300/annum
    - a print credit fee of $50/annum
    - a software fee of $275/annum
    - a one-time font fee of $300

4. Start a series of software workshops attached to the core studio classes to gain job related skills.
5. Establish studio teaching assistants for technical help with job related skills.
6. Make sure all the students had laptop computers and software.
7. Make sure all the affected faculty had laptop computers and software.

But there were many complications and contradictions of purpose. Students did not like being forced, Apple had channels through which they preferred to sell, the Faculty office did not have a clear message to how they wanted the curriculum to be affected by the laptop computers, faculty did not want there to be any change at all and IT was to do only what the faculty office told it to do. IT services was to have no goal except those given by those who set curriculum. There were clear outcomes, targets.

> *"We can conceive many ways of selecting the goal or goals in purposeful behavior, and the only problem is to find out which of these several procedures is the most adequate for scientific analysis. The emphasis on human purposes is irrelevant."*
>
> *(Rosenbleuth and Wiener 1950: 318)*

The Laptop Program was a guided missile with a set target. If a Cybernetic or teleological approach is to be used, this is all we need. Human purpose is not relevant neither is intention; we must assume that these were accounted for in the needs analysis. The path is self-corrective(Rosenbleuth, Wiener et al. 1943). Lyotard suggests, with surprising neutrality, that Niklas Luhmann's systems theory can guide the "individual aspirations" into what the system has defined as to their benefit(Lyotard 1984).

> *"The purpose of the designer of a radar-controlled gun may have been to have the gun seek an enemy plane, but if the gun seeks the car of the commanding officer of the post, as this officer drives by, and destroys it,*

surely the purpose of the gun differs from that of the designer. Indeed, this would be an excellent example of cross-purposes."

(Rosenbleuth and Wiener 1950: 318)

Maybe the designer did not account for the intentions of the human wielding the gun. Rosenbleuth and Wiener seem to have misunderstood the blunt instrument of destruction that the radar controlled is intended as. It lacks the intelligence to determine what an enemy plane is; it seeks a metal object with a specific radar signature or description. A catastrophe of that type could be a simple matter of poor aiming, a misunderstanding of its use or malicious intent.

Again, let us consider a car following a man along a road with the clear purpose of running him down. What important difference will there be in our analysis of the behavior of the car if it is driven by a human being, or if it is guided by the appropriate mechanical sense organs and mechanical controls?

(Rosenbleuth and Wiener 1950: 319)

What are the intentions of the human beings in this story? What are the moral and ethical consequences of this man's death or injury? Rosenbleuth and Wiener are correct that there is no difference in how the car in driven as long as we only take into account the original intent; after all the car can have no purpose other than the merely mechanical ones. It can have no goals only desired outcomes, targets.

Webb writes on Habermas' views of where this science of mechanism was taking us:

"Science was seen as being able to produce 'the facts' upon which social science was based, but the values underlying these facts and that the direction in which society *should* be travelling were outside its scope."

(Webb 1996: 142)

What of the user? We need to understand the use of the instrument we are wielding and, as a user, we need to understand the reason we are wielding it. If we ask "why?" we must understand that this is questioning our intentions (Anscombe 1957). The teleological goal is about "what?" rather than why.

> *"I cannot use a hammer as an instrument unless I already beforehand understand the instrumental functionality that is characteristic for hammer and hammering, the instrument with the function and the letting function of that instrument."*
>
> *(Heidegger 1988: xviii)*

> *I see the hammer metaphor with a sense of irony in the previous passage. I use it to illustrate the view of a technology as a tool. This is also the metaphor that I use to show the designer's perspective and to describe intentionality in design. The designer might say the hammer gained its hammerness when it was designed to be used for the purpose of hammering.*
>
> *Do new technologies, function merely a tool or are they causes of negative behaviour such as browsing the Internet in class? Are they manifestations of changes in society towards a searchable knowledge based society? Although I believe that these changes are happening, I see the tool being used to allow these very important changes to happen. The ubiquity of the laptop, in the Laptop Program, compels the users to find solutions such as Google Books and Google Scholar as well as, now ubiquitous, tools such as jstor.com. The computer is not the cause of this behaviour anymore the automobile "caused" traffic congestion. One is a consequence of the other.*

Karl Deutsch (1951) describes some other options in the same era as Rosenbleuth, Wiener et al. (1943). He says that there are three types of models that can be formed to understand complexity; in this case he is referring to complicated things. A mechanistic model, like Wiener's, a process model, and one that he gives little value, an 'organismic' model, although he does state that the best model of a cat would be a cat, preferably the same cat.

"An *organism*, according to this classical view, is unanalyzable, at least in some of its essential parts. It cannot be taken apart and put together again without damage."

(Deutsch 1951: 188)

This was the definition that Alain Findeli gave of complexity, stating that complicated things, with varying degrees of difficulty, could be reassembled without damage.

In Alain Findeli's class we were given a homework assignment that seemed simple but pointless to me, at first, but after trying to perform this simple task, I realized that I could not do it. I felt bad about this initially but finally confronted him and asked if it was intended to be a trick. He did not respond to the question but gave me a wry grin and asked me what the problem was.

Let me step back a bit and explain the assignment. The assignment was to choose a simple task to do everyday, then to do it regularly, the same time everyday. There was only one requisite in our choice of task, it must be pointless. I figured that this would be easy but could not help wondering what the point was. Well, I figured, if I knew that, it wouldn't be pointless would it?

I chose to untie and retie my shoes at five o'clock everyday. Five o'clock rolled around the first day and I did not do it. It was not intentional that I did not do it; I simply did not notice the time. So I set an alarm on my Palm to remind myself of the event. Next day, the alarm goes off and I chose not to do it this time. I figured that, since it was pointless, I could just say that I did it.

The following day, the alarm goes off and I realized that I must do it. I have always felt that worse than a lie was a pointless lie. I did it and then reflected on what I had just done. It was then that I felt that I had just been tricked. I did not do something pointless at all; I had done it to assuage my guilt. I then

thought that even if I had done it the previous day or the day before that, the reasons would have been the same but for obligation rather than guilt.

I realized that I could not perform this task when the time came around the following day and I decided to speak to Alain. Alain asked why I didn't do it. I answered that the requirement for pointlessness made it impossible. "But why do you not do it?" he asked again. "Because I chose not to," I responded. I felt that it was my choice, free will, which had made it impossible. "Then that is your choice," was Alain's last words in the conversation.

The complaint was that it was not possible (in my mind) to intentionally do something "pointless" in the context of an assignment for a class. The purpose was to do what the professor said. To many this was an adequate goal. An act without a purpose after all can be done but one still must ask why. This was a somewhat paradoxical task but nonetheless raises a lot of questions about purpose and intentionality: for a purpose (Rosenbleuth, Wiener et al. 1943) and on purpose (Anscombe 1957).

Feedback

Teleology determines a purpose; with a final goal set (Rosenbleuth, Wiener et al. 1943). The outcome is determined from the outset; it is a target. Intention is why we make the choices we make (Anscombe 1957). Rosenbleuth, Wiener et al. state that more than a goal is needed to be teleological; there needs to be a feedback loop. Positive feedback does little except to confirm that the target is where it was expected to be but does nothing if it is not. With only positive feedback, no corrective measures are taken. Negative feedback gives the type of information that can be corrective. The target is right of the current path, turn right.

It is this constant bidirectional and corrective feedback that makes something teleological (Rosenbleuth, Wiener et al. 1943). There is another element of feedback that refines the targeting function. Feedback can be extrapolative as well. How far is a moving target? What is the target speed? Therefore on impact

the target will be at location x. Although this is bidirectional and allows change to the targeting, the master program (Argyris 1993) remains unchanged. This is a single feedback loop and does not allow for learning or change of the master goals or desires of the designer. The guided missile never asks, "Is this still the enemy?"

Cybernetic teleology does not deal with complexity, such as organismic models (Deutsch 1951) or psychology (Gibbons 2001) nor is it an adequate learning process except for single loop learning.

Organic teleology is different than the organismic model but focuses more on the "master program" than the cybernetic approach. The goal is the Aristotelian final goal or cause(Cornell 1986). The natural organic object cannot be anything other than what it is but the man-made object is designed to be something new. It can be deterministic like the natural object but in developing a master program, like what was done for the Laptop Program, it is necessary to implement, test and rewrite the master program (Argyris 1993). Not only will the path change to realign to the target, but the target will change in a way that will be non-predictive.

If the design of a program like the Laptop Program is not teleological either organically or mechanistically, what kind of approach can be used?

TELEOLOGY IN DESIGN

> "Unless we are only explaining attempts, there is always more to intentional action than belief and desire."
>
> (Gibbons 2001: 580)
>
> *If we set aside, for the moment, the differences between intentionally and 'with intentionality' (Anscombe 1957), between on purpose and 'with purposiveness', in the term 'intentional action', we can look at Gibbons' thesis, that our intentions are inextricably linked to our knowledge rather than merely our beliefs and desires.*
>
> *We will need to consider these ideas as we look at the links between our*

desires, beliefs, intentions and actions and how our action becomes part of our knowing.

Gibbons uses the example of Alice spilling the coffee that she had placed on the dashboard by stopping her car for a red light. We can explain her stopping the car with her belief that she must do so to avoid an accident and with the belief that pressing the brake pedal will achieve that desired effect. "The functioning of the brakes is as crucial to bringing it about that Alice stopped the car as are her beliefs and desires." (Gibbons 2001: 581)

Gibbons asks whether she knows that the brakes work. After all, the working brakes are a causal element in this chain of actions and effects. Many of Alice's actions here, however, are autonomous actions such as 'moving her leg to depress her foot on the brake pedal' rather than 'hitting the brakes'(Anscombe 1957; Gibbons 2001).

It is clear that Alice believes that this will stop the car. But is stopping the car and failing to stop the car, if the belief is false, psychologically the same thing? The causal chain is also changed if the car is steered into a guardrail and it stops, since this was not the initial intention. It was the result of a "deviant causal chain, ... the gap between doing something you intend to do and doing something intentionally." (Gibbons 2001: 588)

If we think about intention as "an action plan" (Gibbons 2001) then the action plan must be looked at as more than whether our goal was achieved. The knowledge of how we achieve what we achieve matters. This is control (Gibbons 2001). Gibbons points out that "the type knowing how to [do something] is both causally and conceptually connected to the type intentionally [doing something]." (Gibbons 2001: 597) Therefore knowing is on par with believing and desiring.

Whereas:

"Philosophers of mind tend to think in terms of desire-belief pairs ... Action theorists tend to think of the production and guidance of action in

terms of action plans, the contents of intentions, and this requires a little more digging. But whoever we are, if we're interested in intentional action rather than attempts, we need to dig all the way down to knowledge." (Gibbons 2001: 599)

Let's now continue that paragraph that we started at the beginning and be reminded of the situation:

"If Alice stops the car and thereby inadvertently spills the coffee on the dashboard, we can explain some features of the action but not others in terms of her mental states. She stopped because she saw that the light was red. This psychological explanation gives part of her reason for stopping, and a slightly more complete explanation might give more of the reason: she wanted to stop if the light was red in order to avoid an accident. In general, given the connection between doing something intentionally and doing it for a reason, there ought to be a reason-giving or psychological explanation for whatever you do intentionally. But, since Alice did not spill the coffee for a reason, there may be no psychological explanation of the action under that description."

(Gibbons 2001: 579)

Why had we since forgotten about the coffee? Wasn't this the result of Alice's actions? Gibbons might say that this was only an unintended result, an accident, but since he has positioned this as a psychological argument (whether or not this is the correct word) concerning Alice's mental state, we should dig deeper. Stopping the car from a red light is the normal behaviour; Alice probably does this every day. So what was different this time that her coffee was split? Was there an underlying circumstance? Was she upset, distracted, late for a meeting? Did she not know that stopping suddenly would spill her coffee?

Gibbons is right that knowing is the key, but how is knowing linked to our beliefs, desires and actions?

In the 1950 paper in Philosophy of Science, Rosenblueth and Wiener rebut Richard Taylor's criticism of the Cybernetic approach to the examination of purposefulness stating that, "The emphasis on human purposes is irrelevant." (Rosenbleuth and Wiener 1950: 318)

Why are human purposes and intentions to be left out while actions that are distinctly anthropomorphic remain?

> "Again, let us consider a car following a man along a road with the clear purpose of running him down. What important difference will there be in our analysis of the behavior of the car if it is driven by a human being, or if it is guided by the appropriate mechanical sense organs and mechanical controls?"
>
> (Rosenbleuth and Wiener 1950: 319)

Certainly, whether we consider, "car following a man" (Rosenbleuth and Wiener 1950: 319) as language that is intentional and anthropomorphic or teleological, it is not scientific (Wright 1968). Human intervention abounds in the academic discussion of teleology, as does the idea of determinism. Kant describes the importance of wholeness as a goal in the natural world, "All of these organic activities are properly defined, Kant maintains, by making explicit the impression of a whole as a goal. We apply to living things, by analogy with human intention, a causality according to an end and an idea, although strictly speaking we do not observe this causation" (Cornell 1986 :407). One can compare this teleological concept, of wholeness, to Wright's homeostasis, or sameness (1968), wholeness or equilibrium being the target or goal.

Anthony Dunne and Fiona Raby describe two types of design. "Critical Design uses speculative design proposals to challenge narrow assumptions, preconceptions about the role products play in everyday life." (Dunne and Raby 2007) whereas affirmative design maintains and "reinforces" (Dunne and Raby 2007) the status quo and leaves the prevailing ideologies unchallenged.

Critical and affirmative design are merely a play on words of critical theory, not overly cryptic, and positivism. Critical design does not pursue the important aspects of the complexity of human nature and social behaviour that is needed in future design.

In the same contribution to Icon Magazine's "50 Manifestos" they state:

> "Dark, complex emotions are ignored in design, most areas of culture accept people are complex, contradictory, even neurotic, not design, we view people as obedient, predictable users and consumers." (Dunne and Raby 2007)

Teleological design ignores the same aspects of human intentions (Rosenbleuth, Wiener et al. 1943; Rosenbleuth and Wiener 1950) as suggest Dunne and Raby. This takes us in the direction of a world of design based on Luhmann's system theory (Lyotard 1984). It may leave the world improved but with that improvement defined by a new vanguard. That improvement would be driven by predictability rather than complexity, by technology.

> "All problems whether of nature, human nature, or cultural, are seen as 'technical' problems capable of rational solution through the accumulation of objective knowledge, in the form of neutral or value-free observation and correlations, and the application of that knowledge in procedures arrived at by trial and error, the value of which is to be judged by how well they fill their appointed ends. These ends are ultimately linked with the maximization of society's productivity and the most economic use of its resources, so that technology, in the American Ideology, becomes 'instrumental rationality' incarnate, the tools of technocracy." (Waites 1989: 31)

Zuber-Skerritt calls for critical and self-critical reflection(1996) in her action research cycle. In social research, if the researcher ventures into the morass (Schön 1983), in search of social relevance. In order to make a difference, the researcher must be willing to get dirty, lose objectivity and take both personal and professional risks. The stance is an intersubjective one, is free of dogma

and acceptant of change because the researcher/professional is not in a posture of expertise but that of a learner. It is a state of becoming rather than being.

In the Laptop Program setup period, the summer before the implementation, I was preparing myself as much as the school for the Laptop Program. I needed to come to an understanding of what the purpose was, of what I was trying to achieve. I was told that this was not for me to decide; this was the Design Faculty's Laptop Program not mine. I was only an IT person. My job was to implement the technology for the sake of technology.

My stance became an intentional one rather than focused on an unclear goal. What good can come from this form of Laptop Program from a student perspective? I tried to envision the consequences of this reality:

- *The Laptops come with free iPods*
- *Laptops are cool*
- *Parents mostly would pay for them*
- *The laptops would be better than most of the lab computers*
- *Commonality*
    - *Everyone would have one*
    - *They would mostly be Apple laptops*
    - *Shared pain – expenses, troubles with technology*
- *Community would form through commonality*
- *Exclusivity*
    - *Only certain design programs were included in the Laptop Program*
- *Ubiquity*
    - *The students would use them because they were there*
    - *They would learn the technology through habit rather than purpose*
- *Ubiquitous (wireless) internet*

    - *Email and chat programs*
    - *Downloading of entertainment (music and movies)*
    - *Online resources for studying*
        - *Wikipedia*
        - *Jstor.com*
        - *Etc.*
- *Resources for learning disabled students*
    - *Equality/confidentiality for learning disabled students*
    - *Spellcheck*
- *Universality*

The intentions of universality, ubiquity and issues of student happiness became the desired outcomes of the Laptop Program in place of a curricular purpose.

This satisfaction on the part of the students became an indicator of success for the Laptop Program. Is a happier world a better one?

Conclusions

Although this project was to be contained within the four months of the "projet de recherche," I had actually taken on a much larger commitment. I accepted a job that was to manage a three-year pilot project.

Going in, the determination of success was to be evaluated against the original goals.

From the Methodology section of this thesis:

- The first goals are the project goals, the pragmatic goals.
- The second is the research, the theoretical, which is grounded by the necessity of being a reflective process. This is our true epistemological process.
- The third and final goal was to affect social change, leaving the world better than we found it.

VERIFICATION OF THE PROJECT: PRAGMATIC GOALS

> "The employment opportunities for OCAD Design students will soon become limited, unless they are able to graduate with considerably more digital skills than at present. In Graphic Design, Advertising, Industrial Design and Environmental Design, the "studio-based learning" of which OCAD is justifiably proud, becomes more and more compromised with each passing year.
>
> At present, Graphic Design, Advertising, Industrial Design and Environmental Design students are unable to actually produce work during studio classes, as they don't have computers on which to work (and a limited number of classes can be accommodated in the College's five, soon-to-be-six, computer studios). Given that Design faculty, in particular, virtually all use computers in their professional practices, the lack of technologically-equipped classrooms severely limits their teaching effectiveness." (OCAD Laptop Program Proposal 2004)

In answer to the first goal, the Laptop Program was considered a successful project and will continue indefinitely. This decision was made long before the three-year project was completed. Part of the job description for the Laptop Program Manager was to verify the success of the program. This was not intended to determine the success of the methodology used in this thesis but the thesis itself provides some qualitative evidence towards that goal, as do some of the stories from students and the Laptop Program staff.

The abductive logic used in designing the program is also used in evaluation procedures. In design, envision the effect you wish to achieve and design a way to achieve this effect (Zeisel 1981). In program evaluation, Levin-Rozalis (2000) suggests an abductive method. It will not be enough to simply introduce change; one must have a method of evaluating the effect one is planning on achieving before change is implemented. How will the change be used to achieve these goals? Newmann et al. (1989) have developed a matrix for this evaluation for education. They developed this for organizational change in high schools but it would be effective for higher education as well. Efficacy, community, and expectations are the categories in this matrix.

- Efficacy: Is this change appropriate for your goals. Will it achieve the desired effect?
- Community: What will be the effect in your classroom? How will it affect your peers, IT services?
- Expectations: How will it change your students' expectations? How will it affect your expectations of your students?

EFFICACY

Although I was to evaluate the success of the program, I had to do this from the perspective of an IT manager. The Laptop Program succeeded in putting laptop computers in the hands of 300 students in the first year of the program and 900 by year three.

We used surveys (Appendices V and VI) to measure certain aspects of success through the opinions of the students. These surveys were done online through the Laptop Program website and promoted through a mass email to all the

Laptop Program students. The surveys received 24% and 20% return rates in 2004/2005 and 2005/2006 respectively.

The question, "Having a laptop computer has helped me complete my assignments at the college," produced positive responses in 91% and 85% of the respondents.

In a similar question concerning efficacy, "Having a laptop computer has helped me improve my technical skills," received positive results of 76% and 79% in the first two years.

The only curricular issues, which we, as the IT department, were allowed to question, were the software workshops. With positive results of 47% and 34% respectively to the statement, "The software workshops have boosted the skills I needed to complete my assignments," it was apparent that not all aspects of the program were equally successful, but these could become targets for future change.

Anecdotal/Administrative success

This is a level of success that would be discounted from most scientific research, and rightly so. Anecdotal success depends on who is telling the stories and who gets to hear them. It is often more telling to see how a person deals with problems than it is to see him/her deal with success. I mentioned stories and story telling in the methodology section but not as a method of verification. Narrative is a method of arriving at a thick description but, as a caution, in the ontology section I also mention Wittgenstein's language games. Language can be twisted into unintended (or newly intended) meanings.

In the Laptop Program I receive compliments from students all of the time but I receive complaints too. The complaints are far more likely to reach the Dean of Design, the VP of Academic, or even the President of the University than the stories of contented happy students. This is not failure.

The corollary can also be true. The Dean of Design for the previous two years felt the Laptop Program was a success because she did not hear any complaints.

I am calling stories of success "anecdotal success" and the absence of stories of failure "administrative success".

There is another type of administrative success. That is financial success. Since there was no profit goal at the outset I would not consider this a form of success in a business sense, but the displacement of costs to allow growth in threatened areas is a valuable side effect.

COMMUNITY

Did the Laptop Program affect community? The methodology used to develop the Laptop Program, action research, includes community by default.

Since the College could not provide enough lab spaces to all the students, the laptops would replace lab computers. Several effects on community and benefits would be the result:

- Laptops would have a built-in refreshment policy as students come with new computers each year.
- Laptops, by the third year, would outnumber the lab computers nine to one.
- Laptops would have a one to one ratio with students.
- Students would be able to work anytime/anywhere.
- Students would be able to work in self-organized groups rather than conform to available space in a lab.

For students to benefit from this, space would have to be provided for them. The sixth floor open studio would become that physical space.

In the Laptop program surveys (Appendices V and VI) the following statement was made, "The laptop computers have helped to create a collaborative learning environment on the 6th floor." In 2004/2005 that statement achieved 75% agreement. In 2005/2006, after the space had been reconfigured with makeshift partitions, we received a 45% agreement to the same statement.

Another space had also been created, much to the chagrin of many faculty. That was the virtual space created by the wireless network. This manifested in the form of communication tools such as iChat, MSN messenger and email. Myspace.com and Facebook.com were soon to follow into this space as social

networking tools.

OCAD is currently investigating online collaboration tools that are internet/flash based. Further research into the effects of technology on both virtual and actual working spaces is warranted.

However, community is not just the students and not just about work. The commonality of the laptop brings people together in terms of social cliques that are both positive and negative. The Laptop Program staff – manager, technicians, assistants and student monitors – is an important support structure within the program. The gratitude of the students we help is easily transformed into friendship or akin to a close professional relationship.

The Laptop Program easily becomes an emotional issue because people's finances, education and futures are at state. In a further aspect, students love their laptops. In the Laptop Program survey (Appendices V) the statement, "I love my laptop," received 91% agreement and 0% disagreement in the 2004/2005 year.

EXPECTATIONS

The following is from an excerpt from an unsolicited email that was sent to our 3D program chair from a student, Jaclyn Kaloczi, who desired improvements in the Laptop Program and was especially critical of some of the curricular links.[7]

> "The assignments that ED students have completed so far this year have been interesting and successfully connected to ED, however many students feel as though we are lacking important knowledge and skills necessary for the ED field. OCAD students respect the schools ideas that it is important to learn hand skills before being introduced to technology for design. However in today's world, it is extremely important for students to familiarize themselves with the appropriate software and computer skills before graduating. After course introduction and

[7] The technical criticism although valid from the students perspective were less constructive and more localized to specific errors in the implementation of Windows Vista. My response to these criticisms was to invite Jackie to the Laptop Student group so that we could respond in the appropriate manner. In the excerpt above, the questions are of a larger philosophical and curricular nature. The letter covers several community, communication and curricular issues but I restrict it in this thesis to Laptop Program issues.

overviews, students feel as though we may not be learning the necessary software programs and technological skills for our futures. Expanding on this subject, students are frustrated with professor's wide range of opinions regarding technical or software based assignments. Some professors favour these projects while others prefer all assignments to be done by hand. For the profs who are pro computer generated work, this is extremely detrimental for students who are not yet familiar with appropriate programs and computer skills to generate the work. How can students present work this way without first being taught how to? Should there be more classes teaching specific software skills, such as Photoshop, AutoCAD, etc?" (Kaloczi 2007)

Jackie's expectations are very specific and precise. Probably not different in nature than they would be without the Laptop Program but different in what we have committed to delivery otherwise. The Laptop Program goals in 2004 stated that the model of "'studio-based learning' of which OCAD is justifiably proud, becomes more and more compromised with each passing year," (OCAD Laptop Program Proposal 2004). This recognition in 2004 has, however, not successfully been communicated to the students through their faculty.

The software workshops are organised through IT services and consequently not aligned with curriculum. Of course, we do not rely on one email from a student to establish that. Many other student experiences and opinions point to workshops that are excellent – well planned, well organized and well taught. Faculty and teaching assistants return different results again, some good and some very poor but all have inconsistency and confusion of message at the core of the feedback.

Other expectations that come with the Laptop Program are technological in nature from both faculty and students. Many are expectations of service and support levels for the following areas:

- Wireless network outages
- Fixing wireless network dead spots
    - This complain comes from faculty
- Expanding the Laptop Program services to other program areas

- Fear the Laptop Program services will expand to other program areas
- Printing is a common complaint from both faculty and students even though this is not within the purview of the Laptop Program
- Software support
- Facilities and furniture for the Laptop Student both in the classroom and open studio
    - Power drops and power bars
    - Tables and chairs (which constantly move)
    - Furniture
        - For comfort
        - For privacy
        - For social interaction
- Changes in the software workshops
    - Linking them to curriculum
    - Separating them by skill level
    - Having the students choose which they require

Other expectations are areas that the Laptop Program cannot change. We must be careful to understand that student expectations and needs may not be the same thing. Expectations should be addressed even if it is to reset them to reality.

- Changes to curriculum
    - Aligning it to the working world
- Unification of the message from faculty

This evaluation stage of expectation is important for envisioning what the next steps are for the Laptop Program.

VERIFICATION OF THE RESEARCH PROJECT: THEORETICAL GOALS

Action research, as a basis for methodology, has by its design a built-in verification process. The iterative process allows for a constant view of what is happening. It allows for immediate change to ensure success.

Alex Seago and Anthony Dunne define action research in design as, "research in which the process of making or designing an artefact constitutes the methodology" (1999: 11). The action research cycle chosen for this project requires a resetting of goals (Zuber-Skerritt 1996), or of the "master program" (Argyris 1993). This "double-loop" (Argyris 1993) is an important step in the process that changes the design process from one that is teleological and "affirmative" (Dunne and Raby 2007) into one that is intentional and critical (Dunne and Raby 2007).

The last step in the abductive evaluation process (Newmann, Rutter et al. 1989), expectation, leaves us with a way of resetting the "master program" (Argyris 1993).

In the first section of the thesis, a taxonomy of four perspectives was suggested for the theoretical grounding of this research:

- Ontological
- Epistemological
- Methodological
- Teleological

In hindsight, it is easier to see how these components fit together by looking back through them.

The Teleological Perspective

With the teleological perspective, one looks back through the goals that were set for the project and the research.

From a naturist perspective (Cornell 1986), the question is asked, "Did the laptop program grow into what it was determined to be?"

From the cybernetic perspective (Rosenbleuth, Wiener et al. 1943), the question is asked, "Did we hit the target?" This is effectively the same question.

But from a phenomenological perspective, based on the ontology section, from and abductive logic (Niiniluoto 1999) perspective and from a pragmatic perspective (Dewey 1908; James 1995), the question must be, "Were the desired effects achieved, regardless of the original target?"

There is no question of reaching the end goal or target since the desired effect will change as will the method needed to achieve it.

The Methodological Perspective

This can be a confusing term. The question that comes to mind concerns the difference between method and methodology. In this project a number of methods were used including reflective writing, through my research journal, stakeholders meetings and other means, which largely amounted to attempts at communication and understanding. But these disparate attempts together began to form something larger because they were adhered by a philosophy that was consistent and cohesive. It contained a message that was formed through intentionality, a vision, which we would make a reality.

The methodology, which allowed this cohesion, is action research.

> "Action research is not a 'method' or a 'procedure' for research but a series of commitments to observe and problematise through practice [of] a series of principles for conducting social enquiry (the praxis of a critical social science?)."
>
> (McTaggart 1996: 248)

The Epistemological Perspective

In the epistemological perspective, what and how we learn is examined. Experiential learning is examined but from a Dewian perspective (Dewey 1934). Experience from the pedestrian sense can be gained simply by doing things. Certainly some kind of action is needed in order to gain experience so this fits well with action research as a methodology. We do things, we do them with an intention (teleological), and we do this with a set of principals that will guide us to that goal (methodological). But how does this become knowledge?

Donald Schön suggests that reflection is the key (Schön 1983). Practice, just doing, builds tacit knowledge and reflection, thinking about what we are doing, allows knowledge to become explicit. Knowledge needs to be explicit in order to allow it to change, to be repurposed. However doing cannot just be random; it is purposeful and methodological. This is **An Experience** in the Dewian sense. This is research.

In the **project** evaluation, the efficacy was measured as well as the community goals and the expectations of all of the stakeholders. It is with **research** where methods and theory are developed that can be shared with our peers in OCAD and other universities.

This is the research in action research.

VERIFICATION OF THE EMANCIPATORY GOALS: WHY DESIGN?

The Ontological Perspective

With the epistemological, methodological and teleological perspectives in place what is the vision that we will follow? If the goals or intentions are needed, where do we find them? If methodology needs principals, how are they formed? If this starts with action, what do we do?

> "... human beings are designing beings. They create, store, and retrieve designs that advise them how to act if they are to achieve their intentions and act consistently with their governing values. These designs, or theories of action are the key to understanding human action."

(Argyris 1993: 50-51)

This thesis suggests that rather than the emancipation of humankind or any such lofty goals, Winter's suggestion of the suspension of ideology should be considered:

> "Ideology can be a loose mesh rather than prison walls, if we make a distinction between two types of thinking:
>
> the act of interpreting experience in terms of a set of categories; and
>
> the act of questioning the categories in which the interpretations are presented."
>
> (Winter 1996: 18)

This research is phenomenological action research. In phenomenology, the researcher builds a world, a reality, which brackets the research from destructive ideologies. Ideologies are destructive when they force the researcher into a reality built by another's ideals. In phenomenology the categories are always questioned.

In Learning by design (Shani and Docherty 2003) the authors report that success is achieved by involving the stakeholders (employees in this case) directly in designing organizational structure.

This is a very concise description of what we have tried to achieve with this research. For Shani and Docherty this is a design process. However this is not what one thinks of as the superficial aesthetic view of design. Design is a process of problem solving that thoughtfully analyses a problem situation and uses "creativity" to solve that problem. Design differs from traditional science in that it does not seek to explain but to discover. This thesis has been a journey of discovery.

It has been a journey that has changed forever my view of design from a pursuit of superficiality to one of social responsibility. In an email to Alain Findeli, I tried to explain where my thesis would be heading, though I had not fully rationalized it yet. I said that this is a design process but the product I was designing was

happiness. I was striving to be guided by good will to create a community of students, faculty and administrators who would then create a better world through design.

> "It must not just visualize a 'better world' but arouse in the public the desire for one. Design approaches are needed that focus on the interaction between the portrayed reality of alternative solutions, which so often appear didactic or utopian, and the everyday reality in which they are encountered." (Dunne 2006: 83)

REFLECTIONS

Participation

Dewey says, "Plato once defined a slave as the person who executes the purposes of another." (Dewey 1938) This is a good way of seeing a student who does not understand the purposes of what he/she is doing. The student must be a partner in the learning process. The goal of participatory/phenomenological action researcher is to involve the stakeholders in a project since it is their future, their livelihood that will be affected. In the administration and organization in a school the same applies to faculty and staff.

In the Laptop Program, this consultation process is not finished but has moved into another phase. We, the Laptop Program staff, the IT Director and the Dean of Design believe that to keep the program at the success level it has enjoyed we must include the students and faculty more in the decision making process.

My response to this, two advisory groups have been formed, the Laptop Program Student Group and the Laptop Program Advisory Group. The Laptop Program Student Group comprises two students from each program area[8], the Laptop Program Manager (me) and the Laptop Program technicians. Two of these eight students are also invited to sit on the Laptop Program Advisory Group. The other members are the Laptop Program staff, the Dean of Design, and two faculty representatives from each program area.

[8] The Laptop Program areas are Graphic Design, Advertising, Industrial Design and Environmental Design

IT Services

Dewey gives advice on the "meaning of purpose," the intentions behind the goals. He cautions that, in education, action should not be based upon impulses and desires. For actions to be purposeful, they must be based on intelligence and reflection (Dewey 1938). Many aspects of the Laptop Program were based on fear of failure. Administrative success was stressed and the methods used produced a result that was, in some ways reminiscent of Niklas Luhmann's systems theory (Lyotard 1984) or of Dunne and Gaby's compliant and obedient public (2007).

Stanley Katz wrote a paper entitled In IT, don't mistake a tool for a goal:

> "I have also come to believe that we need to be very careful to ensure that information technology serves the university, and not the other way around. Too often, I fear, we have reacted to technology, rather than thinking creatively about how it might enrich our basic educational mission." (Katz 2001)

The Laptop Program, itself, was the goal of the Laptop Program because, for good or bad, it was given to IT Services to implement.

The Interdisciplinary Approach

> "The current word for those with interests in education (such as students, parents, employers, professional bodies, government and so on) is 'stakeholder'. Teachers are certainly 'stakeholders' themselves, but why should they as professionals, or a particular action research group of professionals, lay claim to the only legitimate view of what is good for education?"
>
> (Webb 1996: 150)

It seems that, at OCAD, interdisciplinary means between the disciplines within curricular areas. Since computer science is not a discipline that is taught at OCAD, IT services is not an area that contributes to many of the discourses at the

university in an academic sense. There are many reasons that this is true and should remain true but an impassable gulf is nevertheless created.

In the case of the Laptop Program, technology is intertwined with the goals of the Design Faculty office. Curriculum delivery is, more often than not, delivered on the computer screen. Studio assignments are rendered on the computer, written in on a word processor and researched on the Internet. As the University changes, more IT and other administrative professionals have graduate degrees and experience in other higher educational institutions. It is inevitable that these barriers will be broken down and professionals will work together.

Reflective Writing

The reflective journal was to be a series of reflective writings that were largely personal, reflecting my feelings in contrast to the "facts" of the research. I was unclear what these facts would be. The writing began to include stories as well as the introspective aspects and another document, the policy document, was begun. These became tools to help envision what the Laptop Program ought to be, not a vision of the artefact itself but of its desired effects. Reflection made possible the critical and self-critical processes needed to bracket our assumptions, prejudices and ideologies in order to build the phenomenological laboratory necessary for the clear vision of the Laptop Program.

It was reflection that allowed us to achieve an intersubjective stance through the community of the Laptop Program. This vision was from within the community; rather than that of an outsider but this was mediated through the reflective process of writing to find a more neutral position.

The act of writing has been particularly important for the Laptop Program because of the solitude of the position. My previous experience has always been part of a collaborative team with well-defined roles and leadership structures. I have led the structural design and manufacturing portion of jobs working collaboratively with manufacturers and graphic designers. We were all removed from the end users but worked as equal contributors; I often worked as the facilitator or integrator for the team.

In contrast, at OCAD, the Laptop Program is a department within IT services. I report to the director of IT. Most of the people I worked "with" were assistant deans, the dean or people within parallel reporting structures. My issues and priorities were not the same as theirs. This was not a hostile working environment; people were actually quite kind but were often overworked in their own jobs. The net effect was that I was on my own.

I had depended on brainstorming and colleague feedback that was now lacking. I could understand why action research was defined as needing collaboration (Zuber-Skerritt 1996).

Reflections on Reflective Writing

The research journal initially was an exploration of an idea that I had read about while researching reflective practices in the first semester of Design et Complexité. I had desired to simply practice writing with the idea of making it a tacit practice. So I made a practice of writing something, anything, on the train on the way from Toronto to Montreal and again on the return trip. It is probably difficult for a "normal" person to understand what this task meant to me. I am a learning disabled adult who grew up without computers so writing was impossible before the existence of the PC and writing on a train was impossible before the laptop computer. I was just returning to College because I realized that I could now do what I had feared so much before. So, in essence, my goal was to learn to write.

I do not know whether my problem of focusing was a symptom of my disability or a side effect of never writing anything down but I had certainly used it to my advantage in business. I was a multi-tasker. Consequently I wrote how I thought and expected readers to follow this scattered logic. It helps me understand non-linear logic but writing does not work that way. When I wrote and read what I wrote it provided me an insight into how difficult it was to understand what I was trying to communicate and the number of assumptions I made for the reader. I began to write to be understood.

As a non-linear thinker, which I think we all may be, I did not always fully work out the end result of my thoughts. By the end, I had already moved on to another

idea. Writing and rereading gave me an insight to my own thinking. Understanding this I began to write in order to learn.

Then I began to write because I did not know what to do. While starting my research I realized that I did really know what research was and I did not fully understand what the important words in philosophy meant. I was to write about ontology, phenomenology, epistemology, reflection, methodology, pragmatism and teleology yet I did not really understand them myself.

Writing was action. It was an act of learning and reflecting. The institution of writing as a tacit action was not as successful as I had initially expected but it turned into something much more productive. One cannot write without it being an explicit action. This forced explicit intentional reflection my actions and through this came understanding.

Experiential Learning

Acting upon reflection then reflecting on that action through writing is an iterative process that is a formula for learning. On each iteration, a judgement is made on the progress of the project and the strategy is reset based on that judgement. I believe that the action, however, is generic. It does not matter what we are learning; the process is the same.

Would the same process work for sketching rather than writing? Would the process work for a more traditional design project? Would this methodology always work? Maybe not.

This is what I discovered in my situation. But if we back up a step and look at the original thesis question, it says:

> From where, inside of us, does this designer's vision come and how is it used to build a new reality? How will this guide the way stakeholders, researchers and administrators act? Can a foundation for a methodology and epistemology for this vision be built? Can the act of design promote this vision?
>
> In this paper, this vision, through the eyes of the phenomenologist, will be explored and grounding laid for our laptop program case study and the

reflective methodology to be used.

The solution that worked for the Laptop Program may not be the solution for everything but the method of envisioning the solution was the key.

Phenomenology is about seeing things for what they are in their purest form. We strip away the ideologies, the categories, the constructs and the rationalisations. We then build a reality from what we are left with. We must understand that this is not an objective reality nor have we found universal truths; it is our vision of what reality ought to be. But it is not utopia since not all that is given is good.

In the Laptop Program we accepted that what we did was bureaucracy but decided, at least, to do it well.

Intersubjectivity and Reflection

The pitfalls of phenomenology are the risks of introspection and solipsism. It is easy to assume that one's own reality is the right one and that there is no other. Objectivity in the Laptop Program was difficult for me for a number of reasons. I began this project with the understanding that I would be too immersed in the culture of institution and the students to remain objective; neither did I believe that this would have been a valuable stance to take. The senior management at the College was concerned with the negative press and the negative reaction from students the College had received when the Laptop Program was announced.

We wanted the students to see the Laptop Program as a benefit rather than a cost that was imposed on them. To do this I needed to understand what motivated them and help them see that our intentions matched their desires. Of course, to do this ethically, this had to be true. My first instinct was to use empathy as a tool for understanding; "How would I feel if...?" but how "I" feel is not the issue. This is the error of introspection, if I do not include an outside source. Intersubjectivity is understanding through reflection another's subjective point of view. Reflection is not one's reflection in a mirror. Reflectivity, a thought process, is not reflexivity, a reference to the self. Reflectivity is an assembly process; it is to take in the information that has been gathered and see how it fits together, to see how it fits with previous information and knowledge and to see how it fits with our experience. Like introspection it is a process that happens internally but does not

depend on entirely internal experiences and does not require that these experiences be universal to be valid.

To reflect on our actions and therefore to learn, actions must become explicit even if, while we act, they are tacit or habitual. This is what allowed the Laptop Program to grow and be popular amongst the students. If it is to be sustainable we must continue to be aware and continue to change. Change must also include method and strategy, the master program.

Intentionality and Purposiveness

Intentionality and purposiveness are why we act, but purposiveness is the must-be while intentionality is the ought-to-be to achieve our goals. To act with purposiveness is to act with purpose in a teleological sense, without human psychological or emotional interference. In cybernetics it is targeting, working towards a fixed goal by using two-way negative feedback to achieve it (Rosenbleuth, Wiener et al. 1943), but once the target is locked, the intent is not interrogated. With intentionality, an effect is envisioned; human motivation and interference are considered and a change in target and strategy to achieve the desired effect is always a possibility.

Design

If design is to be considered a science, it is a human science rather than a natural one. If man uses nature in his design, it is to control, displace, symbolize or pervert the nature course. I have referred to design as a social science but it is probably more accurate to adopt Simon's terminology and call it an artificial science (1969).

Phenomenological action research is the solution to a design science suggested by this thesis. Phenomenology is a perspective that allows us to consider the artificiality of human society while not discounting the emotional and psychological "nature" of humanity. Argyris says that we are "designing beings" (1993: 50-51). We are also intentional beings and beings that are concerned with what we are. Professional, cultural, recreational, national boundaries and many others are social constructs. They exist only for humans or through our creation. Design is the tool used to change them, whether it is through artefacts or through societal and

cultural ideologies. To practice phenomenology is to adopt a perspective to see through such categories and see things as their basic essence, as they are given.

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December 5, 2006

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APPENDIX I

The Reflective Journal

By Michael Desjardins

- I would like to start my reflective journal with a note on procrastination; it has been 2 months since I started this job and the associated research and have totally neglected to write one word on the subject. I have certainly been busy but I do not think that is the real reason; the written word is still not a natural method of communication for me and it makes me wonder if this is not the true nature of my disability. We put things off because they are difficult to do. Procrastination is often a response to fear, fear of starting, fear of making mistakes. Starting is the blind step off the precipice of progress. Writing anything is that for me; I think that being learning disabled has prevented me from overcoming this fear but I do not believe that it is the cause. This journal may, in the end, be the cure, to make writing an innate action for me, something that handwriting could never be.

- Start somewhere, anywhere...

- In this diary I am not trying to document every thought and personal feeling I have during my job and my research but to find a way to learn to write and document my research
- The research is based on action, on doing rather than on documentation. It is this reflection on action that becomes the job.
- I am starting to think about how I am going to validate the "data" and what exactly is the data

- The computer has made all this possible for me but it has changed very little for me in the methodology of education. Rote learning, the memorizing of tables, equations, dates and names, is something of which I am incapable. There is a good reason that students hate these things, because they have no context. Mnemonics work by attaching context to information, even if it is irrelevant. If we attach this information instead to context that is important, interesting and maybe even entertaining we have learning rather than dumb regurgitation of information.

- As manager of a laptop educational program I cannot help but think in terms of how the laptop changed my life. Without the computer I would not have learned to write at all; the ability to "compute anywhere" has removed the stress of needing to produce something in one place at a given time.

- Action Research has become one of the key concepts in what I am doing. To do this properly it is necessary to cultivate an innate knowledge of your subject matter. Anything worth studying is going to have a level of complexity that will defy rote learning and statistical coincidence. One of the methods that has been very successful in ou[r] laptop program has been to meet individually with the instructors. We have approached them with the proposal

that we (Andrew McAllister and me) are studying their methods to adjust to the change in teaching methods with the laptop computer in hands of each student. We are to share their methods with the other instructors. We are offering ourselves as both a kind of sounding board and as a brainstorming team to help the instructor design their curriculum change.

- The integration of Computers into the curriculum is not the same as the integration of Laptops.

- We have not been taping these sessions as I felt that the informal ad lib approach has allowed the ideas flow without fear of embarrassment or the pressure to produce something.

- Andrew and I have not presented ourselves as "experts" but as learning peers. The three of us are learning together for the better good of the College, each other and the laptop program. The instructor is learning about curriculum change (although arguably none of us have any expertise on this); Andrew and I are learning about this process of initiating change while immersed in it and while improving our process. I am learning about the research process and how to document it.

- Our methodology is a reflective one
- It is a participative process
- We are taking the initiative to start the process of change
- We are aware of presenting a common front
- It is truly collaborative between Andrew and I
- Our approach seems to be geared to the comfort of the professor rather than worked out in advance.

- Common professor's concerns:

- 1. Their comments
    - And my observations

- 2. Scale on the computer screen loses it relationship to scale on paper
    - Are we treasuring this too much?
    - Is "screen" scale going to be more important than paper scale?

- 3. Is type only 2-D, static?
- 4. Students will lose their attention easier with the laptop to distract them
    - Has this really changed or do have a heightened awareness of it?
    - Mark Harris says the novelty will wear off.

- 5. Students could lose "the sketch" as a thinking tool.
    - The computer does not render obsolete the sketch.

    - Can we "sketch" on the computer?
    - What about the tablet screen?
    - What about the tablet?
    - Does this next generation share the same relationship with the screen that we do? Can this be a visualization tool without the "sketch"?

- 6. Will the students know the newer software better than I do? Will I end up looking like an idiot?
- 7. Will I be reduced to being a software instructor?
- 8. Will the student receive software instruction out side the class?
- 9. What about Quark?

- The reflective journal is a tool for reflection on the activities of the day, week...
    - To make pertinent idle thought
    - To practice my writing skills
    - To practice my thinking-to-writing skills
    - To keep a record of my job and my research

June 25, 2004

- It has been very difficult to find the time to write in my journal. Procrastination has not been the issue, at least not the main one. I have been busy preparing a policy document for the laptop program and a letter to the students which will be mail on the 30th.
- The letter has been a learning experience since I need to be wary of how a student is going to read it and interpret it. I gave the rough draft to Andrew to read and he gave me a number of criticisms, suggesting that I should reformat the paper as a number of action items rather as a presentation of information, rather than "here is the information," it should be "here is what you need to do."
- Russell, our webmaster, asked me, "What does it mean when you are told to 'take on a leadership role.'"
- It made me think about something about which I wanted to write. During our faculty training session, I did take on a leadership role; I answered questions to clarify what we were trying to do; I tried to guide things in a direction that would be fruitful. I did this even thought the dean of design was there and probably should have taken on that role.
- I was afraid the following day that she would be critical of me for this but instead thanked me for taking it on.

- Alastair has given me similar compliments, saying that I "get it", I understand what we are trying to do.
    - I am trying to guide the faculty into designing their own educational program and taking into account the new tools that they have at there disposal.
    - I do not want to change the "methodology" only the methods and the infrastructure.
    - The focus is on thinking skills
    - The focus is on problem solving
    - The focus is on inspiration
    - The focus is on ideas
- We use the words "critical thinking" but I am not sure that every one knows what this means
- I spoke about "methodology" but I believe that Lenore was mixing up this with methods
- We should define our methodology. I believe that the college is consistent but have we ever defined this?

June 27, 2004

- I was searching this afternoon for websites on action-research in Toronto
- What I would like to have is an advisor in Toronto to talk to, to discuss my ideas, to tell me if I am going astray or if I am on the right track.
- I am beginning to enjoy the diary because it is becoming my advisor until I can find someone. I believe that I need to trust my inner voice, the lack of guidance makes this necessary.
- In the instructor training I saw Andrew about to fall on his face in the ColourSync demo and the PDF demo, giving more detail than they were willing to hear. I did nothing because I felt maybe he would be correct, it was me how was wrong. In hindsight I saw that my feeling was right.
    - *Designers find a workflow that works for them and does not want or need to know about coloursync*

    - *We should not show them details of how to make smaller file sizes when the details are more complicated than the process is worth*

- But had I headed this off earlier Andrew would never had believed that I knew what would happen
- I do not truly believe that Andrew believes that he was wrong...it is the instructors who are wrong and lack the technical expertise that he believe they need
- But they are hired for there teaching ability rather than their technical expertise
- They too are afraid of the fact they lack the expertise in some of the newer software like InDesign. They are afraid that the student will be smarter than them at that level.
- They are right! The Students will be better than them at the software, but SO WHAT! I learned from my students all the time, they are more adventurous, they do not have tacit habits that hold them back. Actually even if they are the wrong way of doing things, they work. Right is what gets the job done.

- I do not believe that right is about the number of mouse clicks and sensible cognitive order. The way that is best is what makes sense to the user.

July 5, 2004

- I found the time to write in my journal today. I am hoping that I will be able to continue doing this, however I have a ways to go. I need to do some reading on both Action Research and consciousness for my unit of research. I am not to far behind yet but I am afraid I will be if I do not hurry up!

July 5, 2004

- My instinctive management theory (tacit might be a better word) proved itself correct today. I have been having some nagging doubts about the OS X maintenance on the student systems. I was not able to find in documentation (current documentation) who was paying for this. It was a instinct that something was wrong I did not have a tacit understanding how this was going to work. About two weeks ago I went to ask Gary (our vendor) who was paying for this and he said that it was included in the price for the systems. I

confirmed that this was at EPP pricing and he said it was. He called me today to ask who was paying for this. Fortunately I had checked with him and I had him check the information that was being sent to the students as well although I did not have him sign anything. I did have him sign a letter outlining what the College would pay for though on Friday.

- I ask myself if I did enough but I cannot get myself into the position of thinking for everyone. I saw that this was something that everyone was ignoring and I tried to bring it more to the surface but my best efforts were not enough.
- The problem is that I do not want to create a weakness by showing that I do not know where the money was coming from or it would end up coming from me or the students even if it wasn't supposed to.
- I see this as a stress issue as well. If I try to think for everyone else I will be exhausted and unable to have my own time. I will be working even while I sleep.
- I did this at Ground Zero and it prevented people below me from growing into their jobs. I took on all the problems and people became incapable of solving them.
- I also cannot know and control everything.
- I feel I did the right thing this time. I pointed the issue out to the appropriate people and trusted them.

July 6, 2004

- Research for the professional **is** about making information or processes tacit. It is about constantly learning your job.
- This creates a problem for me. I have been using various techniques to do this, writing policy documents to do a rationality check (this one leaves a good artifact), timelines to help visualize the problem (this one is useful at the beginning before becomes useless after a while. But would need to correct it after the fact to see what really happened. The diary would help if it was rigorous. There is also the danger of correcting the data to make it look better than it was or adding a view point that did not truly exist at the time. It is possible though that the viewpoint came about because of the timeline. It is also possible that the timeline allowed us to see things that were always there but hidden. Honesty and documentation is the key), meetings and conferences are also helpful to see other points of view and learn from other experiences. Post-rationalization has a value but I do not feel that post-justification is the same thing. But (to get back on topic) how do we document this well when we are dealing with tacit (undocumented) research. What about research that does not need to be documented or completed because it has done its job.

- I was just speaking to Mike about the epististomology of the College and the fact that it is somewhat undefined.
- Being undefined can be a definition but if this is not clear then it leaves a void that will be filled with a definition which is not desired

July 7, 2004

- I have begun to add tabs to the diary to keep notes pertaining to important things to remember.
- Use these in brainstorming sessions
- Keeps everything in one document

July 7, 2004

- I have to admit that I am bothered by the mark (B+) I received in the "project" course at U of M. I do not truly feel that I deserved more but I believe that others got more essentially for bullshit.
- They had a definition for what is "work" and what was to be "research" which do not fit in my range of skills.
- What this diary is all about is trying to make writing a tacit task and exploring if I can expand it to note-taking. I need to have a tool for documenting since handwriting is not possible.
- I have built a habit of keeping things in my head rather th

July 8, 2004

- LOL!
- I thought that last line was rather an irony!
- August will be the month for interviewing profs for the laptop program.
- We have found that to be the most useful tool, to just have a conversation about the ramifications of the laptop program for them. I think the "training" goes in one ear and out the other and just leaves them dissatisfied.
- We do things with only "good" in mind but end up doing things for the wrong reasons, especially when we are dealing with a group. The "good" becomes so watered down as to be meaningless.
- The learning styles becomes just as relevant for the professors as it is for the students...
- We forget that when the roles are reversed that they are students.
- It is difficult for some to take on that role whereas some embrace it wholeheartedly. Part of the problem is the vision of vision rather than dealing with technical matters. Some (I am thinking of one in particular) do not want discussion and theory, they just want instruction on computer use.
- The message is supposed to be that the computer use does not matter. We are not supposed to be training computer jockeys! We are supposed to be teaching "critical thinking".
- How many of our Profs know what this is? How many different definitions will we find? Will one of them be "right"?

July 25, 2004

- Tired!

- It has been a couple of weeks since I have written in the journal and a lot has changed. My focus has been on the Laptop Program website and I am starting to see that everything has been linked to the site and will be well into September. It has been awful trying to write for school while working on content for the site, emailing students (at all hours of the days and weekends they send the emails). Of course family is another area to balance while doing all this.
- The most important thing that has happened in my research has been a discovery of a method. I have certainly had a methodology for a while. Getting to understand what I am doing on a tacit level has been this from day one. The first step was the time-lime so that I could visualize what we needed to do. After that was the policy document to outline policy and procedures. Again as I built this document I needed to learn the content before I wrote it.
- It was a type of writing that I had never done before, almost plagiarism, copying from various sources, rewriting some of it as I try to absorb what happened before I was hired.
- I had a discussion with Alastair about my discomfort with the situation with Apple. I want to be left out of situations which compromises my dealing with the students. I was glad to see that he shared my concern and showed me emails that communicated as such to Cindy and PC

- Alastair indicated to me that it was my sales and business experience that got me the job. I was experienced with computer and software vendors; I was a person who would get something done and I would be able to "sell" the Laptop Program. I think that that is what has made me so tired recently. Now I am trying to bury the political side and focus on the students. Dealing closely with the students bring s empathy. I cannot have secrets from them while dealing with them so closely. They are already suspicious enough the last thing they need is cause.

- I had my first tension with a student on Friday. This had been building up through a series of emails from a student who did not want to buy a Mac. I am glad that I spoke to her though because it erased any sense of empathy with her. She was arrogant, self-centred and full of conspiracy theories. She already has a job in design(I did not ask for details, but she does not have any money) she already knows the software, she just needs the degree... I told her that the Laptop Program is not about software; it is about creating a learning environment where the student can learn problem solving skills, creative skills, idea development skills but, MOST OF ALL, PEOPLE SKILLS.

- She is already burning bridges.

- The Website has become an action research tool. I am posting things and I get instant feedback, instant data. But I do not feel that I have 'subjects' as much as I have people who are affected by my actions, by my design, by my research. I have found a neutral stance that is based on pragmatism and action. I have a job to do and I am using design in that job as a communication and research tool. The website is not static; it changes every day in response to student input (mostly emails). It will become invaluable as

September comes as students need to connect to the internet and to email.

- When I started this job I thought that the instructors would be my focus rather than the students because I had a "subject" focus. I though I had to study people rather than people in a situation. I am in a post-justification process again. I realize what I was doing but did not recognize it at the time. I am getting more than enough data in email, about the site, about the program, about the school.

July 28, 2004

- It has been interested to see how many students are trying to get a "deal" on their computer purchase. "Can we buy the computer elsewhere and cut the school out of the deal?" was one question. Even though it is clearly a better price than they can get elsewhere. Is there some kind of a conspiracy between the College, Apple and Adobe?

- We spoke in school about the common good but what about **self-interest** as a goal or a mode of operation. I spoke to one student how insisted that she is an exception to the rule, but, as far as I am concerned, the exceptions are the rule.

- Let's assume that she is exceptionally skilled and technically expert. A better goal would be to try and assist others who would need her help. She would rather be difficult than use these skills to better her position at the college. We are responding to these issues be remaining very flexible, giving as much choice to the students as possible.

- The fact that the students were not originally going to own the software was a big issue. When people spend money they do not want to "borrow" the thing they felt that they bought. I am pushing that they will now own the software and that it will have a value towards upgrading to the commercial version. I am trying to remain patient and helpful, trying to answer emails VERY promptly and trying to post issues on the FAQs ASAP. Being proactive and aware has been the key.

August 1, 2004

- The diary is not that different than what I was done in the first term with "notes on the train." That was a reflective diary. I allowed me to put done and organize my thoughts. It allowed and automatic writing process without a specific process or method in mind.

- I suppose that if you to give it a methodology it would be introspective.

- It is helping me read some difficult material without getting lost as I can write down my thoughts without fear of losing them.

August 1, 2004

- The problem with the study of consciousness is the definition. We are trying to pin down something that is too elusive, we are stuck with a word and a concept that needs rethinking entirely.

- The first thing to through away is the concept of unconsciousness. Let's discuss instead levels of consciousness.

- But let's not be so quick to throw away ideas that offend us though, just because they offend us. Behaviourism, dualism, Gestalt and the introspective method, for example, are items that will offend the sensibilities of many but all if we do not rush to a premature theory we can piece together a model of what we call consciousness.

- Let us through out the idea that consciousness is a strictly human experience. There is no doubt that as humans we are different that the rest of the animals but to say that it is consciousness draws too hard a line in the definition. Keeping the animal kingdom in the equation allows us to keep behaviourism and the idea that we are not fully conscious of everything we do and why. We can keep the idea of group consciousness or herd behaviour. We must keep the processes of false thinking, hallucination, instinct and intuition. These are all a part of the experience we call consciousness.

- Let us not through out the idea of consciousness of a machine since, if this is not possible, we need to no the reason. Could we build a conscious machine? Behaviourists, evolutionary psychologists and cognitive scientists might all say that we a programmed, not unlike a machine. If we were to program a machine to survive, then raise it with the appropriate moral code, would it be conscious? For that matter if we were to deprive a baby of the necessary stimulation would it lack consciousness?

- Let us get rid of the idea of the "stream of consciousness" and the idea that the brain is the processor in a complex organic computer. At least, let us get rid of the single processor model and the single processing stream.

- An interesting experience I had, and a corollary in Koler's colour phi phenomenon, made me discard our concept of the order or cause and effect. Or, at least introduce the idea of the ***post*** effect.

- I was dreaming once that I had fallen out of bed and woke up as I fell out of bed. I realized that I had actually fallen out of bed only once (simultaneously in my dream and in real life) but there was no doubt in my mind that I experienced it twice. This means that a portion of my dream happened after I had woken up and had the perceptual experience and information to place in my dream. I do not believe that my "unconscious" predicted the experience of falling out of bed.

- I don't see the purple cow what I see instead is the idea of a purple cow Dennett talks about Goodman's theory of the colour phi experiment (pg 127) that the interstitial frames are not actually painted-in in the brain, in our mind's eye. The idea of movement is introduced in retrospect. We see the idea that the interstitials must have been there, to actually put them there would be a waste of paint.

- But this is bigger than the interstitials in the phi effect. Should we also question the idea of the mind's eye? This totally destroys the concept of third person empirical experiments because the subject cannot be believed!

- Dennett is building up to his Multiple Drafts model which is sounding an awful lot like my Complex Assembly model. I call it that because it all seems to us like one experience.

- He speaks of projection in Hobbes' sense of perception (pg 129) having both an input and an output and why this model does not work. I a room with stereo speakers playing music the sound is there without an observer. When an observer is there he hears where he believe the soprano sound is coming from. An attempt to explain this without Hobbes is to say that the observer is "projecting the sound in phenomenal space."

- Dennett goes on to describe this phenomenal but ignores the magic trick that is being performed here. The magic trick of being human is living in an artificial world. Stereo speakers are an imitation of the real world. In the real world we are perceiving sound (input only) in real space. I we close our eye we actually here the sound in different pars of our head. If we now place a band in a room in front of us the music will move out of our head and be coming from the band. The eyes tell us the source of the sound even if it is not correct. When watch a film the voices come from the actors on screen not from the speakers. This is the perceptual assembly process and a part of our perceived consciousness. We live part of our lives in artificial space not phenomenal space.

- But he is right about some aspects of this artificial space. Fiction does live in another space that can feel quite real to us even though it is not linked to perceptual experiences. We feel pain (or the self-protective aspects of pain) when we read about it. We sympathize with the parent of a lost child even it is a fictionalized account. We have experiences that live entirely in our head.

August 2, 2004

- (Pg 140, Consciousness Explained) Automatic driving is the experience of driving from one place to another and not remembering actually doing it. Maybe you were thinking of what you had to do when you arrived or a problematic situation at work but you were distracted by something which did not allow you to think about driving. Did this mean that you drove in your subconscious? A sleep walker can do some very complex things including starting a car, driving, stopping at red lights and turn off the car when they

arrive while still in an unconscious state. Yet the sleepwalker still has perceptual abilities and can react to this input. You can get lost in an activity to the point that you will not hear somebody speaking to you, you might even answer a question while they do this and not recall them even being there. All these things blur the definition of what it is to be conscious.

- Dennett question whether this is a matter of consciousness or short term memory loss. What is the difference between consciousness and attentiveness.

- The goal is the difference in some cases when I am working and someone speaks to me, my goal is to make them stop speaking to me. I am aware of what I need to say to make them go aware. ("Dad, can I get a motorcycle?"... "sure son...") but my response is not going to be fully aware.

- I have certainly gotten into a state where I have not been paying attention to my driving and narrowly avoided accidents but this lack of attentiveness is not the same as safely arriving somewhere with no memory of the trip.

- Our consciousness is a process which is constantly taking-in and discarding data keeping only what it need to perform the goal at hand.

- One of the things that makes learning so different for so many people is that we do not all keep and discard the same data.

- While type this I saw my neighbour knock on his mother-in-laws door and go into his house, a scooter and a motorcycle and several cars drove by my dog barked at a pedestrian. I was finally distracted by loud music in a car parked across the street but I continue to write and discuss the situation with my wife. I am thinking about my thesis, my diary, and the book I am reading... I am conscious of so many things and by noting them done here I might remember then but if I did not I would surely have forgotten them.

- Imagine if you could remember everything you saw, hear, felt... !

- I am beginning to understand the difference between perception and experience...

- Maybe that is why I am so tired...

August 3, 2004

- I had a great conversation today with a parent about the Macintosh computers we chose for the Laptop Program. He had already purchased a PC laptop for his daughter because being an IT person he has had some bad experiences with Macs and felt they were too expensive. We had already decided on tackling this attitude with certain strategies on the Laptop Website:

- Post no information encouraging the use of PCs in the laptop program
    - *Don't talk about what the competition can do*
- Post no specs for acceptable PCs
    - *Don't say why you would buy the competing product*
- Never say that Macs are better than PCs
    - *Never say that your product is better than the competing product*
- PCs are better for games
    - *Talk about a frivolous benefit for the competition*
- Post the reasoning that went into choosing the Mac platform
    - *Describe a champion's reason for choosing your product*
- Focus on the students needs
    - *Focus on the customer's needs*
- Explain how working to our strengths helps the student
    - *Explain how yours strengths help the customer*
- Focus on community and lifestyle
    - *Focus on workflow, community and lifestyle decisions*
- Avoid technical comparisons
    - *Avoid technical comparisons*
- KNOW WHEN IT IS A LOST CAUSE

- The parent stated that he had looked at the website and found it to be very informative but it was not clear whether a PC laptop would be OK since his daughter had a brand new PC laptop. (We hit the right amount of information, enough to feel informed but not enough to make the phone call unnecessary)

- I asked why they had bought the PC laptop when they knew she would need a Mac. I explained that allowing (existing) PCs was an act of compassion for those that could not afford to purchase another laptop, not a loophole for those that could have bought the right equipment. (This is the first time this had been this clear to me.)
-

- I explained the reason that I a Mac is more suitable for graphics. I explained that PC often use resolution enhancement on the LCD screens whereas the Macs render only pixel for pixel. Even this may not be correct so anti-aliasing is used to correct the display but if the resolution is enhanced the correction is applied twice through t different processes. The result is that type does not display as well. This may be crucial in a typography class. I also explained that his daughter will be working in a Mac world. We have made sure that we can get the software and that the fonts will be the same but consumer-targeted (digital lifestyle) software like iMovie and iPhoto may be used as well in the courses.

- I explained that, just like he has standards in his business, the graphics business has standards as well. They are as much community oriented as they are technical. Correction MORE to do with community.

- The line that really hit home for him on the website was the line about video games on the PCs. We are looking at the computer as a design and learning tool and not at the other aspects that make it attractive for students. The parents want their kids to get jobs after this and he realized that his personal opinions should not harm his daughters chances of success in life, school and career.

- All parents want their kids to have the best chances of success!

August 7, 2004

- Notes while reading Dennett
    - Consciousness allows us the illusion of a semblance of order in our world.
    - Pg 166 Crick and Koch "a mode of action of the brain"
    - Anticipatory action/thinking Grey Walter pg 167

- A dog has consciousness, like a human has innate characteristics. A dog is just a dog like I am only human but I can be a **better** human through reflection and a sense of good. (Ethics)

- August 8, 2004

- Notes on Dennett again
    - Pg 174 selfishness
    - Good, bad and neutral
    - Self-preservation
    - acting in self-interest (in the modern world)

- anti bodies have no-generals; our body is using a system for defence that we are not even aware of not to mention control. It is a self organising system that works from a set of rules it has learn through evolution and survival. It has an innate sense of "good".
    - *The enemy if defined by things that are "not us".*

- Pg 175 "Human designers, being farsighted but blinkered tend to find their designs thwarted by unforeseen side effects and interactions, so they try to guard against them by giving each element in the system a single function, and insulating it from the other elements." Mother Nature designs without goals...

- Pg 176-Seven rules.

- Consciousness began with the first organisms that needed to **recognize good from bad**.

- Pg 177 – One function of the brain is to produce predictions of the future – Expectations, anticipation. Why does the girl in the horror movie open the door? If we did not anticipate the result it would not work.
    - Trees do not have consciousness
    - Anticipation machine (the brain)
    - The level of anticipation is the defining factor of a "good" brain
    - reactionary, short-range, long range.

- LOL !!!! – The analogy of the sea squirt and the associate professor pg 177

- Pg 181 – Information for its own sake, the birth of curiosity. A side effect of heightened awareness for defense.
    - The dorsal and ventral division of the brain in mammals.

- Pg 182 – The emergence of plasticity, the ability to learn.

- Reflection – Reasoning – Rationalization

- This one is mine, triggered by the thought of Dennett's that talking to oneself is a method of auto-stimulation to bring out knowledge already residing in the brain.

- Pg 202 Memes – Ideas that replicate themselves as genes do but in the modern world of a dead genome. Dawkins

August 21, 2004

- I have been saying, "start anywhere," as a matter of fact started this journal with that method and that phrase because not knowing where to start is, I believe the cause of my procrastination. Andrew told me that this was said by John Cage and later quoted by Bruce Mau

August 22, 2004

- What is the difference between a computer and the human mind. This is an irresistible metaphor because the computer was modelled to replace the human computers and was essentially designed from an introspective model using the simplest of logic. What the computer does is make a large series of logical decisions of the simplest form: true and false. Of course the computer, the languages that control it, and the tasks that it can perform have become hugely complicated but it all can be reduced to 1 and 0.

- Parallel or serial? I believe that this question is an attempt at reduction of what our brain does.

- I think that understanding complexity is like trying to explain what infinite is. There is no explanation that truly describes the vastness of infinite at the same time giving justice to how infinitely small it can be. The human mind can work serially while not sequentially as well as parallel, accumulatively and selectively, and do these things in any combination while we maintain a sense of order that is totally illusionary.

August 29, 2004

- The reflective method is one that seeks objectivity through critical thinking rather than a third person voice. Introspection is to look within for the answer accepting our internal answer for the truth. Although we may arrive at an answer which gives us something like a universal truth, in our own mind, it may fail the test in the real world.

- Common sense is much like introspection in that it work internally and fails the test in the real world.

- The weapons of mass destruction, in Iraq, are one such mystery for me. Common sense told me that they were made up by the US government. Hans Blix was sent to Iraq to look for these weapons and concluded that the weapons program had been largely dismantled in 1992 but many believed that they were still hidden. The US brought out ridiculous satellite photos of decontamination vehicles and bunkers. They were clearly a trumped up story. He (Powell) brought up stories of plutonium purchases that were proven to be false yet people believed them. People were aware of the made up "babies pulled out of incubators" stories from 1992. Bush stated that he would invade Iraq on September 10th 2001. It was a stated vendetta but

people chose to believe him, despite the truth because it gave then a more comfortable vision of their world, that he would give them security. This observation of what really happens is far more scientific than my belief in commonsense.

- What should happen is theory. What does happen is science.
- So how do I make science out of something that makes no sense? How do I use reflection without introspection? How do I use a third person view when I do not understand it and cannot predict it?
    - Precedent.
    - Expect the unexpected
    - Scenarios
    - Take the 1st person voice from the 3rd person perspective – put yourself in the subject's place
    - Understand that it is not his duty to see your point of view – but it may be his choice
    - Empathize
    - Remember "start anywhere"? – Give your subject a starting place
    - Be flexible – the rules might change
    - While fact might be wrong, there is no "wrong" point of view
    - You might be wrong
    - If a mistake is made once, it can happen again
- One of my scenarios was to answer why there would be no exceptions to the software fee. Alastair did not want me to introduce the idea that this was even a possibility and I believe that he was right. For the most part we have dealt with this individually. Most students have wanted to use pirated software. Others that have the software have accepted the fact that they will still get a good deal through the program.
- However the thing that I did not expect was for someone to go out of their way to break the rules. One student did this. She bought the Adobe Creative Suite for $550 (with tax) even though the software fee is only $275. I cannot see the logic in what she did since this is obviously twice as much money for less goods (our bundle includes Microsoft Office, Extensis Suitcase and the OS and the next CS upgrades). This defies commonsense and the mother

still insists that it was a better deal for them. This twisted reality exists because they did not want to rely on someone else is the only explanation that make sense to me.

- They were not the only people who believed that they could get a better deal than we could. There is always "someone with a better connection"; it is what makes them feel special. I think that it is more special to ensure that you (or your child) gets the best education possible! People wanted to right it off on their businesses, buy through friends at Apple, get used computers... People complained that they purchased desktop systems the previous year, even though they had been warned.

September 4, 2004

- I have used the term "complex assembly" to attempt to explain several Gestalt phenomena in the past and to try and get past the idea that our senses can be described by flatten representations of these senses. Our vision is far more than the sense of sight, cannot be compared to a camera lens and cannot be broken down into forms, volume and edges. Seeing is nothing without the idea of consciousness and the interpretation of this information gathering process.

- To simplify the discussion of consciousness I posit the definition of consciousness as the singular element that makes us human. It is consciousness that allows us to choose, allows us to discern right from wrong and allows our lives to be more than the instinctual pursuit of our needs. We choose an ethical and aesthetic existence. We all live our version of the "good life" sometimes successfully and sometimes not.

- This definition differs from

September 8, 2004

- I guess I'll have to see if I can pick-up that point again

- I was thinking today how all this is going to fit together. I was going to write a bit recently about the placebo effect and how they work with our **expectations**. I was thinking about the laptop program and how we used communication and our research to manage our students **expectations**. I believe that this will be one of the keys to my thesis.

- I have decided that my next unit of research should be on Phenomenology and the management of objectivity in research.

- My weakness has been on this front and staying focused but now I want to discuss the subject of finding focus through research. Great researchers did not suddenly become great researchers. They struggled and worked and searched and built a tacit understanding of their field before becoming great researchers. This is what I am trying to do while being honest with myself and

others (maybe not always a good plan...) I think that "curiosity" can look like "lost". I am not apologetic about this; I needed to be lost before I found my way. I need to make knowledge mine before I can even pretend to use it. I probably will never be a great scholar because I do not have the skills to be what I am expected to be as a scholar but graduate school has helped me to be a better professional and I have excelled at my job because of it.

- Can I now write a thesis which will be scientific?
- I think so...
- Next is to work on my (long winded) problematique.
- My methodology (reflective, action research, my point of view, I-witness?, objective, Phenomenology?): complexity
- My data, the website, email communication, the (living) policy document. The verification... a survey of the students (was it helpful, informative...?) What should we have done differently?
- My interpretations, conclusions...

- Will it be a problem that this has not really been a student project? I have been working as a professional. My project is no longer me but my actions as a professional and the effect those actions have on others. Am I doing good? Am I changing the world? Am I making a difference? I believe, in a small way, the answer has been yes!

APPENDIX II

Laptop Program Policy Draft [9]

By Michael Desjardins with anonymous contributors

Background

A mandatory computer Laptop Program is being implemented in 2004/05, as a Pilot Project for approximately 300 2nd year Graphic Design and Advertising students.

Because of the students' significant financial commitment to purchase a laptop, OCAD would be expected to maintain the Laptop Program for the initial 2nd year Graphic Design and Advertising students as they progressed to 3rd and 4th year, even if the College made the decision not to extend the Laptop Program to other year levels, or to other academic programs.

While the computer is just one tool designers use, it is a key one. The advertising and graphic design industries rely almost entirely on computer-generated design, as do the industrial design and interior design disciplines. OCAD's unique focus has always been conceptual thinking and the development of a strong creative methodology, but the College must place more emphasis on the development of skills in the contemporary technology which is used in these disciplines.

OCAD academic management proposes to enhance electronic delivery of curriculum in certain academic program areas, in conjunction with the introduction of new wireless technology in the Sharp Centre for Design and throughout the OCAD campus.

Comparison With Other Institutions

Until now, OCAD's inability to provide electronic delivery of its curriculum, particularly in Graphic Design, Advertising, Industrial Design and Environmental Design, has placed the College at a competitive disadvantage compared with other institutions.

Mandatory Laptop Programs for students and faculty, wireless networking, and smart classrooms are already the norm at numerous other institutions, including Sheridan College, University of Ontario Institute of Technology, Nipissing University, Parsons School of Design, and Rhode Island School of Design.

Preparing Graduates for Careers

The employment opportunities for OCAD Design students will soon become limited, unless they are able to graduate with considerably more digital skills than at present. In Graphic Design, Advertising, Industrial Design and Environmental Design, the "studio-

[9] Neither the Ontario College of Art & Design (OCAD) nor any department within OCAD ever approved this as a policy document. It was used to develop policy which was then posted on the Laptop Program website. The text shown in grey was draft text that was considered to be unfinished. The entire document is now considered to be unfinished and no longer current. It appears here only to show the act of writing as a reflective process in the development of the Laptop Program.

based learning" of which OCAD is justifiably proud, becomes more and more compromised with each passing year.

At present, Graphic Design, Advertising, Industrial Design and Environmental Design students are unable to actually produce work during studio classes, as they don't have computers on which to work (and a limited number of classes can be accommodated in the College's five, soon-to-be-six, computer studios). Given that Design faculty, in particular, virtually all use computers in their professional practices, the lack of technologically-equipped classrooms severely limits their teaching effectiveness.

OCAD is implementing a mandatory Laptop Program for 2nd year Graphic Design and Advertising students beginning in September 2004. The following year, as the initial cohort of Graphic Design and Advertising students progresses to 3rd year, the program will be introduced to the next cohort of 2nd year students. By year 3 of the program (2006/07), all Graphic Design and Advertising students in 2nd to 4th year will be participating in the Laptop Program.

Laptops will be used heavily in the core studio courses for developing and presenting students' design projects. They will also be used for research and word processing in the preparation of written reports and essays for studio, lecture and seminar courses. Design faculty will be expected to post course materials on the College curriculum support websites, and the laptops will be used to access this material as well.

A mandatory Laptop Program for 2nd year Industrial Design and Environmental Design students will be launched in September 2005. Thus all 2nd, 3rd and 4th year students in Graphic Design, Advertising, Industrial Design and Environmental Design will be participating in the Laptop Program as of 2007/08. Assuming the Pilot Project is a success, the hardware and software needs for students in Industrial Design and Environmental Design will be determined during the 2004/05 academic year, in time for implementation in 2005/06.

Estimated Number of Students Participating in the Mandatory Laptop Program, at Projected Enrolment Levels (prepared by Lenore Richards, Dean of Faculty of Design, February 12, 2004) [10]

Note - The above pertains to students participating in the mandatory Laptop Program only, and does not include students in other academic programs who may wish to purchase laptops on a voluntary basis. These numbers also assume that the Pilot Project will be successful, and that the Laptop Program is therefore extended to subsequent cohorts of Graphic Design and Advertising students and, commencing in 2005/06, to Industrial Design and Environmental Design students.

Other Design Programs

At this time, academic management is not recommending that a mandatory Laptop Program be introduced for students in the two remaining Faculty of Design programs (Illustration and Material Art & Design). While students in these programs certainly need to develop computer skills, digital technology is currently not a focus of their curriculum, and a mandatory Laptop Program would therefore not be as appropriate.

[10] Chart deleted.

Students will be provided the option to purchase new laptops at various times during their program at the currently negotiated special pricing, if they wish to upgrade their system.

Faculty of Art Programs and First Year

Academic management is not recommending at this time that a mandatory Laptop Program be instituted for any Faculty of Art academic programs, though initiatives for a mandatory Laptop Program in certain program areas (e.g. Integrated Media and Photography) may well come forward in future.

There are also no plans to introduce a mandatory Laptop Program for 1st year students. Their studio curriculum, for the most part, does not require computer use, and for basic word processing and internet access, students can access computers in the Academic Computer Centre, Information Commons, Library or various computer clusters throughout the College.

Early Purchase by 1st year Students

The computer is expected to last for the period of three years while the student is in the Laptop Program. We would advise 1st year students, intending to follow one of the Laptop Programs, to wait until their 2nd year to purchase a laptop unless they are willing to purchase another prior to graduation or purchase more than the basic system now. It would not be desirable for a student to be using a 4-year old entry-level laptop in 4th year.

Voluntary Participation by Other Students

Some students, in other OCAD academic programs, may also want to take advantage of purchasing a laptop on a voluntary basis. At the moment, students, staff and faculty can take advantage of Apple's EPP (educational purchase plan) pricing by purchasing through The Apple Store for Education website or the University of Toronto Computer Shop at 214 College Street.

Qualifying Courses

The following courses in the Faculty of Design have been designated as laptop courses for 2004/2005:

Advertising	***Graphic Design***
200 Level: Full Semester	
ADVR 2K01 Advertising Concept 1	*GRPH 2K01 Graphic Design 1*
	GRPH 2A02 Graphic Translation/Drawing
200 Level: Winter Semester	
ADVR 2K02 Advertising Concept 2	*GRPH 2K02 Graphic Design 2*

ADVR 2B06	*Advertising/Layout*	*GRPH 2B03*	*Typography 1 (GD)*
ADVR 2B07	*Typography 1 (AD)*	*GRPH 2A03*	*Graphic Production*

Qualifying Students

Any student registered in any one of the above courses will be considered to be a laptop student regardless of year level or status (full or part-time).

Students taking 3 or more laptop courses in the academic year must pay the Software, Font and Material Fees in full without exception.

Students taking 2 or less laptop courses in an academic year will need to pay the Font Fee in full since he/she receives the full benefit of this one-time fee.

Students taking 2 or less laptop courses in an academic year will need to pay the Software Fee in full each academic year. These students' software will need to be kept up-to-date with the other students in the class; therefore there can be no reduction in the fee even though he/she will pay it more often. The software and the software model may differ than that of the fulltime laptop student but not in a way that will impact the student's chances of academic success. Any changes to the software policy

Students taking 2 or less laptop courses in an academic year pay 60% of the materials fee.

The Third Party Vendor

The third party vendor was chosen through an RFI that was sent out on May 5th 2004 to 5 vendors. The U of T Computer Shop was chosen from 3 vendors who submitted responses. Their response was deemed most acceptable based on the cost of the computers (their willingness and understanding of the education pricing model proposed by Apple Canada), their experience with students, their proximity to the College, the creative solutions they proposed (financial and bundles) and the image they would present to our students.

Students may purchase their laptop at the University of Toronto Bookstore's Computer Shop or have Apple laptops imaged that they already own. The University of Toronto Computer Shop will provide a discounted purchase package for OCAD students, and service and support. The Computer Shop will also collect the software and font fees from all the students whose computers they image.

Software will be pre-installed on systems purchased through University of Toronto Computer Shop, imaged by the Computer Shop or may be installed by OCAD IT Services if a student already owns a laptop which meets OCAD's required specifications.

Students will not own all software licenses provided with the OCAD Laptop Program software install. Some licenses will be owned by the College and will only be available for student use during participation in the Laptop Program. Current, legally-installed versions of all required software and fonts will be provided by OCAD to the vendor for

pre-installation on student systems, or will be installed by OCAD Laptop Program support staff on systems provided by students who already own an approved laptop.

The Costs to the Student

The following analysis took place in considering lease versus purchase options for students participating in a mandatory Laptop Program.

BUY	LEASE
Students owns laptop	Student has use of laptop only during academic year (may retain during summers for an additional fee)
Hardware technology not completely current by 4th year; however, technology could be upgraded, at reduced educational pricing, any time prior to graduation	Hardware remains current, as leased laptops are usually replaced after 2 years
OCAD establishes third-party vendor relationship and negotiates discount pricing on behalf of students	Pricing is much more prohibitive for students (lower upfront expense, but considerably more over 3 years)
OCAD establishes minimum specifications as benchmark for participation in Laptop Program (allows some flexibility for students who already own a suitable laptop)	Complete standardization of options for participation in lease program
Financing to be provided as option for students to be provided through third- party (negotiated by College)	Leasing terms to be determined through College negotiations with third-party vendors
Third-party vendor deploys and handles inventory	Third-party vendor support would be negotiated in terms of services required related to the lease or additional support
No tax deduction	Tax deductible
Laptops pre-installed with OCAD image (including all software, integration and authentication with OCAD networked services). OCAD owns site licenses; student does not own software.	Laptops pre-installed with OCAD image (including all software, integration and authentication with OCAD networked services). OCAD owns site licenses; student does not own software.
One time upfront cost: $2628 (+ tax), plus $275/yr software fee for 2 years Total: $3178 (+ tax) for 3 years	Annual cost: $2200 - $2400 (+ tax) for 3 years (includes software fee) Total: $6600 - $7200 (+ tax) for 3 years

Based on this analysis, the decision was made to recommend a purchase plan over a lease plan, due to the additional cost to the students, and the additional technical support expectations for OCAD associated with a lease plan.

Therefore, students in the Laptop Program will be required to purchase a laptop as outlined below, or provide evidence that they own a Laptop and accessories which meet specific benchmarks (to ensure compatibility with OCAD networked services and studio requirements).

Please be advised that students in 2nd year Advertising or Graphic Design who do not

have a laptop will not be allowed to attend fall classes.

Since the Students will own their computers, they will have administrative control of their laptop which allows them to install or change settings on their system. Please be advised that should the OCAD software install malfunction and re-imaging the laptop be required, the contents of the laptop's hard drive may be completely wiped. Therefore it is essential that any additional software students install on their laptops, that is not part of the OCAD software install, be readily available for re-install by the student if a student deems it essential for use of their laptop. OCAD will not take responsibility for any software that is not part of the OCAD software install required for participation in the Graphic Design and Advertising laptop program. In addition it is noted that software piracy is illegal and is not condoned by the College and will be reported should it be determined that a student is violating software copyright laws.

Software Fee

A fee of $275/year will be charged for the use of licenses of Adobe Creative Suite, and for the purchase Microsoft Office 2004.

The College wants to ensure all students have legitimate and current versions of Adobe Creative Suite (Illustrator CS, Photoshop CS, InDesign CS, GoLive CS and Acrobat Professional) and Microsoft Office for the Mac; the only way to accomplish this, affordably, is through competitive licensing agreements provided through the College. When a student purchases a Macintosh computer through the laptop program, it will come "pre-installed" with the necessary software for the Graphic Design and Advertising programs. The Adobe CS and other software or software image components will be kept up to date through re-imaging throughout a student's participation in the Laptop Program. The software cost incorporates the licensing fees, imaging and maintenance costs.

The annual software fee of $275.00 will cover costs of current licenses of Microsoft Office for Mac and Adobe's Creative Suite as well as system imaging services, software and operating system upgrades, device drivers for OCAD peripherals and network authentication and services required during your time at the College.

Although we believe that it is more affordable for the College to own these software licenses, over the long term, we feel that the students should leave the College with licenses for the software. This is consistent with the purchase model for the hardware. We are currently looking at new student purchase models from Adobe and Microsoft for students to take advantage of purchasing through our Campus license agreements or other bulk purchasing models. The details of this model will be expected to be worked out in August of 2004, for Adobe. This new model has the advantage of being more affordable over the first three years of the program as well as giving a better value for the students.

We are proposing that we will purchase 300 licenses with maintenance of Adobe's Creative Suite for the students the first cohort into the laptop program. The College will own these licenses and will keep them current. The College will purchase licenses on behalf of the students in this first cohort going into the second year of the Laptop Program (their third year). The students will own these licenses and will be able to install them with their own disks, thus eliminating the need to bring back the computers for re-imaging. The expected schedule of upgrades from Adobe allows for these licenses to be used for the remainder of the program. Although there will be an upgrade during their

third year in the program (their forth year at OCAD) it is not likely to be released in time to be included even on the (College owned) image.

We are looking at a similar purchasing program for Microsoft Office as well, except that we would purchase it for the Students in the first year of the Laptop Program and the would have it for the balance of their time at the College.

Note: Additional software may be recommended for the 3rd and 4th year of the laptop program that is not included in the annual $275 fee.

We are hoping that additional software will be purchased on behalf of the students will be purchased and negotiated through this bulk purchasing model.

Font Fee

Students will be provided, through OCAD, the Adobe Font Folio Open Type Edition. This set of 2271 fonts, in the open type format, is the new cross platform format developed by Adobe and Microsoft. The College is looking into providing a license of Extensis' Suitcase and Font Doctor to facilitate font management.

Although these fonts are not generally available to purchase as an individual user, OCAD has used its licensing agreements with Adobe to achieve a substantial discount for the students and provide access to these fonts during their participation in the Laptop Program.

At this time we are negotiating a model in which the students will purchase these fonts through the College; however there is not a system in place for doing this at this time. We feel it is a benefit for everyone to create this new purchase model; the students will have a legal license to an excellent resource, Adobe will have a consistent income through the sales of these fonts each year and the College will not have to bring the students' computers back in for re-imaging (wiping). Piracy of fonts is a major concern for both Adobe and the College. We believe that this distribution of licenses will help to prevent piracy and give us the opportunity to educate our students on the issue of the intellectual property rights of fonts.

In the first year of the program we will be distributing fonts assuming that the College will retain the ownership and that the student systems will require wiping upon graduation, however we hope to change this process before the graduation of the first cohort. If we are not able to do this, the college will continue to purchase Adobe Font Folio Open Type Edition at a rate of approximately 300/per until we have sufficient supply to maintain all three cohorts in the program. The student systems will be wiped before graduation.

Materials Fee

There will be an annual fee of $350 for the following materials and services:

$50 in print credits

Wireless and network authentication

Dedicated file storage and file transfer for Laptop Program students

Self-help back-up facilities at the Laptop Program helpdesk

Self-help re-imaging facilities at the Laptop Program helpdesk

Digital, networked or printed curriculum support materials

Web hosting related to projects and assignments

Security and Insurance

With the number of laptop computers in the school starting in fall 2004, lax security could make OCAD a target for theft. The school will provide the infrastructure needed for students to secure their laptops and will provide security for the campus. However, the students must be responsible for both the security and insurance of their own belongings, including their laptop computers.

Since the loss, damage or breakdown of a student's laptop computer will endanger his/her ability to stay in the Graphic Design or Advertising program, we must insure that policies are in place to reduce that risk. Being that the computers are the property of the student rather than the College, we are not in the position to provide that insurance through the College, therefore we are placing responsibility on the student. Proof of insurance will be a prerequisite to connecting to the OCAD network receiving any support from the laptop program help desk.

Security

Students must:

Purchase and use laptop security cables. OCAD furniture will allow students to secure their laptop security cables.

Use these cables when the student leaves his/her computer, even if the room he/she is in is locked or if others will be present.

Be responsible for his/her own property and not leave anyone else responsible for their computer, including friends or security personnel.

Insurance

The students must insure his/her computer against theft or loss. Recommended methods of doing this:

Adding a rider to the parents' home insurance policy, making sure it is covered outside the home. For a student living away from home this cost could be $200-300/year depending on the insurance provider.

Obtaining contents insurance for his/her apartment in Toronto, again, making sure it is covered outside the home as well. This may not be an option for students with roommates depending on the insurer. Costs can be $250-300 per year plus $200-300 for a rider for

the laptop computer.

Safeware

Proof of insurance will be accepted in the following formats:

A letter from the student's parent or guardian stating that the student's computer is covered through a rider in a homeowner or rental policy.

A photocopy of the insurance policy

Proof of insurance can be provided to OCAD via :

Michael Desjardins

Ontario College of Art and Design

100 McCaul St.

Toronto, Ontario

M5T 1W1

Fax: 416-977-6006 or [redacted]

Ph. 416-977-6000 ext. 477

The Computers

In order to implement the Laptop Program and meet design industry standards, an Apple laptop installed with the current Mac operating system, running the Adobe Creative Suite software (Photoshop, Illustrator, inDesign, Acrobat and GoLive), the Microsoft Office Suite (Word, Excel, Outlook and PowerPoint), as well as drivers for OCAD peripherals and support for network access and services, will be required by all students associated with the 2nd year Graphic Design and Advertising curriculum.

Recommended Student Systems

The pricing shown is the recommended EPP (educational purchase plan) pricing (May, 2004) from Apple Canada's website. The Vendor's prices are not to exceed EPAppleCare Protection Plan

Good	Better	Best
1GHz PowerPC G4	15.2-inch TFT Display	15.2-inch TFT Display
512K L2 cache @ 1GHz	1280x854 resolution	1280x854 resolution
12-inch TFT Display	1.33GHz PowerPC G4	1.5GHz PowerPC G4
1024x768 resolution	512K L2 cache	512K L2 cache
256MB DDR266 SDRAM	256MB DDR333 SDRAM	512MB DDR333 SDRAM
30GB Ultra ATA drive	60GB Ultra ATA/100	80GB Ultra ATA/100
Combo Drive	ATI Mobility Radeon	ATI Mobility Radeon
ATI Mobility Radeon 9200	9700 (64MB DDR)	9700 (64MB DDR)
32MB DDR video memory	Full size keyboard	Backlit keyboard
AirPort Extreme Card	Gigabit Ethernet	Gigabit Ethernet
AppleCare Warrantee	FireWire 400 & 800	FireWire 400 & 800
	AirPort Extreme built-in	AirPort Extreme built-in
1,776.00 plus applicable taxes	DVI & S-Video out	DVI & S-Video out
	AppleCare Warrantee	AppleCare Warrantee
2,042.40 including GST and PST	2,763.00 plus applicable taxes	3,463.00 plus applicable taxes
	3,177.45 including PST and GST	3,982.45 including PST and GST

The student must also insure his/her computer against hardware breakdown. All systems purchased through the College's vendor will include the AppleCare Warranty Protection Plan. It is recommended that all students have a warrantee plan on his/her laptop.

Summary of Costs in the First Year (second year students)

For the 2004/2005 academic year second year students in Advertising and Graphic Design would have the following costs related to the laptop program:

Software fee: $275.00 (annual)

Font fee: $230.00

Computer: $1776.00 including AppleCare (for the basic system) plus applicable taxes

RAM upgrade (128megs to bring the basic system to the minimum recommendation of 512megs): $99 plus applicable taxes

Accessory bundle (including bag, cable lock and 2-button mouse): $69.00 plus applicable taxes

Network cable: $10 plus applicable taxes

Materials fee: $350.00 (annual)

Insurance: $140/year

Summary of Costs in the Following Years

Students in the second and third year of the Laptop program will be required to pay the software fee ($275), the materials fee ($350) and any additional software fees as required by the design program in which you are enrolled. If additional software is required, the college will work an behalf of the student to get the best price possible for the students.

Students Already Owning Laptops

General Policy

It is recommended that purchase of a laptop for participation in the Graphic Design and Advertising program be through the vendor the College negotiates terms with on behalf of the students. This will ensure the best price as well as services and support and correct installation of all software for integration with the program and the College's networks and peripheral devices.

If a student already owns a laptop that meets minimum technical specifications then the student has the option to use that laptop. However, installation of the OCAD software image and fonts will still be required to ensure compatibility with the Graphic Design and Advertising program, and the OCAD environment, and compliance with software licensing agreements and the applicable $275/year fee will need to be paid accordingly. OCAD will make reasonable efforts to make our wireless network infrastructure compatible with a wide range of systems but is primarily focused on supporting the recommended Apple laptops at this time. We are evaluating the level of support for the 2004/2005 academic year for students providing their own laptops, and the process involved with ensuring student provided laptops meet the suggested requirements. OCAD IT will be providing evaluation services for existing student laptops soon so that determination of purchase requirements can be made on an individual basis.

Support and Services

Although we will do our best to help students with PC laptops (or unsupported Apple laptops), the College does not guarantee that the student will have full network access or full access to all the services available to the other students during the 2004/2005 academic year.

Minimum Requirements

A computer to be used for three years in post secondary education would need to be a relatively new system with the following minimums:

1 GHz CPU speed

30 gig hard drive

XGA screen resolution (1024 x 768), minimum 32mb VRAM

VGA output

10/100 BASE-T Ethernet

802.11b wireless card (802.11g is preferred) The card must support 802.1X authentication.

USB and Firewire ports

512 MB of RAM

CDRW optical drive

The most current operating system (OS 10.3 or Windows XP)

Fees

Even if a student has bought a computer outside the process described above, he/she will still have to pay the annual fee for the software image to ensure that the student is in compliance with the software requirements of the program. The same will hold true for the Font fee and the annual materials fee.

The laptop will need to imaged by the OCAD laptop program technician to provide access to program specific software and fonts as well as integration with OCAD peripherals and network access.

PC Software

The College is trying to ensure that all the pricing that we are achieving for the students will be available for PC owners as well. In the unlikely event that this cannot be done, there will be a charge over and above the $275 annual fee to ensure that all systems are equipped with legally installed software and are compatible with the OCAD facilities and network

PC Laptops

PC Laptops may be accepted on an interim basis. This will be evaluated based on the criteria outlined below.

Viruses and non-standard systems

This program is based on an Apple only model, at least partially because of the danger of PC based systems bringing viruses into the College environment. Problems with viruses may create a necessity to re-evaluate whether to allow PC laptops until they are officially phased into the Graphic Design, Advertising or other Laptop programs. When and if this is done, it is likely that there will be standard systems chosen to allow for ease of network configuration, service and support. Non-standard systems would be re-evaluated at this time.

Any Windows system running on the OCAD network will face ongoing scrutiny in terms of security risks and network activity may be monitored more closely than the Apple laptops in terms of network use. It is imperative that current industry standard, updated anti-virus software be installed and fully operational on any windows system accessing

the OCAD network either via wireless or direct network connectivity.

Software and Piracy

As a result of the Laptop Program, software instruction will be provided as a part of curriculum, and there is no extra cost associated with the instruction.

Most software that will be taught in classes at the college will be provided for the student through an annual software fee at the best prices possible. The fee will be charged for the use of licenses of Microsoft Office for Mac and Adobe's Creative Suite (Illustrator CS, Photoshop CS, InDesign CS, GoLive CS and Acrobat Professional) as well as system imaging services, upgrades and device drivers and network authentication and services required during your time at the College. The College is working on behalf of the students to make sure that every opportunity is available for our students to own or access legal copies of all the software. Software piracy is a serious issue and the College is obliged to report it should it become aware of any copyright violations, especially as it applies to any applications OCAD mandates the students to run on their systems.

For the first year of this pilot laptop program, we have chosen a core set of applications to keep costs down through excluding applications like QuarkXpress, Macromedia Dreamweaver and Flash.

Other Applications

The Adobe Creative Suite provides all of the applications the student needs to produce his/her work at a low cost. The College has chosen the Creative Suite based on the affordability for the students as well as . Although other applications will be considered in following years, those decisions will be based on a balance of cost and value for the students. In determining the value, the College will consider the conditions in the industry and job market as well as the transferability of the skill set the students would acquire learning a given software.

Although the College will be providing software instruction, design and critical thinking skills will remain the focus of the pedagogy here at OCAD.

Intellectual Property Rights

Intellectual property rights are defined as the rights to protect and transfer the ownership of a product that is intangible, usually a product of human creativity.

Software Piracy

Through the introduction of a mandatory Laptop Program, the College will address the issue of pirated software, a practice which the College can in no way condone - not only because OCAD teaches, celebrates and champions the creation of intellectual property, but because permitting the use of pirated software on campus exposes OCAD to the possibility of serious legal action and heavy fines.

The college will not condone the use of pirated software and will assist in actively preventing and identifying copyright violations.

Software Installation

No install CD's will be distributed to students for the Licenses owned by the College. If the student encounters a problem, there will be a helpdesk setup at the College to address day-to-day software and minor hardware problems. If it turns out that your system has become sufficiently corrupted, it may require "re-imaging" where the hard drive is returned to the original state with all of the preinstalled software. It is essential that you make regular backups of all of your personal "home" folder data as the entire contents of the hard drive may need to be restored to the default configuration that includes all of the Adobe applications (see the section on preinstalled applications). The College may provide a bootable DVD from which you can restore the contents of your entire hard drive. Again this would wipe the contents of your hard drive and restore it to the original configuration. Also, some program updates may be distributed on CD or over the network. The College is assessing any different requirements for similar procedures for PC laptops.

The student's laptop will be delivered preinstalled with all the programs including the Adobe Creative Suite, fonts and peripheral drivers for scanners and printers. If at any time your machine suffers a massive system failure, technicians at the College will be able to replace your computer hard drive contents with the original programs and drivers as described above. This process is called "disk imaging" because we take a "snapshot" of the hard drive contents including the original system, application files and preferences set on the hard drive. This copy or "snapshot" does not include student personal data files (like your assignments), and therefore students are responsible for backing up all of their assignments on a regular basis, on to CD or other portable media storage, in the event that their machine needs to be re-imaged..

Students can install software other than the OCAD recommended image. However the students must take responsibility for re-installing and maintaining their own software as required.

Software Training

Software training is to be handled by the Faculty of Design teaching assistants. A mandatory 2-hour weekly workshop is to be attached to the core course in both Graphic Design (GRPH 2K01, Graphic Design 1) and Advertising (ADVR 2K01, Advertising Concept 1) in the fall/winter session. This workshop will be held in the spring session as well but the attendance for each student will be at the discretion of the core instructor.

Support

The Laptop Program Support is limited to helping the student with software and hardware problems; questions on how to use software or any questions related to class assignments should be directed to the teaching assistants or the instructor.

Support will either be provided at the College (for software support) or at the third party vendor where the laptop was purchased (for hardware support). All laptops purchased at the negotiated pricing through the designated third party vendor must be fully warranted (AppleCare) for the three years of the program. It is essential that students address insurance issues related to circumstances such as theft or other damages not covered under the warranty. During the time of servicing required for any laptop, options will be provided, at a cost, for substitution of a pre-installed laptop either via the College or the third party vendor. In light of any concern related to malfunctioning laptops, students are strongly encouraged to regularly back up their own files and other software not part of the OCAD install.

Training sessions for laptop care and operation will be available throughout September of 2004.

Helpdesk hours and staff

The Helpdesk will be open:

Monday to Friday 8am to 10:30pm, Saturday and Sunday 9am to 4:30pm

These hours will be re-evaluated in October, 2004.

The Helpdesk will be staffed by 2 full-time class assistants (35 hours/week). Monitors will cover some of the hours listed above.

Software – Helpdesk

Support will always start at the College's Laptop Program Helpdesk (room 636) where it can be determined if a problem is software or hardware related. Software issues could be problems with an installation that has become corrupted, problems with the operating system or problems related to the College's network.

Problems with an installation

If an application or driver has not installed properly of has become corrupted, the helpdesk will attempt to diagnose this problem but if it cannot be addressed quickly, the computer will be re-imaged. An attempt will be made to save the students Home folder and reinstall a fresh image. It is important that the student has a backup of his/her Home folder in any case.

A problem with software could also be related to bad RAM or a failing disk-drive. In this case the student will be referred to an Apple Authorized repair facility, such as University of Toronto Computer Shop.

Wireless, network or Internet access support

In September, the student will need to:

Reset his/her password. Until this is done the student will not be able to access the College's networks. The student's old password will work for email until this is done, then the new password will be the password for both the network login and email.

There will be a restricted http wireless access point near the helpdesk for students with laptops. This will allow students to use their laptop for this initial setup.

Instructions will be on the Laptop website as well as screenshots of this and the following processes. These will also be posted on the outside of the helpdesk.

The student will be able at this point to log onto the network in the ACC but will not be able to connect his/her laptop through wireless or any of the public network drops.

Creating an 802.1X connection will be the next step to getting on the network through a laptop. Instructions will be on the Laptop website as well as screenshots of this process.

These will also be posted on the outside of the helpdesk. This will have to be done from the Laptop. Students will not be able to do this until their computer has been imaged or had the installation at the helpdesk. This will be controlled by a list of student numbers.

The computer the student receives will be imaged with the correct drivers and settings to work on the College's network by default. Problems with connectivity with/though the College's network infrastructure are most likely to be a software issue or a user issue (e.g. forgotten password) that can be handled through the helpdesk. We will be providing the students with instructions on network connectivity in the Laptop Student Handbook as well.

If this turns out to be an issue of corrupted drivers or a corrupted installation, the procedure will be followed as described above in "Problems with an Installation".

If the above two procedures do not solve the problem, then it is a hardware problem. Please see "Hardware – AppleCare Support" below.

Printing Support

The computer the student receives will be imaged with the correct drivers and settings for printers at the College. Problems with connectivity with the College's printers are most likely to be a software issue or a user issue (e.g. incorrect printer chosen) that can be handled through the Helpdesk. We will be providing the students with instructions on printing to the College's printers in the Laptop Student Handbook as well.

If this turns out to be an issue of corrupted drivers or a corrupted installation, the procedure will be followed as described above in "Problems with an Installation".

This is unlikely to be a hardware problem unless the printing problem is due to network connectivity problems.

At this point (July 6, 2004) we feel that the printing systems may not be sufficiently complete to include these settings on the image. A download section will be provided on the Laptop website so that these can be installed by the student. A laptop class assistant will also be able to help with this.

AppleCare support – Software – Operating System – Hardware

It is mandatory for students purchasing a new Laptop to purchase AppleCare support. This support extends the limited warrantee from 1 year to 3 years.

The telephone support number in Canada is 1-800-263-3394

Mobile computing, by its nature, encourages the concept of using your laptop while at the College as well as while you are away from the College. The Sharp Centre for Design and the main building at 100 McCaul St. are all undergoing network infrastructure upgrades, which include wireless access throughout. Expansion of wireless and dedicated network access for laptop usage is expected to continue throughout the three years you will be participating in the laptop program.

Networked print services will be provided and instructions on activating any accounts related to print services will be emailed to your student OCAD email account (that was activated in your first year when you registered). Networked print services and high-end color output services will

be available in the Sharp Centre for Design and at 100 McCaul St.

Networked storage and file transfer services will be provided and will be administered either by your faculty or the OCAD IT Services department. Information on networked storage will be provided in September, 2004. However, it is imperative that students take full responsibility for backing up important files on their laptops on external storage media such as CDROM.

Printing from the Laptop

Wireless Printing

Printing will not be supported through the wireless network. The student will need to plug-in to a network drop in a common area.

Infrastructure Improvements for the Laptop Program

Wireless Internet Access

OCAD academic management is planning to enhance electronic delivery in conjunction with the introduction of new wireless technology in the Sharp Centre for Design and throughout the OCAD campus.

The Sharp Centre for Design and the main building at 100 McCaul St. are all undergoing network infrastructure upgrades, which include wireless access throughout. Expansion of wireless and dedicated network access for laptop usage is expected to continue throughout the three years this cohort will be participating in the laptop program.

Smart Classrooms

Electronic delivery of curriculum requires the creation of "smart" classrooms equipped with built-in data projectors, sound systems, projection screens, access panels, etc. *This proposal includes the upfront costs of equipping approx 25 smart classrooms across the campus, i.e. NOT just classrooms that are associated with the specific academic programs and year levels listed above.*

Media Output Centre

Peripherals - including printers and scanners

Network Storage for Students and Faculty -

Online Course Material / Faculty and Student Portal -

Sharing the Bandwidth/Sharing the Network

There is the courtesy aspect of this and issue of possibly misguided attempts to "share" their bandwidth through Internet sharing, broadcasting as a DHCP server.

The wireless network is not intended for heavy traffic such as printing, moving large files, or downloading movie trailers and such from the Internet. We cannot expect that students will refrain from doing these things but it is reasonable to expect that this will be

done with courtesy.

In relation to 300-1000 students, there are not very many network drops in public areas.

Students who wish to print should have priority

Student are not allowed to use Internet sharing from their wireless connection and may disrupt the network if they try to do so

If students do this knowingly is will be considered malicious and in contravention of our network acceptable use policy

Financing

Government-Funded Student Loans

If you are a Canadian Citizen or Permanent Resident, you may qualify for government-funded students loans through your "home" province (eg, in Ontario through the Ontario Student Assistance Program (OSAP)). At this point, it is recommended that you apply as soon as possible in order to guarantee that funds will be available in September. Although OSAP and other provincial government loan programs do not currently recognize equipment costs (such as the laptop purchase) as part of the funding determination, you may be assisted with your other educational costs (tuition, books and supplies, living costs and transportation). For more information on applying for student loans, refer to the *OCAD Student Financial Assistance Guide 2004/2005.* (You will receive this Guide in your registration package, which was mailed in late June.)

For more financial assistance information, contact the Financial Aid & Awards Office:

416 977 6000 extensions 231, 257 or 346.

Bank-Funded Education Loans

Most of the large Canadian banks offer private student loan programs at a rate of prime + 1% to 1.5%. However most of you who will apply will need a co-signer for these loans or credit lines. The rate of interest on these loans will convert to a market-rate shortly after your graduation.

We are currently seeing if there is a specific loan program that we should recommend. We will post the updates to this information on the Laptop Program website, www.ocad.ca/laptopprogram.

Unless we can make an advantageous deal for the students, we will be recommending all of the big 5 banks for this type of financing rather than a specific one.

Fill out the bursary application!

Bursaries are non-repayable grants given on the basis on financial need. The College offers a number of bursary programs to assist students with their educational costs. Bursaries typically range from $250 to $1500, depending on the number of students who apply and the amount available for disbursement. Details on all of the College's bursary

programs, including when information will be available and the deadlines to apply, are published on page 4 of the *OCAD Student Financial Assistance Guide 2004/2005*. All bursary applications require detailed information about your total resources and costs during the study period.

The cost of the laptop (as well as any other required school-related equipment) can be included in the cost section and will be taken into account when awards are determined.

In order to assist students in Year 2 in Graphic Design and Advertising who have up-front costs related to the laptop purchase, a special application for the OCAD Student Assistance Fund (OSAF) & TD Bank Financial Group Bursary Programs is enclosed. If you are a Canadian Citizen or Permanent Resident and have financial need, you are invited to apply for these bursary programs by the early consideration deadline of **Monday, July 26, 2004, 4:00 pm**.

For more financial assistance information, contact the Financial Aid & Awards Office:

416 977 6000 extensions 231, 257 or 346.

Requests for a used laptop program

We have had some requests for used laptops but a used laptop program would not help students in the long term, as eventually the used laptop would require repair not covered under warranty, decreased performance and eventually replacement. We are also trying to discourage the use of 802.11b wireless cards, which are prevalent in the older systems. We are aware of the issue of affordability and will continue to always offer a basic system for this reason.

Faculty

The success of the mandatory Laptop Program will depend on the adaptability of the curriculum and, in particular, faculty's ability to have updated technical knowledge in order to deliver the curriculum using laptops. Further, as it will be important to keep OCAD faculty hardware current with annually student purchased laptops, a laptop replenishment program for faculty involved with the mandatory Laptop Program must be implemented.

Faculty Accessing Laptops - The following principles will apply to the Pilot Project:

Permanent Faculty Participating in the Laptop Program

(Note - for purposes of this document, "Permanent" faculty includes Continuing, Adjunct and Special faculty)

Permanent faculty will sign out OCAD leased laptops annually with applicable conditions. As part of the laptop renewal program, the laptop will be turned in annually, for re-imaging and software upgrades.

Sessional Faculty Participating in the Mandatory Laptop Program

During the Pilot Project, Sessional faculty will sign out laptops from the College's

inventory, with applicable conditions, for the duration of any semester in which they teach three or more courses. Sessional faculty teaching fewer than three courses per semester will sign out laptops on a per-class basis.

Faculty Using Their Own Equipment

For faculty who already own a laptop which meets or surpasses specified hardware and software benchmarks, and who prefer to use it instead of one provided by OCAD, installation of OCAD network services, authentication and curriculum-support software will be required. In addition, such faculty may be compensated for the use of their own equipment for OCAD curriculum delivery at a level to be determined (and pro-rated on the basis of workload).

Faculty Training

As part of the Pilot Project, faculty will be expected to participate in training prior to delivery of curriculum to students. This training will include: understanding the use of laptops in the classroom, software and curriculum support, and integration with the OCAD environment (network and peripherals).

Legal Issues

Intellectual Property Violations

The biggest legal issues are those of liability for pirated software and intellectual property violations through our networks. We are taking the following steps to reduce these liabilities:

We are providing al the software the student needs through legally owned licenses, either on his/her laptop computer or, if it is for infrequent use, through the Academic Computer Centre.

We are trying to have the students own as much of the software (and fonts) as possible so that we are not responsible for the wiping of systems upon graduation.

We are clarifying this policy with Adobe and Microsoft to deal with students who leave the program early and trying to get documentation on the policy.

The students will sign user agreements when the pick-up their imaged systems for both Adobe and Microsoft.

We are restricting the ports that allow easy use of file sharing programs such as Kazaa and Limewire and informing our students of the College's view of intellectual property rights.

We are informing the students of our policies and the consequences for not respecting these policies

Consequences

If policies and information programs are not in place, we may also be liable for illegal acts performed by students using our network or our resources. These acts may include, but not limited to, software piracy, plagiarism or illegal material being published or created through our network.

The student must be reported to the appropriate authorities.

Corrective measure must be taken to prevent further damages, such as removal of the offending material.

Appropriate academic penalties must be imposed.

Note: this is intended to prevent potential legal liabilities to the College and not to interfere with (or advocate) artistic freedom or be a source of judgment (either pro or con) based on moralistic grounds.

Lost Data

The College must be aware that the students may lose data when systems are re-imaged and the College could potentially be at risk for a number of issues related to crashes, advice or data loss during diagnosis or attempts at data recovery.

Students must be advised of the importance of back-up.

The students must sign a waiver stating that they are aware of the risk and accept this responsibility before their computer is looked at by a technician or class assistant.

If we perform a back-up or data recovery for the student he/she must be informed of our policy of how long data will be archived.

Back-up, back-up, back-up

How do we ensure that loaners are returned?

Academic Appeals

We are not anticipating that the computers will be a source of academic appeals. We are making sure that the students have the software and that the training and assistance is available to them that they will need to get their assignments done. If the students have problems with hardware, the helpdesk will assist them and may be able to provide a loaner system. Even if this is not possible, all the software is available to the student through the Academic Computer Centre labs.

Services outside of the Graphic Design and Advertising Laptop Program

Assisting non-laptop faculty with mobile computing needs

Assisting with the smart classrooms

Loaner computers for use in the smart classrooms for faculty without laptops

Maintenance of these systems

smart classrooms

peripherals including printers and scanners

class listservs

Peer to peer networks

online course material

network and wireless authenitication

student and faculty email

network acceptable use policy

wireless acceptable use policy

Networked print services

Help desk details (What/who is available, hours of operation)

Resale purchases

Orientation sessions in September (dates, locations)

More info on non-GD and Adv. laptop usage

Wiping systems at the end of the three year program or upon exiting the program

APPENDIX III

Timeline

See foldout, following page.

APPENDIX IV

Laptop Program Survey 2004 all students

Laptop Student Survey Summary

Sample Size: 69

Student Response Rate: 24%

	Agree	Neutral	Disagree
The mailing I received during the summer helped me understand the process involved in the laptop purchase, fees and policies of participating in the Laptop Program.	57%	21%	22%
The Laptop Program Website has been helpful and informative.	60%	25%	15%
Purchasing my computer through the U of T Computer Shop was a positive experience.	32%	38%	29%
I would have preferred to purchase and pickup my computer at OCAD.	71%	24%	6%
The service provided through the Laptop Program helpdesk was friendly and efficient.	62%	26%	12%
Having a laptop computer has helped me complete my assignments at the college.	91%	6%	3%
The laptop computers have helped to create a collaborative learning environment on the 6th floor.	75%	16%	9%
Having a laptop computer has helped me improve my technical skills.	76%	22%	1%
The software workshops have boosted the skills I needed to complete my assignments.	47%	38%	15%
The wireless Internet access has been a distraction in classes.	16%	12%	72%
The wireless Internet access has been a valuable research tool.	96%	4%	0%
The Teaching Assistants have been helpful and knowledgeable.	70%	22%	7%
The software package purchased through the College was adequate for the completion of my assignments.	75%	22%	3%
I believe that the computer experience I am gaining will better prepare me to get a job upon graduation.	85%	15%	0%
I love my laptop	91%	9%	0%

APPENDIX V

Laptop Program Survey 2005 all students

Laptop Student Survey Summary

Sample Size: 120

Student Response Rate: 20%

	Agree	Neutral	Disagree
The Laptop Program Website has been helpful and informative.	31%	55%	15%
Purchasing my computer through 317c - The Store For Computers and Books, was a positive experience.	36%	52%	13%
The service provided through the Laptop Program helpdesk was friendly and efficient.	58%	25%	17%
Having a laptop computer has helped me complete my assignments at the college.	85%	5%	10%
The laptop computers have helped to create a collaborative learning environment on the 6th floor.	45%	27%	28%
Having a laptop computer has helped me improve my technical skills.	79%	12%	9%
The software workshops have boosted the skills I needed to complete my assignments.	34%	28%	38%
The wireless Internet access has been a distraction in classes.	18%	26%	55%
The wireless Internet access has been a valuable research tool.	93%	5%	2%
The Teaching Assistants have been helpful and knowledgeable.	54%	30%	16%
The software package purchased through the College was adequate for the completion of my assignments.	69%	18%	13%
I believe that the computer experience I am gaining will better prepare me to get a job upon graduation.	76%	17%	8%
I love my laptop	80%	10%	10%

Laptop Student Survey Summary

Sample Size: 76

Student Response Rate: 12%

	Agree	Neutral	Disagree
The Laptop Program Website has been helpful and informative.	29%	53%	18%
Purchasing my computer through 317c - The Store For Computers and Books, was a positive experience.	45%	37%	17%
The service provided through the Laptop Program helpdesk was friendly and efficient.	52%	28%	20%
Having a laptop computer has helped me complete my assignments at the college.	80%	5%	14%
The laptop computers have helped to create a collaborative learning environment on the 6th floor.	34%	31%	35%
Having a laptop computer has helped me improve my technical skills.	75%	12%	13%
The software workshops have boosted the skills I needed to complete my assignments.	41%	24%	36%
The wireless Internet access has been a distraction in classes.	19%	21%	60%
The wireless Internet access has been a valuable research tool.	92%	5%	3%
The Teaching Assistants have been helpful and knowledgeable.	61%	26%	13%
The software package purchased through the College was adequate for the completion of my assignments.	66%	17%	17%
I believe that the computer experience I am gaining will better prepare me to get a job upon graduation.	68%	23%	9%
I love my laptop	75%	11%	15%

Laptop Student Survey Summary

Sample Size: 44

Student Response Rate: 7%

	Agree	Neutral	Disagree
The Laptop Program Website has been helpful and informative.	34%	57%	9%
Purchasing my computer through 317c - The Store For Computers and Books, was a positive experience.	19%	77%	5%
The service provided through the Laptop Program helpdesk was friendly and efficient.	68%	20%	11%
Having a laptop computer has helped me complete my assignments at the college.	93%	5%	2%
The laptop computers have helped to create a collaborative learning environment on the 6th floor.	64%	20%	16%
Having a laptop computer has helped me improve my technical skills.	86%	11%	2%
The software workshops have boosted the skills I needed to complete my assignments.	23%	34%	43%
The wireless Internet access has been a distraction in classes.	18%	34%	48%
The wireless Internet access has been a valuable research tool.	95%	5%	0%
The Teaching Assistants have been helpful and knowledgeable.	42%	37%	21%
The software package purchased through the College was adequate for the completion of my assignments.	75%	18%	7%
I believe that the computer experience I am gaining will better prepare me to get a job upon graduation.	89%	7%	5%
I love my laptop	89%	9%	2%

Laptop Student Survey Summary

Sample Size: 100

Student Response Rate: 16%

	Agree	Neutral	Disagree
The Laptop Program Website has been helpful and informative.	30%	56%	14%
Purchasing my computer through 317c - The Store For Computers and Books, was a positive experience.	36%	54%	10%
The service provided through the Laptop Program helpdesk was friendly and efficient.	63%	21%	16%
Having a laptop computer has helped me complete my assignments at the college.	88%	5%	7%
The laptop computers have helped to create a collaborative learning environment on the 6th floor.	53%	22%	25%
Having a laptop computer has helped me improve my technical skills.	79%	13%	8%
The software workshops have boosted the skills I needed to complete my assignments.	29%	28%	43%
The wireless Internet access has been a distraction in classes.	20%	25%	55%
The wireless Internet access has been a valuable research tool.	94%	5%	1%
The Teaching Assistants have been helpful and knowledgeable.	47%	34%	18%
The software package purchased through the College was adequate for the completion of my assignments.	70%	19%	11%
I believe that the computer experience I am gaining will better prepare me to get a job upon graduation.	81%	13%	6%
I love my laptop	86%	8%	6%

Laptop Student Survey Summary

Sample Size: 20

Student Response Rate: 3%

	Agree	Neutral	Disagree
The Laptop Program Website has been helpful and informative.	35%	50%	15%
Purchasing my computer through 317c - The Store For Computers and Books, was a positive experience.	35%	40%	25%
The service provided through the Laptop Program helpdesk was friendly and efficient.	32%	47%	21%
Having a laptop computer has helped me complete my assignments at the college.	70%	5%	25%
The laptop computers have helped to create a collaborative learning environment on the 6th floor.	0%	56%	44%
Having a laptop computer has helped me improve my technical skills.	80%	5%	15%
The software workshops have boosted the skills I needed to complete my assignments.	60%	25%	15%
The wireless Internet access has been a distraction in classes.	10%	30%	60%
The wireless Internet access has been a valuable research tool.	90%	5%	5%
The Teaching Assistants have been helpful and knowledgeable.	85%	10%	5%
The software package purchased through the College was adequate for the completion of my assignments.	65%	10%	25%
I believe that the computer experience I am gaining will better prepare me to get a job upon graduation.	50%	35%	15%
I love my laptop	50%	20%	30%

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April May June

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Prepare RFI

RFI

Apple Systems Selection

Apple student pricing/donation

Financing

Insurance Questions

Apple issues

Software Licencing(Adobe campus agreement)

Software Licencing(MicroSoft)

Resolve Fonts / resolced opentype set, fontbook

Student and faculty image creation and management

Falculty Computers

Faculty Listserve

Program Champion

Faculty Training Issues/ ongoing ... preparing course out line with Valerie

Faculty expectations (meeting with faculty, individual interviews)

Pub night

Apple Training

Adobe Training

Faculty and student portals

Faculty and student portals

Faculty Communication Issues / to schedule regular meetings with Lenore and Steve / Howard Simkin

Student expectations

Student Listserve

Software training (networked, Total Training)

Monitors Hired

Monitor Training

List of students in the laptop program

Jonathan's Vacation

Jonathan away

LDAP

Hardware dependancies 8610 switch

Wireless network installation

802.11 slowdown with B or printing

Network storage Hand -in-hand-out space

Network Security

Print Accounting

Peripheral support - scanners...

Setup helpdesk /speak to S

Support staff equipment

Technician Training

User guides, student and faculty handbooks

Laptop Program Website

Smart Classrooms RFP

Policys and proceedures, printing, student training, alredy owned systems(student and faculty)

Legal issues / Vendors, commitments, letters from adobe and microsoft on thirds year release of licence, academic responcibilities

Security

Establish procedures and services and resale purchases

Fonts

ired

Hired

June

July

August

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Apple Training

Adobe Training

Faculty and student portals / Alpha period possibly with simulated storage and wireless

Faculty and student portals / Beta period

Class assistant Hired

Class assistant training

Jonathan away

Setup helpdesk / speak to Stevan about this...

oks

July

August

4 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

ha period possibly with simulated storage and wireless

Faculty and student portals / Beta period

Class assistant Hired

Class assistant training

an about this...