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# Stories of Professional Growth:

Reflections on a multifaceted inquiry into the implementation and evaluation of a many-layered learning environment for in-service teacher education in Quebec.

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A Thesis

in the Department of Education

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# ABSTRACT

Stories of Professional Growth:
Reflections on a multifaceted inquiry into the implementation and evaluation of a many-layered learning environment for in-service teacher education in Quebec.

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Professional development can take on many faces. In this inquiry, a professional development infrastructure; which included web and video materials as well as the description of processes, was piloted at two schools in Quebec's anglophone sector (n=14). The inquiry, using techniques of case study, action research and narrative inquiry, took place between the months of January and June, 1999 and focused on how teachers and teams of teachers use the process and materials provided to further their professional learning in the field of technology integration in largely self-driven ways and utilizing local resources. Issues arising out of the inquiry cluster around a) the technology infrastructure of each school; b) the concerns and challenges surrounding technology integration itself and c) professional development as a locally-driven process in schools. The utility of the findings is primarily in terms of the redesign of the professional development infrastructure in question and also the future design of any other large-scale professional development initiatives which have as a secondary aim the fostering of autonomous decision-making at the school level and a creation of professional identity and community.

**Acknowledgements**

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"One often does research in part to discover more about oneself. This is not to say that it is self-indulgent, but that it is chiefly through the self that one comes to understand the world." (Woods, 1996, p.1)

# Prologue

*"the telling and writing, retelling and rewriting of teachers' and students' stories leads to awakenings and transformations resulting in changes in teaching practices" (Connelly & Clandinin, 1994)*

A clear day dawns. I am driving down the highway in the morning sun, the car eating up the kilometers to beautiful Hummingbird School. I turn off the highway and cruise down a country road surrounded by apple orchards, farms and Loyalist homes - a twisty, bendy road that finally takes me through the town and up to the school. I am excited. In the school, the teachers are gathering for the first time to plan and discuss their school project and how each teacher will be addressing the school's chosen theme with his or her students. I am unsure of how the day will unfold, unsure of how the project will unfold. I am excited yet nervous to be embarking on a journey with these teachers, and worry about the professional development environment that we have created for them and which is so dependent on the professional development environment they create for themselves. As I drive, I think about my burgeoning skills as a qualitative researcher and wonder whether they will see me through the months ahead. But the drive is pleasant and the day sunny and my worry is pushed to the back of my mind as I pull into the school's parking lot.

In another part of the province, on another day, as I am driving down a different highway from the one that took me to Hummingbird School, I know that a different scene will be taking place. Wary and slightly jaded, many teachers at Notre Dame School will not welcome professional development initiatives from the Ministère de l'Éducation, no matter how they are presented to them. And yet.

And yet, here, too, teachers will gather together to plan classroom activities and create learning environments for their students. Unsure of where to begin, unsure who to trust for guidance ("Once bitten, twice shy", they say), they will wait and see. Here, I am different, absorbing the energy from the teachers. Try as I might, I cannot immediately shake the nervous tension and count on my professionalism to carry me through the crucial first day. I think about my roles here and how best to juggle these so that the teachers' experience and my research experience are merged seamlessly and gracefully. With some trepidation, I put my car in 'park' and open the door.

What follows is my story of the teachers in two schools embarking on a journey of professional development as witnessed by me and told to me. It is also the story of my journey as a qualitative researcher, as a scholar. My growth and theirs inextricably intertwined. This is *our* story.

# Chapter One - Introduction

## Chapter One - Introduction

### 1.1.Overview

In April of 1998, along with four other graduate students, I began work on a project commissioned by the Ministère de L'Education du Québec (MEQ) which had as its broad mandate the design and development of a professional development infrastructure that would facilitate and assist in the delivery of the new curriculum that was to be handed down from the MEQ as soon as 1999. The infrastructure we developed has been designed to include the use of multiple media and larger-scale collaboration in restructuring the delivery of professional development to permit a greater number of practitioners to benefit from new knowledge, shared and co-constructed in flexible, school-centred timeframes, in what is broadly understood to be a distance setting. We worked to create flexible learning networks that integrate existing educational improvement infrastructures from within Québec's Ministère de l'Education - services à la communauté anglophone, that will both support teachers in the short term and will sustain a high quality collaborative learning environment in the long term. Housed on the Quebec English Schools Network website and including a video and a facilitators package that supports the launch topic of technology integration, the *qesn.connection*, as the project is titled, is an attempt to meet professional development needs of teachers and school administrators on many levels.

## 1.2 Unravelling the strands

It would be useful at this point to clarify and define some of the key issues and assumptions of this professional development endeavour as well as to give a bit of background information as to its practical and theoretical origins. As one of the designers of the *qesn.connection*, it is very difficult at times for me to maintain the proper distance from the 'thing' that we have created – in defining and explaining it here, I fulfil the double purpose of clarity for both reader and writer. Let me, then, begin at the beginning.

Since 1997, members of the *qesn.connection* design team had been involved in a variety of professional development initiatives focusing on the integration of technology into curricula as well as teaching with technology across the curriculum. These professional development initiatives by and large took the form of traditional one-day workshops or several-day institutes - a series of instructional design cycles that led us to our culminating initiative that combined traditional workshop approaches with classroom enactments and reflection sessions. In a nutshell, our final professional development design was a mixed-delivery model employing both face-to-face and on-line mentoring of teachers by design-team members. The process involved an on-site, authentic activity-based approach supporting the enactment of the lesson plans and incorporating modelling via videography. In other words, we supported teachers as they tried out new things in their classrooms and gave them authentic video examples as models to examine. This last iteration of professional development elicited strong positive responses from all participants at two remote elementary schools in the

Laurentians as recorded in taped reflection sessions as well as our own personal observations archived as fieldnotes. It was this last, in-depth and authentic professional development endeavour which seemed to have the greatest impact on the skills, classroom practise and pedagogy of the teachers with whom we were working.

### *1.2.1 Enter Ministère, stage left.*

Towards the end of the project in the Laurentians, the design, development and implementation team of graduate students, all working under the auspices of Concordia University's Centre for the Study of Learning and Performance (CSLP) were approached by the Ministère de l'Éducation's 'Services à la communauté anglophone – direction des politiques et des projets' (SCA-DPP) to design a professional development 'package' for the in-service training of Quebec's anglophone sector teachers. This category of teachers includes all teachers working in the 350 English schools within the nine anglophone school boards in the province of Quebec. Although initially discussions focused around a package, it soon became clear that what the MEQ, SCA-DPP was looking for was a distance delivery professional development model that could be used to support the new curriculum that was currently in the last throes of design by various committees and task forces within the Ministère (MEQ).

### *1.2.2 The New Curriculum : "A river runs through it"*

Rumours of the new curriculum had been rife in the educational community at that point in time, with very little actual content being made public until 1998. It was then that the MEQ made available a preamble document entitled *Quebec Schools on Course* (Gouvernement du Quebec, Ministère de L'Éducation, 1997) which set out the broad outlines and mission statements for the upcoming reforms and which the CSLP design team used to inform some of its instructional design decisions. Since we had no new curriculum around which to design, we decided to focus on the known frameworks that teachers would need to learn about in order to apply the new reforms. These were items at the Program of Programs level (*Quebec Schools on Course* 1997) - the MÉQ's nomenclature for describing what is currently more commonly referred to as cross-curricular competencies such as e.g., language development, higher-order thinking skills.

### *1.2.3 Launch Topic : Technology Integration*

At the best of times, it is quite difficult to design effective professional development with little or no content. It was decided, therefore, that the launch topic of this professional development model was to be the integration of technology into elementary and secondary curricula, an area already familiar to us since it had occupied our time for the better part of the past year as we visited a variety of schools across the province and worked with many teachers on technology integration initiatives. It was decided early on that an effective way to

proceed would be to distil the salient features of our mixed-delivery model that was successful in the Laurentian Project (see above). Although, as mentioned before, the initial idea was to design a stand-alone package of materials and resources, we eventually decided that our time would be better spent structuring a professional development process that would mirror the Laurentian Project, but at a distance, without the constant presence of CSLP team members.

Thus, the broadly outlined objectives around which we were to design were two-tiered: on the one hand, we were to develop a professional development infrastructure able to handle any content and be sustainable at a distance, and on the other, we were to fill this infrastructure with the topic of integrating technology into the curriculum, with all the support materials necessary.

### 1.3 Literature base for the design phase

Several bodies of literature, notably those dealing with constructivist learning environments and teacher change, as well as the research experience of the design team, helped define and shape our perspective towards the design and research of professional development initiatives for teachers (Jonassen et al. 1995, 1992; Blumenfeld et. al., 1991; Scardamalia & Bereiter, 1994, Willis, 1995; Duffy, 1992). The literature on teacher change (Guskey, 1985; Richardson, 1990; Sarason, 1993) has recently pointed out that

> change will not take root and innovation will not be sustained if one adopts traditional top-down models of dissemination and enhancement that rely on one-shot workshops, distribution of curriculum materials to be

> used exactly as prepared, and lists of prescribed practices to be implemented. (Soloway et al, 1996).

We are also guided by the philosophy that effective integration of technology into the curriculum involves more than teachers using computers to assist them in traditional modes of classroom instruction. The desired outcomes of integration are to provide educational environments in which children actively use not only computers but various kinds of technology as tools to construct meaning and to facilitate, document and enrich their learning. Teachers, as adult learners, need to do the same (Beck, 1990 in LeBaron & Bragg, 1994, pp.8). Indeed,

> Professional development needs to reflect the fact that teachers, like students, construct understanding; they need to collaborate with others, try things out, reflect on the results, modify their attempts, and try again. (Marx, 1997, pp.355-356).

### 1.4 Design Philosophy and Principles

As mentioned previously, at the time of the design of the *qesn.connection*, I had been working closely as part of a team with teachers and consultants from several school boards on a variety of teacher training initiatives and research that involved looking at ways of creating learning environments using information and communication technologies. We saw the role of technology, in a metaphor, as a river running through all of the proposed cross-curricular competencies at the Program of Programs level under the new reforms (*A New Direction for Success* 1997) - and through the very curricula at the lesson plan implementation level as well. Technology is, in itself, void of content and certainly not taught as an independent subject. Instead, technology is used as an embedded support to

enhance, articulate, and even make concretely possible the kinds of learning activities and evaluations that are pedagogically desirable based on coherent team-sculpted decisions taken by the school. As well, the development of our model was guided by both the spirit and philosophy of school autonomy as laid out in *A New Direction for Success*: "A professional development culture must be instituted in each school to give teachers a say in their ongoing training" (p. 16).

Through our conversations and collaborations with teachers and our own thoughts and insights, we evolved a philosophy rooted in constructivist learning principles and steeped in school culture. Infused with our design impetus, which is to craft and carve out comfortable and inspiring learning environments for real learners in real situations, we designed the *qesn.connection* around four general system attributes as described by Jonassen et al. (1995): Context, Construction, Collaboration and Conversation. Indeed,

> constructivist environments engage learners in knowledge construction through collaborative activities that embed learning in a meaningful context and through reflection on what has been learned through reflection with others. (Jonassen et al, 1995, p13).

We took each of the four system attributes into account in the following ways:

> ***Context*** [emphasis mine] includes features of the "real world" setting in which the task to be learned might naturally be accomplished. These features, which are replicated as faithfully as possible in the learning environment, may include the physical, organisational, cultural, social, political, and power issues related to the application of the knowledge being learned. (Jonassen et al, 1995, p13)

In the case of the *qesn.connection*, the intention was for participating teachers to engage in activities in their "real world" setting. They were to plan

classroom learning activities in their school, in their own classrooms or labs, with accompanying hardware, software or lack thereof. These activities were later to be enacted with their own students. In this scenario, it is their principal who helps them schedule their release time which is possible only if the school has its own money for this purpose, acquired through the organisational, cultural and political means of the elementary and secondary education community - mainly ministerial and other government grants as well as creative accounting. In this way, a team of teachers in a participating school can be truly immersed in all the issues that relate to the concrete task of planning and carrying out their own professional development, as well as the concrete task of designing and enacting a learning activity in their own classrooms and labs.

> ***Construction*** of knowledge is the result of an active process of articulation and reflection within a context. The knowledge that is created is a product of the mind and results from individual's experiences with and interpretations of the context (Jonassen 1991). Those experiences can be encountered in the learning environments as well as in the real world. Learning environments are constructivist only if they allow individuals or groups of individuals to make their own meaning for what they experience rather than requiring them to "learn" the teacher's interpretation of that experience or content. (Jonassen et al, 1995, p14)

In the *qesn.connection*, there is no "Truth", no "Right Way of Doing". There is instead the opportunity to design something, try it out and discuss it with others. It has been my experience that each group of teachers will come to different understandings of phenomena and will have arrived there using different means. At one school in the Laurentian Project, once the teacher team had completed one iteration of the process utilised in the *qesn.connection*, they

decided as a team to focus further discussions around research skills and which ones should be taught at which level *in their school,* since they felt this issue to be important given their school's mission and how they saw themselves as educators. This was in no way a prescribed outcome, but a welcome one from our point of view as trainer-designers. In this individualised way, each teacher alone and each team of teachers collectively may arrive at different understandings and interpretations of similar phenomena.

> *" **Collaboration*** among learners or performers occurs throughout the learning process. Collaboration aids in developing, testing, and evaluating different beliefs and hypotheses within learning contexts. Through the process of articulating covert processes and strategies, learners are able to build new and modify existing knowledge structures. (Seaton, 1993)." (Jonassen et al, 1995, p14)

Collaboration is strongly encouraged in the *qesn.connection.* Teachers work in school teams that meet several times during the process. Teachers are also encouraged to partner with another teacher, based on the reality of shared students[1], the teaching of the same grade level or subject, or cross-age teaching and learning. These partnerships can endure through the planning and formal reflection sessions - which take place without students - but may also extend to teachers supporting each other in the classroom or lab in whatever capacity they feel comfortable with: as observers, as co-teachers, as helpers, thus facilitating co-informed reflection and subsequent decision making.

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[1] An established feature of most secondary schools, it is not uncommon currently for an elementary school student to have at least two different teachers for academic subjects - usually a Language Arts / Social Studies teacher and a Math / Science teacher. Also, in Quebec's anglophone sector many schools offer a mix of instruction in French and English, another reason for the same students having several teachers.

> "***Conversation*** is entailed by collaboration. Individuals and groups must negotiate plans for solving situated problems before initiating those plans. This planning involves reflecting on what is known, what needs to be known, the viability of various plans, and their potential effectiveness. Conversation is an essential part of the meaning-making process because knowledge, for the most of us, is language mediated."

Conversations are what drive the *qesn.connection* process. It is primarily through discussions with others, both face-to-face and on-line, about their proposed learning activities, that learning will take place. The difficulty will be to foster discussion in traditionally isolationist environments often systemically hostile to collaboration among education practitioners.

(For a more detailed examination of teacher activities, see Appendix A or go to http://www.qesn.meq.gouv.qc.ca/connection/index.html)

**1.5 The *qesn.connection* Process Explained**

Now that the elements and design philosophy and principles have been examined, let me turn to the actual *qesn.connection* process itself. In a nutshell, teachers who choose to participate in the project engage in a process of planning classroom-based activities or processes and then trying them out with their own students. Once the enactment completed, teachers reflect on their experience and make plans for the future. The process is school-based, with teams of teachers engaging in it at the same time, working together or solo, but coming back to report to the group at team-defined milestones. Once teachers have gone through one iteration of design, enactment and reflection, their work is shared with the teaching community via the *qesn.connection* website, serving as models and examples for teachers starting out. The *qesn.connection* website is

available at http://www.qesn.meq.gouv.qc.ca/connection/index.html and is also included as a print-out in Appendix A of this work.

### 1.6 Going Public: Implementation

The *qesn.connection* was implemented at two schools: A suburban Montreal area school and a rural school in the Eastern Townships. Each school is different not only in terms of geographic location, but also in terms of school culture, community and technology infrastructure. Subsequent chapters detail the reasoning for the selection of the two pilot schools.

### 1.7 Desired Outcomes, Evaluation Issues and Concerns

The desired outcomes surrounding the *qesn.connection* pilot project, based on continuing discussions with the potential users of the evaluation (Patton, 1997), can be divided into two main and tightly intermeshed categories: those outcomes focused around the issue of professional development and those outcomes which relate to the integration of technology into the curricula of participants. In terms of professional development, the desired outcome of the *qesn.connection* pilot project is to understand how the *qesn.connection* is used by practitioners as a means to attain personal and school-wide professional development goals. Simply put, 1) can the professional development process central to the *qesn.connection* be used by teachers? 2) how do teachers and teams of teachers use the infrastructure and its tools for professional development? 3) does this self-driven, largely unstructured way of professional

knowledge building work for them? and finally, 4) logistically, how do teacher teams and administrators orchestrate the *qesn.connection* process?

Technology integration has been a widely debated and discussed topic on the educational playing field during the past decade. As new imaging, communication and information tools come of age, the educational milieu struggles to find a place for the interlopers in its inflexible system, bureaucracy-ridden and tradition-bound. Teachers faced with the task of integrating the new tools and, with these tools, different and hereto unexplored possibilities for organising, classifying, manipulating and communicating information, have new challenges previously unencountered in their careers. Classroom management and instructional strategies and techniques have to be re-thought to harness the potential of the new tools. This is often an arduous process that implies a paradigm shift that does not come naturally. As well, the power of technologies in information and communication comes packaged in anxiety-provoking machines, which can sometimes be impediments to the acquisition of computer literacy skills and with these, the acquisition of technology integration skills and strategies. In terms of the *qesn.connection* pilot project, participants are expected to work on learning activities that involve integrating technology into their curricula. It will be important to distinguish those issues that relate to the integration of technology from those that deal with the constructivist and reflective nature of the professional development, as well as to highlight those issues that relate to a combination of both. The evaluation inquiry will seek to find out 1) how the support tools created specifically for technology integration

activities are used by teachers and 2) what kinds of learning activities are designed by teachers.

Because much of the *qesn.connection* process and support material is housed on a web-site and requires that participants have access to computers, e-mail and the Internet, technology infrastructure issues may also surface as areas of concern – after all, if computers are not functioning during a scheduled learning activity involving the use of technology, or if teachers cannot access the web-site for support tools or the newsgroups designed for between-school communication as well as communication with the implementation team, then the professional development and technology integration processes may be compromised. Thus, while the desired outcomes are divided into two main rubrics – professional development issues and those issue related to technology integration, there are three areas of concern in terms of the evaluation of the *qesn.connection*, the third being technology infrastructure issues: availability of working equipment, functioning networking, access to e-mail and connectivity. All three issue rubrics are located within the context and culture of the school milieu in which the pilot is taking place. This relationship is illustrated in fig 1.1

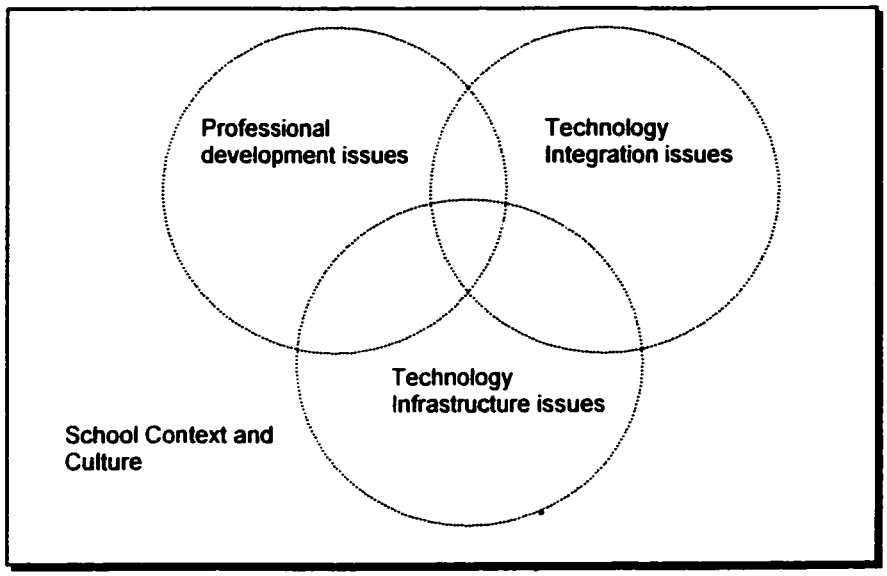


Fig 1.1 Evaluation issue inter-relationships

## 1.8 Evaluation type and orientation

> "Formative evaluation typically connotes collecting data for a specific period of time, usually during the start-up or pilot phase of a project, to improve implementation, solve unanticipated problems, and make sure that participants are progressing toward desired outcomes"
> (Patton, 1997, p.69)

The *qesn.connection* was designed as a process to be experienced rather than instruction to be delivered. Also, the design team was attempting to amalgamate its best practices and materials into a distance environment and thus had to work with a variety of uncertainties that could only be clarified during contextual use. Thus, evaluating the *qesn.connection* during its pilot phase was not a summative endeavour, but a formative, improvement-oriented one that was to feed back into its design (Patton, 1997, p68). Thus, one of the primary goals of this evaluation inquiry is to inform decisions to be made to the *qesn.connection* - its processes, support tools and possibly its overall design. From its inception,

the primary end-users of the evaluation have been involved in the process of generating evaluation questions, the answers to which will be of use to them once the pilot phase is completed. Patton (1997) terms this type of evaluation utilisation-focused evaluation, since its focus is on "*intended use by intended users*" (p20) [emphasis in the original]. Another orientation of the evaluation has to do with the conceptual use of the findings. Since a constructivist theoretical perspective inspired the design of the *qesn.connection*, much of what we learn through the evaluation will go towards clarifying the *qesn.connection* model of professional development as well as towards the testing of constructivist theories – giving the evaluation a knowledge-oriented facet (p70).

### 1.9 Contributions to the field

Having introduced my work, allow me to discuss briefly the type of research this thesis describes and the usefulness of this type of research to educational practice. There has been a feeling of late that the gap between educational research and classroom practice has widened and that research results are not able to contribute to the work of teachers in the field (Eisner, 1991; Hargreaves, 1996) and, more importantly, that educational research contributes to the alienation of teachers from researchers and vice versa (Eisner, 1991; Woods, 1996). Some of this may stem from the disparity between school culture and the culture of academe, each driven by different interests and values. But the nature of educational research may also have something to do with this alienation. Current shifts suggest that the ability of research to fulfil practical needs for both policymakers and practitioners may be one of the ways of bridging

that gap and alleviating some of the mistrust on both sides. This is not a new phenomenon. As far back as 1972, Janowitz advocated an 'enlightenment model' for educational research, which "treats research as providing resources that practitioners can use to make sense both of the situations they face and of their own behaviour, rather than telling them what it is best to do" (in Hammersley, 2000, p.3) – as opposed to a model of research that generates more prescriptive results. In the same vein, Hargreaves (1978 in Hammersley, 2000) suggested that research in education, especially qualitative research, could serve several functions that would enrich the field of educational practice.

In terms of both technology integration and reform, research has tended to be rather correctionalist in nature, seeking to remedy 'ills' in education or improve 'shortcomings' of the system (Hammersley, 2000). This thesis seeks rather to add to the body of literature that emphasises the appreciative capacity of educational research, seeking to "understand, rather than to judge" (Hammersley, 2000, p.11) teachers who go through the *qesn.connection* process, in other words, who go through a site-based, learner-driven professional development endeavour in line with both reform policies (MÉQ, 1997) and the literature on adult learning (e.g. Knowles 1996). Like other inquiries and educational criticisms (Eisner, 1998) labelled as appreciative (e.g. Woods et al, 1997), this work seeks to identify the variety of responses to this type of professional development and to understand why they arise, as well as documenting how teachers and schools react to a new way of doing things

(Hammersley, 2000). Research that has been described as fulfilling an appreciative capacity has been accused of erring on the side of partisanship, or 'rooting for the underdog' in an obvious way – it may be a criticism that is aimed at this work. On the other hand, others point out that partisanship that is open and aboveboard is more honest than that which is woven through the very fabric of an inquiry in an insidious and unspoken way and that the untold stories also deserve telling.

As well as being in line with the appreciative capacity of qualitative research – and the particular contribution this type of research makes to the field - my inquiry is also, to continue using Hargreaves' schema (in Hammersley, 2000), concerned with describing and explaining what actually goes on in schools rather than what should go on in them (Hammersley, 2000). This is what Hargreaves' calls the reflective capacity of qualitative research. Indeed, the reflective capacity of an inquiry is its ability to hold up a mirror to what has gone on, thus highlighting problems that may need to be tackled, or showing that previously identified problems and their attendant solutions may have been misdiagnosed. One of the drawbacks of engaging in research that is considered reflective is that often the complexity that is revealed through such a study is not welcome to policymakers who may seek tidier solutions (Hammersley, 2000), especially in an evaluation context.

# Chapter Two: Literature Review

## Chapter Two: Literature Review

The literature pertinent to the evaluation inquiry into the *qesn.connection* is varied. In fact, two different theses written on the same inquiry could conceivably focus on different bodies of literature and still be considered complete, although perhaps not exhaustive. I will mention the bodies of literature that fed into the *qesn.connection* inquiry, but go into detail only on the ones which are specifically pertinent to my thesis and the way I have approached the inquiry itself. As mentioned previously, the design of the *qesn.connection* is firmly anchored in constructivist principles of learning and as such grows out of that literature base. Also, since the learning environment in question deals with the in-service education of teachers, both the adult education literature and the literature on in-service education of teachers is pertinent to this inquiry.

### 2.1 Curriculum Reform in Québec

#### *2.1.1Parent Report and Quiet Revolution*

Before embarking on a discussion of current reform policies, it is important to contextualize the changes outlined in the Reform from a historical perspective. Curricular reform, as well as reform of administrative structures is not new in Quebec, although the province got off to a late start in the reform game - the first official reform and restructuring coming quite late in comparison to other North American educational communities (MEQ report: Reaffirming the Mission of Our Schools, 1997). This is due in part to the political and religious realities of Quebec – the long reign, some would say 'of terror', of Maurice Duplessis and

the iron fist of the Catholic Church held sway over education for the better part of the first half of the twentieth century. The Quiet Revolution with its ethos of modernisation and its separation of Church and State (1945-1965) saw, in 1965, the publishing of the influential policy document 'The Parent Report' and with it, the emergence of new players on the educational field, all of whom saw themselves as having a say in classroom practice: Administrators, educational psychologists, consultants, speech pathologists and other specialists as well as MEQ *fonctionnaires* (Lessard & Tardif, 1996). Indeed, the Parent Report heralded the first major educational reform in the history of Quebec education, its philosophy and impetus driven by two converging strands: slow social change and individuals changing their professional practice:

> [Le contexte réformiste peut être interprété comme étant] le produit d'une double action engendrée, d'un côté, par des phénomènes de longue durée et de grande amplitude qui façonnent lentement la société québecoise et le domaine de l'éducation, et de l'autre, par des acteurs individuels et collectifs dont les activités, les projets et les réalisations cristallisent les acquis antérieurs du processus de modernisation, mais en leur donnent une forme et un contenu déterminés par leur propre action." (Lessard & Tardif, 1996, p122.)[2]

Although breaking the traditional isolation of the individual teacher, these players were creating a classroom crowding with educators each claiming a piece of it as their personal turf (p18). But even as the number of players initially increased, the main issues raised by the Parent Report were not so much about curriculum reform as they were about paradigm shift on a multitude of levels,

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[2] *"The reform context can be interpreted as being the product of a two-pronged impetus, arising, on the one side, from long-term and far-reaching phenomena that slowly shape quebecois society and the field of education, and on the other, from the actions of individuals and groups of individuals whose activities, projects and practices cristallize previously acquired outcomes of the modernisation process, while giving them a form and a content determined by their own actions."*

ranging from the nature of the educational system, through who controls it, to what ideology it subscribes, what is the role of the school within the system, what pedagogy it advocates, the professionals it nurtures, and how these professionals are trained. The table below summarises these shifts by juxtaposing the old system with the new one arising out of the Parent Report.

**Table 2.1 Table of models and anti-models - *translation*** (Lessard & Tardif, 1996, p125)*

| | **Anti-model *(negative)*** | **Model *(positive)*** |
|---|---|---|
| Nature of educational system | Private and elitist | Public and democratic |
| Type of control over educational system | Religious, with fixed ideology | State control, with formal political and legal scaffolding |
| Ideology upon with the system is founded | Religious and traditional, monastical | Secular, liberal, pluralist |
| Role of the school | Conformist role : to maintain a traditional society | Reformist : the school as an instrument of modern social development and self-realisation |
| Pedagogical orientation | Teacher-centered, based on transmission of knowledge, founded upon "what has always worked" and tradition | Student-centered, emphasising learning processes, founded on scientific evidence and research |
| Teaching orientation | Perceived as a 'metier' arising out of an ideology of calling and vocation. | Perceived as a 'metier' shaped by a philosophy of professionalism |
| Teacher training | "Ecole normale" model, linked to the practice of teacher educators | Tied to the university and university-based research conducted by teacher educators |

*See Appendix for original French version

In spite of the ideological Parent Report, which outlined changes at the systemic level, curriculum reform proper did not reach Quebec until the late 70's when the Quebec government released what is commonly referred to in the local education community as the "green paper" (Primary and Secondary Education in

Quebec, 1977), followed closely by the more influential "orange paper" (The Schools of Quebec: Policy Statement and Plan of Action, 1979). These documents outlined the "aims and objectives of public education, the organisation of elementary and secondary school education (including the subjects to be taught and the time allotted for each subject) and the rules governing the certification of studies" (Reaffirming the Mission of our Schools, 1997, p.16). As well, these reports addressed content for the subject areas, evaluation and textbooks. Unfortunately, all too soon after the implementation of the policies outlined, the curriculum began once again to be widely debated, following North American trends in education. This makes sense, as the Quiet Revolution was in fact a 'catching up' time for Quebec, bringing the province up to date with the rest of the North American education community in time for the curriculum debates that began taking place as we moved into the information age.

The main impact of the Parent Report on the teaching profession was a reconceptualization of the function of the teacher. The most often quoted passages from the report emphasise the role of the teacher as being central to the overall quality of a school and iterate the need for a solid pre-service education as well as on-going professional development (Parent Report, vols.2 and 5, 1965 as quoted in Lessard and Tardif, 1996, p.112) for the province's teaching community. New teaching strategies and approaches were valued, notably discovery learning, research and experimentation and cooperative

learning. New media were encouraged and collaboration between both teachers and students was emphasised. These shifts in teaching in Quebec were accompanied by in-service initiatives that were designed, in theory, to help teachers cope with often prescribed new ways of teaching and learning.

### *2.1.2 Current Reform*

Quebec's current educational reform recalls in many ways the spirit and language of the Parent Report, calling for a shift in philosophy while at the same time addressing systemic issues. Coming hot on the heels of the division of school boards along linguistic lines, the reform addresses issues of curricular content and time allocation as well as school and school board organisation. Founded upon constructivist teaching and learning principles, the reform emphasises the acquisition of meta-skills: intellectual, methodological, social and linguistic that are meant to enable students to become autonomous life-long learners. "This means helping students to progressively master the competencies that characterise human beings: thinking, creating, acting, learning, memorising, forming groups, communicating and living their lives fully in the ethical and aesthetic sense" (MEQ, The Quebec Education Program, 1999, p.3). Major changes include the concept of schooling by cycle, where students move through two-year cycles rather than one-year iterations and the introduction of the teaching of history in the elementary grades as well as the removal of non-essential subjects in the high school grades.

The current educational reform was a large part of the main impetus for the design and development of the *qesn.connection*. "Given the increasing complexity of the problems facing each school and the fact that each school must try to solve them in its own way, it is now even more important that professional development focus on the school and become more and more of a cooperative effort." (MÉQ, 1999. p.17). In such a climate, it was important to enquire into the phenomenon of teams of teachers improving their practice locally in order to understand what happens when teachers and teacher teams begin making decisions as to their own professional growth. Especially given that "The latest amendments to the Education Act [gave] teachers a key role in the educational process and require that they identify their own professional development needs" (p.3).

## 2.2 Andragogy: The education of adults

Before embarking on any discussion about the professional development of teachers, it is important to take somewhat of a side-trip to explore the various discussions and theories which surround the teaching of adult learners as well as seeing how these relate to the *qesn.connection* process. Teachers engaging in professional development are, after all, adult learners, even as they themselves are learning about the teaching/learning of children. In fact, it is this very nature of their professional practice which often makes it difficult for in-service teacher educators to separate the adult learner from the content of the professional development initiative, with the result sometimes being that the adults

participating in the in-service are taught about pedagogy, or the teaching of children, using the methods about which they are being taught; the snake eating its own tail, so to speak. For example, a workshop about cooperative learning in the elementary classroom might be comprised of activities in which teachers are cooperatively grouped and have been assigned roles and tasks to do or problems to solve - modelling the strategies that they are to use in their own classrooms. The question is whether learning activities designed for children are appropriate for adults learning and more specifically, for adults learning how to improve their professional practice. This section, then, examines the definitions of the adult learner, the reasons why adults choose to engage in learning activities and what types of learning environments are appropriate for adult learners.

Formal inquiry into whether and how adults learn dates to the early decades of the twentieth century with the writings of Thorndike (1928) and Lindeman (1926) (Knowles, 1990), who paved the way for Knowles' influential theory of adult learning which he termed 'andragogy' (Knowles, 1980), derived from the Greek and meaning 'the leading of adults'. Although Knowles does not claim to have coined the word himself, the prolific nature of his contributions to the field over the decades have earned him the respected place of a founding father on the North American adult education playing field (Edwards, Hanson, Raggatt, 1996). Knowles is of the opinion that learning is "a process of active inquiry, not passive reception of transmitted content" (Knowles, 1990, p27) and

that adults are not well served by the didactic approaches and externally-determined curricula that characterise traditional forms of schooling primarily aimed at the teaching of children and adolescents. His argument, as well as that of many others (e.g. Wiltshire, 1976; Paterson, 1979 in Jarvis, 1995), rests on the definition given to the word 'adult' and what type of learner it connotes. According to Knowles, the mainstream Western view of adulthood can be divided into four categories (Knowles, 1990): 1) biological – related to basic reproductive functions, 2) legal – associated with a state decreed right to vote, drink, drive etc, 3) social – pertaining to the necessary assuming of socially-defined adult roles, such as full-time work, fiscal contributions, owning property and the like and 4) psychological – related to one's self-concept or whether or not one is responsible for oneself as well as being self-directing. It is this last category of adulthood which is most important to the construction of a framework for adult learning, since it plays a major role in determining how adults function in learning environments that do not recognise their need or desire to be self-directing.

It must be stated that Knowles' definition of adulthood and its four categories is not the only one to have emerged from the adult education literature, although it certainly is one of the more simple approaches. In some contrast to this, Jarvis (1995) discusses the definition of 'adult' and points out that even as it is generally accepted that "adulthood is reached when individuals are treated by others as if they are socially mature and when they consider themselves to have achieved this status ... such an approach does not really

appear to enrich the debate about the adult learner a great deal" (Jarvis, 1995, p43). Instead, more attention should be paid to the concept of 'self' and how it develops in response to different learning needs, until "eventually, a self is formed that integrates the past, present and future in a socially defined, morally relevant biography" (p44). The implication of this is that adult learners cannot be separated from their life experience, their cognitive schemas and their social context.

Having established a working definition of adults as learners, or at least having touched upon the debate surrounding the definition of the adult learner, it behooves me to examine the reasons why adults choose to engage in learning activities, especially in professional learning contexts. Houle (1961 in Knowles, 1980) was the first to suggest a three-pronged classification system for the learning orientation of professionals, although his study was later extended by Tough (1979 in Knowles, 1990): One type of learner seeks out learning situations to meet specific personal goals – career advancement, solving a problematic situation, learning how to use new tools to improve productivity. This type of learner would be classified as a goal-oriented learner because he or she approaches the learning situation with personal and specific needs and interests in mind and expects to be able to use the learning to achieve their goals, whether it be promotion, increased productivity or solving a professional problem. Another type of learner seeks out learning situations for what they offer in human contact, contact with the teacher / facilitator and contact with the other learners. This type

of learner enjoys the activities that surround learning because they enable him or her to satisfy their need of being part of a group and is referred to by Houle (1961) as an activity-oriented learner. The third type of learner is learning-oriented, if you'll pardon Houle's tautology, in that he or she seeks out knowledge for its own sake, without necessarily having any pressing need for it. It is important to mention Houle's classification if only to highlight the reality that adults do not approach learning situations with uniform intentions and expectations, a reality which impacts on the design of learning environments that cater to adult learners, environments such as the *qesn.connection.*

In complement to adults' orientations to learning are the conditions under which adults learn, as articulated by Knowles (1990), but influenced by adult education and community education scholars such as Tough (1979) and Freire (1970). These conditions are: the need for self-direction, the role of experience, the need to know, readiness to learn, the orientation to learning, and ones motivation to learn. Being aware of these conditions is imperative for any instructional designer or team of designers attempting to design learning environments for adults. I will discuss briefly some of Knowles' conditions here, highlight how these relate to the *qesn.connection* and offer complementary points of view from other sources.

When designing learning environments for adults, we must consider the adult's inherent need for *self-direction* and the impact this has on *self-concept*

(Knowles, 1990). As a person grows older, the need for autonomy grows with him or her, as does the acceptance of that autonomy by society. In many facets of life, one's autonomy grows in direct proportion to one's need for it: For example, as a teenager, you may experience the need to be with your peer group rather than your family and it is at this age that your parents cease little by little to control your comings and goings, which permits you to foster the skills and attitudes you will need to become entirely independent of them. Your curfew is pushed later and later, your mobility is increased with your driver's license and the loan of the family car, in short, your need for autonomy is met by a granting of it – and you thus increase your ability to be autonomous by constantly acting in situations which require your ever-developing skills. In education, however, this is not true to the same degree:

> "The problem is that the culture [of schooling] does not nurture the development of the abilities required for self-direction, while the need to be increasingly self-directing continues to develop organically. The result is the growing gap between the need and the ability to be self-directing, and this produces tension, resistance, resentment and often rebellion in the individual". (Knowles, 1990, p55)

Indeed, traditional education institutions often ask adult learners to leave their need for self-direction – their adulthood, in a way – at the door and to submit themselves to a higher authority – a concept fundamentally at odds with their adult selves. Knowles points out that many adult learners who find themselves in a traditional learning environment which robs them of their autonomy, often revert to behaviour associated with school-age children: "...the minute they walk into an activity labelled 'education' or 'training' ... they hark back to their conditioning in their previous school experience, put on their dunce hats of dependency, fold

their arms, sit back, and say "Teach me.""(Knowles, 1990, p.57). The challenge, therefore, is orchestrating a process by which adults, unaccustomed to being self-directing in terms of their learning, can develop the necessary internal mechanisms and make use of external tools to foster self-direction. One of the ways to foster self-direction with regards to learning is by getting learners comfortable with processes of self-diagnosis (Knowles, 1996 / 1983) that enable the learners to assess present levels of competencies and compare them to a given model of performance. The *qesn.connection* incorporates the principle of self-direction by its very nature of being site-based with a group-appointed internal facilitator. Its tools for autonomy, especially the goal-setting process and support document, can be seen as an attempt to foster self-direction in the participants and its Tech Skills Inventory document is a clear example of a self-diagnosis tool. (See Appendix A for samples of these tools)

Before returning to Knowles' conditions for learning environments catering to adult learners, I would like to examine Garrison's (1997) collaborative constructivist work on self-directed learning in which he discusses self-direction as a combination of "personal responsibility and collaborative control of the cognitive (self-monitoring) and contextual (self-management) processes in constructing and confirming meaningful and worthwhile learning outcomes" (Garrison, 1997, p.18). It is the presence of the group as well as the acknowledgement of cognitive processes that is of interest in Garrison's definition. Self-directed learning connotes to a certain degree an isolation on the

part of the learner, a self-teaching of sorts (Garrison, 1997). But actually, self-directed learning which takes place in a group situation should encompass the influence of the facilitator as well as the group, as meanings are articulated and compared among learners. Cognitive strategies must be fostered in the learner to equip her for the responsibility of critical reflection and negotiation of meaning with others. The *qesn.connection* was designed with an awareness of the group and attempted, through its tools and pathways through the process, to scaffold the cognitive strategies necessary for building shared meaning between participants.

As well as having the need to be self-directing, adults define themselves through their previous experience and to negate that experience is to negate them as people (Knowles, 1990). Indeed, Lindeman (1926) is quoted by Knowles as having pointed out that "experience is the adult learner's living textbook" (Knowles, 1990, p27). Lindeman was pointing to experience and how it relates to new and previously unencountered situations as the key to the adult learning process. The role of the adult-educator, or the designer of learning environments for adults, is to make sure that the learner is able to use his or her experience to tackle new obstacles that impede self-fulfilment (Gessner, 1956 in Knowles, 1990). There is a caveat: even as it is important to capitalise on experience, it must be done with the awareness of the potential negative effects of certain mental habits, biases and pre-suppositions arising out of that experience that "tend to close our minds to new ideas, fresh perceptions and alternative ways of

thinking" (Knowles, 1990, p.59). Although not completely explicit in *qesn.connection* materials, the assumption on the part of the designers was that teachers would work from the experience they had had with technology integration but primarily from their experience as teachers. Members of the implementation team made it clear to project facilitators that even negative experience can be a source of inspiration for new learning.

The remaining conditions relate to adults needing to learn in context, on an as-needed basis and when they are developmentally ready. As learners encounter a problem, they will need to know the strategies, knowledge, attitudes that need to be deployed to solve it – indeed, this will signal their readiness to learn as they grapple with developmentally appropriate real-life situations, coinciding with their orientation to learning which is to apply what they learn to their current life situation (Knowles, 1990; Knowles, 1996 (circa 1970); Tice, 1997). The *qesn.connection* is built firmly on a foundation of experiential learning occurring in its rightful context, in this case, teacher participants designing learning activities for use in their own classrooms.

The last factor to be discussed is that of the adult learner's motivation to learn. It is not my intention to dwell on this condition, which occupies its own large place in the literature on teaching and learning, but merely to mention how Knowles deals with it in his theory of andragogy. Basing himself on research conducted by Tough (1979), Knowles believes that, in general, adults are motivated to keep growing and developing, "but that this motivation is frequently

blocked by barriers such as negative self-concept as a student, inaccessibility of opportunities or resources, time constraints, and *programs that violate principles of adult learning.*" [emphasis mine] (Knowles, 1990, p63). In complement to these ideas, Garrison distinguishes between entering motivation, a type of commitment to the learning environment and the type of control we expect to have over it, and task motivation, or the sustained intentional effort throughout the learning task (Garrison, 1997). Thus, some learners may have a great deal of entering motivation, but find their task motivation waning as their expectations aren't fully met.

### *2.2.1 Missing the point - No need to separate andragogy from pedagogy*

There are those scholars who hesitate to discuss the adult as learner separately from the institutions of learning that serve him. Hanson (1996) is of the opinion that there is no real difference between pedagogy, or the teaching of children, and andragogy, or the teaching of adults - and that what constitutes a quality educational environment is the same for all humans. She goes on to add that much of the adult learning literature seems to be couched in rhetoric about idealised institutions and idealised learners that ignores realities: "Any theory of adult learning which advocates the importance of each individual, but avoids issues of curriculum control and power does little to address the actual learning situations of adults" p101. Indeed, she adds, "Rather than attempting to describe the various ways in which adults learn, there is the danger of andragogy prescribing how adults *should* learn (emphasis added)" (Hanson, 1996, p102).

Instead, more attention should be paid to the curricula available to adult learners and the power structures that govern the institutions responsible for their delivery. Seen in this light, it is clear that the *qesn.connection* was a MEQ initiative, closely tied to a university research centre. And so even as power stuctures begin to loosen, and top-down models of dissemination are met with disapproval, some of the innovation still comes from the top and perpetuates, albeit perhaps unwittingly, old power structures.

### 2.3 Reflective Practice

Reflective practice as a learning approach does not explicitly discuss adult learners as separate from children, but instead focuses on a specific section of the adult learner population, namely, adults seeking to improve their practice, whether self-driven or institutionally sanctioned. Much of the rhetoric surrounding adult teaching and learning has laid claim to the idea that learning must not only take into account the learner's prior experience, but must also flow out of experience, providing opportunities to apply what is learned as well as create and shape knowledge through active participation in a real context. However, there are those who believe that experience or action alone are not sufficient to lead to learning on the part of the participant in a given learning situation or environment. Indeed, "learning cannot be simply equated with experience, nor can it be expected to flow readily from it" (Desforges, 1995 in Oxford, 1997, p.47). A crucial piece is missing from a learning situation involving experience alone, namely, reflection on that experience. Oxford puts it succinctly when she writes:

"Reflectiveness seems to be a key in terms of how people learn from experience – or fail to learn from it." (Oxford, 1997, p.47). Jarvis (1995) distinguishes three categories of responses that a learner may have to an experience: non-learning, non-reflective learning and reflective learning. The response categories that do not include reflection tend to be concerned with the reproduction of social structures and constructs, whereas "reflective learning has awareness of individual internal and external processes and, in many cases, change as its main tenets" (Jarvis, 1995, p.73).

One of the most important contributors to, if not a founding father of, the growing field of reflective practice is Donald Schön (1983). Where Knowles, of adult learner fame, speaks of different approaches to teaching and learning, separating children from adults in general and based on developmental stages, Schön focuses on the adult as professional seeking to improve his or her professional practice within a given paradigm. In other words, his interest lies in helping the adult professional deal with the problems he or she faces in day-to-day practice. Schön argues that the dominant paradigm of professional learning, which he calls "Technical Rationality" (Schön, 1996), an ideology based on the assumption that all professional problems are clearly defined and have a finite number of right solutions, does not adequately prepare one to function in the realities of one's professional practice:

> "Technical Rationality depends on agreement about ends. When ends are fixed and clear, then the decision to act can present itself as an instrumental problem. But when ends are confused and conflicting, there is as yet no 'problem' to solve. A conflict of ends cannot be resolved by the use of techniques derived from applied research. It is rather through the non-technical process of framing the problematic situation that we may

> organize and clarify both the ends to be achieved and the possible means of achieving them."p16

Rather than dealing with pure theories or tidy (even as they are complex) problems devised in academic circles, or even rather than devising new ways to use research-based knowledge, Schön (1987) proposes that we ask what we can learn from a "careful examination of artistry, that is, the competence by which practitioners handle indeterminate zones of practice" (p.13). He bases his ideas on the twin concepts of knowing-in-action and reflection-in-action. Knowing-in-action is tacit and spontaneous, it is dynamic and involves anticipation, awareness, appreciation and adjustment – a continuous detection and correction of error as we engage in a specific practice, "so long as the situation falls within the boundaries of what we have learned to treat as normal" (Schön, 1987, p.28). So what happens when we encounter a situation in which we cannot correct the error, in which familiar actions yield unfamiliar results – what of our knowing-in-action then? Schön (1987) discusses reflection-in-action as a way that we question and re-examine the knowing-in-action that has led us to an unexpected difficulty – but like knowing-in-action, reflection-in-action is spontaneous and tacit. The question therefore remains: How do we extricate that which is tacit and turn it into something that will lead us to better articulate our knowledge-in-action? Reflection on our tacit reflection-in-action, a return on the experience we have lived, a conscious extrication of our internal on-the-spot problem-solving mechanisms, allows us to be more aware of our practice, whether it be teaching, "lawyering" or "doctoring" (Schön, 1987). In essence, reflective practice, the term

used to describe the process of reflection on reflection-in-action, allows practitioners to learn the un-teachable, allows them to hone and develop the artistry within themselves that will allow them to improve or change their own practice, given a previously unencountered set of circumstances, new tools or philosophies. Reflective practice can be built into learning environments for adults when these have as mandate to improve practice.

## 2.4 In-service teacher education and technology integration

In-service teacher education and teacher professional development are the terms commonly used to refer to the continuing education of classroom teachers. Over the past half century or so, as educational systems have come under fire from political leaders and societal groups, there has been added pressure to keep teachers up to date with the latest teaching and learning theories which often are delivered to practitioners via the means of some form of in-service education - the implication being that practising teachers need to be externally informed throughout their careers about new theories that can then be turned into classroom practices. Eisner likens this model of theory dissemination to the model used in agriculture:

> "the research biologist who worked in the university produced the knowledge, an extension agent brought this knowledge to the farmer, the farmer implemented the recommendations made by the extension agent and, as a result, greater yield per acre was achieved" (Eisner, 1998, p.102).

Following the agriculture model of teacher education, the best means for dissemination of research-generated theories or curriculum innovations or changes, then, are fairly traditional and involve teachers leaving their classrooms and often schools to come together to receive and discuss new information and ways of doing things. The institutions responsible for the organisation of in-service activities have traditionally been universities and teacher-training colleges (Eisner, 1998), as well as school boards or, in the U.S., school districts (Glenn, 1997) and ministries and other central organs of education.

In-service formats usually fall into one of the following categories: after-school sessions, day-long workshop held on specifically designated professional development days, several-day institutes and conventions with seminars. Most often, these in-service formats are presentational in style and offer some opportunity for discussion and hands-on experimentation with materials and strategies, but obviously not in a classroom context. Within the traditional framework of teacher professional development, Fullen and Stiegelbauer (1991) point out that "nothing has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice when teachers returned to their classrooms" (p.315). Joyce and Showers (1988) showed that staff development is more likely to be successful if it offers, at the very least, some opportunity for practice, and ideally, practice with follow-up coaching so that strategies and theories can more readily be absorbed into a teacher's classroom practice. This view is echoed by Bradshaw (1997) who adds that "peer coaching allows teachers to observe and

help each other with implementation efforts" (p.3) of a given theory, strategy, or set of tools.

Since the arrival of computer technology on the educational scene in the 1980's, much energy has focused on the training of teachers in the use of information and communication technologies for learning. In terms of technology integration, in-service has primarily focused on the teaching of technology related skills first, before moving these skills into a classroom context (Chin and Hortin, 1993). Indeed, "Once teachers master the skills of the technology and acquire the confidence and control over the technology, they feel prepared to take the risk of using it in their classroom, for their fear of embarrassing themselves has been substantially reduced or eliminated." (p.92). Glenn (1997) discusses the types of technology integration initiatives that most commonly take place in schools and school districts in the U.S., agreeing that skills-based workshops remain the mainstay of integration efforts. He outlines other efforts, such as 'train-the-trainers' programmes, in which key teachers are given further training and become technology experts or coaches within their schools. Although this solution works well in the short term, it is not a long-term solution, since the coaches, as Glenn puts it, "get tired" (p.124). Some institutions invest in technical support at the board or district level (Glenn, 1997; Chin and Hortin, 1993), but there is rarely enough support personnel to make an impact at first and the cost is seen by administrators as prohibitively expensive (Glenn, 1997). This is a pity, since technical support in the face of equipment breakdown or malfunction is

often the biggest stumbling block to teachers using computer technologies in their classrooms (Glenn, 1997; Bennett, 1996).

In complement to the literature discussing existing technology integration efforts is the literature suggesting ways to make professional development in the area of technology integration more successful (Chin and Hortin, 1993; Bradshaw, 1997; Cates, 1995; LeBaron and Bragg, 1994; Bennett, 1996; OTA Report, 1995). Time is a key factor in getting teachers familiar with technology and, more importantly, getting teachers familiar with how technology can function within the curriculum. Teachers need time to experiment with technological tools and, more importantly, they need time to plan learning activities that integrate technology – territory unfamiliar to many. Administrative support is also crucial (Bennett, 1996; Chin and Hortin, 1993), especially in terms of organising the time and resources necessary for experimentation: acquiring grants that pay for teachers' release time, finding substitute teachers, locating local experts in technology integration as well as technology support personnel. As well, encouraging and ensuring teacher involvement in the planning for their own professional development contributes to the success of the in-service education initiative (Bradshaw, 1997; Chin and Hortin, 1993). Indeed, "the best in-service training programs are planned and carried out with teacher participation from the beginning, with administrators and supervisors in leadership roles giving inspiration and support." (Chin and Hortin, 1993).

So far, many of the issues examined in terms of teacher in-service and technology integration have been practical and administrative. But technology integration is also an emotional issue since it often involves a change in teaching habits (Chin and Hortin, 1993) and is sometimes accompanied by a paradigm shift. A veteran teacher I worked with briefly told me: "I was using the computers and it wasn't working. I saw that I needed to change the way I organise my classroom, I needed to change my way of teaching" (personal communication, April, 2000).

In-service training focusing around technology integration does not fail only because it is poorly designed, but often because technology integration initiatives presuppose the occurrence of too much change in too short a time period on the part of the practitioner. Indeed, Sheingold and Hadley (1990 in Glenn, 1997) found that it "took 5 to 6 years for teachers to feel that they had developed sufficient expertise with computers and related technologies" to examine their own beliefs and change their classroom environment. Moreover, existing organisational structures severely limit the creation of the time and the collaborative environments necessary for learning about the integration of new tools and practices into one's teaching that will eventually lead to changes in teaching practice. Indeed, forays into the literature on teacher change (e.g. Guskey, 1985; Richardson, 1990; Sarason, 1993) have revealed that "change will not take root and innovation will not be sustained if one adopts traditional top-down models of dissemination and enhancement that rely on one-shot

workshops, distribution of curriculum materials to be used exactly as prepared, and lists of prescribed practices to be implemented" (Soloway et al, 1996).

As constructivism-infused reform sweeps educational systems across North America, "reformers and futurists contend that educators must prepare a different type of learner, one who is able to work with symbols and information and who remains a lifelong learner" (Glenn, 1997, p.127). Local autonomy at the school level is emphasised and even mandated (MÉQ, 1999. p.17) to facilitate the creation of quality learner-centered, individualised learning environments that address specific local issues. At the same time, grassroots teacher research initiatives are springing up across the continent, examining new strategies, tools and realities, and creating a promising synergy within the reform climate. So what does this mean for teacher professional development? Some argue that professional development must be re-cast in order to reflect the paradigm shifts implicit in the latest wave of educational reform (Smylie and Conyers 1991). Some of these paradigm shifts include going from deficit-based to competency-based approaches that value the knowledge, skills, and experience that a teacher brings to the professional development initiative; going from mere replication of theories and strategies to reflection on one's practice as it takes place in a specific context; and going "from learning separately to learning together" (Smylie and Conyers, 1991, p.36).

In keeping with the idea of learner-centered learning environments, whether they be designed for children or adults, it is understood that

"professional development needs to reflect the fact that teachers, like students, construct understanding; they need to collaborate with others, try things out, reflect on the results, modify their attempts, and try again." (Marx et al., 1997, p. 355-356). Indeed, when engaging in in-service initiatives, teachers need to focus on their specific practice and experiment with innovations in their own classrooms for change to occur (Guskey, 1986), since, "essentially, knowledge about teaching is embedded in the act of teaching itself" (Soloway et al., 1996, p273). Strangely, although reform rhetoric places great emphasis on learners learning in real-world contexts,

> "it is still widely accepted that staff learning takes place primarily at a series of workshops, at a conference, or with the help of a long-term consultant. What everyone appears to want for students, a wide array of learning opportunities that engage students in experiencing, creating and solving real problems, using their own experiences, and working with others, is for some reason denied to teachers when they are the learners. (Lieberman, 1995, p.591).

As schools strive to become what is increasingly referred to as learning organisations, in which practitioners, administrators and students alike move constantly through cycles of learning, the existence of structures to facilitate these processes becomes mandatory to their success. In terms of professional development,

> "recently, there has been a growing interest in networks in which teachers come together to address tough problems of teaching through an exchange among members. Teacher networks usually focus on particular subjects areas, teaching methods, or approaches to reform that give members a common purpose; a significant part of the leadership for these efforts comes from teachers themselves." (Pennell & Firestone, 1998, p. 354).

Networks of teachers actively participating in research and experimentation focusing on real issues faced in their own classrooms means a re-thinking of the traditional power structures of professional development to include teachers in decision-making processes:

> "This broader approach moves teachers beyond simply hearing about new ideas or about frameworks for understanding teaching practice to being actively involved in decisions about the substance, the process, and the organizational supports for learning in school - and thence to locating broader support mechanisms, such as networks or partnerships, that provide opportunities for learning and innovation that involve groups outside the school." (Lieberman, 1995, p.593)

Thus, in a climate of change on many levels, the *qesn.connection* is the result of a synergy between the theories of adult and professional learning, government policy and grassroots research and networking initiatives. Indeed, current reforms pave the way for new models of in-service education, and legitimize reflective practice, situated cognition and action-research as accepted modes of professional development for teachers.

To be sure, the *qesn.connection* was not the first professional development infrastructure aimed at in-service teachers. Among the teacher-education environments that influenced the development of *qesn.connection* was most notably the work in middle school project-based science teaching by Marx, Blumenfeld, Krajcik and Soloway (e.g., Marx, 1997; Blumenfeld, 1997) who were among the first to document teachers engaging in iterative cycles of planning and enacting classroom activities. Whether their intention was professional

development or project-based science is not clear, but through the one (project-based science), they achieved the other (professional development).

# Chapter Three: Methods

## Chapter Three: Methods

"Would you tell me, please, which way I ought to walk from here?"
"That depends a good deal on where you want to get to," said the Cat.
"I don't much care where – " said Alice.
"Then it doesn't matter which way you walk," said the Cat.
" – so long as I get somewhere," Alice added as an explanation.
"Oh, you're sure to do that," said the Cat, "if you only walk long enough."

Lewis Carroll, *Alice in Wonderland*

I remember quite vividly sitting in a research methods course a few years ago - a survey methods course and my first foray into the jungle of graduate work - and hearing, perhaps for the first time, words like: Objectivity, Validity, Generalizability. I remember conducting an experiment and, later, in a statistics course, analysing the data using mathematical procedures, procedures which became like crossword puzzles to me. How challenging and fun and satisfying it was to turn messy numbers into neat piles of patterns and churn out the Answer at a mouse click. All of us in that class strove to come up consistently with the same Answer: Since for every problem set all of us were using the same data it followed that we must all come to a single, and true, conclusion. The Answer, it bothered me. It bothered me that it was unique and single for every dataset and remained constant across individuals who attempted to find it. It bothered me that human experience was seemingly being distilled into numbers that were being turned into mathematical brain-teasers that were being turned into a Truth, which would of course later fit into *the* Truth of objective reality. It was all too simple and too tidy. My unease and mistrust of the Answer grew as I began to reflect on the

ways in which data were collected to generate it, ways that in no way reflected the intricacies of life as I saw it. I tried pushing aside my unease by telling myself that I didn't understand the field well enough yet, that I had not read enough of that sort of literature to feel comfortable with it. So I read and read and tried to bend and twist my mind to fit into the very square box of quantitative inquiry. But no matter how much I fiddled with the lens in my mind's eye, I could not make it see, and so could not make it believe, the clean and tidy world of objective reality.

In a way, I almost wish that I could mould myself to fit the positivist paradigm. It is comforting and secure to follow traditional rules and methodologies, self-effacing and safe to use an objective and omniscient reporting voice. Unlike other qualitative researchers, I neither rejected numbers or felt rejected by them (Glesne and Peshkin, 1992, p.2). As a teacher's assistant in a statistics course, complex mathematical manipulations spoke to me, and continue to speak to me, in their own intricate language, just as powerful as words, a narrative of numbers. I do not wish to be a qualitative researcher by default, conducting interviews because I can't "do the math". All along, it was the Answer and the quest for it that I abhorred, not the statistical procedures used to extract it. As Glesne and Peshkin (1992, p.9) put it: "[P]eople tend to adhere to the methodology that is most constant with their socialised worldview," and so it is with me. I, too, feel that as researchers, "we must allow the complexity, ambiguity and contradictions of lived experience to disrupt the traditional

coherence of the text" (Bloom and Munro, 1995, p.110 in Woods, 1996, p.56). That being said, it is my view that one of the roles of a researcher is to reflect upon the paradigm decisions that one has made and to allow those paradigm decisions to influence his or her research. Like the proverbial Alice in Wonderland, the researcher must choose which way to go in order to get somewhere. To be fair, I state my bias up front.

### 3.1 Of paradigms

While established research approaches vary and beliefs differ, it is still customary in the social sciences to speak of two main paradigms that serve as overarching frameworks for inquiry, each with their attendant toolkit of methods aimed at portraying reality or realities. The term 'paradigm' has been used in the literature in various ways: From a personal view, the "net that contains the researcher's epistemological, ontological, and methodological premises may be termed a paradigm (Guba, 1990, p.17), or interpretive framework, a "basic set of beliefs that guides action" (Guba, 1990, p.17)," (Denzin and Lincoln, 1998). On a macro level, "paradigms are frameworks that function as maps or guides for scientific communities, determining important problems or issues for its members to address and defining acceptable theories or explanations, methods and techniques to solve defined problems" (Usher, 1996, p.15). I believe that no matter how redundant, it is important that I address briefly the issue of paradigmatic differences before embarking on a more comprehensive discussion of the particular methodologies and data collection methods deployed in my

inquiry into the *qesn.connection*, mainly in order to situate myself within the traditions and practices of the wider research community.

The story of my paradigm journey and my musings about which research path to take illustrate my alienation from one set of beliefs and my coming home to another, whose values and beliefs resonate deep within me. While some choose to talk about dualities, and the black and white relationship between, for example, a positivist stance and an interpretivist stance, or a quantitative methodology and a qualitative methodology, these discussions have more to do with worldview and beliefs than they do with what does or does not constitute research. I believe that the choice of paradigms is not really a choice at all but rather something one is born into. Glesne says that "the research methods you choose say something about your views on what qualifies as valid knowledge and your perspective on the nature of reality or *ontology*." I will return to this later.

There is no doubt that up until recently, the dominant paradigm in the social sciences was that of positivism. [T]he positivist paradigm characterises the world as being made up of observable, measurable facts." (Glesne, 1999, p.5) and these facts can be observed and measured using a specific inquiry structure, known as the scientific method. The Age of Enlightenment, the advent of industrialisation, the early-twentieth century work on efficiency and motion study – all with positivist roots – had a great reliance on and devotion to the scientific method. These traditions saw many fledgling social science disciplines turn to the use of the same research designs, methods and data analysis approaches as

those utilised by the natural and applied sciences. The rigour and tidiness of the scientific method really appealed to the social scientists of the day and legitimised their fields through carefully constructed experimental research designs, mainly involving human beings and their interactions - in the same way that, say, a biologist would conduct tests using bacterial cultures and temperature. The more firmly entrenched these methods became, the less the social sciences relied on a spectrum of methods that could be used to describe and understand the world they study. Indeed, in a research paradigm framed by the scientific method and driven by the pursuit of external and pre-existing Truth, the researcher became constrained in terms of the methods he could use and, more importantly, in the questions he could ask. In such a framework, "the aim of the researcher is to discover cause and effect relationships through experimentation or, failing that , through correlational studies that suggest sufficiently strong relationships to breed confidence that certain variables are consistently related to each other and that the manipulation of one might lead to changes in the other" (Eisner, 1998, p.10).

### 3.2 Interpretivist paradigm and qualitative research

There is the pervading belief in some research circles that any research paradigm other than the established positivist one is a new one - a late-twentieth century concoction, X-files research *à la* Fox Mulder, to use a popular culture metaphor. This phenomenon itself is not new – anything deviating from current

status quo has a tendency to be portrayed as new and foreign and to be generally mistrusted. For instance, feminism has been plagued for centuries with misrepresentation by historians and, later, the media - causing each generation of women to believe that they are the first to hold feminist beliefs, that these beliefs are new, alien and therefore unnatural (e.g. Friedan, 1964; Greer, 19--; Wolf, 1991) when in fact, a long history with a proliferation of documents exists to refute that notion.

### *3.2.1 Philosophical roots*

And so it is with the interpretivist (also called relativist or constructivist) paradigm, battling even today, although less so than twenty years ago, to secure a legitimate foothold on the research scene. But interpretivist beliefs are not new. To be sure, the view that reality is socially and personally constructed, that it can be represented in a wide variety of ways and that it holds a multitude of truths, rather than a single, ultimate Truth is held by many prominent contemporary researchers (e.g. Eisner, 1998; Glesne and Peshkin, 1992; Clandinin and Connelly, 1996; Denzin and Lincoln, 1998; Merriam, 1998; Guba and Lincoln, 1989; Schön, 1983). But this view is rooted in long-standing philosophical discourse. Indeed, ontology, or the nature of reality and being, is at the heart of the various traditions of inquiry present today.

> "Ontology is the concern about whether the world exists and if so, in what form. ...Because we cannot experience the world directly (unfiltered through our senses) we will never know for sure what the world really is. ...It is a matter of belief..." (Potter, 1996, p.36 in Glesne, 1999).

The ontological realist idea that reality is ultimately knowable, observable, measurable and exists 'out there' was challenged and questioned by idealist thinkers ranging from early philosopher Plato to more recent thinkers Hegel, Berkeley and Kant (Oxford, 1997), all of whom commented at length about the nature of reality and being, concluding in various ways that our natural world exists largely in our perceptions of it and that "reality exists only in ideas or ideals ... we cannot make any firm claims about any so-called external reality" (Oxford, 1997).

Many of these philosophers were also concerned with epistemological questions pertaining to the nature of knowledge not as something external to be discovered, but as something internal to be built. For example, Locke, of *tabula rasa* fame, while believing that the mind begins as a blank slate, also believed that as it becomes filled, has the power to "put together the ideas it has, and make new complex ones" (Locke, 1947, p.65 in Oxford, 1997). It is this combination of ontological and epistemological questioning and belief-shaping that ultimately manifested itself on the research playing field of the twentieth century in the form of discussions about what constitutes valid inquiry and what methods serve best those engaging in it. Two main types of research traditions arose alongside the two ontological and epistemological paradigms, breeding two types of researchers. Denzin and Lincoln put it succinctly when they offer this surface comparison to help differentiate between the two types:

"Qualitative researchers use ethnographic prose, historical narratives, first-person accounts, still photographs, life histories, fictionalized facts, and biographical and autobiographical materials, among others. Quantitative researchers use mathematical models, statistical tables, and graphs, and often write about their research in impersonal, third-person prose." (Denzin and Lincoln, 1998, p.11)

### *3.2.2 Impetus for conducting qualitative research*

The impetus for the qualitative research scene comes from two main wellsprings. The first is highly personal and thus emotional, in keeping with the qualitative idea of

> "the gendered, multiculturally situated researcher approach[ing] the world with a set of ideas, a framework (theory, ontology) that specifies a set of questions (epistemology) that are then examined (methodology, analysis) in specific ways. (Denzin and Lincoln, 1998, p.23)

For some, especially for qualitative researchers accustomed to a fringe role, the research paradigm discussion can be quite emotional as well as being academic, suggesting that our research is in fact an integral part of who we are as individuals, how we approach the world, what we choose to believe about it and, ultimately, how we approach researching it. Consider this passage about voice in reporting research results from Eisner's *The Enlightened Eye*:

> "A word about voice. I have tried in this book as in all of my writing to keep a sense of voice present. I want readers to know that this author is human being and not some disembodied abstraction who is de-personalised through linguistic conventions that hide his signature. This approach is more honest. Hence I make no apologies for the personal tone that I hope comes through on these pages. Although my words were

> prepared on the computer, they were created by a person. I want that to show. " (Eisner, 1998, p4)

Eisner is an established researcher who still feels the need to address his use of a personal voice in his writing when discussing research findings or fledgeling theories and his referring to the "disembodied abstraction" can be seen as somewhat of a polite attack on the more formal style of reporting research characteristic of the positivist tradition. Some people find themselves in the interpretivist paradigm because they cannot be anywhere else – their beliefs are part of who they are as people and so a part of who they are as researchers.

The second wellspring for qualitative research is practical. There are those who take a more pragmatic view on why a variety of methods and perspectives on reality should be deployed to arrive at an understanding of the complex array of relationships and interrelationships found in the educational milieu. Driven by the belief that research should inform practice and lead to improvements in the human condition, many are examining the practical applications of research, the lessons learned and the improvements sought, and finding to their dismay that there is a widening gap between research findings and their applicability to situations of professional practice. Eisner points out that "the educational world has changed during the past decade or so, and conventional assumptions about the researcher's role in the improvement of schooling has been questioned." (Eisner, 1998, p.11). He goes on to say that "so much of what is suggested to teachers and administrators is said independent of context and often by those

ignorant of the practices they wish to improve." (Eisner, 1998, p.11) Schön is much more blunt ;

> "in recent years, there has been a perception that researchers who are supposed to feed the professional schools with useful knowledge have less and less to say that practitioners find useful...research is not only separate from professional practice but has been increasingly captured by its own agenda, diverted from the needs and interests of professional practitioners" (Schön, 1987, p10).

Because of qualitative research's naturalistic stance (Guba and Lincoln, 1989), its tendency to examine events and relationships as they occur rather than setting up controlled experiments aimed at isolating specific variables, "Qualitative researchers are more likely than quantitative researchers to confront the constraints of the everyday social world. They see this world in action and embed their findings in it" (Denzin and Lincoln, 1998, p.10). Qualitative research is highly contextualised and leads to specific conclusions which are often immediately useful to practitioners: "Qualitative researchers are committed to an emic, idiographic, case-based position, which directs their attention to the specifics of particular cases." (Denzin and Lincoln, 1998, p.10). Also, recent qualitative methodologies such as action-research (Kemmis, 1982) and reflective practice (Schön, 1987) emphasise the participatory nature of inquiry and have personal growth and change as well as the growth and change of co-participants at their core, thus making sure that research agendas are set by those who most directly benefit from the results.

I think that it may be useful to point out that the terminology being used to describe two different research traditions may be somewhat misleading and has

contributed to the creation of an unnecessary schism. The use of the word quantitative to mean experimental implies that this tradition makes no use of qualitative methods of gathering data, which is not the case. Similarly, using the word 'qualitative' implies the absence of quantification, even when quantification may be the best way of getting at an issue, which is also not the case. However, since this dichotomous terminology is accepted and used in research circles, I continue to use it as it is understood by the research community.

### *3.2.3 The Researcher*

At the heart of qualitative inquiry is the "gendered, multiculturally situated researcher" (Denzin and Licoln, 1998, p.23) whose "gaze is always filtered through the lenses of language, gender, social class, race, and ethnicity." (p.25). Because qualitative data gathering methods, usually involving some combination of participant observation, interviews, and document analysis (Denzin and Lincoln, 1998; Janesick, 1998; Glesne, 1999), depend on the framing of issues and interpretations offered by the researcher and on the intimate relationship that develops between the researcher and what is being studied (Denzin and Lincoln, 1998, p.8), the researcher becomes in a sense a "*bricoleur* (emphasis in original) [who] is adept at performing a large number of diverse tasks, ranging from interviewing to observing, to interpreting personal and historical documents, to intensive self-reflection and introspection." (p.4). Nor does he have the luxury of pre-defined research questions and practices, for the "choice of research practices depends on the questions that are asked, and the questions depend on

their context" (Nelson et al., 1992, p.2), what is available in the context, and what the researcher can do in that setting (Denzin and Lincoln, 1998, p3).

Now, with all this emphasis placed on the researcher, it is obvious that we must consider the researcher's subjectivity with regards to the inquiry. But unlike in experimental methodology, where one needs to control for subjectivity, subjectivity is not something to be feared or eradicated in qualitative inquiry. Rather, subjectivity is something that needs to be carefully monitored, sensitising you to the ways in which it might distort, certainly, but also, and importantly, "increas[ing] your awareness of its virtuous capacity ... You learn that your subjectivity is the basis for the story you are able to tell" (Glesne, 1999, p107). Indeed, your narrative stems from your ability to notice, filter, analyse, the way in which you are able to tell the story, and thus stems from your subjectivity. However, this narrative "must be imaginable by others, it must be verifiable by others. The worth of your narrative cannot rest on its goodness or rightness in some private sense. It cannot be illusion or fantasy that has no basis outside your mind." (Glesne, 1999, p109). Which brings us to the overwhelming question: How can one evaluate qualitative research if so much of it comes from the researcher himself? How can we know that what the researcher claims is really a truth, even given the multiplicity of realities as understood by the interpretivist paradigm?

### 3.3 Evaluating Qualitative Research: a brief look

Qualitative researchers are loath to speak of the holy trinity of quantitative research (validity, generalizability, replicability) as it relates to their work, arguing that it is no use to transplant a set of standards meant for a different inquiry mindset. This makes sense. We see this dilemma elsewhere as students accustomed to learning through a project-based pedagogy do poorly on standardised exams which do not do justice to the learning that has taken place for said students. Instead, qualitative researchers, over the years, have been developing different criteria for evaluating their work, "including verisimilitude, emotionality, personal responsibility, an ethic of caring, political praxis, multi-voiced texts, and dialogues with subjects" (Denzin and Lincoln, 1998, p.10). As well, they point out that "qualitative research becomes believable because of its coherence, insight and instrumental utility" (Eisner, 1998, p39). Patton (1990), in his usual straightforward and basic prose, asserts that a credible qualitative study addresses three questions:

1. what techniques and methods were used to ensure the integrity, validity, and accuracy of the findings?
2. What does the researcher bring to the study in terms of experience and qualifications?
3. What assumptions undergird the study?

   (Patton, 1990)

I have attempted to meet the high expectations held by the qualitative research field and discuss some of the ways in which I did in later sections of this chapter where I discuss my own methodology.

### 3.4 Qualitative research frameworks

The interpretivist paradigm is not a single approach to research and inquiry. It is rather a collection of paradigms: approaches, theories and worldviews that have shaped multiple qualitative methodologies. Indeed, the interpretive paradigms have their own history and traditions, their own struggles with factions and fragmentation and ultimately their own coming-of-age - all the while serving to uphold the principles that reality is composed of an infinite spectrum and that we can can deploy a myriad of techniques, tools and philosophies in our quest to understand that sepectrum. Table 3.1 illustrates the various interpretive paradigms that utilise qualitative research frameworks. Note that the positivist/postpositivist paradigm also appears in the table. Note also that I have highlighted the Constructivist paradigm as the best descriptor or where this inquiry fits in the spectrum of interpretive possibilities.

Table 3.1 **Interpretive paradigms**

| *Paradigm/Theory* | *Criteria* | *Form of Theory* | *Type of Narration* |
|---|---|---|---|
| Positivist/ postpositivist | Internal, external validity | Logical-deductive, scientific, grounded | Scientific report |
| **Constructivist** | **Trustworthiness, credibility, transferability, confirmability** | **Substantive-formal** | **Interpretive case studies, ethnographic fiction** |
| Feminist | Afrocentric, lived experience, dialogue, caring, accountability, race, class, gender, reflexivity, praxis, emotion, concrete grounding | Critical, standpoint | Essays, stories, experimental writing |
| Ethnic | Afrocentric, lived experience, dialogue, caring, accountability, race, class, gender | Standpoint, critical, historical | Essays, fables, dramas |
| Marxist | Emancipatory theory, falsifiable, dialogical, race, class, gender | Critical, historical, economic | Historical, economic, sociocultural analysis |
| Cultural studies | Cultural practices, praxis, social texts, subjectivities | Social criticism | Cultural theory as criticism |

**Source:** (Denzin and Lincoln, 1998, p.27)

### *3.4.1 The Constructivist Paradigm in Qualitative Research – a historical perspective*

Before plunging into specific characteristics of my own inquiry into the *qesn.connection*, let me offer a brief historical perspective of the development of the field in order to more fully situate myself in it.

Denzin and Lincoln (1998) discuss and are widely quoted as discussing the five moments of qualitative research, all the while fully cogniscent that currents of thought are always in flux and hard to pin down on a time line. I choose to reproduce a summary of their discussion in table form (see Table 3.2).

**Table 3.2 The 5 Moments of Qualitative Research** (Denzin and Lincoln, 1998)

| **Moment (approx. dates)** | **Researchers most associated** | **Defining quote / characteristic** |
|---|---|---|
| Traditional period (circa 1900-1945) | Malinowski, Radcliffe-Brown, Margaret Mead, Gregory Bateson | "The other who was studied was alien, foreign and strange." (Denzin and Lincoln, 1998, p.13) |
| Modernist phase (circa 1945-1970) | Becker et al., George and Louise Spindler, Jules Henry, Harry Wolcott, and John Singleton. Currently represented by Strauss and Corbin (1990) and Miles and Huberman (1993). | "Thus did work in the modernist period clothe itself in the language and rhetoric of positivist and postpositivist discourse" (Denzin and Lincoln, 1998, p.3) |
| Blurred genres (1970-1986) | Wolcott, Guba, Lincoln, Stake, Eisner | "Calling for 'thick description' of particular events, rituals and customs, Geertz suggested that all anthropological writings were interpretations of interpretations" (Denzin and Lincoln, 1998, p.19) |
| Crisis of Representation (1986 – today) | | "made research and writing more reflexive and called into question the issues of gender, class and race." (Denzin and Lincoln, 1998, p.19) "A double crisis of representation and legitimation confronts qualitative researchers today." (Denzin and Lincoln, 1998, p.21) |

| | |
|---|---|
| *(continued)*<br>Fifth moment – today | "More action-, activist-oriented research is on the horizon, as are more social criticism and social critique. The search for grand narratives will be replaced by more local, small-scale theories fitted to specific problems and specific situations (Denzin and Lincoln, 1998, p.22) |

### 3.5 My Method

Like any novice researcher, fumbling in the dark and desperately seeking a clear-cut methodology that could become the one stable element in the constant flux that is qualitative inquiry, I settled on a method early on, after having read texts that outlined the broad characteristics of the smorgasborg of qualitative methodologies available to me (e.g. Merriam, 1998). Thus, I began my research, having stated in my thesis proposal that "the inquiry that I am in the process of undertaking utilises a participatory action research design, a design often "described as an informal, qualitative, formative, subjective, interpretive, reflective and experiential model of inquiry in which all individuals involved in the study are knowing, active, and contributing participants in the research process" (Hopkins, 1993 cited in Riding, Fowell & Levy, p.1)" (Bielec, 1999). But as my inquiry sped on, I became more attuned to the specific ways in which my research fit a variety of qualitative methodologies, leading me to dwell not on the differences between the various frameworks available to me, but rather, on the ways in which qualitative researchers must, and frequently do, create methodological hybrids to adapt to the shifting sands of their research terrain. While established researchers have their preferred framework and may even

write about their chosen method as though it were clear-cut, this seems to be for the sake of the clarity of their communication only, simplifying for the reader the choices they have had to make, and the reasons for these choices, in order to distil the important features of said method or approach. Having said that, it is fair to say that my own method in the inquiry being described in these pages has evolved both as a result of environmental constraints as well as personal aptitudes, to become somewhat of a hybrid between action research (note the absence of the term 'participatory'), case study and narrative inquiry. Let me address each of these methodologies in turn, giving the reasons for my choices in the light of my inquiry into the *qesn.connection* process.

### *3.5.1 Action research*

Action research is the term used to describe inquiry which is characterised by cycles of planning, action, observation and reflection that feed back into a revised plan, thus beginning another cycle. The action researcher, as the title implies, is fully immersed in the activity of that into which he is inquiring and often assumes multiple roles. Action research has surfaced in the field of education in the form of teachers and other educational practitioners engaging in inquiry in their classrooms or other places of learning, during which they plan curricular activities, examine pedagogical practices or special learning needs, enact these in their classrooms, observe the process, reflect on the results and begin the cycle anew. In terms of the *qesn.connection* process, the action research inquiry refers to the design/implementation/evaluation side of things, to the practice or

action of those of us who designed it. In other words, the action research inquiry focuses on the implementation of the *qesn.connection*: The planning for it, the implementation itself, observations and data sources collected to inform the inquiry, and finally a period of reflection which includes data analysis that feeds into the re-design or planning for another implementation - implying to a certain extent an inquiry into *my* actions as part of a wider implementation team. See Kemmis' action-research spiral (fig. 3.1) for a visual representation of the cycles of inquiry (in Hopkins, 1985) and note that the inquiry into the *qesn.connection* as discussed in this report is limited to the first loop, or a single iteration of the action-research process.

It is important to distinguish the term action research the way it is used by Kemmis from the term 'action inquiry' and 'action science' as employed by researchers such as Argyris and Schön (1974) who use it primarily to refer to the engagement in what is increasingly termed 'reflective practice' (Schön, 1983).

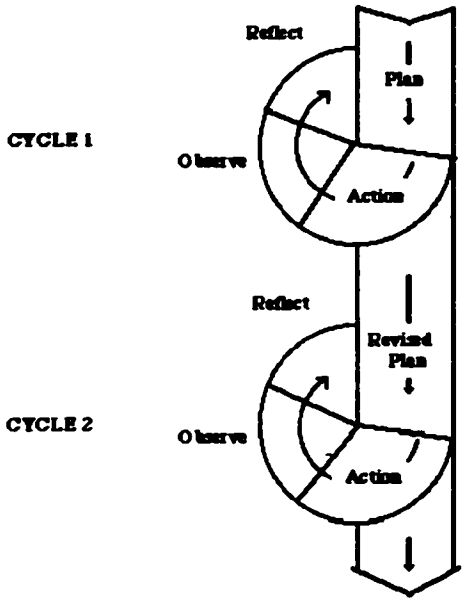


Fig 3. 1 An action research spiral (Kemmis, 1982)

Originally, I had intended the action research process to be fully participatory in nature, to include as co-researchers those finding themselves in the role of participants. This appeals to my egalitarian stance on the issue of elitism in traditional researcher / researched relationships, an elitism implied in the very relationship itself, with its roots in knowledge and the generation of knowledge as the key to power and control (Reason, 1998). Indeed, participatory action research "is a methodology for an alternate system of knowledge production based on the people's role in setting the agendas, participating in the data gathering and analysis, and controlling the use of the outcomes." (Reason, 1998, p271). This is very much in keeping with the liberationist underpinnings of the *qesn.connection* as well as its dual purpose of not only helping teachers learn about technology integration but also how to direct their own professional development, seeking to give voice and, at the very least, *local* power to teachers grappling with integrating information and communication technologies as well as the policies of the Quebec curricular reform into their classroom practice:

> "The [participatory action research] strategy has a double objective. One aim is to produce knowledge and action directly useful to a group of people – through research, adult education, and sociopolitical action. The second aim is to empower people at a second and deeper level through the process of constructing and using their own knowledge: They "see through" the ways in which the establishment monopolizes the production and use of knowledge for the benefit of its members." (Reason, 1998, p269)

Some of the conditions necessary for participatory action research did indeed exist in the *qesn.connection* implementation project, including willing

teacher-participants as well as an implementation team willing to embrace its role as change agents in a change process. However, there was one issue, spawning a number of other issues, which made it impossible: We were interested in *qesn.connection* as a professional development model – something that is linked to our own practice of the design of learning environments. Teachers, on the other hand, are interested primarily in their own practice, which is rooted in their classrooms and in the learning of their students. Even as co-researchers, we from the *qesn.connection* team would still have been imposing a research agenda on our research partners that did not directly stem from their interests and their needs, yet all the while providing us with the luxury of a clear conscience in the form of the belief that we were engaging in participatory action-research and isn't-that-forward-thinking-of-us. In order to be truly participatory, all parties would have had to sit down and establish the research avenues that they would like to explore, given their own practice and the parameters of the project, with consensus (as opposed to majority rule) as to what is explored and how.

### *3.5.2 Case study*

Secretly, I have always been attracted to case study. As a child, I was fascinated by my grandmother's stories of what must have been a fictitious school in the Tatra mountains of Poland which she allegedly attended as a young girl. I never grew weary of hearing her stories and would always demand detailed accounts of all that was going on during the main action of the tale; who was in the room, what people were wearing, what they said, how they reacted. I would

remember these details from story to story and would frequently interrupt my grandmother to point out flaws in her descriptions or characterisations: "But he couldn't have said that, grandma! You said it yourself that he was shy and retreating!". I did not want to hear stories set in other places, preferring instead to weave in my head the intricately complex and beautiful web of interrelationships as I received more and more information about the school and its fictional characters – a small world, but one holding infinite secrets!

When I first learned about it, case study seemed to me a natural mode of inquiry that fit like a glove with my interests, aptitudes and way of looking at the world. In case study methodology, it is the particular, bounded case that is of interest, as well as what specifically can be learned from it (Stake, 1995). Sometimes, the case itself is of intrinsic interest and what we learn from the inquiry feeds back into the specific bounded system under study - for instance the *qesn.connection* pilot year could be considered a specific bounded system. One could also examine a particular case "to provide insight into an issue or refinement of theory" (Stake, 1995, p86) – this type of case study is termed 'instrumental case study' since the case serves to inform a larger set of issues. In terms of the *qesn.connection*, the issue under scrutiny is the autonomous and partially self-directed professional development of teachers at a school site, specifically in terms of technology integration during the pilot phase, but with an eye towards upcoming curricular reforms.

It is important to keep in mind that although case study doesn't just inform on the case itself, one must not get carried away with theory-building and neglect to study the case itself thoroughly. "Damage occurs when the commitment to generalise or create theory runs so strong that the researcher's attention is drawn away from features important for understanding the case itself" (p91).

The crucial and often difficult issue is framing the case into which one will inquire. In the inquiry into the *qesn.connection* pilot year, it is the *qesn.connection* process that constitutes the specific case, even as it takes place in two different elementary schools. Of course, each school could have been treated as a case in itself, and it sometimes may feel as though I am discussing each school as a separate case, especially as I discuss the different ways the *qesn.connection* process played out in each school. It is important to point out that I am not attempting to compare the two schools, that this is not part of the research design. Indeed, the reason for this is that "designed comparison substitutes (a) the *comparison* for (b) the *case* as the focus of the study. " (Stake, 1995, p98). And, since one of the goals of case study may be to generalise from the particular, Stake goes on to say that "generalisations from differences between any two cases are much less to be trusted than generalisations from one." p98.

### *3.5.3 Narrative Inquiry*

Much in the same way that I have always been drawn to case study, to the careful and intricately detailed descriptions of bounded systems, I have also always secretly loved telling and listening to stories. To me, the definition of story is not limited to a pleasant fib, concocted to please children or to while away boring hours. Instead, stories are the way in which we make meaning of our lived experience and share this meaning with others. "We say that people by nature lead storied lives and tell stories of those lives" (Clandinin and Connelly, 1998, p.155). This means that just as research participants lead storied lives, so, too, do researchers. As a researcher, it becomes my role to listen to the stories told by participants, watch stories unfold and tell my own stories of what I have seen, heard and experienced during my research. Indeed, if people lead storied lives and tell stories of those lives, "narrative researchers describe such lives, collect and tell stories of them, and write narratives of experience." (Clandinin and Connelly, 1998, p.155).

Narrative research has gained recognition in the field of education mainly through the on-going collaboration between Clandinin and Connelly (e.g. 1996, 1998) who have been studying, among other things, teacher knowledge, teacher education, classroom practise and narrative research. Narrative researchers use the same methods as do other qualitative researchers, but it is the interpretation of the data (called field texts) that differs. Narrative researchers believe that what a participant tells the researcher during, say, an interview, is a story of whatever

is being discussed, a reconstruction of events filtered through the participant's perceptions, interpretations and intentions. Stories can be lived in a matter of minutes but may take much longer to re-count, depending on audience, the setting for the telling of the story as well as the importance attributed to it by both teller and listener. Indeed, as in all qualitative inquiry, the listener (often the researcher) is an important part of the telling of the story as well as the story itself. "Who the researchers are makes a difference at all levels of the research, and the signature they put on their work comes out of the stories they live and tell." (Clandinin and Connelly, 1998, p171)

Most of the stories in this thesis were told to me and have been re-told here. Some of them are reconstructions based on the teachers' lived experience and my witnessing of the circumstances that led to the experience – shared stories. As well, this report includes narrative vignettes, authored by me, which serve the purpose of telling the stories that illustrate what I have learned through my inquiry. Call it a flexing of my use of narrative prose in the reporting of research results.

### *3.5.4 Sampling Rationale and Participant Selection*

In research projects where inquiry is limited to a single case, and where the case is a bounded system, sampling is usually based on selecting a setting or settings that offer the most opportunity for learning on the part of the

researcher(s). In the context of the *qesn.connection* process, this could mean selecting schools based, for example, on their willingness to participate in the project as well as in the research, on the commitment of the administration to the project and on how much rapport the researcher can be expected to establish given the amount of time allotted for the inquiry. I will describe the sampling criteria established by the design and implementation team and then go on to outline the theoretical framework that guided subsequent decision making, as well as the political climate which ultimately influenced the decisions made. Following the sampling rationale, I will discuss how individual participants were selected for more in-depth study.

The statements of the sampling criteria established by the *qesn.connection* design and implementation team are as follows:

- Schools with strong leadership and strong administrative commitment to the project, as exemplified by preliminary meetings.
- Schools with commitment from the school team, i.e., working with people who want to work with us – also established by a preliminary meeting with representatives from school teaching staff.
- Schools operating with a certain standard of computer technology: For PC schools, this translates into labs or classrooms equipped with 486 PC computers at the very least and ideally equipped with Pentiums, all running the Windows 95 operating system. The Mac equivalent would be computers such as the Mac Quadra running Mac OS 7.1. or first generation PowerPC's (61xx, 71xx or 81xx) running Mac OS 7.5.
- Schools that are connected to the Internet via cable or satellite, with connections permitting multiple users (i.e. the phone line in the secretary's office does not constitute an effective Internet connection for the purposes of the *qesn.connection* process)

- At least one school with a strong sense of community, as exemplified by the school's reputation in the education milieu.

There were several restrictions on our sampling decisions:

- Resources to support the pilot dictated a maximum of 3-4 schools
- The need to formatively evaluate our design meant that we needed to focus our energies on a limited sampling of schools.
- The need to work with one high school, as that was an area in which we felt we were not particularly strong.
- We could not handle extreme cases such as total French immersion schools.

There were also some political issues which limited our choices. Our client from the Ministère de l'Éducation, and a major funder of the design and implementation, felt that the schools chosen for the pilot had to come from different school boards, since it was her mandate to service schools from the entire province. However, since there was a re-shuffling of school boards in the 1998-1999 school year, resulting in some boards remaining virtually intact but having schools added to them, school board administrators felt that it would be displaying favouritism to select a school that came from the dominant board (the board that remained virtually intact, and changed mainly in name and the addition of a few schools) and so we had to select a school from the 'other' board – thus further limiting our sample pool.

Having outlined our sampling criteria and restrictions, both logistical and political, this particular inquiry used what Patton termed 'purposeful sampling'

(1990), whose main intent "is to select information-rich cases whose study will illuminate the questions under study" (p169). Under the umbrella term of purposeful sampling, we find two types of sampling that were used in the selection of the two elementary schools that took part in the pilot of the *qesn.connection*: "Extreme or deviant case sampling...focuses on cases that are rich in information because they are unusual or special in some way" (Patton, 1990, p169). Hummingbird Elementary has had for many years a reputation for innovative pedagogy and an administration that is able to foster a cohesive, autonomous, highly professional staff – exactly, in fact, the type of environment that we were trying to create via the *qesn.connection*. The design and implementation team felt that tracking Hummingbird teachers through the *qesn.connection* process, in which we sure they would be successful, would lead to a greater understanding of the conditions under which the program in question exemplifies excellence (Patton, 1990, p170). Of course, Hummingbird is not the perfect school, which is in line with the principle that one does not want to choose a school that exemplifies an extreme: "the evaluator may select cases that manifest sufficient intensity to illuminate the nature of success or failure, but not at the extreme." (p.172) The other type of sampling used in our implementation inquiry is 'maximum variation sampling', which reveals "important shared patterns that cut across cases and derive their significance from having emerged out of heterogeneity".(p174). Notre Dame School was sufficiently different from Hummingbird in terms of staff autonomy and sense of team, as well as in terms of initial tepid attitude toward the pilot project, that it was deemed a good idea to

study the *qesn.connection* process at these two schools to uncover shared patterns, if any. Interestingly, both Notre Dame and Hummingbird fit Patton's description of a critical case: "A clue to the existence of a critical case is a statement to the effect that "if it happens there, it will happen anywhere" or, vice versa, " if it doesn't happen there, it won't happen anywhere."" (Patton, 1990, p174). Indeed, the design and implementation team felt that if the *qesn.connection* process unfolded at Notre Dame School, it would happen anywhere and, conversely, if it didn't happen at Hummingbird, it would fail everywhere else.

### *3.5.5 Setting*

*Hummingbird Elementary:*

Hummingbird Elementary is a rural school located in a primarily anglophone part of the province, attended by about 100 students, all of whom live in the surrounding area. The school can be considered mid to low socio-economic status, but very different from what this would mean in an urban environment. The school building is large with lots of windows, an apple orchard in the backyard and a cheerful, airy staffroom/kitchen. There is a library on the premises staffed by a librarian that comes down from the high school once a week. The school operates within a 50/50 model of French and English instruction which means that children spend half their day in English and the other half in French, as a result of which they are, in theory, functionally bilingual when they leave after grade 6. Their principal at the time of my inquiry was new

and came from the Adult Education sector of the school board, replacing a previous principal, who left due to pressures from the community, a situation the fallout of which included an exodus of students from Hummingbird Elementary to the French school up the road. The school staff headcount stands at 6.5 – bizarre but common system in the education sector meaning that one of the teachers is only there part-time and shuttles back and forth between Hummingbird and another school in the area.

It is a hard task to paint an unflattering picture of this school, even after spending many hours in its halls... Pedagogically speaking, the staff is seen as being innovative and energetic, with projects on the go and lots of community involvement. In fact, much of the education reform in Quebec is based on the activities of schools such as Hummingbird, where teachers have been striving for many years to create learner-centred, constructivist environments for students that are also accountable to provincial standards of excellence. Teachers contribute to school life through extra-curricular activities such as the school choir. Three teachers on staff at Hummingbird (one now since retired) have been recognised by their board and by the anglophone education community as leaders in the development of best practices in technology integration – a human resource richness at Hummingbird which also highlights somewhat the schism between teachers who are comfortable with technology and children using technology in semi-structured, self-driven tasks and those teachers who feel the need for a more controlled and supervised environment. However, all teachers at Hummingbird are committed to working as a team to constantly improve their

practice and their school, even as they may be in different places in their careers and may have differing pedagogical approaches in their own classrooms.

A year before the *qesn.connection* project, teachers at Hummingbird applied for and obtained from the Ministère de l'Éducation a Professional Development and Innovation Grant (PDIG) which enabled them to look at technology integration in their school in an autonomous fashion. This grant was overseen by one of the teachers, since retired, who was then still teaching half-time at the school and was a school board consultant the other half. Two teachers from Hummingbird have been affiliated with the Quebec English Schools Network since its inception as the Small Schools Network back in 1996, obtaining release days to work on content and attend meeting to exchange and generate ideas. They were slowly phased out and replaced with webmasters who took on various parts of the site as they grew too big to handle part-time by busy teachers.

In terms of the technology infrastructure, the school is operating on a Macintosh platform with computers having been placed in the classrooms rather than in a lab, based on how many a teacher wanted / was able to use. At the time of my inquiry, the school was running an Appletalk network, but had already submitted a proposal for a grant that would enable them to use ANAT, an Apple networking system more sophisticated than Appletalk. That having been said, it is not all the teachers who understand the implications of networking and not all the teachers make use of it.

*Notre Dame School:*

Notre Dame School is a suburban school off the island of Montreal, catering to a population of approximately 350 students. Formerly a part of a Catholic school board and still featuring a statue of the Blessed Virgin in the front hallway, Notre Dame is a study in contrasts. Its building is sparse and its playground concrete, in the tradition of schools in the Catholic system, and inside the school, metal security bars lock sections of the school during holidays and on weekends. The school is staffed by 16 teachers, many of them veterans. Students come from a variety of backgrounds and many of them speak French at home so the school functions with a minimum of French instruction (30 minutes per day) with one French specialist who teaches the entire school. The principal at the school at the time of my inquiry was a dynamic one who could have been accused at times of shepherding her teachers into projects and initiatives that were not necessarily their idea and to which they may or may not have had any inclination.

Due to rapid growth and re-zoning, some classrooms at Notre Dame are housed in an annex, giving them a makeshift yet oddly homey feeling. The school has a small library – though no librarian - in an open-concept classroom, harking back to the experimental 70's when such classrooms were all the rage in Quebec schools, though few survive as functioning classrooms today. Most classrooms have their own library to supplement the main library's meagre offerings.

In terms of pedagogy, Notre Dame School is fairly traditional, with many teacher-led/teacher-controlled and seatwork-type activities. In most classrooms, desks are arranged in rows with each child sitting by themselves. Group work and collaborative learning is not particularly evident although is present in some instances, often with a behaviourist flavour. In spite of this traditional feel, many of its teachers are dynamic and innovative, receiving provincial and even North American acclaim for their endeavours in technology integration. One of the teachers at the school was also one of the original members of the Québec English Schools Network team, he is most active in technology integration at his school and the school website that he administers has received awards for best school site from organisations such as Canada's SchoolNet.

Notre Dame School at the time of the inquiry, had a lab setup with 20 PC's – a mix of 486's and Pentiums, with at least one computer in most classrooms. All computers were hooked up to the Internet, but the connection at the time of the study was reported as being 'as slow as molasses', especially in the afternoon when traffic on the Internet is highest. Notre Dame school was hoping that participation in the *qesn.connection* project would speed up the process of getting them a satellite connection from their board.

Before the school agreed to participate in the project, the design and implementation team met with staff representatives about the pilot and received a lukewarm reception at best. Many questions were asked about what was going to be done with the projects the teachers would be creating. It was revealed through discussion that this particular staff had participated in a project affiliated with a

university that had gone wrong and the work done by teachers found its way, uncited, into a book. Mistrust of the design and implementation team, as well as of our university affiliation, was high at first. In fact, it took two teachers from a school with which some of the implementation team had worked the previous year to convince the Notre Dame staff of the non-threatening and extremely positive nature of the professional development strategy and process that the *qesn.connection* was proposing. The two teachers came to Notre Dame school during a ped day and spoke about the projects they had designed and enacted with their classrooms. They answered the questions of participants, putting them at ease with the process. It was this event which prompted the Notre Dame staff to agree to participate in the pilot.

### *3.5.6 Protection of Human Participants*

All participants in the implementation and evaluation inquiry were made aware of the types of research activities in which they would be asked to participate. Participants were made aware that they would be free to discontinue participation in the project at any time - they were told this in writing as well as verbally during initial meetings. All names of participants have been chaged to ensure confidentiality, as well, the names of the two schools have been changed and their specific geographic location is not revealed. A reflection session was planned at the close of the project during which debriefing occurred - I shared with participants my experience of the implementation and evaluation inquiry.

I also pledged to distribute a written summary of the findings and to make a copy of any potential papers published from this thesis available to the participants. However, due to the nature of the professional development process outlined in *qesn.connection*, participants were aware that their projects, their names as well as the school in which the projects were enacted would be showcased on the *qesn.connection* website as part of the global professional development and networking ethic fostered via the *qesn.connection* process.

### *3.5.7 Data Collected*

*Site visits*

Each pilot school began the *qesn.connection* process with the suggested kick-off day in early December of 1998. I, as well as a fellow-designer/researcher, attended both days and took extensive written and audio-taped field notes after each visit. The schools then scheduled meeting sessions between January and June,1999, for a total of two days for Notre-Dame School (3 visits) and 3 days for Hummingbird Elementary (5 visits) which I attended solo (see table 3.3). Hummingbird Elementary needed more planning days as their project was school-wide and necessitated much coordination among teachers, whereas the teachers of Notre-Dame School chose to take some of their release days in pairs or by themselves, thus accounting for the discrepancy between the amount of meeting sessions of the two school teams. Interestingly, the Hummingbird teachers also met in pairs or worked by themselves, although the release time for this was paid for by another grant. I was also invited by four

teachers from Hummingbird to visit their classrooms while an activity that they had planned and that they were in the process of enacting was unfolding, for a total of two days spread out over four separate visits.

Table. 3.3 ***Site visits***

| | Hummingbird Elementary | Notre-Dame School |
|---|---|---|
| Whole-group meetings | 3 days over 5 visits | 2 days over 3 visits |
| Classroom visits & special events | 2 days over 4 visits | |
| Total | 5 days over 9 visits (approx. 25 hours) | 2 days over 3 visits (approx. 10 hours) |

*1 day = 5 hours

*Interviews*

As well as spending some time on-site, I conducted audiotaped interviews towards the project's end with both key informants as well as with those teachers who were willing to grant me an interview. Five interviews were conducted at Hemmingford and two at Notre Dame. Each interview lasted approximately 40 minutes and was loosely structured around the experience of integrating technology into a classroom activity as well as engaging in on-site, unsupervised professional development. Nobody outright declined to grant me an interview, but time restrictions were a big factor as teachers are often people with very little time to spare, especially ones that are engaged in a time-consuming project. In the best interest of the implementation, I felt that it was prudent to leave the major data gathering to the debriefing session at the project's end as well as to the artifacts and observations that I was able to collect over the course of the *qesn.connection* process. But even the seven interviews that I did conduct profoundly marked my view of myself as a researcher, both when I was

conducting them and when I was faced with the task of transcribing them and analysing the data they generated. For

> "the interview, ..., is not just a device for gathering information. It is a process of reality construction to which both parties contribute and by which both are affected. Some of the interviewer's own self is put in – some contrasting or complementary experiences perhaps, or some indications of own persona".(Woods, 1996, p53)

I found myself, for instance, talking too much at times, especially in the early interviews. My belief is that this stemmed from an insecurity in my role as researcher and apparent non-expert in the school, since my expertise did not come through classroom teaching.

*Debriefing session*

An important source of data was the debriefing session held at each school at the project's end. These sessions were attended by all project participants save two (whom I spoke to at a later date) and audiotaped. Each session was approximately 1.5 to 2 hours long, taking up the whole morning with informal conversations stretching into lunch (which we provided). Two researchers attended these sessions, each of us with our own set of questions. Our aim for these sessions was to have teachers re-cap their projects or classroom experiences with technology, discuss what went well and what didn't and how they might do things differently next time. As well, we wanted the teachers to reflect on their experience of engaging in professional development as a group, on-site and self-directed. At each school, the debriefing session was

orchestrated in a different way and was organised by the key informants in the schools themselves.

*Artifacts*

As with the interviews and on-site visits, the acquisition of artifacts was uneven between the two schools. But this time, it was Notre Dame School which yielded the most artifacts and the most willing sharing of their artifacts. Indeed, every teacher who participated in the project at Notre Dame willingly and without being asked more than once submitted a paper report which included salient features of their classroom project or activity, materials that the students would have used to complete the activity, samples of student work as well as their own written reflections about the process. At Hummingbird, the artifacts were arrived at post hoc and in a roundabout way, requiring the assistance of a key informant to gather materials and send them my way.

### *3.5.8 Role of the Researcher*

My role during each visit to both schools shifted up and down the participant-observer continuum (Glesne, 1999), depending on the situation in which I found myself. I feel that this is an important feature of my data collection – after an initial period of protocol-related discomfort, I tried as much as possible to make my presence at meetings and worksessions seem natural and so if I was asked a question or consulted about an idea or decision, I would participate as a

designer and implementor of the *qesn.connection*, answering the questions asked and offering advice.

> The conversation until then had been animated and peppered with 'good idea' and 'yeah, we can do it that way'. But now, there were awkward pauses and puzzled frowns. They were, it seemed, at a standstill. "So what do you guys think?" the question broke the silence and all eight pairs of eyes turned to us sitting at the foot of the table. I had been dreading this and was grateful that I was not there alone as an outsider. Perhaps dreading is the wrong word, for I love to give my opinion and advice. But I knew that once asked, I would not be able to refuse answer, even politely, and would thus irrevocably become a participant in the meetings and thus in the whole project. Although this does not bother me per se, I am obviously still riddled with some sort of controlled-experiment guilt which seems to have infected me with contamination phobia. Nevermind, I thought. I looked at my partner and she gave a small nod. "Okay, here is what I think...", I began.
>
> (Personal fieldnotes, December, 1999)

Glesne identifies some of the milestones along the participant-observer continuum: Observer, observer as participant, participant as observer, and full participant (Glesne, 1999, p44). During three of the classroom and special event visits to Hummingbird Elementary, I was mainly an observer as participant, participating only at the periphery of the activity, answering a computer-related question as well as process questions asked by children. However, the fourth classroom/special event visit was unique in that I was replacing a teacher who was unable to animate a scheduled activity, so I became a full participant as I took over her role. At Notre Dame School, I was never given the chance to relinquish my observer role in terms of classroom practice, but participated fully as a member of the implementation team, answering questions and offering advice to participants. However, I did feel some of the malaise described by Glesne when she states : "New participant observers often feel timid, sensing

that as invaders of someone else's territory, they are unwanted and unnecessary. It is true that, unless engaged in collaborative research, you are neither invited nor necessary." (Glesne, 1999, p61). Indeed, were I ever to embark on another research initiative, I would tend towards the participatory methodologies as it seems truer to my self.

### *3.5.9 Rapport & Gaining access*

Many of my initial forays into the field had as a primary motive the building of rapport, "a distance-reducing, anxiety-quieting, trust-building mechanism that primarily serves the interests of the researcher" (Glesne, 1999, p96). On paper, this description, and the many others that proliferate in research texts, seems manipulative somehow, suggesting entrapment and ensnaring of research prey. But in reality, we build rapport with people every day – it is the basis for most of our interactions. Rapport and rapport-building is in fact putting a human face and a bit of human soul into an otherwise clinical inquiry. And, although rapport is necessary to obtain good data, it is not the only condition of import, but rather a vehicle : "researchers partake in the opportunities it enables by virtue of other skills".

Another way of looking at rapport, is through the term "gaining access" as it is used in qualitative circles (Glesne, 1999). Gaining access to participants, in its more prosaic definition, is surely one of the make-or-break aspects of

research, for without access to the specific population of interest, there is no study. Thus, it is much easier and more manageable to conduct research with willing participants, as was addressed in the previous sections regarding sampling rationales and realities. But in research approaches rooted in an ethnographic tradition such as narrative inquiry, action research and case study, as well as for many if not all of the qualitative data collection methods, the term 'gaining access' takes on a whole new meaning. For one thing, the researcher does not only need physical access to participants but must also work to earn their good will and willingness to disclose, inform and open doors which remain closed to most outsiders – indeed, to establish rapport with participants. Indeed, "one's right to witness and take part in slices of other people's lives must be worked for and earned" (Woods, 1996, p52). Personal relationships have to be built over time, and often, for the researcher, with the awareness of a ticking clock signalling the potential impending end of a research project.

My situation at Hummingbird and Notre-Dame was special in that it was made clear to potential participants from the beginning that taking part in the pilot project meant that there would be implementors from the *qesn.connection* on site at key moments to offer support and answer questions, and that on-line support would be available upon request via e-mail and phone throughout the project. The two schools who agreed to take part in the pilot were aware that I and other implementors would be working with them and taking part in their group meetings and planning sessions and that the projects they would complete would be

showcased on the *qesn.connection* web site for other teachers to see and use. But just because I was allowed into a school and allowed to attend meetings did not mean that I had the participants' trust and good will. Obviously,

> "people are unlikely to allow total strangers into their private and confidential gatherings or to tell them their innermost thoughts and secrets without certain guarantees. They must be backed by a certain trust in the researcher and reflected in the 'rapport' traditionally developed between researcher and subjects" (Woods, 1996, p38).

Certainly the rapport that I was able to develop with participants differed somewhat between the two schools, and although I by no means wish to make a comparison between the sites or make a value judgement as to the participants' willingness to give or my ability to gain access, I would like to offer a description of the two sites in terms of the type of access I was allowed in each and the reasons I have identified for the type of access accorded.

*Access: The Hummingbird Story*

Gaining access to Hummingbird Elementary may have been initially facilitated by two factors: 1) Two of the facilitators (an teacher-turned-consultant and a teacher) on the project had begun graduate study in the same department as the one in which I was enrolled and one of those became instrumental as a key informant. Her overt trust and apparent good opinion of me were enough to open many doors in terms of access to classrooms and teachers, some of whom may not otherwise have been inclined to talk to me. 2) This same teacher-turned-consultant and another of her colleagues at Hummingbird had been active for many years on the Quebec English Schools Network, the Ministère website and

teacher-network that was supporting the project at the two pilot schools. Thus, we had the immediate support of three staff members out of a total of eight.

If I may offer an aside about this: Interestingly, although I was quite pleased that I was able to gain first-level entry into Hummingbird so quickly, immediately, in fact, the support of the three most technologically able teachers in a technology integration project can be a mixed blessing since other teachers still in the formative stages of technology integration tend to feel outpaced and left behind. The impact this had on my research is that the less technologically-able teachers were quite surprised when I expressed an interest in their work.

While first-level entry was achieved with ease at Hummingbird, I did not manage to achieve second-level entry until about my third visit (out of a total of nine). I am not sure whether it was the humorous incident that prompted my being allowed closer into the circle of teachers or merely the fact that I had become a regular bi-weekly fixture by then, although the jokes and good-natured ribbing I endured for the remaining visits make me think that it was the former. This is how it went:

> The staffroom was still in a state of some disarray and I remembered that the Hummingbird staff had organized a roast-beef dinner that weekend, the proceeds of which were to benefit the grade 5-6 trip to Tadoussac to see the whales. The remnants of this affair were still piled up in the staffroom – pots and pans, plates, soft-drinks - and overflowing from the staffroom refrigerator in the corner. As it was lunchtime, I was offered food, as is usual at Hummingbird (you'll never go hungry here!) but especially urged to try the sumptuous deserts left over from the dinner.

There were three kinds of cake in the fridge and a teacher and I took them out and set them on the table for everyone to serve themselves. Although all the cakes looked delicious, I had my eye on a chocolate mousse torte – it was in a different container than the other cakes but I asked someone if I could have a piece of it and they said, "why, of course!". Pretty soon, I was digging in and Gordon was helping himself and another teacher to a slice as well. "I don't remember this cake at the supper" he remarked as he took a bite. The staffroom cleared quickly as the bell rang, although there were a few of us still lingering. Just then, in walks a library volunteer - there were five of them working at Hummingbird that day getting the library ready for an automated system – and heads straight for the fridge. She rummages for a few seconds and then we hear a shriek: "My cake, my cake! Who ate my cake?!". Oh, no, my heart sank! I glanced guiltily at the teacher next to me who was looking puzzled. "Um, I'm afraid that it was me" I stammered out "I am really, really sorry – I though that it was left over from the supper...

What I did not know was that the library volunteers were not particularly liked by the staff and were in fact looked upon as busybodies for whom the staffroom door was always closed, an anomaly in a school with a firm open-door policy. Word of my cake *faux pas* spread like wildfire and by the end of the day even as I was being mercilessly teased, there was an undercurrent of "Well done! They don't approve of you either – you're one of us!".

The chocolate mousse episode solidified my relationship with Hummingbird teachers and I believe that it allowed me a level of access which may otherwise have been denied, although I cannot be entirely sure of this. Certainly, in research involving a lot of human contact, relationships and the often quirky, unexpected way in which they develop take on importance as

access to data hangs in the balance. I found it interesting that when the library volunteers were in the building, the staffroom door was closed and sometimes would be closed with me inside and yet it was never closed against me while I was there. This could be interpreted to mean that since the volunteers were local, they presented immediate danger and had to be kept away from information, while I was an outsider and therefore relatively harmless in the short term. Or it could be simply that I was able to earn and keep their trust because I never gave them an occasion to doubt me.

There were other occasions at Hummingbird where I felt trusted, some of these having to do with the role that I was allowed to adopt. The first time that I was asked into a classroom was by Diane, the QESN colleague and fellow graduate student, although it was not her classroom but that of a grade one teacher who was attempting one of her first technology integration activities and while this teacher did not feel comfortable having me witness her very first session, was not averse to having me see her second session, provided that Diane was there as well. What made me feel trusted was that I was allowed and encouraged to assist the other children in their work while the grade one teacher worked with small groups of students at the computer – this was placing a lot of faith in me and I felt very honoured. Later on in the data collection, when Diane could not attend a particular activity session that required her technological expertise, I offered to take her place. I was going to be there anyway as an observer and this way would be able to get a first-hand feel for what it is like to

pilot students through an activity that uses technology. My offer was welcomed and I spent an afternoon supervising the carting of video and digital photography equipment around the school by eight 6 to 9 year-olds. For the first time in my data collection, I felt as though I were truly doing something sound, going as 'native' as I could under the circumstances – my inner ethnographer rejoiced. Throughout, I kept remembering that "researchers must be close to groups, live with them, see them in various moods, appreciate the inconsistencies, ambiguities and contradictions in their behaviour, explore the nature and extent of their interests ... - in short, if possible, to adopt their roles." (Woods, 1996, p39). It was only after having gone slightly 'native' that I was able to appreciate the difficulties that researchers have to struggle through to be allowed to adopt the roles of the groups they wish to observe and study. Although I have since rethought this 'detached outsider peering thoughtfully into the lives of others' stance, or even the more accurate 'attached outsider pretending to live the lives of others' stance, as a role that I like for myself, at the time it struck a chord of rigour in me, as though I could only be sure of something if I lived the experience myself.

*Access: The Notre-Dame Story*

Access at Notre Dame School did not come as easily and was partly the result of careful and inspired planning:

> The assembled teachers looked at each of us in turn, sizing us up. "So tell us again what this is about because I for one am still not clear on it" this

from the one who asked all the tough question throughout our presentation. "And you are from Concordia and that you will be doing research on us?" We never said that we would be doing research on them, wouldn't have dreamt of saying such a thing. Everyone smiles, we with barely-disguised unease, the teachers with tight yeah-we'll-see-about-that smiles. I try to explain the process to them again, how they will be planning an activity for use in their classrooms with their students, putting their plan into actual action and then describing and sharing the experience and materials with others in their school and with other schools via the web. "Yes, but what is that like? What do we do?". The questions are not nervous or pleading, but clipped and professional. We tell them and teachers exchange meaningful looks. I can feel my thesis evaporate before my very eyes, or at the very best, I look forward to a negative account of what didn't happen and why. "And you guys, from Concordia, you are not teachers?". The question falls with a heavy thud. No, we are not teachers. No, we have not clocked countless hours in a classroom, nor corrected piles of homework, nor sat through endless parent-teacher meetings. I know this question means that we are not to be trusted and it pains me.

Just then, I am inspired.

The classroom is empty when we arrive. Teachers from another school, not Notre Dame, stand nervously at the door. "But we're not experts you know – we're only going to tell them what it was like, right?". The Notre Dame teachers file into the classroom and sit at student desks, assuming comfortable well-known roles (for if in a classroom and I am not a teacher I must be a student). The visiting teachers stand at the front and tell their story while my colleague and I perch sideways on desks, neither teacher nor student. It is interesting, the way we automatically assume these roles. We could have met in the staff room and held a conference-style discussion for instance – equals around a table, professionals discussing practice. But being a student safe behind a desk has its own power...

> But as the visiting teachers begin telling their story, the mood shifts. The tension slowly ebbs out of the room as Notre Dame teachers visibly relax, then nod their heads and ask questions. Burnt by outsiders too many times and wary of university research agendas, they respond best to the people they trust most – teachers just like them. And, garbed in the borrowed mantle of our visitors, my colleague and I are accepted as co-learners and navigators in the project, for now at least, perched as we are on our desks.
>
> And perched as we were on our desks, neither here nor there for the teachers in their daily lives, my colleague and I became the bridge for the exchange of highly valued trade secrets. And, perhaps grudgingly at first, we had taken the first steps to gaining access.

I never achieved the kind of access that I was able to obtain at Hummingbird Elementary. At first, this bothered me and I interpreted it as a black mark against my fledgeling abilities as a researcher. But I knew that the two schools were so different as to have been specifically chosen for their difference – why would I have assumed that my field experience in each school would be the same? Notre Dame was perhaps a more traditional field experience, with me never quite shedding my outsider status. And perhaps it was only a question of time and the teachers at this school needed more time to build trust after the negative experience they suffered at the hands of another set of university researchers in previous years. In the end, I was able to obtain all the data that I needed, although not with the same immediacy as at Hummingbird.

### *3.5.10 Respondent validation*

According to Woods (1996), Lincoln and Guba (1985) argue that the best form of validation of the accuracy of ethos and perspective of a group is by asking its members to comment on the researcher's interpretations. Woods warns that this is a good strategy for interpretations of ethos and perspective but not of process or of the generating of theory as these might go unrecognized or disliked by the group. In terms of this work, I shared my narrative accounts with some of the teachers involved and shared pertinent sections of my thesis with key informants. Interestingly, comments were made mainly about the strangeness of reading about oneself as though one were a character in a play or movie – and all participants seemed to accept what I had written as a fair representation and interpretation.

## 3.6 Standards of Excellence for Judging Qualitative Research

It is as I delved into the literature on quality-control in qualitative inquiry that I began to long for the tidy conceptual framework of Campbell and Stanley's account of validity and reliability in experimental and quasi-experimental designs (1966). Indeed, Seale (1999) says it best when he remarks: "In qualitative research, the project of criteriology experiences particular contradictions because of the difficulty in regulating and constraining an endeavour whose guiding philosophy often stresses creativity, exploration, conceptual flexibility, and a freedom of spirit" (para. 6). Many of us long for tidy schema and neat frameworks, which can harbour no dissent or argument – criteria that is agreed

upon *a priori*, like football rules that, while open to some narrow interpretation and evolution over the years, never change. Among the first to propose a framework for judging qualitative research were LeCompte and Goetz (1984 in Seale, 1999), who suggested a qualitative parallel to the standards used to assess quantitative experimental and quasi-experimental inquiry, standards based on the concepts of validity and reliability. Others, such as Lincoln and Guba (1985), maintained that the nature of what they term naturalistic inquiry, based as it is on a relativist world view, cannot be assessed from the positivist perspective of validity and reliability, but instead requires a completely different criterion list. Indeed, "terms such as credibility, transferability, dependability and confirmability replace the usual positivist criteria of internal and external validity, reliability and objectivity" (Denzin & Lincoln, p.27, 1998). Elliot Eisner (1991) lists six features that make a study qualitative, features which can then be used as a first level critique of a study's overall quality (table 3.2).

Table 3.4 **Six features of qualitative research**

| **Six features of qualitative research** *(Eisner, 1991)* |
|---|
| 1. Field-focused |
| 2. Self as instrument (positive exploitation of one's subjectivity) – views "unique insight as the higher good" p.35 |
| 3. Interpretive character – to acount FOR what has been given and account OF – "the ability to explain why something is taking place" – "qualitative researchers are interested in the matters of motive and in the quality of experience undergone by those in the situation studied." |
| 4. Use of expressive language - & presence of voice in the text |
| 5. Attention to particulars |
| 6. Coherence, insight and instrumental utility – along with persuasion: persuaded by the weight of evidence, coherence of the case, cogency of the interpretation. |

Rather than talking about subjective accounts, Eisner (1992) talks about transactive ones, which exist where the subjective and objective accounts meet and where meaning is in fact a transaction between an alleged objective reality and one's own interpretation of it (p52). He maintains that the criteria for judging transactive accounts of research – which is the essence of qualitative research and reporting – are coherence, consensus and instrumental utility.

In terms of coherence, one must examine the study in light of such questions as: Does the story make sense? How have conclusions been supported? To what extent have multiple data sources been used to give credence to the interpretation that has been made? Are the observations congruent with the rest of the study? Are there anomalies that cannot be reconciled? Are there other credible interpretations? And finally, what is the extent of triangulation? (Eisner, 1991).

Consensus can refer to whether or not readers agree with the 'rightness' of an interpretation, whether it fits into what is already known as well as the evidence presented – but it can also be concurrence among readers and critics that a study does NOT in fact provide an 'right' interpretation. "Consensus is concurrence as a result of evidence deemed relevant to the description, interpretation, and evaluation of some state of affairs." (Eisner, 1991, p57) – but it does not imply 'truth' or even acceptance. Eisner points out that "some of the greatest works of art and science were initially rejected" (p58) - Galileo, Van Gogh, Stravinsky – by critics of the day coming to a consensus, which may vary with time and theoretical, political and cultural climate.

Instrumental utility is a measure of a study's usefulness on several levels. A study can be deemed useful if it helps one understand something that was unclear before. For example, my inquiry into teacher professional development might shed light onto the way in which teachers choose to structure their professional development given their school's reality and thus clarify the relationship between school climate/culture and professional development and professional identity. This refers to the comprehension aspect of usefulness. Another kind of usefulness is anticipation, much like a guidebook can serve as an anticipatory tool for someone travelling abroad. Qualitative research can partially map out a territory (say, professional development) but can also provide insights, landmarks as well as cultural differences for the 'traveller' to take into account on his next visit (Eisner, 1991).

Other criteria sets or discussions surrounding what has been termed "criteriology" exist, each providing a slightly different slant from that suggested by the others (e.g. Erickson, 1986; Van Maanen, 1988; Smith and Glass, 1987 - all quoted in Eisenhart & Howe, 1992) – and each one consistent with the practices and philosophies of its authors. The process of choosing a set of criteria for evaluating naturalistic or constructivist inquiry should ideally resemble a cubist painting in which the painter attempts to show a 3-dimensional object on a two-dimensional surface, while adding the fourth dimension of time. In other words, I should be attempting to reconcile the "thing" I am evaluating or into which I am inquiring with the different evaluation schema all at the same time – so that in the

end, my research is being evaluated in the light of all the different discussions on criteria for excellence in qualitative research. However, this is a task which is beyond my current level of expertise, much like cubism was beyond early- and mid-century art aficionados. And so I must select among the many sets of criteria and perspectives, choose and be done with it, keeping in mind that "researchers strive to make their own conclusions and interpretations as credible as possible within the framework they choose to use. Once they have met that difficult criterion, their readers are free to make their own choices" (Eisner, 1998). With the combined ideas of Eisner and Patton, attempting to pool the essence of art criticism (Eisner) and pragmatism (Patton), I am reasonably confident to leave as few stones unturned as possible, taking into account my limited experience.

### *3.6.1 Examining the present study in light of Eisner's 6 features*

1. Is this study *field focused* ? A resounding 'yes', since the study was based on examining how a particular type of professional development unfolded within particular school contexts and involved school visits, observation and interviews with people in the field as well as the examination of field-generated artifacts. Also, the nature of the study was non-manipulative, in that it studied situations and people as they are (Eisner, 1998). This is not to say that field-focused research does not concern itself with change, but rather that it does not generally provide the impetus for change – unless one is dealing with action-research, where the inquiry is inextricably intermeshed

with the process of change or action.

2. Does this study make use of the *self as instrument*, or a "positive exploitation of one's subjectivity" (Eisner, 1998)? I think so, although the instrument itself is still in the process of being fine-tuned. I have attempted to be reflective as much as possible about my role as main gatherer of data and the main filter for all data, and to make known the person who was there, who interviewed, who received artifacts and who analysed. Whether I have managed to achieve the coveted-by-every-qualitative-researcher honour of "unique insight" (Eisner, 1998, p.35) is not for me to judge, but for my readers.

3. Does the study have an interpretive character, does it account FOR what has been given an account OF? This is more difficult to answer by the person who has conducted the inquiry and who has painstainkingly written it up. It may be safely said that I am not always able to go beyond mere description and that I am on accasion at a loss as to why something occurred, although I do pride myself on being able to provide an adequate account for what occurred more often than not. Once again, it will be up to the readers to judge.

4. Does the study make attempts to use expressive language and is there the presence of voice in the text? I have tried in this thesis to be as honest as possible as to who it is that conducted the research and wrote this thesis – at times clumsy and faltering, much like my research experience itself, the text

has been nonetheless written with special attention to the quality of the prose. It is the use of language in a written research report that most reveals the researchers sensitivity and receptiveness. Like any other skill, it develops over time and is merely adequate currently, if that. The attempt, however, has been made.

5. Is the study reported with an attention to particulars? Eisner is of the opinion that uniqueness and the particular are some of the ways in which we begin to exemplify rather than merely describe and it is through the author's attention to particulars that this is achieved. I am not sure that I did not merely describe, although my intention was certainly to exemplify and allow the reader to feel the uniqueness of the case, and in this way to gain understanding of the complexities of the issue. The best case scenario is to have the case be palpable for the reader (Eisner, 1998).

6. Eisner's sixth feature is closely tied to his criteria: A qualitative study needs to be coherent, insightful and useful, persuading the reader by the weight of evidence, the coherence of the case and the cogency of the interpretation suggested. The ultimate judgement, with the onus firmly on the reader. This will be the final criteria by which I hope this work will be judged. In terms of my own view of this work's coherence, I believe that my story makes sense, that the insights it offers are supported by field data coming from multiple sources, giving credence to these insights and interpretations.

### 3.6.2 Limitations of the study

One major weakness in terms of the methodology of this work is depth – especially in terms of interviews. I didn't want to burden teachers with too much to do, or too heavy a time commitment out of respect for their already heavy workload. I was too tentative in the interests of preserving my good name and that of the university. At one of the two schools, we had been told of a professional development experienced tied to a university that had gone incredibly sour and left the teachers reluctant to participate in professional development or research with another university. Since establishing access was a fragile and tenuous process at that school, I was loath to risk it for the sake of my thesis. This led to my data perhaps not being as rich as I would have liked, the richness usually coming from longer time spent on interviews, several focus groups and perhaps even weekly teacher journals or logs. Also, there is considerable artistry involved in conducting interviews, even ones that are semi-structured, and one cannot disregard important human factors, such as body language, and abilities, such building upon a respondent's answers. My expertise in this area of conducting qualitative research is emergent at best.

Another weakness lies in the area of the action research method. Ideally, the study should have gone through a complete iteration of design, implementation, re-design and re-implementation – a full cycle, in fact. The scope of this thesis focused on the implementation part of the cycle, with the design and re-design only implied.

In terms of reflective practice, I should have been better versed in the strategies involved in getting people to reflect on their practice, to scaffold the process for teachers more effectively. This study could potentially have been much richer with journal entries written by the teachers themselves – the time commitment was again a factor and the question remains for me: how does one gain enough access to a school to be allowed to make these kinds of demands on teachers? Is it more a question of the researcher (myself) becoming better at arriving at a mutually satisfactory agreement with teachers – usually having to do with some exchange of services and/or information, like the situation that took place at Hummingbird school, where I was able to be at the school as much as I liked, but participated in certain school activities as an aide. Many field researchers (e.g. Eisner, 1998) would say that this is not an ideal situation and that a researcher creates a false situation when he gets involved in a school beyond being an observer – but the reality is that one must place oneself somewhere on the participant-observer spectrum, and that 'somewhere' is partially dictated by the realities of the field situation. One is not always able to play the role of the lone ethnographer among the natives, nor is it always the most desirable of situations.

### 3.6.3 Methodological strengths

Perhaps one of the most important methodological strengths is the depth of access I was able to gain at Hummingbird School as well as at Notre Dame

School in the end, despite the fact that I was a) not a teacher and b) from a university – two counts against me. And so ironically, my greatest weakness, which was my unwillingness to sacrifice personal relationships and to pollute the field with my research needs, became at times my greatest strength, as participants responded to the respect that I showed for their time and effort, which translated into my being invited into classrooms, staff meetings, celebrations at one school and into carefully prepared and complete project reports at the other.

Another strength of this work stems from a strong awareness of my subjectivity and how that affects my research. In essence, I have strived in this work to be as honest as possible in terms of my interpretations, and as faithful as I possibly can be in terms of recounting experience, never letting the reader forget that the experiences and interpretations have been filtered by a human being accountable and present in the text.

The extent to which I was able to triangulate my data via observations, interviews and artifacts can also be considered a strength. For any given issue discussed in the Findings section of this work, I have been fortunate to have been able to work with three different sources of data to ensure accuracy.

# Chapter Four - Findings of the study

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## *4.1 Research questions and Data Analysis*

As stated previously in this report, my inquiry sought to find out the following:

In terms of professional development, the desired outcome of the *qesn.connection* pilot project was to understand *how* the *qesn.connection* is used by practitioners as a means to attain personal and school-wide professional development goals. Simply and perhaps rather colloquially put,

1) How is the professional development process which is central to the *qesn.connection* used by teachers?
2) how do teachers and teams of teachers use the infrastructure and its tools for professional development?
3) does this self-driven, largely unstructured way of professional knowledge building work for them? and finally
4) logistically, how do teacher teams and administrators orchestrate the *qesn.connection* process?

The evaluation inquiry also sought to find out, in terms of technology integration

1) how the support tools created specifically for technology integration activities are used by teachers and
2) whether teachers designed and enacted a learning activity that involved technology in some pedagogical way.

My data came from a variety of sources as described in more detail in the preceding chapter (Chapter Three). Once these data were collected: field notes written, photographs downloaded, taped interviews and debriefing sessions transcribed and artifacts acquired, I began the task of pattern identification and coding (all of which was done by hand). All of the emerging patterns settled in

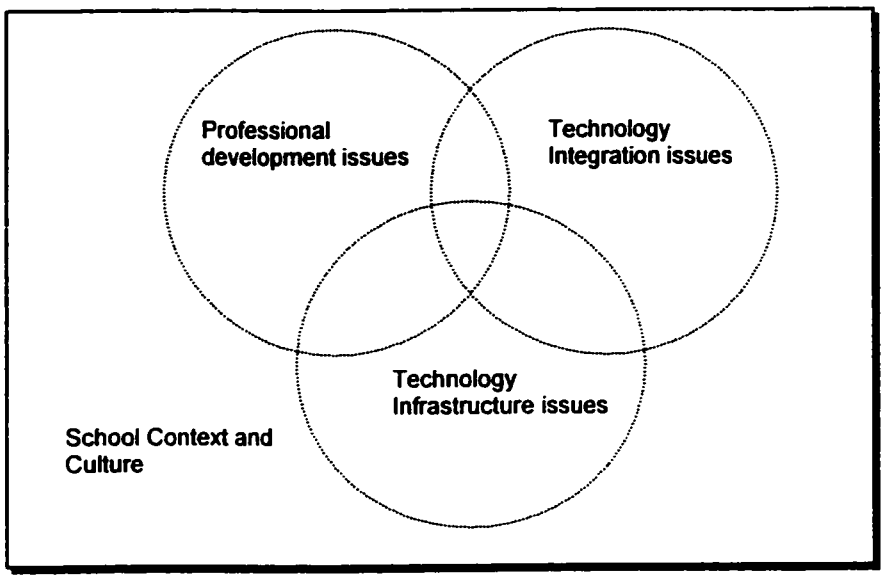



Fig 1.1 Evaluation issue inter-relationships

some way within the diagram introduced in Fig 1.1 (reiterated here for clarity). I chose then to address each issue or cluster of issues separately.

The following five sections represent the issue clusters around which I have organized my findings. I have divided the issues into five main sections: those issues which relate to professional development process as lived in each school, those issues which relate to specific concerns with regards to the integration of technology and those issues which have to do with the technology infrastructure as it exists in each school. Figure 1.1 also illustrates the interrelationships that exist among the three issue clusters. Although not intended to be an exact mathematical representation, this figure highlights the way issues overlap, with sometimes an issue being a combination of two clusters, and sometimes of three. Another way of looking at the three clusters would be as different lenses into the same experiences/phenomena – a

professional development issue can also be seen as a technology infrastructure issue for example, and a shifting perspective allows one to highlight various facets of a single event or phenomenon, thus potentially revealing and unraveling the complexity of experience. I have tried in this report, for purposes of clarity, to organize the issues uncovered into three linear sections. This is a simplified version of the way the issues link and cross-link together, since in a hypertextual environment, I would be able to cross-reference these to strengthen the relationships between said issues. When applicable, I have mentioned which other cluster overlaps. Clear as mud, no doubt, but these are murky research waters and my first dive into them.

### *4.2 Technology infrastructure*

The push to integrate technology in a systematic way into schools has been, in Quebec, mired mainly by issues related to a school's technology infrastructure. By technology infrastructure, I am referring to the hardware, software, wiring, networking, connectivity and tech support which can be seen as the minimum requirement for a seamless integration of technology into any environment. Any corporation or professional organization worth its salt will make sure that the baseline technical requirements are met before attempting to integrate any sort of computer technology into everyday practice, relying on the advice of experts and their own deep pockets to pave the way for integration. In schools, however, it's a different story. In 1995, the Quebec government

announced its now famous 5-year-plans to meet schools' needs for computer equipment and connectivity. Schools were required to submit plans outlining how they would spend the money, within the guidelines set for them by the government. This was translated in the early years of the 5-year-plan as a mad dash to purchase whatever computer equipment happened to strike the fancy of the administrators and teachers in charge of submitting the plans, advised more or less well by people whom the plan authors hoped had enough vision to give them sound advice. It was a gamble that, like gambles so often do, worked out in a few cases but backfired in many. And even when a school did equip itself to suit its own needs, all too soon, the spectre of the school board with its push for standardization and more centralized control reared its head just as the insidious gallop towards keeping up to date with a rapidly evolving technology began. So many schools, and the people in them, were caught up in a maelstrom of change with little planning, of constantly upgraded operating systems and connectivity with negligible tech support.

The two schools with which we are concerned here are two of the lucky ones, if you can believe that after hearing their stories. Having traveled across the province visiting English language schools to check out their technology infrastructure a few months before the pilot, I have certainly a different baseline for comparison than some of my readers may. As mentioned earlier in this document, the two schools both met the minimum criteria for involvement in the *qesn.connection* project and offered the added bonus of each having a different

physical setup with Notre Dame having opted for a lab model and Hummingbird having dismantled its lab after living with it for a few years. But regardless of physical setup of equipment, the most important feature of a school's technology infrastructure is that it works and works well in the situations that involve its use by teachers and students. In other words, if everything is not functioning properly in the context of a learning activity, and continues to malfunction consistently, it will not be long before burgeoning technology integration efforts are nipped in the bud. The reason the *qesn.connection* design and implementation team did not have this criterion among its many was that it is one which is simply impossible to meet in the educational milieu. That having been said, it is probably one of the most important factors hampering consistent technology integration efforts in Quebec's education system.

Some of the technology infrastructure issues which arose over the course of the inquiry were specifically related to equipment and networking malfunctions, while others were issues related to human resources. Also among technology infrastructure issues, I have placed some creative examples of how to use existing resources to meet the professional development needs of a school team.

### *4.2.1 When a good learning activity goes bad*

*Down by the Bay – a narrative account*

> The grade five class was extremely excited as they waited for their kindergarten buddies to show up. Today was the day they were going to show the younger kids the website and rhyming game that they had

helped their teacher build. They were going to sing the song that went with the rhyming game – "Down by the Bay" and then they were going to help their kindergarten buddies read the words on the webpage so that they could play. There had been a few technical glitches along the line that had prevented the two classes from going to the lab, but the school board technician had assured the teachers that everything was up and running smoothly again. The grade five class craned their necks at the approaching sounds of small scuffling feet and childish voices whispering. "They're coming, they're here!" The excited whisper ran up and down the line as the kindergarten class rounded the corner, each small child beaming at their older buddy.

Together and with their teachers at the helm, the two classes entered the empty lab, shrine-like with promise, with its orderly flickering altars of technology lined up against the walls. The children quickly took their seats and with practiced ease began the login process. They had all been briefed and knew what the next steps were and so didn't bother waiting for teacher instructions but instead right away double-clicked on the Netscape icon on their desktop. The programme opened all right, but the ubiquitous Netscape "N" in the top right corner of the window kept flickering like a candle in a draft. "The computer is thinking - explained one child to his buddy – we have to wait a bit". But all too soon it was obvious that the wait was going to be a long one as computer after computer sat lost in thought...

As the disappointment in the room grew palpable, the two teachers' eyes met across the lab as they stood bent over a machine. Lips tight, they shook their heads slightly at each other.

Laura and Jane, the two teachers involved in the activity described above spent many hours working together to plan and design a website as well as a computer vocabulary booklet that was meant to be a teaching aid for the grade 5

children as they helped their kindergarten buddies learn about computers. Several key points arose from this story, the first and the one most prevalent in schools is that the technician from the school board represents inadequate tech support for schools where technology is used on a regular basis. Often being the sole person responsible for as many as 20 schools, each with potentially a different setup, the school board technician is a personage with all too few resources to meet the needs of the schools he serves. An offshoot of this is that the school board technician most of the time has been trained in a corporate environment and is used to meeting the needs of corporations or other office-type environments. This means that it is often difficult for him to understand the needs of teachers and students, a situation made worse when the teachers in question are not yet tech-savvy enough to communicate their needs to him effectively. And, in a proverbial catch-22 situation, even when he understands, he usually does not have the resources to meet those needs anyway.

The human factor cannot be overlooked here either, namely, the impact of computer malfunction on students. In the Down by the Bay activity, Jane the grade 5 teacher, being a seasoned pedagogue, made the best of the situation by having her students reflect on the experience and reflect once again when the lab was once again up and running. But over time, constant computer malfunction takes its toll both emotionally and pedagogically, with wasted time, lost work and plenty of frustration. In fact, just the travel time to and from the lab becomes an extravagance in the hour's time slot between recess and lunch. And

this was not limited to Notre Dame School. At Hummingbird School, Gordon the grade 5/6 teacher reported in an interview that when connection speeds slowed to a crawl during his historical research project, children quickly sought other sources of information, mainly in the school library and in their social studies text, much of it outdated and lacking in the living history potential of certain multimedia websites offering examples of primary materials and first-person accounts.

Yet another insight to glean from this story concerns the technology background of the teachers involved more that the story itself. Of the two teachers working together on the Down by the Bay activity, Jane was comfortable with computers and had one at home whereas Laura was a novice and a nervous one at that. In fact, Laura told me that the only reason she agreed to be a part of the *qesn.connection* project was because she knew she would be working with Jane and that if she had had to go into "that lab" alone with her class, she would never have attempted it. Negative experiences can certainly be opportunities for growth, but the affective issues surrounding computer use in teaching and learning cannot be underestimated and too many negative experiences at the novice stage may prevent a teacher from moving beyond it to a level where she feels more comfortable using technology in learning situations with her students. (This can also be considered a professional development issue)

### 4.2.2 Lords and ladies of the lab

Since the advent of computer technology in schools, a small number of teachers have been heavily involved in the technology infrastructure situation of their own teaching environment. Sometimes this teacher is a regular classroom teacher released part-time to set up and run the computer lab but often, especially in high schools, the computer lab and its resources become the sole responsibility of a single teacher who also teaches 'computer courses'. But even in elementary schools, where the teacher usually also teaches part-time and where there are no computer course *per se*, the lab teacher used to be the sole purveyor of technology instruction, back in the days of the LOGO and BASIC programming languages and the first educational computer games such as Treasure Hunt (Cartesian plan) and Lemonade Stand (forecasting, probability and limited entrepreneurship). As computer technology made the leap into the era of the personal computer with word processing, data management/manipulation, imaging and electronic communication, the lab teachers continued to 'teach' computer skills largely divorced from curricular content. It was not uncommon, for example, to find students typing a passage on the computer and learning how to bold, underline and italicise, an exercise which typically had little to do with their Language Arts curriculum. As the push to integrate computer technology into the curriculum grew stronger, the computer teacher's role grew ill-defined and in some cases was phased out altogether. Still, some of these what my colleagues and I have called, tongue-in-cheek, lords

and ladies of the lab remain in schools across the province, indeed, even at Notre Dame School and at Hummingbird Elementary.

> Interestingly enough, there is a pattern with these lab lords and ladies – they have a martyr streak in them a mile wide. They say that they have to do ALL the tech work around the school and that all the teachers count on THEM for help and they consequently have NO time etc, and yet, and yet, when you try to lighten their load, they are not necessarily as happy as you would think. Understandable, I guess: it is validating to feel as though you are needed by your peers, and your status as expert is usually unique and you may be wary about sharing the territory over which you rule with others who may, indeed, use it differently.
> (Personal fieldnotes, March, 1999)

At Notre Dame, the lab was set up and organized by a single teacher who is still the best able to handle its many technical difficulties. All teachers recognize the 'lord of the lab' status of their colleague and even refer to the lab as 'his' lab and make jokes like "careful, if you break something, he won't let you into the lab anymore!". This situation calls for careful and diplomatic handling of the collective egos involved. Any outsider attempting a technology integration project needs to have the buy-in of the main technology expert in the school. However, the technology expert in the school is not necessarily the best suited to lead a professional development project such as the *qesn.connection*, as he is usually so technologically advanced that he can seem sometimes out of touch with the emotional needs of his peers. I witnessed one such example of near-poetic handling of a delicate situation by the facilitating teacher at Notre Dame who was not the resident lord of the lab. During the kick-off day of the *qesn.connection*, as he was getting ready to show the website, he had the big

screen showing the Notre Dame website, created and maintained by Giles, the school's lab lord.

> "Instead of accessing the *qesn.connection* via its URL, or via a bookmark or some other innocuous way, he accessed our site via the Notre Dame School website that was created and is maintained by Giles, a QESN resource person, and the official Notre Dame tech god! Why is that such a delicate and exquisite handling of a touchy situation, you ask? Well, Giles is tech god and as such he IS the technology committee and unofficial lab guy (lord of the lab) – we had expressly asked the MEQ representative to suggest to the Notre Dame principal that he NOT be one of the facilitating teachers, since the message that we want to send out is that the *qesn.connection* 1) is about pedagogy and 2) the role of the facilitator is not the sole territory of the lords and ladies of the labs across Quebec." (Personal fieldnotes, January, 1999)

## 4.3 Technology Infrastructure and Technology Integration

### *4.3.1 Lab vs. classroom setup – "why did we dismantle the lab?"*

The question fell with a thud at the kick-off day at Hummingbird and opened up a veritable Pandora's box off issues for technology integration. On the surface it doesn't appear to be much of an issue: after all, a lab has more machines in it but a few computers in your classroom are more readily accessible and there are both positive and negative things to be said about each setup. However, the debate of lab vs. classroom is mainly one of pedagogical philosophy or teaching style. And, given that in any one school there are sure to be some stylistic differences among teachers, there will always be dissenting voices when it comes time to decide on a setup that works for the school. At Hummingbird, the decision to dismantle the lab was taken by the teachers who used the lab, and computer technology, most in the learning environment they

created for students. The question came from a novice computer user, a teacher, one who went on to add that she felt more secure in the lab because all the students were doing the same thing and that with the lab now gone she feels as though she is cheating her students out of their computer time. The question then becomes – what constitutes good technology integration practice, and how does the technology infrastructure impact this? Gordon, a technology integration veteran at Hummingbird School and a leader in technology integration in Quebec uses his classroom computers for project work and believes that this is the most efficient and effective way to go, given his teaching style and philosophy. But it is entirely possible, and supported by my observations, that a technology novice and traditional-style teacher would prefer to integrate technology into her learning environment through the safety of the lab. And so the dismantling of the lab, even as it is accompanied by offers of help on the part of the school's technology coaches can result in said teacher to shy away from further integration efforts as they represent too great a shift for her in terms of practice. Ideally – schools where the gap between the novice and expert integrator are widest should be equipped with both a lab and classroom computers for a transition period unless curriculum reforms mandate a specific teaching style, which they do not do in Quebec.

### *4.3.2 Equipment needs*

The issue of equipment needs is a perfect example of a technology integration issue that overlaps with infrastructure concerns. Oddly enough, with

the exception of brief mentions of plans for equipment purchases for the following year (e.g. – a laser printer), equipment needs for the school were not mentioned when discussing the *qesn.connection* process. I did not hear, although fully expected to, comments like "well, I would do it if only we had X." or "How are we expected to do this when we don't even have enough Y?" This is due perhaps to the fact that the two schools chosen for the pilot were both fairly well-equipped in terms of computers and peripherals and that each school was staffed by at least one teacher who used existing resources with success with his students.

## 4.4 Technology Infrastructure and Professional Development - Materials and process instructions

### *4.4.1 Reactions to the website and attendant materials (video and planning documents)*

Gathering data with regards to participants' reactions to the website and its attendant materials (video and planning documents) proved to be a difficult task. This can partially be explained by the fact that many if not most participants visited the website a few times only, mainly as a group on the first day of the project. Because the *qesn.connection* process took place in the schools themselves and because the main thrust of this process was the design of classroom-based activities, there was no real need for all participants to return to the site. The newsgroup and other on-line participation (covered in depth in Caron, 2000) saw some activity mainly in the form of questions from participants

that were then answered by *qesn.connection* designers/implementers, but even that was limited to a few participants already familiar with electronic communication and the newsgroup environment. For most teachers, the on-line tools were highly peripheral to a process that for them took place in their school, with their own students, a process of professional growth. A passage from my fieldnotes recorded after the final debriefing discussion session with Hummingbird teachers illustrates this best:

> "There seemed to be no point in even talking about the *qesn.connection* website and its support tools since it was quite obvious that no one really had an opinion since they potentially never gave it a second thought. The first clue was the puzzled silence that followed each *qesn.connection* website question. Teachers would frown slightly in thought, look at one another – they are very close-knit – and tentatively offer up an answer, if one at all. They didn't understand the questions because the questions meant nothing to them and what they really wanted to talk about – and did at great length – was their own practice, their own students, their own growth. Never mind this *qesn.connection*-what-did-you-think-of-the-website-what-else-would-you-have-needed." (personal fieldnotes recorded after Hummingbird visit, June 1999)

The "Around the World in 80 Clicks" video provoked more reactions and opinions from participants both during initial viewing and later in debriefing sessions. The original intention of the video was to provide what is in French referred to as an "élément déclencheur" – a conversation starter. At Hummingbird, teachers used the video to jump start a discussion about the dismantling of their lab, which led to a pedagogical discussion about the merits of a lab versus computers in one's classroom. At Notre Dame, teachers were, to use not-too-strong a term, traumatized by the video and for the most part, felt that it aimed too high and was not representative of the level at which they

perceived themselves to be, and this both during the first viewing and during discussions at the final debriefing session at the project's end.

One of the main sections of the website featured the classroom activity that was the basis for the "Around the World in 80 Clicks" video. The material on the web answered some of the frequently asked questions that we the designers had heard from teachers in the province when we did initial pilot testing of the video in other professional development contexts. So in theory, teachers could have watched the video as a group, discussed it briefly and then gone to the website to get answers to their questions. In each school, however, the facilitators had already seen the video and had asked questions of the design and implementation team, so these people became the links between the website materials and the on-site participants – which was only natural since it is much easier to get an answer from the human being standing in front of you than to create an artificial atmosphere where teachers go to the lab and access the answers on the website:

> "There were some general questions about the video and Christine and I answered them, pointing out where you could find the answers in the handouts in people's binders. I think that when there are people in the room who know the answer to a question, the answer seekers, they who asked the question, are in no mood to go looking for the answers themselves." (personal fieldnotes recorded after a Notre Dame visit, January, 1999).

> "The teachers asked questions about the video, mostly questions that were answered in the web site. It seemed silly not to answer the questions, so I did, and probably discussed the video at some length. This episode served to corroborate Christine and my earlier inkling that the

facilitator session must be changed somehow – the facilitators are simply not prepared to deal with all those group issues."(personal fieldnotes recorded after a Hummingbird visit, December, 1998).

### *4.4.2 Facilitator's use of the materials in their planning.*

On-site observations recorded via fieldnotes such as the one above reveal that in both schools facilitators were somewhat ill-equipped to answer all the questions that teachers asked and to discuss the video in any depth, which points to revisions necessary to the facilitators introductory session held before the project's official start. Even as the issue of the facilitators' preparation with regards to the project's kick-off day can be considered as somewhat separate from the issues surrounding the *qesn.connection* materials, they are in fact inextricably linked since it was part of the facilitator's task to use the website and its attendant materials to plan group sessions - especially the introductory session. The project facilitators at each school had different approaches to the use they made of the website materials. At Notre Dame, the facilitator had prepared binders for each participant containing a print-out of nearly everything on the website, which rendered actually visiting the site a moot endeavour especially for those teachers who were not comfortable with computer technology. At Hummingbird, the facilitators did not provide a print out and let teachers explore the site on their own in pairs, which worked well, but did nothing to entice most teachers to return to the site.

Facilitators did follow the format suggested for the first day at both schools, adapting it to the culture of their environment in each case. As well,

process information with regards to timeline, milestones and grouping suggestions, all found on the site, was used and adapted for each school by the facilitator and school team.

Overall, data gathered as well as my impressions point to the notion that the human element in on-site autonomous professional development cannot be underestimated and that the materials found on the website and through the project only make sense to participants once they have been filtered through a more informed peer facilitator and adapted to suit the context of each school. Potentially, there could be more material on the site for facilitators specifically addressing group leadership issues, but that even these additions would not necessarily increase traffic on the site. The website can safely be regarded as a repository of materials consulted on an as-needed basis.

During the *qesn.connection* project, each school used their existing technology resources to meet the professional development needs of the participants. During the kick off day at Notre Dame School, the facilitating teacher had set up a computer in the library which was hooked up to a big screen TV so that he could show the teachers the website and so that they could view the video. At the same time, this was a good modeling strategy for the teachers, demonstrating a use for school-based resources that participants could later use in their classrooms. After the introduction to the project, teachers moved to the lab where each teacher sat at his or her own computer and explored the website on their own. Some teachers had never taken their class to the lab and so for

them this was their first real visit to the school facility. At Hummingbird Elementary, the facilitating teachers had set up an impromptu lab in an empty classroom – a luxury afforded to English schools with dwindling enrollment – just a few powerful computers arranged on tables with lots of space to work for both teachers during ped days and some students during projects. Although a heavy time commitment initially in terms of setup, the impromptu lab served to show the mobility of the school's resources and gave teachers an idea of how things could be organized in the event that a classroom project would need extra resources.

Fig 4.1 Impromptu lab at Hummingbird Elementary

A more global issue in terms of technology infrastructure and professional development was raised by the Notre Dame School teachers. Many teachers do not have computers at home and taking time off from classroom teaching to prepare a learning activity necessitates access to a computer. If a teacher is released during a teaching day, chances are that the school lab will be in use by other scheduled classes. The staff room computer is always a solution, but needs to be shared among the entire staff.

> "one of the bugaboos is that the board and administrators are always after us to be more advanced technologically, but if you don't have a computer at home, forget it. I thought that the board should have a plan to give teachers loans to get computers. If you don't have one at home you have to spend endless time here or at lunch."
> (taped debriefing session, June 1999)

A common practice in the private sector, school boards could sponsor a financing plan for teachers to purchase personal computers for use in their homes, where many spend much time on school activities anyway (planning, grading etc...). Some school boards have done this but many continue to balk at this solution, namely, the school board responsible for Notre Dame School.

### 4.5 Technology Integration Issues

Technology integration has been a hot topic in education for the past decade or so and many of the same issues that I raise here have been highlighted in the past (e.g. Chin and Hortin, 1993; Hadley and Shinegold, 1993; Pellegrino and Altman, 1997). These include emotional responses to technology integration, constraints of time and money, coming up with personal ways of integrating technology into one's own teaching, mastering new skills and the importance of resident human resources. It is understood that the majority of these issues relate to professional development, and can be applicable to situations where technology integration is not necessarily the focus. For example, in Quebec's recent reform policies, many approaches and ways of looking at curriculum integration are new to some teachers and learning how to integrate these policies may indeed raise similar issues to those raised by the technology

integration question – time and money, personal ways of adopting new approaches – to name a few.

### *4.5.1 Veteran teacher, novice integrator*

*Pancakes, pancakes* – a narrative account

> "But you'll be there to take care of the other children, won't you?" asked Karen, with a slight tremor of fear in her voice. Karen was planning on continuing one of the activities from the Bicentennial celebrations that day – and activity that involved her grade one class talking and reading about buckwheat pancakes and then trooping down to the school kitchen to make and eat them. The students, with the help of one of the school's technology coaches, had taken pictures of each other and these had already been scanned in to the computer. They were going to make a class slide show which was then going to be shared with the entire school. That day's activities were to consist of the children writing an evocative word or phrase on their chosen picture and saving their file (big job when you are 7 years old). A veteran teacher, but a technology novice, Karen had decided – with much gentle prodding from the technology coach – that today she would be the one at the computer with her students two-by-two, instead of delegating the stressful task to the coach, as had been customary. And there she sat with two students at a time, tentative, hesitant and tense. Meanwhile, the technology coach was helping the other children with the seat work (stenciled worksheets) and because this happened to be solitary work where the children were not organized to help each other – the coach's hands were quite full. I helped out a bit with cutting and gluing and thinking but soon wandered over to the computer in the corner of the room. I watched Karen as she sat at the computer. Slightly too far back, as though afraid, she let the children manipulate the

> mouse. There were too many silences, I thought, it didn't seem natural somehow. Maybe because it wasn't in fact natural for Karen to be sitting away from her class assisting only two at the computer when so many more were needy at their desks. Maybe it wasn't natural for Karen to have some children doing something different from other ones, even if under her supervision. Maybe computers themselves were not a natural world for Karen – and an unease heightened by her position as teacher who now must teach about a mysterious world and with mysterious tools to a group of natives from that world, or at the very least, the one next in orbit. Later, in the staff room at recess, Karen told Diane about how it had gone much better once she let the children show other children what to do on the computer. They had been apparently quite articulate and remembered almost every step after only one go. She seemed surprised at this, as though she had just realized that there was no need to be tour guide on the trip to the mysterious world. Come to think of it, she seemed rather relieved, actually.

There are many teachers like Karen in the province. Master teachers from another era, when a typewriter was the height of automated writing and when the school library and the class texts were the primary sources of knowledge. Expert psychologists, with much practical knowledge of group dynamics, leadership and organization, they are for the most part new to information and communication technologies despite their increasingly widespread use over the past decade. Karen epitomizes the traditional early elementary school teacher – offering guidance and security in a world where she is the primary knower and deliverer of knowledge, keeper of wisdom. It is difficult as a professional to be put into a position of awkward footing, to risk losing the face that has taken several

decades to build up in front of not only children, but fellow colleagues as well. Any attempt at professional development in the field of technology integration must aknowledge these professionals whose professional life doesn't readily make room for new tools and new practices.

### *4.5.2 Emotional responses*

I have learned never to underestimate the emotional response that teachers have towards computer technology, and especially computer technology that is meant to be integrated into their professional practice. Over and over in many schools across the province, I have seen the same reactions at workshops and training sessions, recorded in my field notes from Notre Dame School: "The faces and body postures of the teachers were tense and wary, very wary: they sat in their seats, not talking to each other, not smiling, arms folded across their chest." . The tools themselves as much as the idea of integrating them is something that triggers an immediate and immediately emotional response in many. Many teachers feel ill at ease around computer technology (a term broadly used to refer to all multi-media technology including peripheral tools such as a scanner and digital camera) and feel that it is not something that is natural to them. Karen from Hummingbird Elementary, a school rich in technology and human resources, told me in an interview: "Since we *have* to be into this <pause> – technology - ...I'm really not a computer person, I'm really not. I do it because I have to <laughs>". This perception of self as not being a such-and-such a person seems to be inextricably linked to one's ability to

embrace new technological tools for teaching and learning. The act of teaching is, after all, intensely personal, and an aversion to a set of tools can hardly be conducive to using them with grace in a learning environment. The question then becomes – what of those teachers who are not "computer people"? Can we expect them to utilize a set of tools that are fundamentally unnatural to their way of thinking? And furthermore, even when forced to integrate, can we expect them to think up creative and, more importantly, pedagogically sound ways of integrating technology into learning? And if they cannot – do we provide them with lesson plans ready-made that they can implement as is – a feat nearly impossible when one considers the myriad variables that are at play – teaching style, classroom and school culture, teaching experience, curricular content – the list is long.

The plot thickens considerably when students are added back into the mixture (having been temporarily removed as we considered teachers only). Teachers at both Notre Dame and Hummingbird reported that students in general felt very at ease with technology, even when they didn't know how to use something or navigate a particular programme. Karen also told me:

> "I do feel that the children are very at ease with it, they accept it as a part of learning, as a part of everyday, as a part of school – it's just normal. I'm the one who's sort of... it's just how I feel, I'm not a technical person – and yet I do it anyway, I feel an obligation, I try.".
> (taped interview, May 1999)

The fact that students are at ease with technology is both a motivating factor for teachers as well as a preventative one, since while many teachers felt an obligation as a result of the students, some teachers reported feeling nervous

when they didn't know how to do something that their students themselves knew how to do.

### *4.5.3 Time and Money – Two-headed Monster*

Another oft-mentioned issue in technology integration is the issue of time. Time for both teachers and students to learn about new tools, time to plan activities – which, given the new and unfamiliar tools as well as their scarcity in many schools, take much longer to plan than ordinary activities – and time lost troubleshooting technology. Time, it appears, is of the essence. A teacher pointed out in interview: "It takes time, I find it hard to find time ...I don't mind it, but it takes so long to do something that I feel that I can do it faster by either doing it myself or making a stencil or photocopying.". One of the ways of giving teachers time to work on technology integration activities is to build planning time into their work schedule. As it is, most teachers on the *qesn.connection* project reported working far more than the hours they were paid for, but the fact remains that the project had time built into it from the start. Some time can be garnered from existing professional development days which are already part of a teacher's workload, but it is also necessary to release teachers from teaching days by bringing in supply teachers to take over their classrooms while the regular teachers plan and learn:

> "the strongest point was having the four days off that forced me to sit down and actually do it and have the time to sit down with Laura to actually work on it. Otherwise...much more than 4 days of work was put into it but at least it gave us a start."
> (Jane during taped debriefing session at Notre Dame School, 1999)

Releasing teachers of course costs money, but it is money well-spent in the long run, especially given that teachers are all in different places in terms of their professional development in any given topic/field/area. Added to this is the professionalism factor – the trust accorded to professionals when you tell them that they have time to use as they see fit:

> "it is important to be free to schedule and plan certain things so its really important to have the time there and say "use it as you need it" - because we're not all there [in terms of tech integration]" (Laura during taped debriefing session at Notre Dame School, 1999)

It is interesting, this litany of time, and comes up again and again in the literature on technology integration (e.g. Chin & Hortin, 1993). It can be and has traditionally been interpreted to mean that teachers need more time so that they can learn all they need to know to create and manage learning environments for students which include information and communication technologies. But the relentless pace of technological developments means that, in practical terms, if one waits until one is comfortable with a specific piece of software or hardware before using it pedagogically, if one in essence waits until one has indeed learned all there is to know about it, it is most likely already obsolete and one must spend yet more time learning what is new. Instead of this sysiphian effort, teachers need time to learn minimum technological skills and the time to plan and carry out pedagogical trials that put their skills into immediate action in a classroom context.

### *4.5.4 Personal teaching style*

It is clear that every teacher learning autonomously about technology integration will be filtering everything through a sieve of knowledge, experience and her own teaching style. If a strategy or a way of doing doesn't fit with what one can see oneself doing with a group of students, it is rare that this strategy ever makes it beyond the experimental stage to true adoption. This is a difficult issue for me – since I believe that there is, if not one good way, then a limited number of good ways of creating learning environments for children that include technology effectively and with value-added. Having said that – it was not the purpose of this inquiry to pass judgement on the learning activities created by teachers, but whether and how they created them. However, teaching style impacted upon the types of activities created by teachers and this in turn impacted the perception teachers came away with of both technology integration as well as of autonomous professional development. As a result of having experienced a learning activity that integrates technology with their students, some teachers expressed concerns about future such endeavours on their part. It is my professional opinion that the reservations some teachers may have had are largely due to a teaching style that does not accept technology with its myriad scheduling and skill issues. A classroom which is largely teacher-led, where the teacher makes all learning decisions and designs learning activities where all students are working on the same things in unison – such a classroom is not the most accepting environment for technology integration, especially in a situation where there is no lab and not enough computers for every child. Karen said this

best when she told me: "you can't do it with the children there, you need someone else, someone else either doing it, or you sit and do it and the other person takes care of the other children.". This comment illustrates a typical malaise of the teacher-led classroom, where a teacher feels the need to be in constant control of learning. In this situation, it is very difficult to work with a single computer in the classroom, a scenario better suited to station or circuit learning, in which students move systematically through stations, and with most activities beings done autonomously by students, leaving the teacher to man the most complex station. In a traditional school environment, technology integration initiatives will work best when the general teaching style of the staff is taken into account when planning technology infrastructure and professional development. The expectations have to be clear as well – the *qesn.connection* design and implementation team had many discussions as to whether we would be looking at "quality" of learning activities created by teachers, or whether we would focus on process and whether they planned and enacted activities in their own classrooms. In the end, we decided that the professional development process that we were proposing was more important than the alleged "quality" of learning activities designed by teachers – and that these were intensely personal, and potentially an integral part of the process: to try something and then have both an opinion about it and the experience of it for future initiatives was deemed to be more important than the quality of the integration activity itself. Potentially, one of the challenges of technology integration initiatives, or any initiatives where new tools or practices are introduced is to lead teachers to understand what

modifications they need to make in their current teaching practices to make room for new tools or approaches while still remaining true to their personal teaching philosophy, insofar as it continues to serve them well.

### 4.6 Technology Integration and Professional Development

In the *qesn.connection* process, teachers were given a video example of a fully integrated computer activity which for many was a bit too advanced. The hardest part of the professional development process for them was coming up with an idea for their own classroom that would fit in with their teaching style and experience with computers. Many were at fist at a loss and struggled with the project's initial stages. I witnessed this firsthand during one of my visits to Notre Dame School:

> "the hardest part of this is coming up with an idea. I looked at these questions and the one that struck me was this one: [reading from the page that only he has] "from this video, what can you take and apply immediately in your classroom" and I have to say, he continued, that I'm blank." (personal fieldnotes, January, 1999)

The experience of the integration activity was the focus for the reflections and discussions that took place at the project's end. The participating teachers had something concrete to talk about and were able to gain new insights into teaching and learning, insights which they would not have had without having lived the experience with their students. For some, it was their first time witnessing directly what and how their students work with technology:

> "Yes, it did work, I was quite impressed with what they did, what they remembered. Some of them were better than others – the children who are articulate and perceive things and notice things were able to do it a lot faster and a lot easier than another child who does not clue in and who has a short attention span. It's too bad, but that's what I noticed in that particular activity that they did." (taped interview with Karen, May 1999)

> "I have changed my mind several times over the course of the year. I started out, you know, very gung-ho and that things were going to be great and then things went wrong and I felt that the way I was using them in the classroom was not very creatively and I was giving children time on the computer just to find out how to use it – it was isolating them and I found that the children who really needed to spend time with other children were isolating themselves more and more via the computer." (taped interview with Maisie, May 1999)

For others with more experience, the reflection process was a chance to examine some of their current practices and how their students react to computers in general. Gordon from Hummingbird Elementary, who is a master integrator of technology and in whose class computers are integrated into regular classroom processes, had this to say about his students:

> "Computers are integrated – kids teach each other as much as possible. Some are still afraid of it, they don't use it as much and some are there all the time. It's a tool that some like and some don't. <and the ones who don't there's no requirement that they use it?> No - They'll ask me – can I do it on paper. And I say yes, but every once in a while, I do something that is sort of forced, cover all the minimum bases." (taped interview, May 1999).

Most interesting to me were the comments which showed a critical judgement about the way in which things were in their schools in terms of technology, a judgement only possible once full use has been made of school facilities and infrastructure. Susan, from Notre Dame, who before her

*qesn.connection* experience could not really discuss her school's technology situation illustrates this idea:

> "I think that our computer lab is a little sophisticated for the little ones - we have to log on and then find the programme and double click and then you go over there and it comes back over here... it took a while for my grade 2's to get it."
> (Susan, taped debriefing session, June 1999)

In many schools, only a select few teachers make decisions regarding technology on the premises, whether in terms of infrastructure or pedagogy. The reason for this is not merely expediency, but rather the fact that most teachers simply would not have an informed opinion to give on the matter. In this light, the *qesn.connection* process of planning, enacting in one's own school with one's own students and then reflecting on the experience becomes one of empowerment, as teachers become armed with first-hand immediate knowledge and can give opinions founded on actual use of the facilities. The same can be said for the pedagogical implications of the matter, for it is through experience that teachers can reflect on the place of information and communication technologies in the learning landscape of their students.

### *4.6.1 Human resources*

A crucial component of success of professional development initiatives seems to be the on-site presence of local experts. Both Hummingbird Elementary and Notre Dame School were fortunate enough to have such experts among their school team – with Hummingbird School even having two people on-site full time and one person on-site part time, all proficient enough to consult with and

assist others. I had noticed this phenomenon at other schools but it was confirmed by participants over and over:

> I think the other advantage is having someone here like Gilles. If it wasn't for Gilles, this project would have fallen apart. (Jane during taped debriefing session, June 1999)

> "Diane has been spearheading much of this and she's really got us going. She's wonderful." (Maisie, taped interview, May 1999)

I had been concerned about Hummingbird School in terms of the high percentage of local experts (nearly 40% of school staff). I thought that maybe it would be intimidating for the other teachers to be surrounded by so much expertise and this could make then reluctant to ask for help. But I witnessed that:

> "The level of comfort in terms of asking Gordon or Carrie for help is very high, I know that they are very willing to help and I've seen them do it and no one seems to be shy to ask."
> (John, principal of Hummingbird Elementary during a taped interview, April 1999)

Overall – teachers are not intimidated by technology experts when these come from their own school – facing the same issues and limitations. The credibility of the local experts is established and faith in them is great.

### 4.7 Professional Development Issues

What do you think of when you hear the term professional development? Teachers, master pedagogues nodding sagely as a peer or other 'knower' expounds on the virtues of such and such a method, or such and such an approach. The teachers, students in this scenario, sitting in an orderly fashion,

taking notes, perusing handouts, nodding sagely, asking questions. Or maybe they're participants in a hands-on type of workshop, discussing in groups, planning, experimenting with curricula or technological materials. How does this 'learning' translate into the classroom environment? Does it? What does it take for the learning to make the leap from the mind and understanding to the practice? These are the questions that were rattling in my mind during the pilot phase of *qesn.connection*. I decided to ask teachers informally, what professional development means to them. Jeanne's words best summed-up the collective definition of this much-used term:

> "Going to workshops, extra courses, learning about whatever you want, whatever you're interested in, and acquiring more experience as a teacher. It is as much in the workplace as it is when you go out and do it more formally...It has to be tied to your work." (Jeanne, taped interview, May 1999)

Teachers emphasized the connection to their practice as well when talking about traditional forms of professional development such as workshops – pointing out that workshops are useful mainly when the teacher has chosen to participate in them, rather than being coerced into it by school or school board administration:

> "...if I'm there to learn something that I want to use with the kids in the classroom, or within a project that I am trying to do, then they're useful, because I went there with a purpose. If I get sort of dragged there by order "this is where you'll be" then that's generally not too effective. So there has to be an immediate need, probably within the classroom, or in your professional life in terms of preparing material." (Gordon, taped interview, May 1999)

Having defined professional development as this inquiry's participants understood it, I have decided to organize the professional development section of

this report around the four general system attributes of constructivist learning environments on which we had based our design of the *qesn.connection*. These were first described by Jonassen et al. (1995) as Context, Construction, Collaboration and Conversation and have already been discussed elsewhere in this report. They are a useful organisational schema as they permit one to focus fully on the professional development aspect of the *qesn.connection*. I quote the original article again for clarity, where applicable.

### *4.7.1 Context*

> "***Context*** [emphasis mine] includes features of the "real world" setting in which the task to be learned might naturally be accomplished. These features, which are replicated as faithfully as possible in the learning environment, may include the physical, organisational, cultural, social, political, and power issues related to the application of the knowledge being learned." (Jonassen et al, 1995, p13)

While Jonassen et al. (1995) were referring to features of the real world setting in which the task to be learned might naturally be accomplished or in which the knowledge gained might be applied - features which would be merely replicated in a constructivist learning environment, the *qesn.connection* process actually had teachers working in their natural environment from the starting point, with no replication necessary. Most of what Jonassen et al. would consider "Context" has already been discussed in the section concerning the setting for this inquiry. In terms of the context and how it impacted the professional development process, teachers used their school's equipment and called upon their school's human resources when required. As well, teachers were very much

aware of contextual factors when discussing their professional development experience. At Hummingbird Elementary, for example, teachers knew that their school was different from other schools in terms of their involvement in school and community life - all teachers echoed in some ways the words of Jeanne:

> "Teachers are very involved, we do a lot of extra activities. I don't think I've ever seen a school – I've subbed in many schools – and I've never seen teachers so involved with so many activities and technology-wise, I think we're going forward a lot compared to other schools – I find we do a lot. I think we're creative, we do tons and tons of stuff – I don't want to compare with other schools, but..." (Jeanne, taped interview, May 1999).

At Notre Dame School, only a core group of teachers participated in the *qesn.connection* process. They recognized their innovator status as well, and were aware of the political implications of their involvement in the *qesn.connection*. Indeed, Steve, the facilitating teacher at Notre Dame school, told me in front of everyone that the *qesn.connection* project might be deemed prestigious enough by the school board to speed up the process of acquiring a satellite Internet connection.

Regardless of energy level or political concerns, I have noticed that teachers from the same school seem to be cut from the same cloth – if a few are dynamic, you can be sure that they are all fairly dynamic, if a few are jaded and blasé, you can bet that they rest of the teachers also carry these qualities. It is as though a process of natural sorting or selection were occurring within the educational milieu, with birds of a feather indeed flocking together. Teachers who do not fit into a school's given teacher profile quickly adapt or move on. It is

important as a school administrator or as a team leader to be aware of the culture of teaching in a given school when deciding whether or not to engage in site-based, autonomous professional development, since this awareness is pivotal to the success of an initiative.

### *4.7.2 Construction*

> "***Construction*** of knowledge is the result of an active process of articulation and reflection within a context ... Learning environments are constructivist only if they allow individuals or groups of individuals to make their own meaning for what they experience rather than requiring them to "learn" the teacher's interpretation of that experience or content." (Jonassen et al, 1995, p14)

During the *qesn.connection* process, the participants were involved in the planning and enacting of learning activities or classroom processes with their own students and in their own classrooms. Each participant who completed the pilot came away having completed an activity or tried out a new approach in his or her classroom. Indeed, all the activities created by teachers were subsequently housed on the *qesn.connection* website and featured at a variety of teacher and administrator conferences the following year[3]. It was important for the implementation team that teachers get a chance to articulate what they went through so that they would be able to gain a consciousness of the ways in which they had changed their perceptions, patterns, ways of doing, or simply tried out something which may not have changed them beyond knowing never to repeat

[3] These activities can be viewed on-line at http://www.qesn.meq.gouv.qc.ca/connection/

that particular mistake again. The responses at the end of the project at both Hummingbird Elementary and Notre Dame School were remarkable. Teachers, silent during previous encounters, burst forth with stories of classroom events and brilliant flashes of insight that they had had along the way:

> "I teach grade 2 and I never thought that children were able to use the word processor the way they could and when I started ... The end result was that they found that the computer was not just a toy for playing games, now they're very happy to write on the one we have in our room - write little messages one to the other, whereas before they would just play games, now they see a benefit." (Sara during taped debriefing session, June 1999.)

Indeed, Sara would not have been able to gain that particular insight had she not enacted a learning activity that featured word processing as a tool for communicating with others. Other teachers commented on how they would do things differently the *next time* around (emphasis mine), thus having an awareness of how things played out the first time:

> "I think that was a learning experience for us too – Lise and I were talking earlier – we're going to do things differently, if we have this opportunity again. We have to try things and get them to work. I found it valuable." (Maisie during debriefing session, June 1999).

Certainly, given the principles of reflective practice as laid out by Schön in his numerous works (e.g. Schön, 1993), it is not merely the act which leads to reflectiveness, nor does the act itself necessarily lead to learning in constructivist learning environments. Creating a situation in which practitioners have the opportunity to reflect *on* action leads, over time, to reflection *in* action, which is the deisred state for a practitioner improving his or her practice. Working with another teacher certainly facilitates the reflective aspect of learning by doing, as

you have to constantly make yourself understood and make your concerns and ideas known to the other. I found it interesting to note during the debriefing session at Notre Dame School that it was those teachers who chose to work by themselves that were the most eager to share their experiences with the implementation and research team (a team of two). Indeed, once Sara had talked about her experience at a roundtable-type of discussion, Roger spoke up and wanted to go next, even if he was not officially next in line to speak. It is even more interesting when you know that both Sara and Roger had been very quiet and low-key throughout the project, collaborating only with the trusted local technology expert, Gilles.

It is important to remember that there was a two-pronged initiative going on through the *qesn.connection* process : on the one hand, teachers were learning about integrating information and communication technology into their own practice and on the other hand they were experimenting with an autonomous and largely self-driven form of professional development. And although what teachers consistently wanted to talk about with us was their classroom practice, their classroom activities, they were also able to step back from their classroom practice to take a systems perspective of the process they had lived. It was at this time that many teachers in both schools pointed out how the process could be made to run smoother for them in the future – a discussion indicative of growth taking place :

> "When you go through a process like that – you sort of have to re-visit it to see what happened and see what parts you have to monitor. I

> think experience, sort of trial run experience is important, then you know what to talk about what to ask about what you need support for and ideas about – it makes things more relevant. At [first] it's still sort of new fresh and coming out of nowhere." (Gordon during the taped debriefing session, June 1999).

### *4.7.3 Collaboration*

> " ***Collaboration*** among learners or performers occurs throughout the learning process. Collaboration aids in developing, testing, and evaluating different beliefs and hypotheses within learning contexts. Through the process of articulating covert processes and strategies, learners are able to build new and modify existing knowledge structures. (Seaton, 1993)." (Jonassen et al, 1995, p14)

The culture of teaching in general has been often described as isolational, one in which teachers as the key players limit interactions among each other to the logistical only (such as recess and lunch duty, outings, discipline and the like). And it is true that in the end – except in recent experiments in team-teaching – a teacher is alone in her class with her students, so why bother planning and talking about practice with others? In truth, behind closed staffroom doors and in empty end-of-the-day classrooms, informal collaboration occurs all the time as teachers consult with each other on matters of practice. And contrary to some popular belief, not all teachers are reluctant to be a part of a team, although many are certainly not used to it. Jeanne told me: "I like being part of the team and I think I'm a good team player and I like to, I actually like to work with others, not on my own...." (taped interview with Jeanne, June 1999).

The collaborative element in *qesn.connection* was, in our minds as designers, a pivotal element in the design of our professional development infrastructure. It was, to us, a way to pool expertise, to provide sounding boards

for the articulation of issues and the definition of personal learning goals. At Hummingbird Elementary, all teachers collaborated in some fashion with each other, whether it was as curriculum process planners or as technology coaches. All teachers were working on a common school theme, a cornerstone feature of Quebec's recent school reform policy. Within the larger group collaboration, teachers worked in small teams of two on classroom activities or processes and ways of doing that would be applied to their own students. It was clear from the start that the Hummingbird teachers were used to working with each other on logistical issues and that they had even made some forays into pedagogy in the past – something later confirmed by conversations with teachers about past group projects in which the school staff had engaged. In fact – the group was so used to the idea of planning together, that some of them were able to reflect on the process of working as a team versus the importance of solo planning and reflecting. Maisie from Hummingbird pointed out in the debriefing session that after the first few planning meetings, things began to feel a bit artificial, since no one was getting anything concrete done and the teachers were all still just talking about things rather than doing. It was that realization which prompted some of them to begin some necessary solo planning and preparation – a chance to work out one's own thoughts before coming back to the larger group.

At Notre Dame School, four teachers actively planned together in pairs, with the rest collaborating in a consultative fashion only. It seemed to me during my first visit at the kick-off day, that the atmosphere was very tense and the

teachers did not seem as though they were accustomed to working with each other. This is interesting precisely because of the way things unfolded at Notre Dame and in the teachers' comments at the project's end. The teachers who worked in pairs had a variety of things to say about the experience. Some commented on the sharing of expertise as the most important factor for them:

> "There's no way I would have done this if I hadn't been hooked up with an expert - even with the four days [release time] - no way. The project is not appropriate for someone like me who has no experience [with computers]..." (Laura during taped debriefing session, June 1999).

A major challenge of collaborating on a project when two teachers teach different classes or different subjects became evident in the collaboration of a health and physical education teacher with the school's French language specialist:

> "So we really had to work hard to find objectives in common and share whatever we have. During those days we were able to work together, that was nice - but then there were also times when I would do a part, show it to him, he would do a part - it was technical, writing, technical, writing - so we kept going back and forth." (Maryse during taped debriefing session, June 1999).

The above comment illustrates both the difficulty of co-planning as well as the importance of at times working by oneself, as long as the pieces fit together. Despite the challenges voiced by Notre Dame teachers, all those who worked together told me that they would do this again:

> *Sylwia:* would you ever do this again?
> *Jane (quickly):* Yes. In a minute. <general laughter and jokes> I would do it again but I would never do it alone. I like working with a partner.
> *Maryse:* Moi aussi [me, too]
> *Jane:* It makes me more organized and more keen because there is someone to bounce the ideas off of. Otherwise I would have totally become overwhelmed with the thing I wanted to do.

(Debriefing session, June 1999).

### *4.7.4 Conversation*

> "***Conversation*** is entailed by collaboration. Individuals and groups must negotiate plans for solving situated problems before initiating those plans. This planning involves reflecting on what is known, what needs to be known, the viability of various plans, and their potential effectiveness. Conversation is an essential part of the meaning-making process because knowledge, for the most of us, is language mediated." (Jonassen et al, 1995, p14)

I found very early on that conversations of all sorts were the driving force of the *qesn.connection*. Conversations in the hallways, conversations in the staffroom, conversations with myself as the researcher, conversations on-line. The most obvious conversations were those that occurred during planning sessions when the whole group met all at once. Hummingbird Elementary teachers met together on several occasions and discussed many issues at great length with each other, sometimes, as mentioned before, to the detriment of solo planning and reflecting. At Notre Dame School, teachers spoke to each other informally throughout the project - "I think its important to know what others are doing, we talk about that among ourselves" – and emphasized how it was this talking and tossing around of ideas that resulted in the final learning activities designed and enacted by teachers.

I was most surprised to hear from teachers when I met with them one on one how little formal time they have to talk to other teachers and just how much they appreciate the exchange of ideas that takes place during a conversation. When asked about why they liked having in-service outside of their own school,

participants invariably mentioned the interactions with other teachers as the motivating factor for them and the one that invariably leads them to change something about their practice:

> "I was terrified of, before going to the workshop, of using stations in my classroom, because I was thinking that if I have 4 stations, then 3 out of those four stations, I won't be there to supervise, and that freaked me right out because I thought that all kids have to be supervised and they all have to be learning the same thing, but after I talked to one teacher – that's all I do now, I wouldn't do it any other way." (interview with Jeanne, May 1999).

### *4.7.5 Confirmation*

It was as I was organising my field notes, interview transcripts and teacher created activities that I noticed an issue that came up again and again in discussion about professional development. One of the side-effects of a culture of isolation is the reluctance to talk openly about one's practice. This has led to teachers trapped alone in their classrooms with no one to validate the work they do and the innovative practices they discover or experiment in informal action-research initiatives. Teachers at both *qesn.connection* pilot schools were immensely curious as to the activities of the other school, both to know about specific classroom practices and to know how the other school was navigating the murky waters of the professional development process outlined in the *qesn.connection* and so whether they themselves were engaging in the process in the "right way". In terms of pedagogy and classroom practice, Karen had this to say about seeing what other teachers are doing: "It's reassuring to know that you're ... you're ok, that you're on target, this is what you should be doing, that

this is not ... bad.". I have decided to add this need for security and validation to Jonassen's "C" list of system attributes of constructivist learning environments through the term "Confirmation" , not to be confused with the religious use of the word. Teachers seek confirmation that they are indeed on the right track in terms of pedagogy and classroom practice, they seek evidence that what they do alone in their classroom is accepted by the education community and maybe even in some way contributes to its growth:

> "I worked [as part of a group] on a series of science units and they were really great – but I found that some of the ideas I had – and I'm not saying this to build myself up or anything – but the ideas that I had were really good. I noticed, after the wind unit had gone and I sort of sat down and reflected on what was there – I thought, yeah, my stories and things were good." (interview with Karen, May 1999).

## 4.8 Administrative issues

No discussion of the findings of this inquiry would be complete without even a brief nod to the administrative issues that arose and which kept the entire *qesn.connection* operation running smoothly. Indeed, in a loosely structured professional environment such as this one, administrative planning needs to be done on-site, rather than coming from the board as a *fait accompli.* The biggest hurdle in terms of administration of such a project is the scheduling of release time and the hiring of supply teachers to replace teacher participants in the pilot. At Hummingbird, where the staff repeatedly wanted to meet as a whole team, this meant that the entire school was staffed by supply teachers, no small feat in

a rural area where substitute teachers are scarce enough! Notre Dame's principal vetoed whole staff meetings, so teachers scheduled their release time solo or in pairs, and were often limited to previously decreed pedagogical days – some took release time after regular school hours against the 3 or 4 ped days that are scheduled at the end of the school year in late June, which means that come June, they would not have to work those days.

The role of the principal as administrator and guide is invaluable to the success of a project. And, oddly enough, it is often the trust that a principal has for his teachers and the faith that he has in them that contributes to the success of this type of initiative. When talking to John, the principal at Hummingbird Elementary, about the role of the administrator in teacher professional development, he said:

> "In a regular school, an administrator would have to make sure that teachers were aware of the possibilities and secondly to support them in terms of time. Because Diane is our link to the board and is our expert, I allowed [the Hummingbird teachers] free range – control over what they would do and when they would do it, we just managed from our side from the office side as managers – bringing in substitutes at the appropriate time." (interview with John, May 1999).

This sensitivity and lack of overt paternalistic overtones on the part of John contributed and continue to contribute to the success of professional development initiatives similar to the *qesn.connection*. The reason I am mentioning the administrator role is largely because of new Ministère de l'Éducation's professional development policy which has outlines the need for more professional autonomy for teachers and has called upon principals and

school boards to be more sensitive to teachers' professional development needs (MEQ, 1999.)

### 4.9 Research process

If I had to write this thesis over again, I know what I would write about. Beyond the professional development, technology integration, technology infrastructure issues which interested me at first, what I really have come away with is a sense of my own journey through the inquiry as a novice researcher. Time and time again as I delved into my data, I would discover pieces of myself, snapshots of a researcher puzzled, tense, confused, exuberant, enthusiastic and excited. I would have flashbacks of being there with the participants observing or participating or sometimes both. It is in this spirit of excitement that I wish to provide you with a glimpse into my trip through the *qesn.connection* implementation and inquiry, to provide you with a few brief stills captured from the flow.

First off, let me tell you that I had plans. Big plans. I was going in to these two schools to get all manner of data, to get teachers to fill out all manner of documents and to come away from it all with everyone loving me to bits. In the end, I had to adapt constantly to a research reality that shifted with every visit, blown hither and tither with the winds of parent-teacher conferences, school discipline issues, administrator-staff conflicts, school board policy, illness and

plain human nature (sometimes, people just have a bad day). One of the pivotal moments in terms of data collection happened after my second visit to Hummingbird Elementary and illustrates my inner conflict at the turn of events:

> "They didn't fill out the goal setting documents. Somehow I knew they wouldn't but it still bothers me. They will never fill out the goal setting documents and I have to get over it. I suppose that I could discuss that in my thesis – when data just doesn't happen, when journals do not get written, forms or questionnaires do not get filled out etc. It certainly is hard on the researcher, though, who sees his well-laid plans going up in smoke. On the other hand, the fact that they allowed us to be present during their planning times and to listen and take notes and participate in their planning process is in itself such a rich source of all kinds of information – I just have to be adept at figuring out how to mine what is useful and relevant to my inquiry. They seem trust us because they let us stay and are fairly natural around us, and yet they will not do what we ask – I dare not insist because I worry about disrupting the process for them. I shall discuss this with the rest of the team."
> (personal fieldnotes, December, 1998)

In the end, it was my challenge to figure out how best to mine the information I had obtained, and it turned out being very rich despite my fears. But perhaps I could have been more insistent, less intent on being accepted and liked? On the other hand – how would this have affected later data collection methods such as the one-on-one interview or even group planning sessions at which I was fortunate enough to be present? And, perhaps even more importantly, how would it have affected any future possible university or other reseach collaborations at the two sites?

I also had a difficult time internally reconciling my multiple roles during the *qesn.connection* inquiry and implementation, especially in terms of my shifting place on the participant-observer continuum. Nobody tells you about this, no one

prepares you for the uncertainty and the tension you feel. I did not feel that my presence at the school was justified because I was from a university, in fact, I had read enough of the literature to know of the rift between the educational and academic milieus, and I had been a recipient of that mistrust before. Over the course of the inquiry, I found myself travelling up and down the continuum and as a result not feeling completely at home anywhere.

There were control issues as well – mainly mine. Even as the design and implementation team agreed that we needed to see how the *qesn.connection* played out and that the whole point if the pilot was to see how teachers naturally use the infrastructure and tools we provide – I of course had a vision of how it should be. It was this vision that was uppermost in my mind at first and any sign of either team deviating from it was met with internal resistance on my part. The following passage – written immediately after the Notre Dame kick-off day – illustrates my malaise:

> As Steve began the discussion around the video saying: "what we are *supposed* to do now is" discuss the video etc, I cringed and fervently wished that I could be the facilitator for this day. The loss of control was taking a heavy toll on my nerves – I desperately wanted this to go well, but , more importantly, I wanted the nervous, tense teachers to relax and think brilliant thoughts, I wanted them to be inspired and I knew that as long as they were tense, they could not be inspired. I realize that this was part of our design, to give up control for the sake of creating autonomy, but maybe we did not have all the answers regarding the training of the facilitators. Perhaps we swung the pendulum too far, giving the facilitators too much autonomy, enough rope with which to hang themselves, and, in this case, leave us swinging as well. Perhaps had we co-facilitated for the pilot phase, that would have been an easier transition design-wise. In reality, we had no idea what it would take to train the facilitators. Even if all the info lives on the site, it is not everyone who can learn autonomously.

> Learning autonomously, after all, is much more difficult than having someone tell you what to do.
> (personal fieldnotes, December, 1998)

At Hummingbird, where things were on the surface progressing smoothly, I was also experiencing a feeling of loss of control, mainly due to the culture of the staff:

> "What followed can best be described as an organic progression through the suggested activities for that first day ... It was sort of after recess that the whole rhythm thing hit me: their rhythm was so very different from mine, their way of "getting things done" is also potentially very different – and so, I do not want to intervene or pass judgement until I see more. All in all, they covered all the suggested bases ... and yet I felt as though nothing was being accomplished. Do they feel this way too, and that is why they are so humble?"
> (personal fieldnotes, December, 1998)

Both passages illustrate the inevitable appropriation of the *qesn.connection* process by each pilot school. After all, they were *supposed* to buy-in and achieve ownership of the process, and it was desirable that they should do things their own way, in fact, the whole point of the inquiry was to see how they would go about it and whether the different approaches would lead to professional development gains.

# Chapter Five: Discussion and Concluding Remarks

## Chapter Five: Discussion and Concluding Remarks

In sum, the success of the *qesn.connection* was dependent upon a synergy of several key factors, factors essential to the success of any long-term, sustainable professional development initiative. Administrative support and leadership was important at both Notre Dame School and Hummingbird Elementary – and it is safe to extrapolate that where there is no direct leadership or support that there needs to be administrative buy-in for a project such as the *qesn.connection* to succeed. Also, teachers must be willing to participate fully in the process in order to benefit – the *qesn.connection* is not for the faint of heart profesional-development-wise, it is an active process which requires participation rather than mere observation or mere vicarious learning. This hands-on process flourishes best in a climate of supportive risk-taking, in which teachers are gently encouraged to try out things that are new to them and to push themselves in terms of innovation and sound pedagogy. Time and money resources cannot be underestimated and it may even be suggested that time and money are the primary factors in the success of professional development initiatives where teachers are willing and the right climate exists.

### 5.1 Paolo Freire and the *qesn.connection* – The Little Professional Development Process that Could.

As I lived the *qesn.connection* process myself - having previously gone through the design process with my colleagues, a process which built upon our

collective experience as catalysts for change in the educational milieu through a series of innovative approaches to professional development, all culminating in the articulation of our beliefs, practices and knowledge gained from the experiences of enlightened others – I began to look for parallels between it and Freire's well-known ideas about community development and oppression. In his book about educating adults, Peter Jarvis paraphrases Freire's ideas emphasizing that "education should make learners critically aware of their false consciousness and of their social condition. In becoming aware, they should reject many of the myths erected by the ruling elite that prevent them (the learners) from having a clear perception of their own social reality" (Jarvis, 1995, p.35) .While seemingly extreme and worded in extremist language, Freire's ideas hit close to home when one examines the status of teachers in the educational milieu. I ask your indulgence here while I struggle to make sense of Freire's ideas and as I make parallels between these ideas and the current situation of technology integration in schools today.

In my mind, the technocratic phenomenon occurring in schools across Quebec with regards to selection and physical and curricular placement of communication and information technologies and attendant equipment – equipment being hardware, software, peripherals and wiring – into classrooms and labs is a clear example of a top down decision making process. Regardless of the validity of the idea that information and communication technologies (ICTs) need to occupy a place in the education system alongside more established tools such as paper, pencils and books, it can be suggested that the implementation of

the MEQ's policy on ICTs has been riddled with poorly-informed decision-making and has resulted in schools with technology infrastructures resembling that of offices and other administrative institutions without much regard for how these ICTs fit physically and from a curriculum perspective into the learning landscape of the school. Although funds were made available to schools and boards, there was insufficient bordering on non-existent documentation as to the types of technology infrastructures that are best suited to the school environment. Decisions were made largely – and this despite nominal policy efforts to instill school autonomy and local, team-based decision-making – by administrators and the most technologically-abled teachers whose requests had to meet the approval of school board technical support staff, most of which has no pedagogical background and limited experience. So computers arrived in schools, they were put into a lab, some went into classrooms and teachers were expected to use them. As one teacher from a technology-rich school in Montreal put it two years ago: "They came in the summer and they put these [computers] at the back of the room. Now what am I supposed to tell the kids they are for?" (personal communication, 1998). Because most teachers did not have informed input into the decisions surrounding the purchase and placement of ICTs, many of those who ended up making limited use of new equipment (including software, networking etc) quickly grew dissatisfied. The catch-22 is that the only way for teachers to make informed decisions about the place of ICT in the school and in the curriculum, is to have personally lived a learning activity that integrated technology and to have access to the technology themselves.

So how does this fit in with Paolo Freire's approaches to education and even with the *qesn.connection*, which, after all and in spite of the above digression, is still the topic of this thesis? Given Freire's argument that "education cannot be a neutral process - either it is designed to facilitate freedom or it is 'education for domestication'" (Freire, 1973c, p.79) set up by a ruling elite, it can be suggested that the *qesn.connection* was designed to lead its learners toward a state of conscientization - another convenient 'C' word – which in turns leads to the possibility of emancipation. "Conscientization implies that in discovering myself oppressed I know that I will be liberated only if I try to transform the oppressive structure in which I find myself" (Freire, 1971 in Schön, 1983, p.85). In other words, the *qesn.connection* was designed to create the discovery in its participants that they are 'oppressed' by an 'elite', to borrow the inflammatory wording of Paolo Freire. As much as this type of argument appeals to my social conscience as always being on the side of the underdog, it behooves me to examine more closely whether Freire's revolutionary colours should be painted upon the *qesn.connection*.

On the one hand, you've got the teachers – traditionally the underdogs, underpaid and overworked slaves to a system that always demands more for less. At the mercy of the whims of the corporate and academic communities that dictate in different but equally insidious ways how and what should be taught in school, their only refuge is the solitude of the classroom where, behind closed doors, they are free to do what they like and how they like. Veteran teachers will

tell you, not without pride, that the current reform of the education system is their second or third one and that nothing ever changes. I admit to getting quite a kick out of the idea that the generals and the captains up in the white tents on the hill overlooking the battlefield have little impact on the activities of the infantrymen below. And yet – is it fair to draw comparisons between Quebec's education system and Freire's rural and impoverished Brazil? Is there a classroom/school culture that is in opposition to that of the elite? And who *is* the elite in this scenario? Is it the Minstère, with its policies and guidelines, its evaluation tools, its fonctionnaires who sit behind desks far away from the smell of chalkdust? Or is it the universities, ivory-towered fortresses, generating research results which government officials use to make policy? Or maybe the corporate sector, letting its need for quality employees drive the decision-making process for government policymakers?

Change focus. You step into a classroom as though into a time machine. Chalkdust and white glue assail your nostrils as you admire the art on the walls and the papier-mâché sculptures. Math exercises no longer appear on mimeographed sheets, but this change is purely cosmetic – the same exercises now appearing on crisp photocopied sheets. Outside the classroom, the world teems with Pokémon, 3-d animation and missions to Mars. Inside the classroom, the teacher is supreme ruler, and, up until fairly recently, has been the sole authority in terms of what is or is not acceptable pedagogy in her classroom. More insidiously, there is a feeling in the wider education community as well as in society that teachers are somehow to blame for the failures of the system,

implying a certain level of at least *perceived* power – for who would blame the entry-level employee for a drop in the company's shares?

I do not wish to enter into a prolonged discussion regarding black and white representations of complex and multi-layered social phenomena, I only wish to suggest that in this particular scenario, power has many dimensions and the current reform is, in fact, aimed at creating an environment where the power is shared among the many tiers of the system, an aim that sprang from both grassroots and upper echelon foment. The issue of technology integration, however, does have vestiges of an old order clinging to it and it is specifically in this instance, as well as in the idea of the reflective-practitioner as action-researcher that Freire's approach to emancipatory education as a vehicle for facilitating freedom applies to the *qesn.connection* process.

Indeed, virtually everything about the *qesn.connection* process can be seen as emancipatory: from professional development practices designed to break traditional isolation such as team planning and working in pairs, to tools designed to inform teachers as to the state of their school's technology infrastructure, to the encouraging of discussions that share pedagogical information among learners, to the emphasis on action and reflection – Freire's praxis – as the pivotal element in the professional development process.

On the other hand – the *qesn.connection* is a MEQ initiative. As such, the argument can be made that while on the outside it appears emancipatory, it is in reality a domestication initiative designed to lull teachers into a false sense of power sharing. I must point out that current educational reform policy in Quebec

is aimed at creating and fostering autonomy at the local level while retaining some control over curriculum and evaluation. This presents an interesting conundrum: can the MEQ really legislate community building and still be perceived as being emancipatory? Can autonomy become policy? What may happen and in many instances currently is happening, is that the MEQ may not like the reality of their policy, once they realize that in order for true school level autonomy to exist, many power structures will have to be dismantled, such as the supremacy in some schools of the principal. Moreover, teachers are in general wary of discussions, speeches, policies which suggest that they are to be given power – over anything, but in this case, power over their professional development. 'At what price?' becomes the overwhelming question. What invisible lines have been drawn that teachers may inadvertently cross and get their new 'privileges' taken away? For the relationship between the system (MEQ and school boards) and the classroom teacher is still essentially a paternalistic one and this reality is difficult to change through a single cycle of a professional development initiative. Indeed, the most difficult thing about the *qesn.connection* process from the implementation point of view, and especially at Notre Dame School where the staff was not used to participating in autonomous professional development projects, was getting teachers to realize that this process was based on their needs and the end product, were there to be one, was not pre-established by the MEQ, but rather, arose out of the work that the teachers would do throughout the *qesn.connection* process.

Let me backtrack for clarity - what do I mean when I use the term 'paternalistic relationship' and what does it imply in terms of professional development for teachers? Imagine for a moment a parent who grants his teenage daughter privileges to the family car, but only if she always drives with an older sibling, never pumps the gas herself, never drives at night or in bad weather – allegedly to prevent her from hurting herself and others but at the same time preventing her from developing defensive driving strategies for poor visibility and poor traction and creating a safe and controlled environment that discourages autonomous problem-solving. Now what would be the reaction of this same daughter when she is tossed the car keys across the supper table one stormy evening in January with an "oh, and tank up if you need to, honey". Disbelief, certainly. Possibly wariness or mistrust: "But it's dark outside and slippery", she might say "well, drive safely, dear" would be the response to which she would reply "but isn't Mark coming with me?" – "Nope, you go on without him, pumpkin". What's the catch – she might wonder to herself, what does he want and, more to the point, I don't know how to drive by myself! We in the implementation team heard this sentiment echoed in the questions of the teachers especially at Notre Dame School, where strong school board and principal control was high. It was also obvious that we were being perceived as emissaries of the MEQ: "At the end of this project, what do you want us to give to you?" asked a participant. "Well – came our carefully measured reply – what do you want to give us? What is important to you?" "Ok – came the answer, patiently, like a parent explaining something to a none-too-bright child – but do

you want the planner filled out or student work or what? How do you want us to do this?" (reconstructed from field notes recorded in 1999). It is small wonder that teachers had questions and nagging doubts about what was expected of them. It must have seemed highly implausible that we only wanted natural artifacts and reflections on process, no matter what the format, and that we were genuinely interested in the types of things that they thought were important about their practice, in the types of things that they wanted to share with us and that there were no real requirements beyond the basic framework of the process: planning – action – reflection.

## 5.2 Concluding remarks

I have been working in the educational milieu as a peripheral professional since my research in the field back in 1999. As such, I have been fortunate to witness the inner workings of the current educational reform in the anglophone sector and there has been much to suggest that, in terms of professional development, the *qesn.connection* was a formal articulation of a brewing awareness as to the possibilities of professional learning. Although day-long workshops and courses are still highly prevalent, the current belief is that for true change to take root in a school, and for true learning to occur on the part of the teacher, administrators must create opportunities for autonomous learning for their staff. It is more and more widely accepted that teachers need to experiment new strategies and tools in their own classrooms and many reform implementation initiatives in the anglophone sector have taken on a

*qesn.connection*-like shape. And, over the hum of staffroom conversations brewing with reformist zeal, anxiety, exhilaration and exhaustion, the sound of a professional identity is heard.

# References

## REFERENCES

Argyris, C. & Schön, D. (1974). *Theory In Practice: Increasing Professional Effectiveness*. San Francisco, CA: Jossey-Bass Inc., Publishers.

Bennett, C. (1996). Schools, Technology, and Educational Leadership: A Framework for Change. *NASSP Bulletin, 80*(577), 57-65.

Bielec, S. (1999). *Thesis Proposal: Lenses into Layers*. Unpublished thesis proposal, Concordia University, Montréal, Québec, Canada.

Blumenfeld, P.C.; Soloway, E.; Marx, R.W.; Krajcik, J.S.; Guzdial, M.; Palincsar, A. (1991). Motivating Project-based Learning: Sustaining the Doing, Supporting the Learning. *Educational Psychologist, 26* (3&4), 369-398.

Boud, D.; Keogh, R and Walker, D. (1996). Promoting reflection in learning: a model. In R. Edwards, A. Hanson and P. Raggatt (Eds.), *Boundaries of adult learning* (pp 32-56). New York, NY: Routledge.

Bradshaw, L.K. (1997). Technology-Supported Change: A Staff Development Opportunity. *NASSP Bulletin, 81*(593), 86-92.

Caron, J. (2000). *Virtual insights : the design, development and evaluation of a strategy for online communication in teacher professional development*. Unpublished M.A. thesis, Concordia University, Montréal, Québec, Canada.

Cates, W.M. (1995). The Technology of Educational Restructuring: Planning for Change in Teacher Education. *Computers in the Schools, 11*(4), 65-83.

Cervero, R. (1990). A model of professionals as learners. In *Visions for the Future of Continuing Professional Education*, eds. R. Cervero and J. Azzaretto, 161-182. Athens, GA: Univesrity of Georgia. [from International Computer Conferencing for Professional Development: The Bangkok Project]

Chin, S.S. & Hortin, J. (1993) Teachers' Perceptions of Instructional Technology and Staff Development. *Educational Technology Systems, 22* (2), 83-98.

Clandinin, J.D. & Connelly, M.F. (1996). Teachers' Professional Knowledge Landscapes: Teacher Stories - Stories of Teachers - School Stories - Stories of Schools. *Educational Researcher. 25* (3), 24-30.

Connelly, M.F.; Clandinin, J.D.; He, M.F. (1997). Teachers' Personal Practical Knowledge on the Professional Knowledge Landscape. *Journal of Teaching and Teacher Education. 13* (7), 665-74.

Connelly, M.F. & Clandinin, J.D. (1994). Telling Teaching Stories. *Teacher Education Quarterly. 21* (1), 145-58.

Costain, R. (2002). *QESN: Community of practice?* [working title]. Unpublished M.A. thesis proposal, Concordia University, Montréal, Québec, Canada.

Douglas, J.D. (1985). *Creative Interviewing.* Beverly Hills, CA: Sage Publications, Inc.

Duffy, T.M.; Jonassen, D. (Eds.). (1992) *Constructivism and the Technology of Instruction.* Hillsdale, NJ: Lawrence Erlbaum.

Edwards, R.; Hanson, A. and Raggatt, P. Eds. (1996). *Boundaries of adult learning.* New York, NY: Routledge Press.

Eisner, Elliot W. (1998). *The Enlightened Eye: Qualitative Inquiry and the Enhancement of Educational Practice.* Upper Saddle River, NJ: Prentice Hall.

Fetterman, D.M. & Pitman, M.A. (1986) *Educational Evaluation: ethnography in theory, practice, and politics.* Beverly Hills, CA: Sage Publications.

Fetterman, D.M.; Kaftarian, S.J.; Wandersman, A. Eds. (1996). *Empowerment Evaluation: Knowledge and Tools for Self-Assessment & Accountability.* Thousand Oaks, CA: SAGE Publications, Inc.

Fullan, M.G.; Stiegelbauer, S. (1991). *The New Meaning of Educational Change, 2nd edition.* New York, NY: Teachers College Press.

Friedan, B. (1964). *The Feminine Mystique.* New York, NY: Dell Publishing Co., Inc.

Glenn, A.D. (1997). Technology and the Continuing Education of Classroom Teachers. *Peabody Journal of Education, 72*(1), 122-128.

Glesne, C. (1999). *Becoming Qualitative Researchers, an Introduction, 2nd edition..* White Plains, NY: Longman.

Glesne, C. & Peshkin, A. (1992). *Becoming Qualitative Researchers, an Introduction.* White Plains, NY: Longman.

Greer, G. (1970). *The female eunuch.* London, UK: MacGibbon & Kee Publishers.

Guba, E.G. & Lincoln, Y.S. (1989). *Fourth Generation Evaluation.* Newbury Park, CA: SAGE Publications, Inc.

Guskey, T.R. (1986) Staff Development and the Process of Teacher Change. *Educational Researcher; v15* May, 5-12.

Hadley, M. & Sheingold, K. (1993) Commonalities and Distinctive Patterns in Teachers' Integration of Computers. *American Journal of Education, 101*, 261-311.

Hammersley, M. (2000). The relevance of qualitative research. *Oxford Review of Education, 26*(3/4), 393-405.

Hanson, A. (1996). The search for a separate theory of adult learning: does anyone really need andragogy? In R. Edwards, A. Hanson and P. Raggatt (Eds.), *Boundaries of adult learning* (pp 99-108). New York, NY: Routledge.

Hargreaves, A. (1996). Transforming Knowledge: Blurring the Boundaries between Research, Policy, and Practice. *Educational Evaluation and Policy Analysis, 18*(2), 105-122.

Hopkins, D. (1985). *A teacher's guide to classroom research.* Philadelphia, PA: Open University Press.

Jonassen et al. (1995) Constructivism and Computer-Mediated Communication in Distance Education. *American Journal of Distance Education; 9* (2), 7-26.

Joyce, B. and Showers, B. (1988). *Student Achievement through Staff Development.* White Plains, NY: Longman Inc.

Knowles, M..S. (1996). Andragogy: an emerging technology for adult learning. In R. Edwards, A. Hanson and P. Raggatt (Eds.), *Boundaries of adult learning* (pp 8-31). New York, NY: Routledge. Reprinted from M. Tight (ed.). (1983). *Adult Learning and Education.* London: Croom Helm.

Knowles, M..S. (1990). *The adult learner : a neglected species.* Wilton, Conn.: Association Press.

Knowles, M..S. (1980). *The modern practice of adult education : from pedagogy to andragogy.* Houston, TX : Gulf Publishing Co.

Kolodner, J.; Guzdial, M. (1996) Effects with and of CSCL: Tracking Learning in a New Paradigm. In Koschmann (ed.) *CSCL: Theory and Practice of an Emerging Paradigm.* Mahwah, NJ: Lawrence Erlbaum Assciates, Inc., Publishers. 307-320.

LeBaron, J.F.; Bragg, C.A. (1994) Practicing What We Preach: Creating Distance Education Models to Prepare Teachers for the Twenty-First Century. *American Journal of Distance Education; 8* (1), 5-19.

Lessard, C. and Tardif, M. (1996). *La Profession enseignante au Québec (1945-1990): Histoire, structures, système.* Montreal, QC: Les Presses de l'Université de Montréal.

Lieberman, A. (1995). Practices That Support Teacher Development. *Phi Delta Kappan, 76*(8), 591-596.

Marriam, S.B. (1998). *Qualitative Resarch and Case Study Applications in Education.* San Francisco, CA: Jossey-Bass Inc.

Marx, R.W.; Blumenfeld, P.C.; Krajcik, J.S.; Soloway, E. (1997) Enacting Project-based Science. *The Elementary School Journal, 97* (4), 341-358.

Ministère de L'Éducation. (1977) *Primary and Secondary Education in Québec.* (Government of Québec Publication). Montréal, Québec: Canada.

Ministère de L'Éducation. (1979). *The Schools of Quebec: Policy Statement and Plan of Action.* (Government of Québec Publication). Montréal, Québec: Canada.

Ministère de L'Éducation. (1997) *A New Direction for Success: Ministerial Plan of Action for the Reform of the Education System.* (Government of Québec Publication). Montréal, Québec: Canada.

Ministère de L'Éducation. (1997). *Reaffirming the Mission of Our Schools.* (Government of Québec Publication). Montréal, Québec: Canada.

Ministère de L'Éducation. (1999). *Orientations for the professional development of teachers : Taking an active approach to change.* (Government of Québec Publication). Montréal, Québec: Canada.

Ministère de L'Éducation. (1999). *The Québec Education Programme.* (Government of Québec Publication). Montréal, Québec: Canada.

Nencel, L. & Pels, P. (1991) Constructing Knowledge: Authority and Critique in Social Science. London, UK: Sage Publications.

Teachers & Technology: Making the Connection. OTA Report Summary. ED386154.

Oxford, R. L. (1997). Constructivism: Shape-Shifting, Substance, and Teacher Education Applications. *Peabody Journal of Education, 72*(1), 35-66

Patton, M.Q. (1990). *Qualitative Evaluation and Research Methods, 2nd ed.* Newbury Park, CA : SAGE Publications, Inc.

Patton, M.Q. (1997). *Utilisation-Focused Evaluation.* Thousand Oaks, CA : SAGE Publications, Inc.

Pellegrino, J.W. & Altman, J.E. (1997) Information Technology and Teacher Preparation: Some Critical Issues and Illustrative Solutions. *Peabody Journal of Education. 72* (1). 89-121.

Prawat, R.S. (1992) Teachers' Beliefs about Teaching and Learning: A Constructivist Perspective. *American Journal of Education, 100*, 354-395.

Reason, P. (1998). Three approaches to participative inquiry. In Denzin, N.K. & Lincoln, Y.S. (Eds.). *Strategies of Qualitative Inquiry.* Thousand Oaks, CA: SAGE Publications. 261-291.

Richardson, V. (1990) Significant and Worthwhile Change and Teaching Practice. Educational Researcher, 19 (7), 10-18.

Riding, P.; Fowell, S. & Levy, P. (1995) An action research approach to curriculum development. [On-line.] Available at http://www.shef.ac.uk/uni/academic/I-M/is/lecturer/paper2.html

Sarason, S.B. (1993) *The case for change: Rethinking the preparation of educators.* San Francisco: Jossey-Bass.

Scardamalia, M. & Bereiter, C. (1994) Computer Support for Knowledge-Building Communities. *Journal of the Learning Sciences, 3* (3), 265-283.

Schön, D. A. (1983). *The reflective practitioner : How professionals think in action*. New York, NY: Basic Books.

Schön, D. A. (1996). From technical rationality to reflection-in-action. In R. Edwards, A. Hanson and P. Raggatt (Eds.), *Boundaries of adult learning* (pp 8-31). New York, NY: Routledge. Reprinted from Schön, D. A. (1983). *The reflective practitioner : How professionals think in action*. New York: Basic Books.

Seale, C. (1999). Quality in Qualitative Research. *Qualitative Inquiry, 5*(4), 465-478.

Smylie, M.A.; Conyers, J.G. (1991). Changing Conceptions of Teaching Influence the Future of Staff Development. *Journal of Staff Development, 12*(1), 12-16.

Soloway, E.; Krajcik, J.S.; Blumenfeld, P; Marx, R. (1996) Technological Support for Teachers Transitioning to Project-Based Science Practices. In Koschman (ed.*) CSCL: Theory and Practice of an Emerging Paradigm*. Mahwah, NJ: Lawrence Erlbaum Associates Inc., Publishers. 269-305.

Stake, R.E. (1995). *The art of case study research*. Thousand Oaks, CA : SAGE Publications.

Van Maanen, John, ed. (1995) *Representation in Ethnography*. Thousand Oaks, CA: SAGE Publications.

Willis, J. (1995) A Recursive, Reflective Instructional Design Model Based on Constructivist-Interpretivist Theory. *Educational Technology, 35* (6), 5-23.

Wolcott, Harry F. (1995) *The Art of Fieldwork.* Walnut Creek, CA: AltaMira Press.

Woods, Peter. (1996). *Researching the Art of Teaching: Ethnography for Educational Use.* London, UK: Routledge.

Wolf, N. (1991). *The beauty myth : how images of beauty are used against women.* New York, NY: W. Morrow Publishers.

Woods, P.; Jeffrey, B.; Troman, G. & Boyle, M. (1997). *Restructuring Schools, Reconstructing Teachers: Responding to change in the primary school.* Buckingham, UK: Open University Press.

# Appendix A

# Tools for Teams

## Do-It-Yourself Technology Integration PD

*How does this work -- with no one coming on-site to "run the show"? How do you begin an in-house, home-grown ped day?*
It is often difficult to do things as a large group when there is no designated leader to guide you. So, you will choose two or three from among you to form an 'action team' to be released (1) to prepare the ground for the rest of the school team and, (2) to facilitate some of the group sessions that you will have as part of the qesn.connection process. Your action team of in-house faciliatators do not need to be technology-integration experts, they just need to be given a little extra time to plan for the larger-group sessions and to prepare for facilitating discussion sessions. Your chosen facilitators have recourse to all the materials available here as well as to local expertise in your school board and region (Consultants and CEMIS).

Activity Breakdown

Where you find out, in a nutshell, what kinds of things you will be doing as part of qesn.connection and how much time should be scheduled for each activity. The information is organized in a table format.

Planning a Ped Day

Contains useful guidelines for planning the first kick-off day of qesn.connection.

Taking Stock: What's in Our School?

An inventory list of the resources available in your school.

Support materials for the "Around the World in 80 Clicks" video

Video Vital Stats: why this video was made and a description of the learning activity itself.

- A bird's eye view of the lab A plan of the computer lab that you see in the video.
- The Four Stations What were the students doing at those stations?

"Behind the scenes... Around the World in 80 Clicks"

Frequently asked questions about the video.

Sample project: "Around the world in 80 Clicks" unit planner

A detailed plan of the learning activity shown in "Around the World..." - using the same planner that you will be using to frame or plan your activity.

PlanIt

Activity planning tool that helps you frame your learning activity and integrate technology into it wisely.

Project Planning Tool : PIVit software

What is PIViT? Why will we use it? How do we use it?

Reflections

At the end of the qesn.connection process, once you have completed designing your activity and have test driven it in the classroom, you will reflect on your own progress and consolidate your own learning. As a school team, you can discuss where to go next with your professional development.

# Tools for Teams

## Do-it-yourself Ped Days
## Focus on Technology Integration

### Breakdown of Activities

| Activity / Session | Timeframe | Scheduling Requirements | Team Flexibility |
|---|---|---|---|
| Video, discussion, media choice, filling out planner & working on project materials | 5 hours | one full day | whole team |
| More work on project materials | 3 hrs | half a day | whole team or small sub-groups |
| In the lab / using computers with students and with another teacher for support + reflection & discussion time | 45 - 60 mins lab time per teacher<br><br>30 - 40 mins reflection | one lab period or subject time + reflection time per teacher | in pairs or tryads |
| More lab time | 45-60 mins | regular class time, no release necessary | each teacher |
| Putting finishing touches on project outline and e-mailing to website | 2 hrs | flexible scheduling | each teacher or in pairs |
| Sharing experiences, putting together school-wide technology skills integration plan | 2.5hrs | half a day | whole group |


## Do-it-yourself Technology Integration

### Ped Day Animation

Welcome to the first day of qesn.connection! This will be your first step towards working with technology in your classroom with your students. During this first day, you will set a goal for yourself within this project. You will also witness the work of a teacher and her students and you will visit the website that houses the extensive resource materials that go along with the sample unit. You will have time to brainstorm and begin planning your own unit with the other members of the team.

### Ped Day Vital Stats

| | |
|---|---|
| **What will we be doing?** | • viewing the video<br>• browsing through the website<br>• discussing and reviewing highlights from the video with information from the site<br>• beginning the planning process for our own learning activity, using the example provided on the website and through the video<br>• setting our own goals |
| **Who?** | All of us, the team as a whole |
| **When?** | An entire ped day should be devoted to these activities. |
| **Where?** | At our school, in an area that has space for all of us to work in the same room. Of course, the website will have to be viewed on computers in the lab or in our classrooms, wherever we have Internet connections. |
| **Why?<br>What will we gain from this day?** | As educators, we do not often have the chance to see each other teach and reflect upon what happens in the classroom, our own or that of other teachers. Sometimes, we need to see what other teachers are doing to give us ideas for our own classrooms. Once we have an idea of what we would like to do, we need time to plan and map out the activity for ourselves and our students. |

## Who's the boss?

So how is this going to work, you ask, with no one coming on-site to run the show? Good question.

It is often difficult to do things as a large group when there is no leader to guide you. But think of it this way: You get to choose one or several of you to facilitate some of the group sessions that are a part of qesn.connection! These facilitators do not have to be tech experts or technology-integration experts, they just have to be given a little extra time to plan for the group sessions and to facilitate discussion sessions.

- Choose a facilitator from among the school team members: he or she could be a teacher, an administrator or one of the support staff, it is entirely up to you. You can even choose several facilitators who share the responsibility of planning group sessions.
- Decide on a time when all members of the team can meet. Remember that you will need a whole ped day for this session.

## When you are the boss

You have been selected to be the facilitator(s) for the first group session: ***Viewing the video*** , ***Choosing a thematic unit*** , and ***Setting our own goals.*** You will need about 2-3 hours to prepare for this session.

### Before the session:

Familiarize yourself with the Setting My Own Goals & Personal Technology Inventory document

Fill out and make copies of the document: Taking Stock - What's in our school? This may help some teachers become more aware of the resources available in their school and board.

- Watch the video.
- Locate the website, find and read the accompanying materials that describe the video, make photocopies of only the Video Vital Stats chart to give out to the rest of the group.
- Browse through the web pages.
- Look at the Avenues for Discussion.
- Install PIViT Planning software on your school's computers, or have someone else do it, if you have decided to use PIViT for your school team.

### During the session:

The video:

- introduce the video & let people skim through the accompanying materials
- watch the video as a group
- discuss some of the issues that arose out of the viewing of the video - if you need some inspiration, use the Avenues for Discussion for framing responses.

The website:

- have everyone break up into groups of two (or whatever) and look at the Video Support Materials on the ssite, including the "Behind the scenes... Around the World in 80 Clicks"
- have everyone open the sample project "Around the World in 80 Clicks" that goes along with the video, the one that contains all the materials created for that activity

Brainstorm:

- discuss the thematic units that each team member will be working on in light of the video
- have teachers pair up or work in groups of three on their respective units using the Project Planner or the accompanying paper-based guide

Setting your own goals:

- have participants set their own personal goals for this project using the Setting My Own Goals & Personal Technology Inventory, brainstorm and discuss with others if they need to
- discuss what the collective school goals are for this project
- Look at the Student Technology Checklist and adapt it for your school's technology

Tools for Teams

## Do-it-yourself Ped Days
## Focus on Technology Integration

### Avenues for Discussion

Here are some questions that can get the discussion going 'round the video:

What are your first impressions of this video?

What was the role of the teacher in this activity?

What was the role of the students in this activity?

How was technology being used in the activity by both the students and teachers?

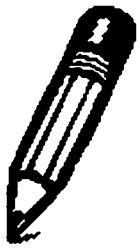
What did you see in this video that you can apply immediately to your own situation, your own learning activities?

# Tools for Teams

## Do-it-yourself Ped Days

### Focus on Technology Integration

#### Setting My Own Goals & Personal Tech Skills Inventory



**What I want to accomplish during this professional development process:**

What are my professional development goals? What do I want to learn about teaching with technology?

What do I want to learn about technology? (Use the Personal Tech-skills Inventory below to assist you in determining your personal technology goals.)

At the end of this professional development process we want our school team to have accomplished:

## My personal level of tech-skills and abilities

| | I have mastered this | I need to work on this |
|---|---|---|
| **File management** | | |
| Saving to diskette (in general) | | |

Manipulating graphics (different image formats, changing image size, etc.)

Saving images/ clipart to diskette

Directory creation (creating folders)

Creating shortcuts (aliases)

Copying (to the hardrive or to diskette)

Installing software

Rebooting the computer

Other? _____

Other? _____

## Editing

Highlight / select and cut

Highlight /select and copy

Paste

Inserting special characters (è, é, î, ü, @ etc.)

Formatting documents (font, size, colour, paragraph, indent, margins)

Inserting images into a document

Create graphics to illustrate a concept or point

Other? _____

Other? _____

## Internet & Telecommunication

Saving from the Internet to diskette

Bookmark an Internet site

Create "Favourite" folder to organize bookmarks

Sending & receiving e-mail

Subscribe to a listserv

Sending e-mail with attachment

Receiving e-mail with attachment

Searching the Internet effectively (find a search engine, refine search terms, etc.)

Create web pages for my students

Create web pages with my students

Other? _____

Other? _____

## Multimedia

Take pictures with a digital camera

Upload digital camera pictures to the computer

Use a scanner to scan an image

Connect a computer to an LCD panel or a digital display unit to project the computer monitor onto a screen/wall

Use a presentation software

Use a video camera

Other? _____

# Tools for Teams

## Do-it-yourself Ped Days
## Focus on Technology Integration

### Taking Stock: What's in our school?

Please complete the following checklist, it will help you to identify the technological tools which are available to you and your students, and will facilitate the project planning process.

**Computers and other hardware**

What type of platform do we have?

☐ PC

☐ Macintosh

☐ Both

Operating system:

☐ PC/ Windows 3.1

☐ PC/ Windows 95

☐ PC/ Windows 98

☐ Macintosh OS 7.x

☐ Macintosh OS 8.x

How many computers are available in the school (lab and/or classrooms)?___

How many of them have CD ROMS?_____

What printers are available?

☐ Dot Matrix

☐ Ink Jet

☐ Laser

Are any of them colour printers? ☐ yes ☐ no

Do we have a scanner? ☐ yes ☐ no

If yes, what software does it use?_____

Do we have a digital camera? ❑ yes ❑ no

If yes, what software does it use?_____

Other information:

_____
_____
_____

**Email and Internet**

How many computers are connected to the Internet?_____

What web browser is being used to view the Internet (Netscape, Microsoft Explorer)?_____

Can we send and receive email from the computers in the lab? ❑ yes ❑ no

Can we send and receive email from the computers in the classrooms?
❑ yes ❑ no

**Software**

What software is on all of the machines - i.e.. what software is installed on our server and can be accessed through all the networked computers?

| Name | Version | Purpose (ex. word processing, spreadsheet, or content specific) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Keeping track of what is on each computer:**

**What's On This Computer?**

Identification #/Name:

Amount of RAM (Random Access Memory) :

Size of Hard disk (Storage space):

Does this computer have a floppy disk drive? ❑ yes ❑ no

Does this computer have a CD-ROM drive? ❑ yes ❑ no

Does this computer have speakers? ❑ yes ❑ no

**Networking:**

Can I access software that is housed on our server from this computer?
❑ yes ❑ no

Can I print documents from this computer? ❑ yes ❑ no

Can I access the Internet with this computer? ❑ yes ❑ no

Can I send and receive email with this computer? ❑ yes ❑ no

**Software:**

Has additional software been installed on this particular computer
(i.e.. software that is not on the network)?

| Name | Version | Purpose (ex. word processing, spreadsheet, or content specific) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Peripherals:**

Can I download images from a digital camera with this computer?

❑ yes ❑ no

If yes, what software is installed for this purpose?_____

Can I scan images using a scanner with this computer? ❑ yes ❑ no

If yes, what software is installed for this purpose?_____

Other information:

_____
_____
_____

# Tools for Teams

## Do-it-yourself Ped Days
## Technology Integration

### Video Support Materials

Before you begin to make decisions about what you would like to do with your students this term, take a look at the sample project and watch the video entitled "***Around the World in 80 Clicks*** ".

**On this page:**

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| Vital Stats: "Around the World in 80 Clicks" The Unit | |
|---|---|
| What are we going to see? What were the overall objectives of the unit? | A short video featuring the real, live and uncensored experience of a grade four teacher and her students in a lab setting while working on a cultural heritage Social Studies and Language Arts unit. |
| Who is in this video? | • Eileen, the grade 4 teacher<br>• Lauren, one of the designers of qesn.connection<br>• 20 Grade four students<br>• a grade 6 student/resident expert<br>• the lab technician |
| When did this take place? How long were they in the lab that day? | • The unit took place in April 1998 and spanned four weeks<br>• One hour-long lab period |
| Where ? | • Made at St-Dorothy Elementary School, an English inner-city school in Montreal's north end.<br>• In their computer lab |
| Why ? | • Teachers at two schools requested this video because they really needed to see what learning with technology looks like. |

**Some basic info about the video**

Top of page

We made this video in April 1998 in response to requests made by teachers with whom we were working at two semi-remote schools on a technology integration project. The video features a grade four teacher at St-Dorothy School in Montreal and her first experience with

technology integration. Because she wanted to integrate technology into her regular classroom activities, she chose to work on her social studies and language arts unit that focused on ethnicity and ethnic roots.

For a window into the teacher's process in making of the unit and the making of the video, and a response to frequently asked questions, go to "Behind the scenes...Around the World in 80 Clicks".

**Some basic info about the learning activity**

Top of page

Eileen wanted her students to discover the different countries represented by the different ethnic communities in Montreal. To make the experience more real for her students, she chose to focus on those countries represented by the students in her classroom only: Greece, Portugal, Italy, Haiti and Cambodia. She wanted students to find information about specific topics for each country, such as what food they eat, what language they speak, what clothing they wear, what religion they practise and something interesting that students discovered along the way. They would be using this information to write up a brief report that they would share with each other orally. Eileen also wanted her students to think about where they came from, what their own personal cultural heritage was. To do this, she had her students write a cultural autobiography from information gathered from parents and grandparents. Students were asked to bring to school objects that represented their cultural identity which she called 'cultural artifacts' to supplement their autobiographies.

**The activities, in a nutshell:**

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(For a detailed description of the project, go to the "Around the world in 80 Clicks" unit planner.)

**Learning about another country:**

- gathering information about another country, structured around five topics: food, religion, language, clothing and (Aha!) something interesting.
- selecting information for the report
- writing the report
- sharing it with others in a appropriate format

**Autobiography**

- gathering information about students' own heritage from parents and grandparents
- selecting cultural artifacts
- documenting artifacts
- writing the autobiography
- sharing it with others in a appropriate format

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**What you will see**

Top of page

The video is about twenty minutes long and features a condensed version of the first of three forays into the lab by the grade four class. Each lab period at St-Dorothy's is 45 minutes long, but the grade four teacher decided to do a little creative scheduling with the teacher who had the lab after her and ended up with 90 minutes every two weeks instead of 45 minutes every week. The children worked at 4 different stations where they were engaged in different activities.

The video is divided into an introduction and two sections. The first section is where you eavesdrop on the class, watching and listening for the sights and sounds of learning, with some visual cues to guide you along. In the second section of the video, you will revisit some of the pedagogical highlights of the learning activity.

**First section:**

In this section, we will be eavesdropping on the lab session, looking for the signs and sounds of

learning.

Note: although this video shows a lab situation, it can be easily adapted to a situation where there are only a few computers in each class -

The video is divided into an introduction and two sections. In the introduction, you will visit all of the learning stations briefly and get a feeling for the kinds of learning that are going on in the learning activity proper. The first section takes you in to eavesdrop on the class as the lesson unfolds, watching and listening for the sights and sounds of learning, with some visual cues to guide you along. This section highlights what happened during the lab period at the various learning stations. In the second section of the video, you will revisit some of the pedagogical highlights of the learning activity. This section revisits WHAT happened with an eye to WHY it happened as it did -- the pedagogical decisions and planning in place that helped the lesson to unfold as it did.

## What to look for (the signs of learning)

Watch for the four various stations:

Show me a description of the four stations.

Show me the lab layout.

The Internet Research station

The Digital Camera station

The Document Creation station

The Slide Show Introduction Station

### At the Internet Research station:

- Watch for the tools that student dyads are using autonomously at these stations
- Watch for red flags, whenever these go up (students asking for help as they decide they need it)
- Watch the dyads working together -- how they help each other, negotiate where to go next, and record their findings in their shared binder
- Watch for the dyads evaluating their progress through the station

### At the Digital Camera Station

- Watch for the teaching dyads at the digital camera station : This teaching and re-teaching is an important part of this lab scenario.
- Notice how in the first dyad, only one student truly knows how to operate the camera; watch how she teaches, listens, and teaches some more.
- Watch for how the two boys arrange and support and then explain the camera to the next dyad of two girls as one of them confidently exclaims: 'Here's how you use the camera"
- When some chaos DOES occur around the digital camera station -- watch for the slow pan that shows you the concentrated learning that continues to occur at the other learning stations, despite the mini-chaos in the center of the room

### At the SlideShow Station

- Watch for the grade six student's calm manner in showing the Grade 4 students how to create a slideshow in ClarisWorks. She was supposed to show each dyad what to do -- but once dyads had been through the digital camera station, the Grade 4 students wanted to use the same teaching model as the one they had just experienced with the camera. They politely thanked the Grade 6 students and took it from there, each dyad learning, checking the list, and teaching the next dyad to come after them.

### At the Document Creation Station

- Watch for students composing, discussing, negotiating, and evaluating their progress through this station.

### Overall

- Watch for the teacher's role in this learning activity, what kinds of things is she doing as the students explore their cultural heritage in their lab.
- Watch for students' role in this learning activity -- their working together, sucessfully or unsuccessfully, through the various stations.
- Watch for the lab's arrangement (where the stations are and how they work).
- Watch for the learning that occurs despite the distractions, noise, and organized chaos all about.

---

**Second section:**

Top of page

The issues covered in the second section:

## Learning Management

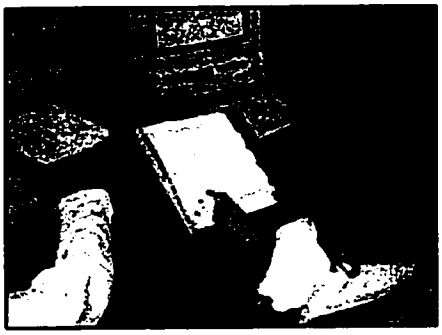
Learning management is the teacher's skillful arrangement of the learning environment and its support materials. This learning activity involved careful planning and on-the spot scaffolding. Here are some of the learning management features of "Around the World in 80 Clicks":

### Circuit Learning

Keeping students on track is always a challenge in any learning scenario. Circuit learning, or moving systematically through stations, helps children to focus on the task before them. They are engaged, they are productive, they are students with a mission and a time limit. Then, it is time to move on.

### Tools for autonomy

Learning doesn't just 'happen' because children are at computers. Here, tools had to be created to help the students to be autonomous at each of their learning stations.



### Grouping for success

There is a lot of technology in this activity. The teacher cannot be expected to have mastered it all. At the beginning of this lesson only one student in the first dyad knew how to use the digital camera.

### Taking advantage of resident resources

There is a lot of technology in this activity. The teacher cannot be everything to everyone. Here, a grade six student visited the class as 'resident expert' at the slide show station.

### Lab troubleshooting

The teacher cannot be everywhere and see everything. Students need to be able to ask for help without disrupting the learning environment. Once a dyad has solved a computer problem with the teacher's assistance, those two students can teach the next two students who can teach the next two students to solve that problem.

## Role of the teacher and Role of the Student

The roles of both the teacher and the student during this learning activity are explored in this video.

**Roles of the Teacher:**

### Rounding the room

At the start of the activity, the teacher rounds the room making sure that student groups know what they are doing.

### Scanning learning

Periodically throughout the activity, the teacher looks and listens for the signs and sounds of quality learning. When things go off track, she steps in and re-directs.

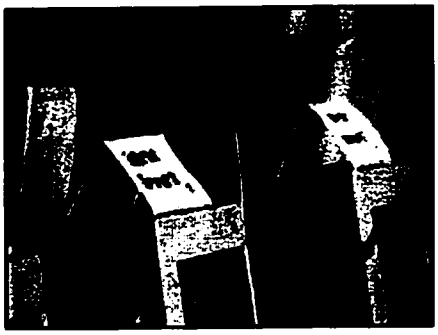
### Roles of the Student:

#### Staying engaged

Students with a mission at each station are busy planning and doing. This keeps them engaged and focused on their learning despite the organized chaos around them.

#### Asking for help

They have to make decisions about when to consult peers and when to put up a flag to ask for help.



### Station assessment

As students move though the learning circuit, they assess their success at each station. They decide what went well and what needed improvement.

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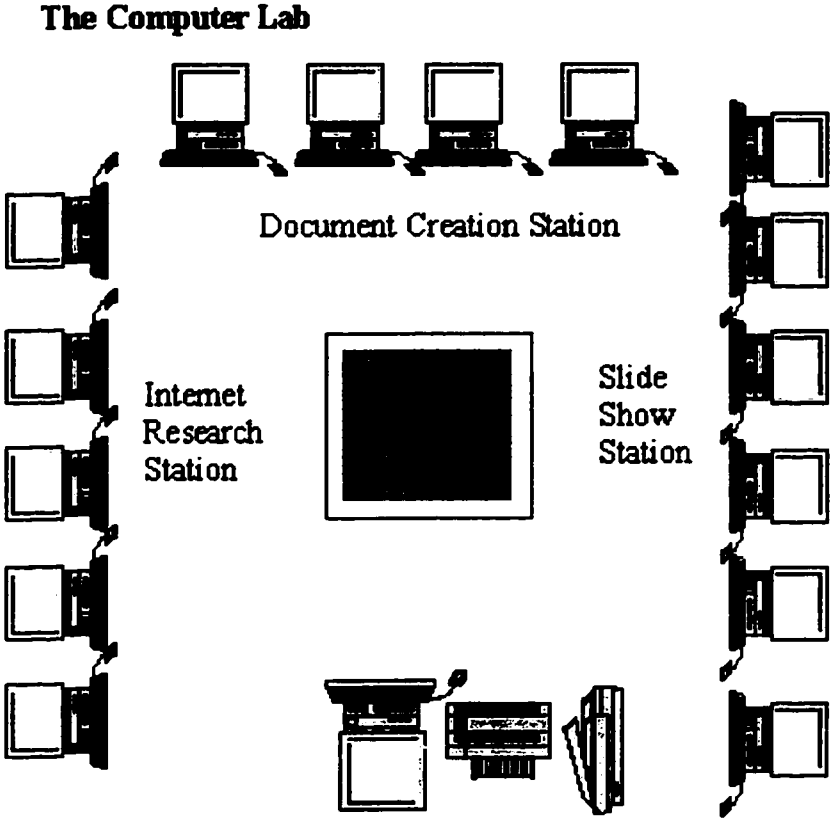
# Tools for Teams

## Do-it-yourself Ped Days
## Focus on Technology Integration

### A bird's eye view...

This is an image map.
Clicking on the various stations will lead you to a description.



# Tools for Teams

## Do-it-yourself Ped Days
## Focus on Technology Integration

**A description of each station...**

### Internet Research station

At this station, students look up specified web sites by typing in the URLs (adresses). They are looking for information about the five main topics: food, language, religion, clothing and Aha! Something Interesting. Once found, the information is logged on the log sheet, to be used later in the making of the slide show.

### Slide Show station

Because Eileen's students had not had exposure to Claris Works Slide Show before, a grade 6 student was called upon to help out with this station. At first, students were allowed to experiment with different backgrounds and fonts, keeping in mind the information they needed to impart to the teacher and their peers.

## Digital Camera station

Here, students arranged and documented their cultural artifacts using the digital camera. One student in the class had already used the camera and she and her partner, after taking their own pictures, taught the next pair how to operate the camera. The second pair taught the first pair and so on.

## Document Creation station

Some students worked on their own autobiographies, composing text that would later be formatted into the Slide Show. Although working in pairs, each student was responsible for their own autobiography.

# Tools for Teams

## Do-it-yourself Ped Days
## Focus on Technology Integration

**"Around the World in 80 Clicks"**

## Behind the scenes..

"What's the plan, Fran?" What planning was involved? How long did it take?

"I can't just let them loose in there..."

"What am I going to do with just one camera and 27 students?"

"Miss, Miss!!! Help me!" Walking clump etc...

"I don't know how to use that software, how can I use it with my students?"

"I am so nervous..."

"What happens in between lab periods? How do I assess their learning?"

### "What's the plan, Fran?"

What planning was involved? How long did it take?

Eileen sat down with a member of our team to decribe the unit and to hammer out the details of her first lab time (45 minutes). Decisions had to be made about what kinds of tools were needed to support students while in the lab. The tools took about 20 minutes each to make (total of 1hr), but can be reused with very little tweaking again and again and by different grade levels. (suggestion: teams of teachers can get together to design these types of tools that can be made available to all. Also, you can use and adjust to your tastes the tools designed by Eileen.). Eileen had to decide how to group her students and at what station they would begin the activty, she also drew up lists to let students know when it was their turn at the digital camera and slide show stations. She provided each group with a binder in which to keep all their paperwork and diskettes for tracking and assessment purposes. Finding the web sites for students to look through was the most time consumming task: we found about three sites per country that we felt to be appropriate for grade four.

### "I can't just let them loose in there..."

Lab time can be very frustrating on occasion with children playing games or randomly surfing the Internet. The problem is that there is so much to see and do with the computer that children often have trouble focusing, unless provided with careful scaffolding that allows them to explore and create while providing an explanation or at least a trail of where they have been and what they have done.

Regarding the Internet, children should know what they are looking for and be provided with ways to get there appropriate to their level of development (for example, you wouldn't ask a grade one student to search by himself for a site on spiders). Eileen decided that she would locate sites and give her students the URL's (web adresses, locations) because she felt that they would be kept busy enough looking for the information within the site without having to worry about finding the site itself. Later on, perhaps during another unit, she would teach her students about searching the Internet.

Students at the slide show station could have been tempted by the colours, backgrounds, fonts and even special effects available in many software packages. We felt that the point of the slide show was to communicate specific information to others in as clear a manner as possible - in class, Eileen had broached to topic of layout and effective communication by discussing the front page of the newspaper (headline, article, picture etc). In fact, students could have designed their entire slide shows using a storyboard during class time.

The most important reason for providing students with scaffolding such as Internet logs and checklists is that it makes students autonomous technology users, able to work without constant input from you, the teacher - with your students busy and engaged, you have time to help those who really need you.

**"What am I going to do with just one camera and 27 students?"**

The deal with the digitial camera...

St-Dorothy's School, like most schools that own peripherals, only has one digital camera. This can be true of Internet connections, CD ROMs or pieces of software. We like to think of such scarce items as being like a gold-coloured crayon or fantastic book that everyone should have the chance to use - so how do we make sure that chaos does not ensue as kids fight over who gets to go first? Eileen had drawn up a list of the dyads and the order in which they were to use the camera. Each dyad was pulled out of their station by the dyad before them, got to set up their artifacts, was shown how to use the camera and had their picture taken and then taught the next dyad how to operate the camera. The other dyads were all busy doing specific, interesting and motivating activities and were assured of a turn at the digital camera station, so they were not distracted by the rather noisy activity in the center of the lab.

**"Miss, Miss!!! Help me!"**

Walking clump etc..

Going into the lab with close to 30 students is exhausting when all they seem to do is jump up like jackrabbits and cling to you yelling "miss, miss, my computer doesn't work!" Often, the problems are not serious, but the atmosphere makes it difficult for you to think clearly. We decided to use a red flag system where each computer is fitted with a small red flag held on to the side of the computer with velcro (wooden chopsticks, red, laminated construction paper, glue and adhesive velcro strips - a perfect project for grades five and six! And think of how proud they will feel when their flags are in use in the lab!): the flag pointing upwards means that they need your help, but you can also have them ask other students on either side if they know what to do before putting up their flag. At one point, a computer froze and had to be rebooted - when another machine froze the students who had the problem before were able to help their schoolmates and Eileen was able to answer more important questions relating to the actual learning activity.

**"I don't know how to use that software, how can I use it with my students?"**

grade 6 expert, other classroom expert etc..

There is no way that one single person can know how to use all the software that exists out there and there is no point in even trying to learn every individual piece of software. With time, you will find that most software packages have a similar, familiar interface and you can transfer your skills from one software to the next. Meanwhile, there is no need to stay away from the lab because you do not know every nook and cranny of the software you plan to use. This was exactly the case with Eileen, who had not used the digital camera or Claris Works slide show before. So how on earth did she cope in the lab, you ask? Well, she took advantage of the human resources available to her, namely, one of her own students who knew how to use the digital camera and a grade six student who was considered to be a Slide Show expert. Although the grade six student was supposed to be helping every dyad with the software, the students liked the digital camera technique of teaching others so much, that they wanted to show their peers how the software works, rather than avail themselves of the grade sixer. She was free to troubleshoot other stations or ... go back to her own class.

**"I am so nervous..."**

Personal reflections and fears prior to and after the project.

Eileen was nervous as she prepared for this project. She was not used to taking her whole class into the lab at once and not used to having students do different things all at once. Also, the fact that there were going to be two video cameras in the lab did nothing to relax her: "testimonial, testimonial, bla yada bla..."

**"What happens in between lab periods? How do I assess their learning?"**

Evaluating and monitoring progress, using classroom time to compose and organize, discuss.

This project was aimed to span about 3 lab periods of 75mins each. Each dyad was provided with a binder in which to keep all their work. Because these binders were kept at school, the teacher was able to look through them and make notes about each dyad's progress as well as ask children prompting questions about their work and suggest ways in which they could do things. Class time in between lab sessions could be used to compose and edit the autobiographies or draw up the story board for the slide show, so that lab time remains purposeful and everyone can get things done. thinking about ways to integrate - scaffolded discussion (supported by other teachers' projects on-line including their materials).

Tools for Teams

## Do-it-yourself Ped Days
## Technology Integration

# Around the World in 80 Clicks Sample Project

The planner below has been filled out for your perusal. You can see this unit "live", as it happened in the lab, in the "Around the World in 80 Clicks" video.

## PlanIt!!

Choose a learning unit for incorporating technology and select an activity or series of activities that will incorporate technology.



## My Unit: Vital Stats

Top of page

Take me to Plan It! (the blank planner).

**Grade, Subject (s)**

Grade 4, Social Studies

**Class Profile**

22 students, a wide range of abilities and personalities to accommodate

**Unit - Activity - Content**

Cultural Heritage unit - doing personal cultural autobiographies, researching a country in greater depth to answer 5 questions about that country

**Timeframe**

4 weeks (once a week in the lab and once a week in the library)

**Objectives - Learning goals - interpersonal abilities**

Cognitive

- Each student will use the library to find answers to 4 questions about a given country

- Each student will interview their parents about their family's ethnic background / take notes / and use these to write a paragraph on their cultural heritage

- Each student will write a short report on their country that answers the 4 required questions

**What I usually do for this unit:**

A learning unit on ethic backgrounds - as part of my social studies program. Usually I use our textbook, I have my students write an ethnic or cultural autobiography as the first step in my unit. So, my students usually interview their parents and then write their autobiography on paper. Then, I choose some countries that we (my students) are going to research. I try to take countries that are representative of the heritages of the students in my class. For example, this year we have a little boy from Cambodia; most of my students know nothing about Cambodia. So one of the countries that I would choose for this year would be Cambodia.

Then my students go the library and research the four questions that I give them:

1. What food is eaten in this country?

2. What language is spoken in this country?

3. What religious beliefs do people hold in this country (what religion)?

4. What clothing do they wear in this country?

In the end - after my students have done their research, they each write a report and hand it in, and I assess it.

**Trouble spots or things that could be improved about this unit:**

- I usually get repetitive autobiographies that read like a formula, are very factual, repetitive and dry. The problem with the students' papers is that they end up being all the same, something like this: My mother comes from Italy. My father is from Ireland. My grandmother and grandfather come from Italy. My other grandfather and grandmother come from Ireland. That makes me a mutt?

- The textbook and our library is limited in terms of the kind of information students can find about the countries I have chosen for them to research. library on countries.

- The final product of the learning (their individual written reports) could probably be done in a more interesting way for my students to share their learning with one another rather than just handing them in to me.

**Targeting the trouble spots with technology:**

I want to incorporate technology into my ethnic backgrounds unit (social studies) for a number of reasons:

The cultural autobiographies that the students do are very factual , repetitive and dry. (I suppose we could take this to the lab and they could type it up .. but .. that really doesn't get me any further ahead in their active learning process).

> I want to have the students bring in things that represent their heritage (cultural artifacts) and use the digital camera to take a photo of their artifacts. They will then use this photo in Clarisworks to write about their heritage, their parents' heritage and so on. The learning will be enhanced because they will have to describe what items they chose, or what their parents gave them, or what they had on hand (instead of what they would like to have brought in), and what it means to them. For example, they might bring in the flag of Italy (there are a lot of Italian children in our community) - so ... Where did the flag come from? How old is it? Who designed it? The cultural autobiography can become a creative springboard rather than a catalogue of dry facts.
>
> While my students look at these Internet country sites I have chosen for them, they may see things of interest to them that would not strike me - I think that I would like to add a fifth question to my usual list of questions about countries and ask my students : What struck you or was of special interest to you about this country - what made you go: Ahah! .. or Really??!!

The library does not have the most up-to-date or vivid info on countries.

> A suitable alternative or supplement would be to use the Internet for research purpose.

The students each write a report and that report comes to me, but they don't really get to share with one another what they've found out.

> I'd like to use ClarisWorks' Slideshow feature and have my students make a digital slideshow rather than a report on paper. They could chain their slide shows to one another's and then present their slideshows to one another using the computer with the slideshow hooked up to our big screen TV in the lab!

**The problem is... or what I will need to address in order to get this to work:**

I know I can use the school's digital camera for this, but I have NO IDEA how to use it and no time right now (in mid-semester) to learn it in order to show my students how to use it.

I want to use the Internet for some of their research, but we've never used it as a class before. I want my students to use different kinds of media for their research: Some Internet sites (I'll pre-choose them .. since I am worried about the kinds of information they can come across doing a free-range search ... I don't even know if my students know how to search on the Internet) and library books. I am also not sure how I will help them to FIND the sites I've selected for them in the Web Browser ..

I have to find URLs that will be safe and age-appropriate for them .. and somehow I have to make them able to do this in the lab without my showing each one of them how to do it so that a ton of time is wasted...

I usually don't take all 22 of them to the lab with me at once for this reason -- it is hard to give each of them what they need when there is only one of me and so many of them. I become a walking human clump with students hanging onto me "Miss, Miss ... my computer is frozen! The Internet doesn't work! " ... and so on. My students' technical needs are added onto the normal learning needs that they have in any activity - and I feel overwhelmed. Managing them in the lab - all of the questions and problems, is difficult.

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## In a Nutshell

Take me to Plan It! (the blank planner).

Before going into detail, write a short, practical description that gives you an overall idea of what your students will be doing during the activity you are planning. You do not need to go into the detail of the how's and when's, just as long as you have a general idea of what will happen in your classroom.

Ok... 22 students, Grade 4, Social Studies unit on Cultural Heritage

I'll divide them into dyads - that is 11 groups of two.

They'll bring in items that represent their cultural heritage (each child in the dyad brings in some things that represent their ethnicity).

They'll take a digital photo of their montage and then use this digital image to write their cultural autobiographies in ClarisWorks.

They'll work, two by two, on the Internet to research the countries I'll ask them to look into - I'll provide the URLs for them.

On non-lab days they'll work in the library to research their countries from books and magazines.

They'll save their Internet info on the countries in a Clarisworks file.

They'll save two images from the Internet to a diskette (for inserting into Clarisworks)

They'll reference everything they take from the Internet or from a book.

They'll take all the info they have (their cultural autobiographies with the images, their Internet info, their diskette with the two Internet images) and they'll create a 5-slide slideshow in Clarisworks.

They'll present their slideshows (hooking up a computer in the lab to the big screen TV) to one another and to me.

## My students

Top of page

Take me to Plan It! (the blank planner).

How will my students show me that they have learned? Will they choose what they will be working on or will I design the activities?

My students are not that familiar with technology - and this is the first time that they have been to the lab altogether as a class ... so

**I will:**

I will assign the grouping

I will assign the countries they will be working on

I will design the activities (find the URLs, make the instruction how-to sheets for them)

**They will:**

- They will manage their project binder for the project (one binder for each dyad) - - logging all their work here - keeping their diskettes in the binder

- They will - in stages - accumulate information (organized into Clarisworks document pages by topic: food, language, religion, clothing, aha!) saved to diskette Make decisions about what information/images to take and which to leave

- Decide on their 'aha!' .. something about the country that surprised them

- They will fill out progress and self-assessment checklists each time we work on this unit.

- They will create their slideshow, present it, then archive a copy of it on diskette to their project binder.

What learning artifacts will they **make** to articulate and then **show** their mastery of the subject material/topic? In other words, what is it that I want my students to give me to reflect their learning? Here is a selection of possibilities ... but the possibilities are endless...

| **which artifacts/activities** | **which thinking skills** |
|---|---|
| report | reporting |
| video | referencing |
| slideshow | research |
| website | analysis |
| musical | synthesis |
| dramatic rendition (play) | assessment |
| dance | project/time management |
| artwork | combination of the above |
| final work is a combination of the above | |

slideshow + oral presentation

reporting

referencing

research

analysis

synthesis

assessment

project/time management

What tools, technological and other, will students use in this unit / learning activity to create their learning artifacts? Use the "Taking Stock" chart to see what is available at your school.

| **tools for research** | **tools for production** |
|---|---|
| Internet | word processing, drawing and painting softwares |
| CD-ROMs | web publishing software |
| books | digital or traditional camera |
| magazines | video camera |
| films | paper, pencil and paint |
| TV programmes | etc... |
| etc... | |

Digital camera

Software: Digital camera software, ClarisPaint, ClarisWorks + Claris Slideshow

Internet (Netscape)

Computer + big screen TV hookup

Diskettes (diskette management skills): Text and images saved to diskette

How do the students' artifacts/ activities break down into sub-goals (small do-able steps and bite-sized scaffolded pieces for the students to be successful)?

Step 1:

Introduce the Unit -- Prior to Lab 1

We discuss our cultural heritages ... list together the countries represented in our classroom.

Their mission: (with a fact finding sheet describing the project for their parents) Students go home and bring in for next lab time some items that represent their ethnic backgrounds so that they can arrange these and take a digital photograph of them.

Step 2:

Deeper into the Unit - Prior to Lab 1

1) Students receive their project binders (one per dyad), and the country that they will be researching in the dyad.

2) Re-seated in their dyads, each dyad examines their binder and the sections with headings in the binders: Research, Log Sheets, How are we doing (checklists/assessments), Autobiographies, Images, and the plastic to hold their diskettes) - and we familiarize ourselves with what goes where, when, how and why.

3) Remind students to bring in their cultural artifacts (heritage items) to next class.

Step 3:

Into the Lab: Lab 1

Prepping before going into the lab:

We review:

The schedules: Students are paired in their dyads. When they go into the lab, half of them go to the Document Creation Station (see details below) and half go to the Internet Research Station (see details below). At 'half time' during the lab, these two groups SWITCH with one another. These are their 'home stations'. While they are in their home stations, they are pulled out to go to The Digital Camera Station (see details below) or to the SlideShow Creation Station (see details below). Dyads are pulled out of their 'home' stations according to two lists that I have created and printed out (and which will be posted next to the other two stations). So they go to the specialty station when their peers check the list and call them. They learn from their peers how to take a picture, or see what a slideshow can do - then they check the list, call the next dyad and show this dyad immediately what they have just learned (so, consolidating their learning by re-teaching and re-checking their newly learned skills right away!)

More steps:

**In the lab**

Before the students ever arrive that day, I set up four stations in the lab:

Click here to see the lab layout.

There are signs on each of the computers and the table indicating what station each now is:

1. **The Digital Camera Station** (One student in my class - Eureka! - actually KNOWS how to use the digital camera - because I don't! - and she will be in the first dyad to use it. She'll show her partner, then the two of them will check on the list I have created, they'll show the next two, who'll check on the list, get the next two and show them how to use the camera! Wow... it works!) What will they be doing?

2. **The Document Creation Station** (for creating the autobiographies in Claris) (My students already know how to use this software ... so this is an easy station for them - it will give them a rest from all the other new learning they will be doing at the other three stations)

3. **The SlideShow Station** (an INTRODUCTION to Claris Slideshow - given by a Grade 6 student who knows how to use it ... she shows two students, who show two students and I don't have to go near that station - which is good because my Claris Slideshow skills are very shakey!)What will they be doing?

4. **The Internet Research Station** - where each dyad works with one computer to find the sites I have located and provided for them on a How-to-find-an-Internet-site / Now-find-this-one-and-this-one sheet!! They use the URL sheet (with the refresher/instruction sheet) to find the various sites I want them to visit - and they use their Internet Log Sheets to track the addresses and the kinds of information they are finding there (so that they can reference that material properly in their slideshow).

5. There is a secret other station just waiting to hauled out if we need it - just in case any of my students WHIZ through all of this: **The Internet Image Station** - where the Grade 6 student, freed up by now from the SlideShow station, can teach how to save an image from the Internet to a diskette - and can show the students where in their binder to go to find the 'referencing" sheet that will help them take down the appropriate information to give proper credit for that image where credit is due!)

Ok... everyone knows where they are headed once they walk into the lab - everyone knows what their first station will be of the four.

Students have brought their cultural artifacts in - and take them with them to the lab.

Bags with the items are put underneath a central table in the lab.

**Back in class:**

After the lab, the dyads take a moment to assess (discuss and record) their lab time. We debrief as a group - what went well, what was missing, what we need to do better.

**Behind the scenes:**

By moonlight, I go through the students binders and check the information they have on diskette, etc. I leave encouraging little messages or reminders (so they know I have been there and I care that they feel supported and are able to do well) on post-it notes for them to find next time they review their binder prior to diving back into this learning unit.

## Assessment and Evaluation

Top of page

Top of page

Take me to Plan It! (the blank planner).

**After the unit what will my students:**

-know

-be able to do

**Objectives - Learning goals - interpersonal abilities**

- students will become cultural 'experts' in one country, and share their expertise with their peers in an audio-visual presentation (subject expertise)

- students will explore their own cultural heritage roots and write about these individually (intrapersonal)

- students will work in groups, to complete their slide shows; each dyad will complete a 5-slide show and will present it together to their peers (interpersonal)

**Technological sub-objectives**

- Students will find specific URLS on the Net

- Students will sift and select information from these URLs

- Students will copy selected information from the Internet to a Claris document

- Students copy useful images from the Internet to their diskettes

- Students will take a digital photograph with the digital camera

- Students will insert images (from the camera or the Internet) into a Claris document

- Students will transform their Claris Document into a Claris slideshow

- Students will run their finished slideshow and present to their peers

**Research sub-objectives**

- Students will reference URLs (for text and images)

- Students will review referencing information taken from books

- Students will describe the contrast between on-line and off-line research tools

- Students will sift masses of information for specific usable knowledge for their research questions (analysis)

- Students will save and catalogue that information for future use (archiving)

How will I track students' progress through the unit / learning activity? What signs of learning am I looking for during the unit? How will I help students get back on track if they stray?

**Binder:**

Log sheets, reference sheets, assessment sheets filled in clearly / properly.

**Diskette:**

I check the diskettes after each session to ensure what is there should be there (images, references, text, autobiographies, cultural heritage photograph,etc.). I track digitally who is moving along at a good clip and who may need some additional monitoring or help. I view the research progress in ClarisWorks; I check who has begun work on their slideshow yet or not - how near the dyads are to completion, etc.

Specifically, what do I plan to evaluate or grade? What criteria will I use for evaluation? (this question feeds right out of your goal statement in the Vital Stats section of the planner)

They could make five slides each. I could request at least two images (taken from the Internet and properly referenced) ... and the last slide would be the slide with their cultural autobiographies - which would be a creative by-line slide for each of them as the creators of these slideshow pieces.

They will keep a portfolio binder (one binder for each dyad) of EVERYTHING they do - at each stage. They will assess themselves (using sheets I provide to help them) after each activity related to this learning unit. I will assess them (provide feedback by looking through the binder, checking their diskettes for work-in-progress and so on) after each activity related to this learning unit.

The binder will show me my students' learning steps along the way, and the final slideshow presentation will show me their best effort at synthesizing and presenting their findings in a public way.

I will grade the binders (as a portfolio), I will grade the slideshow itself, AND the presentation (oral presentation skills) of my students.

## Teacher Preparation and Learning Management

Top of page 

Take me to Plan It! (the blank planner).

This is where you think about what you have to do before beginning the unit with your students and how you will organize yourself, your time and your students during the unit.

### Access

How will I structure my students' access to technology - especially if I have a limited amount of equipment? Do I need to plan charts such as assignment charts or timetable charts to help organize students? Will students take turns using equipment based on a chart or timetable? Will I set time limits? How will I make sure that time limits are respected?

My students have different learning abilities, attention spans, and some very strong personalities ... so .. I cannot have them all doing one thing to infinity - boredom or distraction will set in. I have to set up my activity using various stations in the lab and creating a good pace for my students through those stations, or I will lose them to distractions and ennui. I need to keep the steps simple, ordered, clear, and I need to keep those steps to a timetable, too (that is, keep them coming and keep my students moving through the learning scenarios with clear goals and tangible products of their learning at the end of each station and each lab time).

### Autonomy

How will I make sure that each student or group of students is autonomous enough in their learning so that they can stay on track without my constant help? What autonomy tools will I have to design or modify? How will I use those tools to track their progress?

The students know what they need to do. They have schedules, lists, instructional sheets and so on that I can provide to make sure they can be autonomous about their time in the lab. They are students with a mission - and not much time to dally - there are places to go in the lab and interesting things to do.

The smooth running of the different stations - the list I have created and posted will help keep my students on track - and for the rest, I will round the room at the beginning of each lab session (to make sure that each dyad knows exactly what they are supposed to be doing and how to do it), and I will scan the room periodically for the "big picture" and the "big sound" - I am looking for the signs and sounds of learning .. and for the signs and sounds of learning interrupted. I will allow my students some moments to figure things out for themselves, but if a dyad seems lost or confused, I'll step in a re-direct as needed.

**New tech skills**

What technology areas are new to my students? How will I find out? What will I do to account for lack of skills (e.g. plan an instruction period(s), extend the activity, get help from student experts from my class or other classes)?

I create instructional tools (assists) for this activity: There is still too much which is new for them in terms of their (and my) tech sub objectives .. I don't want to overload my students right at the start! I also choose NOT to show them a sample slideshow right away - I don't want them to 'copy'. I want them to see what the slideshow function can do and then just be creative with it.

Instruction (how-to) or Review Sheets:

Unit Introduction Sheet: What we will be doing! Your mission in this unit!

Finding Web Sites (URLs) on the Internet using Netscape Navigator

With same HOW-TO intro, but different URLs for the various countries

Citing my information sources: Do I have everything I need?

Internet Log Sheet: One side to be filled out for TEXT and flip side for Images, Sound, Video

Station Checklist and Comment Sheet: (what went well, what didn't go so well)

Unit TimeLine: Where we are now (from beginning to end of project, checklist of tasks accomplished and those remaining to do ... my introduction to production management for my students .. with experience, this task will fall to them to do!

**Grouping**

Will my students be grouped for this learning activity? How will I ensure that the groupings lead to a successful learning experience for all students?

I have been a little hesitant to use groupings with my students - so I am going to start with dyads, since it will be easier for me to know how the group is working out over time. Even though I am a little reluctant, I know that the students need to be grouped for various reasons and gains:

- (The tech sub objectives) They need to share certain pieces of technology (like the digital camera) and certain tech skills need to be transferred in small enough groups that the children get maximum peer-tutoring with the technology.

- (Enhanced cognitive and inter/intra personal skills) Grouping the students will provoke more conversation about the project and will enable them to support each other though the various stages of the work. They will need each other to do this project - they can help each other when they are looking up Internet sites, they can discuss what they find and help each other choose images and text to answer the questions, and they can help one another remember what to do and how to do it in creating their final slide show. The final slide, with their cultural autobiographies will give me a sense of their individual writing styles. Overall, I think that more conversation in this project is a bonus, the negotiation over choices in deciding what to include and exclude in their shared slides is good for them (cognitively and socio-emotionally).

**Lab etiquette**

How will I let my students know what behaviour I expect from them in the lab or around the computer station? How will they ask questions, how will they access software, how will they handle fragile equipment?

The "Miss, Miss, HELP me!!" problem: In the lab we are going to try using Red Flags, that I have made from red construction paper and chopsticks! (Hey, if it works . . . ). It gets to noisy with everyone calling out for help - and I want conversation to center around learning issues and not calling out for aid. Besides, it is hard for me in the lab to see everyone and it is too easy to miss a small arm up waving or a small polite voice. So, I have glued little pieces of velcro to the chopsticks and little pieces of velcro to the sides of the computers. Now I have 'red flags', which my students can use to signal to me that they need assistance, as they need it. The Red Flags are kept in the 'down' position, students encountering a problem should consult the dyad to the left of them, the dyad to the right of them, and if that does not resolve their problem, they will put up a Red Flag in the sticking up position! I have to remind my students that there are many of them and only one of me - so, if the Red Flag goes up and I don't get to them right away, they should be patient and try to move on and do something that they are sure about, or (if the problem is a computer crash, etc.) review the material in the binder and start making some decisions towards their slideshow.

## Me, myself and I

Top of page

Take me to Plan It! (the blank planner).

What do I need to know technologically (or other) to accomplish this unit?

Do I really need to know this tech thing or skill prior to my unit or is there another way that my students can learn the skill and to learn alongside them? (students in my class who know and can work in learning/teaching dyads? students in another grade who could come in for one lab session, etc.)

One student in my class - Eureka! - actually KNOWS how to use the digital camera - because I don't! - and she will be in the first dyad to use it. She'll show her partner, then the two of them will check on the list I have created, they'll show the next two, who'll check on the list, get the next two and show them how to use the camera! Wow... it works!

An INTRODUCTION to Claris Slideshow can be given by a Grade 6 student who knows how to use it ... she shows two students, who show two students and I don't have to go near that station - which is good because my Claris Slideshow skills are very shakey!

**What do I plan to learn through this unit?**

| |
|---|
| How my students work in groups<br><br>If peer teaching and cross-age teaching really work for tech sub objectives! |

Top of page

# Tools for Teams

## PlanIt!!

Choose a learning unit for incorporating technology and select an activity or series of activities that will incorporate technology.



## My Unit: Vital Stats

Top of page

Take me to "Around the World in 80 Clicks" Vital Stats

| |
|---|
| Grade, Subject (s) |
| Unit - Activity - Content |
| Timeframe |
| Objectives - Learning goals - interpersonal abilities |
| Technological sub-objectives |

**What I usually do for this unit:**

---

**Cross Curricular Competencies and Areas of Lifelong Learning touched upon by this unit:**

**Cross Curricular Competencies**

- Intellectual
  (Uses information; solves problems; demonstrates critical judgement; uses creativity)
- Methodological
  (Carries out projects; Masters ICT for use as methodological tools; uses effective intellectual work methods)
- Personal and Social
  (Asserts his/her personal and social identity; interacts positively showing respect for diversity and difference)
- Communication Related
  (Communicates clearly, precisely and appropriately; uses various elements of communication)

**Areas of Lifelong Learning**

- Personal Identity and World Vision (metacognition)
- Health and Well-Being (Problem solving)
- Personal and Occupational Planning (Completion of projects)
- Social Relationships (Cooperation)
- Environmental Awareness (Creativity)
- Citizenshp and Community Life (Openness to diversity and difference)
- Media Literacy (Use of critical judgement)
- Consumer Rights and Responsabilities (Moral commitment)

---

**Trouble spots or things that could be improved about this unit (including cross curricular competencies and areas of lifelong learning which are not being addressed):**

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**Targeting the trouble spots with technology:**

---

**The problem is... or what I will need to address in order to get this to work:**

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## In a Nutshell

Top of page

Take me to "Around the World in 80 Clicks" In a Nutshell.

Before going into detail, write a short, practical description that gives you an overall idea of what your students will be doing during the activity you are planning. You do not need to go into the detail of the how's and when's, just as long as you have a general idea of what will happen in your classroom.

## My students

Top of page

Take me to the"Around the World in 80 Clicks" example.

How will my students show me that they have learned? Will they choose what they will be working on or will I design the activities?

Which subject specific competencies will be targetted through these activities?

| English Language Arts | Francais langue seconde | Mathematics | Science & Technology | Social Sciences |
|---|---|---|---|---|
| -Reads literary, popular and information-based texts<br><br>-Writes self-expressive, narrative and information-based texts<br><br>-Views visual texts critically<br><br>Interacts in the roles of sender and receiver | -Interpreter des messages oraux, ecrits, visuels<br><br>-Produire des messages oraux, ecrits, visuels<br><br>-Interagir en francais<br><br>-Rendre compte de ses acquis en formation langagiere generale<br><br>-Se situer par rapport a la culture francophone | -Solves problems<br><br>-Shows an understanding of mathematical concepts and procedures<br><br>-Communicates using mathematical language<br><br>-Appreciates how mathematics has contributed to the different spheres of human activity | -Proposes an explanation for natural phenomena and the human-made world<br><br>-Responds to problem-solving situations that affect individuals, society and the environment and that are related to science and technology<br><br>-Uses the language specific to science and technology<br><br>-Appreciates scientific and technological discoveries | Core Learnings:<br><br>-interprets social phenomena in a rigorous, systematic manner<br><br>-understands aspects of the contemporary world<br><br>-develops an awareness of history and geography<br><br>-becomes an informed responsible citizen |

What learning artifacts will they **make** to articulate and then **show** their mastery of the subject material/topic? In other words, what is it that I want my students to give me to reflect their learning? Here is a selection of possibilities ... but the possibilities are endless...

| **which artifacts/activities** | **which thinking skills** |
|---|---|
| report | reporting |
| video | referencing |
| slideshow | research |
| website | analysis |
| musical | synthesis |
| dramatic rendition (play) | assessment |
| dance | project/time management |
| artwork | combination of the above |
| final work is a combination of the above | |

What tools, technological and other, will students use in this unit / learning activity to create their learning artifacts? Use the Taking Stock: What's in our school? chart to see what is available at your school.

| **tools for research** | **tools for production** |
|---|---|
| Internet | word processing, drawing and painting softwares |
| CD-ROMs | web publishing software |
| books | digital or traditional camera |
| magazines | video camera |
| films | paper, pencil and paint |
| TV programmes | etc... |
| etc... | |

How do the students' artifacts/ activities break down into sub-goals (small do-able steps and bite-sized scaffolded pieces for the students to be successful)?

Step 1:

Step 2:

Step 3:

More steps:

## Assessment and Evaluation

Top of page

Take me to the"Around the World in 80 Clicks" example.

**After the unit what will my students:**

-know

-be able to do

How will I track students' progress through the unit / learning activity? What signs of learning am I looking for during the unit? How will I help students get back on track if they stray?

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What do I plan to learn through this unit?

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Top of page


## Do-it-yourself Ped Days
## Focus on Technology Integration

### Project Planning Software

### Information about PIViT

The Project Integration and Visualization Tool (PIViT) was developed to help teachers design and share projects with other teachers. Originally designed for the project-based science, this software is general enough to accomodate most curriculums. PIViT is a flexible tool that is available for both Mac and Windows (the two versions are compatible) and best of all, it's free!

### Why use PIViT?

PIViT allows you to brainstorm,create, schedule and evaluate lesson/unit/project plans. You can download a PIViT file, adapt it to your needs or write comments within the file and send it back to the designer.

A project within PIViT consists of the project design, concept map and calendar. Each of these have different types of components: driving question, concepts, investigations, activities, artifacts and objectives.

### Credits

PIViT was developed by a team of researchers at the University of Michigan School of Education as a product of the Project-Based Science (http://www.umich.edu/~pbsgroup/ group). PIViT is designed by Joseph Krajcik, Kathleen Brade, Phyllis Blumenfeld and Elliot Soloway. PIViT for Macintosh¨ is programmed by Kathleen Brade. PIViT for Windows¨ is programmed by Kathleen Brade, Jeff Freisthler and Jason Sandys. PIViT is supported in part by grants from the National Science Foundation and an Eisenhower Grant from the Michigan State Department of Education.

### Help file

Need some help using PIViT? You'll find some useful shortcuts as well as frequently asked questions (faqs), for Mactintosh and Windows.

### Sample Project

A sample project (Around the world in 80 clicks) is available on diskette.

**Download PIViT**


## Do-it-yourself Ped Days
## Focus on Technology Integration

### Reflections: So... what have I learned from this experience?

What classroom project did you work on during this professional development process?

What was, for you, the most positive experience during this process?

What was the worst experience?

If you had to do it all again, what would you do differently?

What did you learn? Is it the same as what you wanted to learn? (remember your goal statement at the beginning - way, way back?)

### Go get 'em! Team questions

How do you think your school will benefit from teachers having gone through the qesn.connection process?

Based on what you know now, what kinds of school-level curriculum planning will you engage in?

What kinds of professional development projects do you think you need next?

What did you learn about the technology infrastructures that exist in your school as these affect your teaching?