Letter from the Editor

BY ALBERT J. MILLS

Welcome to the third issue of the *Workplace Review* based on papers presented at the annual

conference of the Atlantic Schools of Business. Once again, in the tradition of the journal we have

included papers that reflect the best of research from across the Atlantic region – particularly leading-

edge research from our universities. All the articles have been selected for their local appeal, practical

application, and their ability to speak to a broad audience. Above all else we remain committed to make

the Workplace Review dedicated to better workplace practices, devoted to discussing issues of practical

concern to businesses throughout Atlantic Canada.

In this issue we examine a range of issues, starting with a study by Jacqueline Baird and Wendy Carroll of

the University of Prince Edward Island of the role of senior leaders on the development of healthy

workplaces in the call centre industry. Their study suggests that a crucial element in effective workplace

practices is positive perceptions of senior leadership. The second paper moves us to consideration of

social media at work, as Heather-Anne MacLean and Judy Ann Roy (of the University of New Brunswick),

examine the influence of various forms of electronic systems of communication are affecting workplace

behaviours and "blurring" the lines of how messages are received and understood. They strongly

recommend that employers not treat social media as a passing fad, removed from the workplace, but

rather they treat it as something that needs to be better understood and appropriate strategies

developed. Keeping with the focus on communication technologies, Elizabeth (Saint Mary's University),

and Ron (Select Technology Communication) McLeod, in our third paper, examine the issue of

expectations of privacy. Their study suggests that there is a need for greater awareness of new

information technology users to the dangers and potential of privacy violations. The fourth paper is, in

the words of a popular television show, `ripped from the headlines' as Jolene Titus-Roberts (Mount St.

Vincent University) examines the problem of racial discourse in Nova Scotia and its representation in the

local media. She concludes that "developing effective strategies to address racial concerns in Canadian society requires a better understanding of how cultural images, ideas and symbols are produced and reproduced." The final paper – in our teaching practice section -- discusses the issue of higher education and the successful integration of information and communication technologies (ICT). The authors of the study – Gerard Fillion and Jean-Pierre Booto Ekionea of the University of Moncton – examine student perceptions of on site compared to on-line students and conclude that student as well as faculty perceptions need to be taken into account and monitored when introducing ICT.

We hope that this collection of articles will encourage thought and discussion at various levels on how to create better workplaces across the region.

ASB, 2011
Charlottetown, PE

Jacqueline Baird
UPEI, MBA Student

Wendy R. Carroll
Associate Professor

THE ROLE OF SENIOR LEADERS IN THE DEVELOPMENT OF HEALTHY WORKPLACE PROGRAMS: A CASE STUDY IN CALL CENTRES.

Although there has been extensive research about managing costs of employer health and benefit plans, there has been less attention on preventative approaches such as healthy workplace programs (HWP), and more specifically, the role of senior leaders in HWP effectiveness. A qualitative exploratory study was conducted in two call centres with similar HWPs. The findings suggest that, despite similar HWP design features, the role of senior leaders is central to employee perceptions about the overall HWP effectiveness. The five themes relating to what senior leaders do in effective HWP environments are discussed in this paper.

Introduction

Studies are showing an upward trend in employee illness from the workplace, with cost estimates of upwards to $7.4 billion annually (Stewart, 2010). For employers, this trend is most obvious in the direct costs of health care plans, absenteeism, and lost productivity (Blake & Lloyd, 2008). To date, employers have pursued many strategies such as subsidies and incentive rewards in an attempt to control these escalating costs. Over the past 40 years, employers have predominantly relied on contributions to employee health benefit plans to respond to issues in this area. However, in recent years it has become evident that these reactive strategies are less effective, and that employers need to engage in more proactive approaches to healthy workplace strategies.

In an effort to address this issue of employee health and wellness, some employers have begun to adopt healthy workplace programs (HWPs). Although there are numerous proactive approaches being adopted in the workplace, it remains that results from such approaches are mixed. Perhaps contributing to these mixed results is the confusion and debate among practitioners about the definition of a healthy workplace and the aspects of such a program. O'Reilly (2008) suggested that many employers lack a clear description of what workplace wellness is, how to involve employees in such programs, and whether they have or need a business case for promoting wellness to staff. To that end, the effectiveness of such programs with employees is often compromised if they perceive that cost-savings is the fundamental goal and that there is not an underlying interest in employee health and well-being. As a result, there is emerging interest in understanding the role of senior leaders in shaping employee perceptions about the effectiveness of HWPs.

In this paper, the findings from a study of two call centres with HWPs are presented. The purpose of this study is to understand senior leaders' role in the development and adoption of a HWP. The aims of this study are to explore employee perceptions about the effectiveness of a healthy workplace program, examine employee perceptions about the role of senior leaders in implementing, developing, and sustaining HWPs, and provide some insights to human resource practitioners about the successes and challenges in developing and implementing a HWP. In this paper, we provide an overview of the literature about HWPs, present the findings from 26 interviews with employees, managers, and senior leaders in two call centre sites, and discuss the implications of this study.

The Role of Senior Leaders in Healthy Workplace Programs

Interest by both academics and practitioners about HWPs has contributed to the growing literature in this area over the past decade. In this section, we will review the definition that guides this study, the main focus of HWP literature to date, and the emerging focus on the relationship between the role of senior leaders and the employees' perception about the effectiveness of the HWP.

Healthy Workplaces

A Healthy Workplace has been defined by PwC (2008) as, "Promoting wellness as a combination of health and safety (abiding by statutory regulations and government requirements); managing ill health (through best practice use of occupational health absence management and disability management), and prevention and promotion (health promotion, work life balance and stress management, career and social development and primary care)" (PwC, 2008, p.10). This definition highlights the areas of focus, which notably extend beyond the traditional view of Occupational Health and Safety to include other aspects of an employee's health, reaching outside the boundaries of the workplace. The emergence of such a broader definition and scope signals that employers' are interested in engaging in health and wellness in other ways.

To date, there have been three key areas of discussion and research about healthy workplaces in the literature, focusing primarily on financial impacts, practical approaches, and prevention and best practices.

Financial Impacts

Over the past decade, benefit costs have increased by more than 10% annually (Dixon & Courtney, 2004). For example, in a survey by Watson Wyatt (2007), it was found that on average the cost of casual absences in Canada was 1.2% of annual payroll, which translates to $7.4 billion in losses to the Canadian economy each year. It has been estimated that reducing this absence by just 0.1% could save employers over $610 million annually (Stewart, 2010). Some employer-based health funded programs are approaching the breaking point and putting pressure on organizational competitiveness. These upward trends in absences in the workplace have prompted many employers to rethink their approach to health and wellness and an interest in HWP is being strongly considered as an important prevention strategy to improve employee health and wellbeing (Blake & Lloyd, 2008).

Reactive versus Preventative Approaches

Employee health needs have been predominantly addressed using a reactive system of care (treating versus preventing) (Patten, 2007). In reactive health and wellness programs, the focus is on making available to employees interventions at a point in time when the illness or problem has already manifested. This contrasts with preventative approaches that include both behavioral and clinical measures aimed at prevention. For example, behavioral prevention services encourage employees to adopt healthy lifestyle choices by introducing programs such as smoking cessation, exercise, healthy diets, and stress management, whereas clinical prevention helps to avoid painful and costly illnesses by detecting diseases in their early stages, when treatment is often more effective and less costly.

To date, there have been a handful of studies showing evidence supporting preventative approaches resulting in cost reductions for employers. For example, a study by Dixon and Courtney (2004) has shown that employers implementing prevention programs have resulted in an average 28% reduction in sick leave, 26% reduction in direct health care costs, and 30% reduction in workers' compensation and disability costs. Similarly, a report from the Conference Board of Canada (2010) provided a case study of an organization that realized significant returns from a small investment in a HWP. This organization created a program with four themes which included factors related to organizational health, obesity, fitness, and smoking. They invested $2,000 and saved $6,000 on their health premiums. In addition, employees at this organization achieved a combined weight loss of 261 pounds. These results show promise for preventative approaches. However, understanding the conditions and factors that make preventative approaches successful beyond simply adopting "best practices" is an important precursor to implementing a HWP.

The Relationship between Leadership and HWP

In a PwC (2008) report, it was suggested that it is critical for senior leaders to lead by example and develop the culture and communication strategy supportive to the implementation of a HWP. A Conference Board of Canada report (2008) provides some further preliminary evidence that senior leaders who make healthy workplaces a priority can provide positive results for all stakeholders (Conference Board of Canada, 2008). There are positive impacts to investing in HWP initiatives such as retaining valued employees and creating a reputation in the labor market as an employer of choice. These outcomes tend to be of interest to senior leaders. Organizations embracing HWPs are doing so by making changes to the physical work environment, such as creating "chill-out" zones or quiet rooms to modifying vending machines and cafeteria menus.

A PwC Report in 2008 provided one of the first set of guiding principles and framework for implementing health workplaces. These principles are known as the 3C's to leadership effectiveness in the development of healthy workplaces and suggests practical approaches, considered critical, to the implementation. The PwC report provided evidence that successful wellness programs were those designed to meet the employees' needs. The framework was tested in different business sectors and found to be robust. It focuses on the importance of leaders to be in place to effect change and the importance of leaders enabling employees' through responding to their needs and values to encourage employee participation in the implementation of a healthy workplace (See Table 1).

Table 1: 3C's to Implementing Healthy Workplace Programs

Guiding Principles
Coaching *is a leadership style that goes beyond program support and requires leaders to actively participate in the program offering with the employees.*
Creating a culture *that supports wellness aligns with the business objectives and is perceived by employees as important to senior leaders.*
Communicating *through methods that involve employees from the start and they are continuously involved in the developing of the programs.*

The PwC report provides evidence that leadership can shape the culture of a company and transform the ideas into systems. The framework was used to identify themes from the interviews and guide the research to better understand the role of senior leaders.

Method

A qualitative approach was used to examine the phenomenon of the role of the leader in developing, implementing, and sustaining a HWP. A case study research design following Yin (2003) involving two call centre in Atlantic Canada was conducted using a semi-structure interview approach (McCracken, 1988). The purpose of the interviews was to understand what a leader does to contribute to a healthy workplace environment and how employees perceive the leaders role in facilitating change to healthy workplace environments.

Research Context

Call centres provide an ideal research context to examine the role of senior leaders in the development and implementation of HWPs. Research has shown that call centres have highly-structured environments and often lead to higher levels of stress and turnover (e.g., Bain, Bunzel, Mulvey, Hyman, & Taylor, 2000; Batt, 1999, 2002; Batt & Moynihan, 2002; Chalykoff & Kochan, 1989; Deery, Iverson, & Walsh, 2002; Holman, 2002a, 2002b, 2003; Moorman & Wells, 2003; Stanton, 2000; Stanton & Farrell, 1996). The nature of these environments makes them an ideal site to examine the effects of health and wellness workplace programs. Comparing two call centres in Atlantic Canada that have implemented a HWP provides an interesting research site to examine what it is that senior leaders do in these environments and how employees perceive the senior leaders influence on developing and supporting a HWP.

Data Collection

A semi-structured questionnaire was used to conduct the interviews. The purpose was to identify key themes relating to employee perceptions about the senior leaders role in designing and implementing a HWP. These interviews were held individually with senior leaders and managers. In addition, employees were interviewed using a focus group technique (Hair et al, 2003).

Analysis

The transcribed interviews were analyzed to develop descriptive themes. The reoccurring phrases and words from the interviews at each company were identified, coded, and compared against the transcripts. Nvivo was used to analyze the data, develop the major concepts from the

interviews, and to draw similarities from these concepts (Hair et al, 2003). The first step of the analysis involved a search of the frequency of the number of times a word was recorded and a percentage of coverage the word had to the total word frequency of each company. These words were reviewed based on the individual company participant responses and connected to more specific categories based on the nature and use of the words used by participants from each company. Descriptive themes were developed based on the analysis.

Findings

These two companies were each assigned a pseudonym. Company 1 implemented a HWP 18 months prior to this study. Company 2 implemented a HWP in the past 5 years. In the following sections the findings relating to the HWP design and features are discussed, followed by the themes relating to the role of senior leaders in developing, implementing, and sustaining a HWP.

Descriptive Characteristics of HWPs

The interviews and focus groups were analyzed to develop a list of the features in each of the two companies HWP (See Table 2). The programs in each company contained very similar features on the surface and the specific program features can be found in Appendix A. Each company had aspects of traditional and preventative features of health and wellness. However, each company implemented the programs using different approaches.

Table 2: Summary Examples of Features of Company 1 and 2 HWP

	Behavioral Interventions	Clinical Interventions	Community Outreach
Traditional Features (tend to be more reactive or static)	EAP or EFAP Smoking Cessation Ergonomics	Dental & Medical Coverage	Fundraising. - Donations by the employer and employees
Preventative Features	Engaging employees in **physical fitness in/out work**. At the workplace: - Walking club - Basic & advanced yoga Outside the workplace: - Subsidies for memberships Education about **nutrition.** - Sessions - Weight Loss Programs Fostering **healthy workplace behaviours**. - Respectful workplace policy and sessions. - Mental Health (stress management techniques)	**Clinics at the workplace aimed at increasing education and awareness**. General: - Wellness or Individual Health clinic Targeted: - Diabetes - Heart and Stroke - Back pain - Blood pressure and hyper tension - Breast health - Flu	**Events involving physical fitness.** - Walks or runs - Challenges such as golf or hockey - Building homes

Company 1 has invested a lot of time and money during the past twenty years in safety education and programming. The broader scope of the HWP was lead by a representative from the Executive Office. Single program health initiatives were led by individuals from HR and other departments depending on the nature of the feature being introduced. These programs are summarized in Appendix A. Company 1's main interest in developing and implementing a HWP was to reduce costs of health benefits. Senior leaders' said that they did not see themselves as role models in coaching the change of a healthy lifestyle, but rather felt that their role was to provide the channels for a healthy lifestyle transformation. They were committed to the financial investment to develop a healthy workplace and to contribute to community initiatives and events. The HWP features are delivered via a local pharmacy partnership and include specific education on preventative health items. The HWP is covered entirely by Company 1 with no charge to the employees, including time on the job to attend sessions.

The call centre in Company 2 is part of a large multinational firm. The HWP started in the US departments and was eventually implemented across the organization in Canada and Europe. Each facility has its own employee program group and international liaison. The HWP focuses on employee needs of health and wellbeing, community outreach events, and return to work programs after illness or life events summarized in Appendix A. The senior leaders at Company 2 have an HR representative on the HWP committee to guide and develop the program. Company 2 contributes to the HWP mainly via community events, some physical activities, benefit coverage, leadership pledges, and improvements in the healthy food choices offered at their cafeteria. In addition, Company 2 focuses on removing barriers and issues preventing employees from coming to work. When Company 2 started a HWP, they partnered with a local pharmacy to run monthly information sessions. The local pharmacy provided a list of ideas that the employees' could choose from for sessions. The healthy workplace committee discusses the programs with the employees and as a group decides on the features. There is no charge for this service. The only requirement is the company promotes the employees to shop at their store. If a maximum amount of sales is reached, $1,500's is provided as an incentive to Company 2 (bi-annually) to invest in the HWP. This money is used for subsidizing health and wellness clinics, a healthy workplace library accessible to all employees, and other educational materials or sessions for employees.

Senior Leaders Role in HWPs

Research has linked the level of employee commitment to a HWP to the leader's recognition of the employee's need for a healthy lifestyle (PwC, 2008). The research also suggests that the senior leaders in a workplace should provide the resources, support and encouragement to engage employees through implementing and championing of a HWP (PwC, 2008; Morris et al, 2008). The analysis from the 26 interviews and focus groups with employees, managers, and senior leaders revealed five themes relating to what leaders do in healthy workplaces. Table 3 summarizes these themes, which include raising awareness, creating a culture, removing barriers, coaching for engagement, and encouraging communication. Although both companies appear to provide similar HWPs on the surface, their employees' perceived major differences in the approaches the HWP is lead by leaders. While employees in Company 1 emphasized that financial resources were plentiful to the program, Company 2 emphasized that money was an issue. However, employees in Company 2 felt a stronger commitment to the healthy workplace environment than employees in Company 1. The role of senior leadership relating to the five themes helps to explain these differences to some degree. These themes are discussed in more detail below. All interview participants were assigned a pseudonym.

Table 3: Summary of Themes

	Theme	Description
1	Raising Awareness	• Champion programs • Leaders image • Partnership intervention
2	Creating a Culture	• Engagement by all employees, including senior leaders • Long-term impacts of turnover and retention
3	Removing Barriers	• Understanding the ways in which attitudes and behaviors impede change • Creating flexibility and variety in the descriptions of a HWP • Innovative ways to manage the cost to implementing HWP
4	Encouraging Communication	• Leaders active participation provides a message • Methods of communication impact feedback and success • Reaching the audience
5	Coaching for Engagement	• Motivating lifestyle changes • Critical to have individuals in place to affect change • Approach and participation of senior leaders

Raising Awareness: Developing a healthy workplace requires creative thinking by senior leaders in order to raise employee awareness about making healthy lifestyle choices. This case study revealed three different approaches by senior leaders to raise awareness for employees about the HWP.

Raising awareness through Community Involvement: At Company 1, the senior leaders communicated that they did not envision themselves as championing the HWP. The senior leaders believed if the program was to be legitimate that employees need their own reason and motivation to participate. One senior leader talked about his commitment to the health of the employees and the challenges of providing programs that meet the needs of all employees. He specifically spoke of the cost to provide the programs, their commitment to contribute to the development of a healthy workplace, and the flexibility for employees to recognize what programs are important to them. He felt that employees' need to make decisions about health and wellness for themselves. Raising awareness for the senior leaders in Company 1 was more about making programs available versus being engaged in the programs themselves. Employees in this organization viewed senior leaders to be involved in the program from health and wellness activities, but more from a community outreach perspective. This view can be noted from Simon's comments about his perception of the HWP at Company 1.

> "They obviously do support financially a number of activities whether our employees are involved directly or not. They do support charity golf and it does involve our employees - a hockey tournament, a couple of runs and relays supported financially and through time. In addition, through our donation program, we support lots of activities outside the Company and hopefully employees know about it." (Simon)

Simon clearly sees the senior leadership team providing financial support to engage employees in community outreach activities. Employees in Company 1 saw raising awareness of health and wellness more directly linked to these outreach initiatives, although many other program features were offered at the company.

Raising awareness through a specific initiative: Company 2 took a different approach to raising awareness. They were focused on developing and implementing programs that would motivate employees to come to work and get involved in community events. A manager from Company 2 reflected on the implementation of their walking club and how this initiative raised the awareness about health and wellness. Each participant interviewed at Company 2 connected the walking club to what their company was doing about their health and wellness. One senior leader shared examples of how they support their employees to take responsibility for their health such as going for a walk on their break. Marlene, an HR manager, made the connection to why raising awareness about health was so important in the call centre environment and the role that the walking program provided for all.

> "They are on the phones every day, so when they get that break they just go and if some people didn't have that they would just walk to Tim Horton's and would come back and sit at their desk. But because they have those little incremental goals for themselves, they will push themselves to get out for those little walks which in turn can only help them. A lot of things are to help them manage stress - really and truly it is - and we would never title any of our communications to manage stress because it is really there for everyone and as a business it is very beneficial" (Marlene)

This manager believed when these employees were on the phones all day that this activity provided the employee with some exercise and helped reduce their stress level. The senior leadership team is very involved in the program and is often members of various teams. The walking club is designed as a competition among various teams in the centre. They develop a board to track progress that is displayed in the call centre site main cafeteria, a place where all employees can watch the progress of individuals and team members. A celebration is held at the end of the year, honouring members who meet certain milestones.

Raising awareness through partnerships: Partnerships are another form of raising awareness of a HWP that both companies used. In both organizations, partnerships were developed with third party suppliers such as pharmacies. These partnerships provided a more clinical view of health and wellness that neither of the companies had an expertise in. By partnering with the pharmacies, sessions and clinics can be hosted on site for each of the companies in order to provide a level of awareness about health and wellness.

Creating a Culture: The PwC report states that "creating a culture of wellness is integral" to the success of a HWP. The culture part of the 3C framework suggests that leading companies are incorporating wellness into their mission statement, implementing intervention strategies into a HWP, and monitoring the progress from a board level. Research findings suggest if senior leaders send the message of a healthy workplace and support it, they effect change in the culture (Patten, 2007). Otherwise, a lack of senior level sponsorship and championship may discourage employees not to participate.

There was evidence in this case study that the level of involvement from senior leaders was central to creating a culture of health and wellness. The focus group employees at Company 1 expressed concerns that the senior leaders did not champion the culture of health and wellness. To that end, one employee from the focus group did not see the value in the creation of a HWP. Employees at Company 1 clearly felt that the organization was prepared to financially support HWP. However, they were less convinced about the genuine interest by senior leaders in the

holistic transformation to a culture of health and wellness. This sentiment was captured by one employee who referred to the HWP as "hog-wash" and suggested that other employees may be negative about the company's intention.

> "There can be some negativity towards some people's feelings that this is a bunch of hog-wash and things aren't going to change. People have their own mindset and I am going to eat what I am going to eat and do what I am going to do. Some people have a negative mindset on wellness and what the company is trying to do." (Focus Group #2)

Company 2 created a culture of health and wellness through a strategy focused on enabling employees to participate in program options while on the work site. Managers constantly monitored feedback from employees about the effectiveness of the HWP initiatives and were flexible to incorporate changes as quickly as possible. There was an underlying theme that making the employee happy was a top priority. This sentiment was echoed by front line employees in the focus group. Arlene discussed how the approach by the company was consistent with her own personal values. She also stated that there was consistency throughout the company.

> "To me, it fits very well with their values and integrity and they are very much like me and what I value. And all the way from the top, I mentioned the [Company 2 committee name], that they are committed to the community, diversity, and environment. So it really filters all the way down and it is the same and consistent message all the way." (Arlene)

Senior leaders were seen as being very committed to the development of a HWP and supportive of the suggestions put forward by employees in the company.

Removing Barriers: Senior leaders' and managers' perceptions varied in terms of whether there were barriers to successfully implementing a HWP. When participants from this study were asked if they felt there were any barriers to participating in a HWP at their company, they identified time constraints and money as top barriers.

Although the financial support by Company 1 was perceived to be sufficient, employees identified more barriers to participation in the program than employees in Company 2 (with less financial support). The emphasis seemed to be on lost productivity and working towards deadlines. Marty, a manager at Company 1, in the quote below highlighted how allowing people to go jeopardizes production.

> "I think everyone understands the importance. There may be barriers that people feel they have to get a certain job done or a deadline met and they can't take the time to go to one of these sessions. Everyone can't go to everything or otherwise no work will get done but it's not too severe." (Marty)

At Company 2, there were very modest funds available to invest in a HWP, but they were able to use it in an effective way. At Company 2, employees stated their appreciation for having the HWP at work. A manager said they focused on program features that interest employees and that they could attend during their lunches and breaks. For example, the weight watchers program was a 60 minute session and was reworked to fit into a 30 minute lunch break. Similarly the

walking club only counts kilometers walked at work. The view at Company 2 was that a healthy and happy employee was a more productive employee. So – by finding ways to allow them to participate in HWP initiatives, they were actually enhancing productivity. One employee in the focus group commented on how things have changed over the past nine years. The company has shifted from a more "rules" intensive environment to focusing more on flexibility and creativity.

> "There seems to be a lot of changes and it's a lot more open than when I first started. It was a lot stricter and a lot more rules and things seemed to have relaxed. When I first started 9 years ago, if you used a sick day you had to be sick and if you said your car broke down you wouldn't get paid for that day. Now there are more personal days and they have relaxed the rules a lot and everyone has different reasons for not coming and you know if you are making your employees unhappy and they have to lie to get paid for a day that they deserve, it is not a good thing. Management has realized that and it is a lot happier place than it was originally. I think everyone is always trying to keep making it better, and easy, as Company 2 like to say." (Focus Group #2)

This shift in philosophy about removing barriers is echoed by a manager, Stephen.

> "I think the message we hopefully try to get across, or hopefully we do get across, is a healthy lifestyle is very important. And for the management team, it is important for our employees to be healthy, and if they are healthy they are coming to work and in better moods, and impacting our customers positively - and if unhealthy and miserable and down in the dumps, definitely it impacts our customers. And at the same time, we also have those things because we want to make sure our employees feel appreciated." (Stephen)

This focus on happy, healthy employees had been translated into working together to create solutions to remove barriers. In essence, Company 2 views creating a "happier place to work" as a way of achieving both individual and organizational goals.

Encouraging Communication: Communication is critical to changing employee attitudes toward increased responsibility for benefit decisions and health and wellbeing (Patten, 2007). The PwC report identified that there should be continuous communication about the HWP and the progress of the program features. The 3C's framework from the PwC report (2008) findings provided a model of effective leadership that was described as an enabler in order for a HWP to be successfully implemented. The PwC report also recognized many forms of communication. These forms of communication can be from informal conversations and meetings to on-line information, flyers, posters, and personalized messages.

The two companies from this case study were using various forms of communication channels to inform their employees about programs features and events. One of the significant differences in communication methods between the two companies was employee perceptions about being involved in the process. For example, at Company 1 managers felt that they were attempting to seek input from employees on a regular basis. One manager stated the following:

> "Whether they have thought of what has been offered, I don't know. Why there is no accountability from the employees or feedback. I don't know. Every trick in the book has been tried to even receive negative feedback, just tell us, any new topics, any we missed, any to revisit, what about the pedometer and we didn't get one response." (Charlotte)

Although managers feel that they are doing ample to solicit feedback, employees view communication to take on other forms. For example, an employee from the focus group felt that there were not genuine attempts to collaborate with them about the developments in the program.

> "No, I think they could be better at communicating… Topics were just posted and given and there wasn't any collaboration. A sheet may have been filled out in the beginning but not sure." (Focus Group #1)

At Company 2, there was a consistent message from managers and employees that they are actively involved and they listen. Their committees included employees and management and all interview participants discussed how they were listened to and provided feedback. The objective was to support committee members in educating employees on the programs and involve employees in managing their own health. Employees perceived that the committees did a very good job of communicating updates via email as can be noted by Stephen's comment below. In addition, managers emphasized that they listened to employees (see Arlene's comment) and that the process of coming together was not as "us" versus "them" but rather a "we" (see comment from Focus Group 2).

> "We have the Employee [Committee Name] and the Great Place to Work Committee. The Employee Committee will send out quite a few communications and generally its emails". (Stephen)

> "The biggest thing and the greatest thing with Company 2 is we listen to our employees." (Arlene)

> "We don't go and get involved where the management sits on one side and we sit on the other side, we do it together." (Focus Group #2)

Company 2 employees felt that they were engaged in the communication and part of developing the approach moving forward. This happened in informal communications with managers and other employees as well as in formal channels, such as committees and email correspondence.

Coaching for Engagement: The PwC (2008) report identified that senior leaders must go beyond endorsement, and coach other employees in the organization by being visibly active through support such as nominating a wellness champion, demonstrating a healthy lifestyle, and creating a diverse team of stakeholders for program buy-in.

In this area, there were again clear differences in approach by senior leaders in Company 1 and 2. For example, in Company 1 employees perceived that the senior leaders were willing to invest financially in the program and would re-enforce messaging about participating in initiatives. However, employees viewed them as being more "hands-off" and less participatory. As one manager, Bob, described it, senior leaders "push" the events but they do not go and do the "rah-rah". In other words, they want the potential promised results but are not interested in engaging themselves with employees.

 "I know they set the tone but they don't physically go out and do the "rah-rah" at the staff level. They push the message and say don't forget this or that. They tell people to go to the OH&S breakfast. They push the flu shot and send out reminders. I don't think the senior leaders know about individual department initiatives such as the fruit or other things that we do within our department." (Bob)

This contrasts to the perceptions of employees at Company 2. One employee from Company 2 said that people get involved because others are doing it. This employee felt she was motivated by other employees. For example, when she was sitting next to someone who signed up for an activity, such as the walking club, it encouraged her (and others) to want to do it as well. This peer encouragement has been seen as a form of leadership at Company 2. Coaching for engagement in the program was also evidence at the manager level. Managers spoke about the ways in which they engaged with employees to understand their needs. Through attendance management process they work with employees one-on-one to ask questions and find solutions for employees who want to come to work. In these coaching sessions, managers provide suggestions to employees about options and tools available to help them. In one case, a manager said that she often shared with employees her own health and wellness challenges and shared how she dealt with them.

"One of the things we do here is called attendance management. It is not a disciplinary process at all. It is getting people to come to work and what are their barriers and a lot of it is their health. They are not taking care of themselves and going to clinics oppose to seeing their own physician and taking care of that. Showing them that there are tools and we have a wonderful EFAP Program. I will share with them myself and I'll go on and there is self assessment you can do." (Sandra)

Coaching in Company 2 was found to be both from a peer-to-peer and immediate supervisor level. A very active discussion takes place in this organization about health and wellness, accompanied by involvement by managers and senior leaders in the events and activities. All interview participants spoke about a "lead by example" engagement – but not just with senior leaders, with all employees in the organization.

Discussion

The findings from this study suggest that senior leaders play an important role in the development, implementation, and perceived effectiveness of HWP. Despite mimic isomorphism of companies to adopt program features at a surface level, perceptions of senior leaders' genuine commitment to the program undermine employees' views about the effectiveness of the HWP. This finding is consistent with Benjamin's (2006) study that points to the central role of senior leaders in the development, implementation, and sustainment of a HWP. The findings from this study show evidence that employees' perceptions about senior leaders' role affects their perceptions of the program's effectiveness. For example, in Company 1 employees felt that senior leaders provided financial support but the program did not have traction in the organization. This contrasts sharply

with Company 2 where senior leaders and managers, were perceived to be engaged at all levels, including participation in the program.

Further, the findings from this study also provide supporting evidence to O'Reilly's (2008) claim that senior leaders had different leadership approaches to creating, developing, and implementing a HWP and is consistent with findings from O'Reilly (2008). The senior leaders' differences in approaches to endorsing programs to create a healthy workplace provided different outcomes. Again, this was evidence when comparing the two call centres in this study. Both call centres had similar HWP features, yet employees viewed the outcomes very differently. While Company 1 employees felt that the senior leadership financially contributed to the program and were concerned for their health, they were less convinced of the sincerity of management to have them participate fully in all initiatives. This contrasts with Company 2 where limited funds were available, but managers were encouraged to find creative ways to help employees accomplish health and wellness goals at work. Whereas Company 1 seemed to have an underlying commitment to productivity as a guiding outcome, Company 2 seemed to define as an outcome of employee "happiness".

Finally, Morris (2008) found that if employees observed senior leaders participating in healthy lifestyles, including through the involvement in a HWP, it creates an image in the employees mind and encourages the employees to get involved. The lifestyle choices and level of participation of senior leaders in the programs at the companies in this case study revealed varied opinions and outcomes. Again, Company 1 senior leaders did not see themselves as role models to create change towards healthy lifestyle choices for employees. The senior leaders believed their role was to provide the channels for the transformation in terms of support. They identified their strategy as one of financial investments to develop a HWP. The majority of managers and employees saw senior leaders demonstrating concern for the health and wellbeing of employees and their families, but not engaging with them in the program initiatives. There was little money to invest in the programs at Company 2. The senior leaders believed that a lot could be done in their environment for very little money and that some of their most successful activities have been of little or no cost. Company 2 leaders communicated their need to retain employees and to demonstrate a genuine concern for their employees' wellbeing. The senior leaders had developed internal and external partnerships to support this effort. Their focus was to respond to employee requests while still meeting the overall business objectives of healthy, happy employees. The culture of Company 2, when it came to the leadership for employee health and wellbeing, was one of "active participation".

From a practical perspective, this study offers insights for organizations contemplating implementing a HWP or analyzing the effectiveness of an existing one. The findings support the guiding principles of the 3C leadership model for implementing HWP and further provide guidance about what specifically senior leaders do in organizations where employees perceive the HWP to be effective. Although the findings from this study should be interpreted with caution due to its exploratory nature, there are insights that add support to previous case studies in this area and provide direction as to specific leadership behaviours to be examined in future research. In addition, future research about senior leaders' role in effective HWP implementation from a qualitative research design could help to understand the specific associations among HR practices, culture, leadership, and firm performance outcomes, both employee and financial.

Appendix A: Feature Comparisons of Company 1 and 2 HWP

	Behavioral Interventions	Clinical Interventions	Community Outreach
Traditional Features (tend to be more reactive or static)	**Company 1**		

	EAP
	Smoking Cessation
	Ergonomics
		Dental & Medical Coverage	- Fundraising such as:
			  - Hockey Challenge
			  - Charity golf tournament
			
			- Donations by the employer and employees

	Company 2		
	EFAP Smoking Cessation Ergonomics	Dental & Medical Coverage	Fundraising such as: - IWK Telethon - Tim Horton's Camp - Back to School Program - Habitat for the Community - Dreams Take Flight - The relay for life & more

	Behavioral Interventions	Clinical Interventions	Community Outreach
Preventative Features	**Company 1**		
	Engaging employees in **physical fitness in/out work**. At the workplace: - Pedometers for walking provided at no cost - Subsidies for in-house programs Outside the workplace: - Subsidies for memberships Education about **nutrition.** - Sessions - Weight Loss Programs - Healthy eating habits, healthy carbs and menu planning Fostering **healthy workplace behaviours**. - Respectful workplace policy sessions - Mental Health (stress mngm. techniques)	**Clinics at the workplace aimed at increasing education and awareness**. General: - Individual Health clinic Targeted: - Diabetes - Heart and Stroke - Blood pressure and hyper tension - Breast health - Back Pain - Body Mass Index (BMI) - Flu & Blood Pressure	**Events involving physical fitness.** - Walks or runs - Challenges such as golf or hockey
	Company 2		
	Engaging employees in **physical fitness at work**. At the workplace: - Organized Walking Club - Basic & advanced yoga - Subsidies for some in-house programs Education about **nutrition.** - Sessions - Weight Loss Programs Fostering **healthy workplace behaviours**. - Mental Health (stress mngm. techniques)	**Clinics at the workplace aimed at increasing education and awareness**. General: - Wellness Fair - Individual Health clinics Targeted: - Diabetes - Heart Health - Breast health - Flu	**Events involving physical fitness.** - Walks or runs - Building homes

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ASB 2011   Heather-Anne MacLean (Student)
Charlottetown, PEI   Judy Ann Roy
                                         Faculty of Business Administration
                                          University of New Brunswick

SOCIAL MEDIA IN THE WORKPLACE:

TRADITIONAL COMMUNICATION LINES GET BLURRED

During the last few years we have witnessed a communications revolution in the workplace. Gone are the traditional ways of communicating with employees. No longer is an internal memo just internal. No longer is an external release just external. Social Media is changing the way we communicate. In the new, relationship-based paradigm, employees "ping" sources both inside and outside of their organizations for information. This paper reviews the impact Social Media has on internal communications and the ramifications of this new communications tool.

Traditional Internal / Employee Communications

Traditionally, internal or employee communications have been about management wanting to share information - a message with employees. Some might argue it is about "telling" and not listening or having two-way dialogue. Over the last few years however, we have been a part of a communications revolution, (Qualman, 2009, A). Social Media is continuing to change the way we communicate. No longer is an internal memo just internal. No longer is an external release just external. Internal communications must be geared towards the external audience and so must external messages be geared towards the internal audience. "In the old employee communications paradigm, corporate communications departments relied on top-down approaches to reach their employees. In the new, relationship-based paradigm, employees "ping" sources both inside and outside their organization for information. These sources include messages from a CEO, a direct supervisor, a company ad in the newspaper, a neighbour's comment about the company, a union steward's opinion, a stock analyst's report, or publicity around a corporate sponsorship," (Eldeman, 2004).

To fully appreciate internal communications and the impact Social Media has had, it is essential that traditional communications be briefly reviewed.

Before Social Media, and even still today for many organizations, employee communications were achieved through the generation of the message by management and its communications department, and then it was released to the masses to either read through the internal memo or to listen to managers as they passed along the key messages. The point is that this is one-way messaging, however, best-practice guidelines and documents all cite the best approach for internal communications as two-way dialogue. *The Best Practice Guide, Internal Communications* produced by Lancashire Communications (2005) espouses all the right

messages for communicators and how internal communications should be done. It covers the a-z of communications in very traditional formats.

In 2004, Edelman, the world's largest independent communications firm, surveyed communications professionals across North America to learn more about the variety of information channels that companies use to communicate with employees.   Their results demonstrated overwhelmingly that:

- Communicators are relatively unfamiliar with *newer* tools such as blogs and wiki, but see their potential.
- "Blogging" by senior management is still uncommon.
- Intranet message boards are rare, but when they exist, they are frequently monitored by corporate gatekeepers.
- Employees without computer access are increasingly losing their 'voice' in an environment that relies more and more on electronic forms of communication.
- Intranet investments remain strong as companies continue to convert sites to portal technology and add streaming video capability.
- The use of instant messaging at the workplace is on the rise, yet few companies have formal policies to monitor it.

An interesting point here from the last bullet is the word "monitor." The idea of monitoring and the issue of trust will be further discussed in this paper. One could argue that there is a definite disconnect between the employer and the employee when it comes to "trust".

The forms of communicating with employees have been fairly standardized over the years and includes such things as face-to-face, staff bulletin boards, team briefings, the employee newsletter, executive communications, memos, email memos, letters to employee homes, surveys and focus groups, and more recently webcasts and podcasts. Professional communicators will argue that they, having worked with management, have information that they must share.
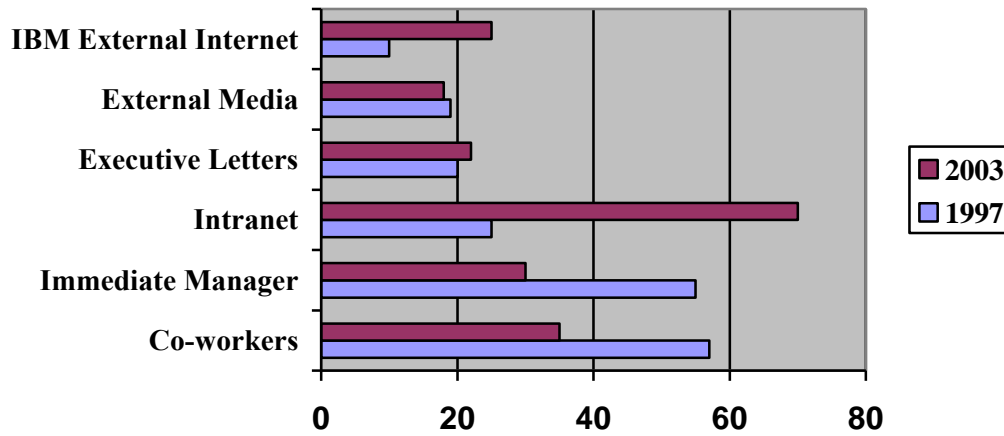
Feedback, if requested, will be solicited in the form of an email, comment card or perhaps even an anonymous comment process. Regardless of the format used, it has *not* been in an open format for others to hear, digest or even further comment upon.   This is *not* two-way communication or a dialogue in the true sense. In fact, the authors of this paper would argue that the true meaning of a dialogue was not fully appreciated until not only the advent of Social Media, but more importantly once the masses realized the full potential these tools hold. No longer is an internal memo confined to the internal audience it was intended. With the tools and technology now at the fingertips of every employee - memos, newsletters, photos and even video can be uploaded to the Internet and can potentially be viral within minutes of publication or posting. In other words, a simple upload to Facebook or YouTube could be seen and forwarded to hundreds, thousands or even more within hours or minutes.

Employee Trust

For all the forms of internal communications, it should be noted that the level of trust that employees have for the various forms of internal communications are also worth reviewing. In 2003, IBM conducted a survey to determine what medium was used most by employees and why, (Kite, 2009). The results indicated that the intranet became employees' most trusted source for

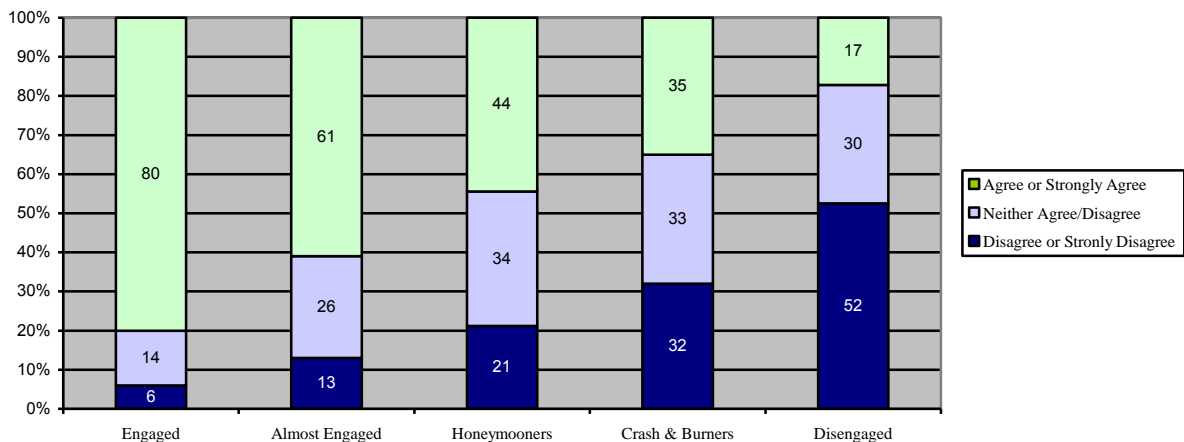company information. Figure 1 demonstrates a comparison of information taken first in 1997 and then in 2003.

Figure #1 IBM's Most Trusted Communication Tools

Source: IBM 2003 (Kite, 2009)

As time has progressed, however, trust rates in general have changed and not for the better. According to the BlessingWhite Employee Engagement Report of 2008, "only about half (53%) of employees trust their organization's senior leaders — the people who set the tone for organizational culture and need to inspire high-performance and commitment. Three in four (75%) North American respondents agree or strongly agree that they trust their manager, slightly down from 2006's response of 79%. 17% of disengaged employees actually trust their managers." Figure 2 below illustrates the correlation levels of engagement and trust employees have in senior leaders. It appears that some employees hold a less than stellar view of top leaders.

Figure #2 – BlessingWhite – Trust Measurement

Source: BlessingWhite 2008

Even more recent research continues to demonstrate that trust is an issue. According to Lee Smith (2009) and his Blog – *Talking Internal Communication* and his review of Edelman's 2009 Trust Barometer, trust of officials is in serious decline.

"I haven't had time to fully digest this research, but there are two big things that immediately jump out for me as an internal communicator... First off, the trend away from trusting official sources of information towards trusting 'people like me' continues apace. This trend is evident in the big wide world, and it also applies internally - employees trust other employees more than they trust leaders. As communicators we need to respond to and embrace this. That's one of the reasons Social Media is so damn important - it provides access to and empowers 'people like me' (whether they're employees or consumers). The world order is changing and we need to change with it. Second, and the points are linked, we need to become much, much better at engaging our employees, empowering them and equipping them to become advocates for the organisation. The lines between internal and external are blurring fast - today your employees are as much your spokespeople as your CEO. Let's face it, they are often more trusted, more credible and more accessible. We need to face up to this reality. Lots of little voices are louder than one big voice," (Smith, 2009).

Further information on Edelman's Trust Barometer is found in Appendix 1. This decline in trust does not just affect internal communications; it is also very significant in terms of external communications which will be discussed later in this paper.

There is no question that employee engagement is a hot topic in business today.

"Employers need to trust their employees to participate in those conversations like responsible adults, and employees need to trust that the employer actually is prepared to have some open and honest discussions about what will inevitably sometimes be uncomfortable topics. And with that trust comes an equally shared need for responsibility. For employers, it is the responsibility to listen to what employees are saying, to respond to what they hear, and to be open and transparent about what is happening in the organization. For employees, there is first the responsibility to participate. If the employer is going to make an effort to encourage and engage in real conversations with employees, then employees should see it as part of their role [as employees] to participate," (Rueben, 2010).

Employer Trust

It should be noted that trust issues do not only exist for employees. There is a definite permeation of mistrust of employees by the employer. We see this most frequently through employers who block access to social networking sites, (Ostrow, 2009). For those who do allow access, employee activity is closely monitored by what Edleman labels as "gatekeepers." According to Ochman (2010), many employers are concerned that sensitive or confidential information will be leaked or quite frankly, that employees will bad mouth the company.

"Amanda Walkup, a lawyer who practices employment law, ... said her firm fields "fairly regular inquiries" from clients asking about Social Media and whether they should adopt policies governing its use. Should they permit employees to be using those sites in the workplace, and should they be concerned about what they post on their own time, outside the workplace? "The real purpose of policy is to

communicate expectations," she said. "With a lack of direction, sometimes chaos reigns." (Cuiper, 2010)

As the authors of this paper contend, having a policy in place that involves the employees and sets expectations for both parties would be the first step to help alleviate trust issues. When employees and employers know what to expect, the stage is better set to build and maintain trust.

This lack of trust extends beyond what employees are doing at work. According to Taylor (2008) in a study conducted in Ireland which surveyed 647 employers, 83% of the employers confirmed that they checked Facebook to see if an employee was truly sick. The survey also revealed that 67% of the employers disciplined employees as a result of what they have seen on Facebook.

Over and above what an employee does during work hours, some employers are also watching employee activity after hours. According to Myatt (2010), "an employee is a direct representative of the company, and his or her actions, either on or off the job, are a direct reflection on the employer's brand, reputation, and image in the marketplace. Companies are in reality frequently judged by the quality, integrity, and character of their employees."

As Social Media further permeates the workplace, there is no doubt the line that distinguishes personal versus work time will continue to be blurred and employment law and Human Resource practices will need to adapt. In the meantime, there appears to be enough mistrust between employees and employers to cause concern. Without trust, both parties will continue to take actions that would perhaps not otherwise occur. One such activity that seems to be on the rise is employee leaks of confidential or sensitive information.

Why do employees leak information?

Long before Social Media appeared on the scene, employees leaked information. This is not a new phenomenon, but with Social Media, information can reach a much larger audience much more quickly than ever before. The question remains, however, why do employees leak information? Is it an issue with not trusting their employer and their motives? Is it a sense that an employee is blowing the whistle on what he or she believes to be inappropriate or unethical behaviour of their employer? Or is it an act of revenge?

According to Kearns (2009), "Generally in times of economic recession when companies are faced with redundancies, there is a heightened risk of disaffected employees leaking sensitive business information. The loss of confidential information can affect any business and that the implications are costly, embarrassing and most importantly damaging to your business."

Wikipedia's page on *News Leaks* on the other hand, provides further insight into why employees leak information. "People with access to confidential information may find it to their advantage to make it public, without themselves appearing to be responsible for publishing the information. For example, information which will embarrass political opponents, or cause damage to national security, may be leaked. People privy to secret information about matters which they consider to be morally wrong or against the public interest — often referred to as "whistleblowers" — may leak the information," (Wikipedia, 2010, A). As the authors of this paper contend, information leaked to a third party is meant to embarrass and the third party is often a member of the news media. As a result, if the reporter chooses to pursue, the audience will be much larger.

Traditional External / News Media

When looking at traditional communications, the review and understanding of the use of news media as sources of information for employees also needs to be considered. According to Humphries (2010), in the time of crisis, employees look to their leaders for information, answers and confidence. If it isn't forth coming, they will go elsewhere, including news reports. Furthermore, "one thing we say in PR is 'Tell the family first,' always share the information with the internal audience before they hear it on the 6 o'clock news. Company employees will likely be faced with questions from their family and friends as well as from the media," (Coakley, 2010).   These basic principles really go without saying, but during times of uncertainty they become even more important.

What the heck is Social Media?

Social media are web-based applications designed such as Facebook and Twitter to promote social interaction (Shwom & Snyder, 2012).   According to Wikipedia, (2010, B), "*Social media* are media for social interaction, using highly accessible and scalable publishing techniques. Social media use web-based technologies to transform and broadcast media monologues into Social media dialogues. They support the democratization of knowledge and information and transform people from content consumers to content producers." Perhaps the key words here are "democratization of knowledge." Wikipedia (2010, C) goes on to define the *democratization of knowledge* as "the acquisition and spread of knowledge amongst the common people, not just privileged elites such as priests and academics." The ability of "common people" to speak out in such a public way, to share information instantaneously either through text, photos or videos can have a tremendous impact on employees. As will be discussed further in this paper, employees have found a new sense of empowerment from the ability to speak out, share information and correct what they either perceive or know to be misinformation.

Is Social Media a fad?

Many employers and people in general, would like to think that Social Media is the current fad or phase in the "what's next" world that we live in. Making use of Social Media for communications requires a change in thought processes. Employers need to embrace the concept of *true* two-way communications, (Ochman, 2010). This means that not all commentary will or can be controlled, nor will it always be positive. For many employers it also means investment, whether in human or technological resources. For some, allowing employees to participate in Social Media is perceived as a distraction and leads to a low productivity at work, (Ochman, 2010).   In fact, many employers have implemented internet blocking processes to ensure that employees do not have access to Social Media networks. According to Ostrow (2009), a survey of 1,400 CIOs [Chief Information Officers] of companies with 100 or more employees revealed that 54% completely block employees from accessing social networking sites at work. Of those surveyed, only 10% allow employees to use social networks as they please. The remainder, however, all impose some restrictions on usage and limit it to business purposes only.

Such companies that fail to see the benefits of employee use, likely would not use Social Media for communicating with customers/clients.   At the same time, they are likely not monitoring their brand either and how it is being portrayed in Social Media networks. By believing that this is just a fad and something else will come along, such employers are not only

missing opportunities for communicating, they are missing the opportunity to communicate in a real two-way dialogue with customers *and employees.*

To emphasize that Social Media is not a fad or phase, there are many interesting statistics available. According to the "Did you Know?" Version 3.0 video, which was produced in 2008, (McLeod, Fisch and Bestler) the following statistics reveal some very interesting insights into how technology and ultimately Social Media is changing what we do. For example, there are currently 31 billion searches on Google each month. Contrast that to a total of 2.7 million searches in all of 2006. The following table of communication mediums indicates number of years that each took to reach an audience of 50 million.

Figure #3– Years to Reach an Audience of 50 Million.

Medium	Years
Radio	38
Television	13
Internet	4
iPod	3
Facebook	*2*

According to Lur (2010) if Facebook were a country, it would be the third largest country in the world based on population, or in this case, individual membership. Only China and India would surpass Facebook. Some additional interesting facts from an updated version of "Did you Know?" Version 4.0 are contained in the video which uploaded in the fall of 2009 and produced by Xplane, The Economist, and McLeod, Fisch and Bestler. The content of the video describes, among other interesting facts, the decline of traditional media such as newsprint. Newspaper circulation is down seven million over the last 25 years whereas on-line readership of news is more than 30 million during the last five years. The video also contends that more video has been uploaded to YouTube in a two-month period than what would have been produced and aired if NBC, ABC and CBS were airing 24-hours a day, seven days a week, 365-days a year since 1948. Finally, these three stations combined get 10 million unique visitors each month, where as myspace.com, YouTube and Facebook get 250 million unique visitors each month. Perhaps more staggering is that if you combined NBC, ABC and CBS, they would have been around for a combined 200 years whereas myspace, YouTube and Facebook did not exist six years ago, (McLeod, Fisch and Bestler, 2008).

When it comes to text messaging, "Did you Know?" Version 4.0 also reveals interesting information about teenagers and text messaging. The average teenager texts 2,272 messages each month. As future employees, how will this impact the way these individuals send and receive information? As noted by Qualman (2009, B), email communications are passé to generation Y and Z, so how will employers actually communicate with these future employees? How are employers treating text messaging now? Are they blocking text messaging in the same way that they are blocking access to other Social Media networks? If so, should they be? If 93% of American adults own cell phones as purported by this video, text message communications can be at the fingertips of a significant portion of the population. Even if employers are blocking text messaging on company assets, are they really controlling texting and the messaging? A look at one employer's response to text messages will be provided later in this paper.

When you look at the evolution or revolution that we have witnessed and continue to witness with Social Media; it is fair to say that Social Media is a fad? According to Qualman,

(2009, A) , Social Media is not a fad. It's a fundamental shift in the way we communicate. The following list comprises some of the information that Qualman, (2009, A) provides in his on-line article "Social Media: Fad or Revolution?" on searchenginewatch.com.

- 80 % of Twitter usage is on mobile devices. People update anywhere, anytime. Imagine what that means for bad customer experiences!
- Generation Y and Z consider e-mail passé. Boston College stopped distributing e-mail addresses to incoming freshmen in 2009.
- YouTube is the second largest search engine in the world.
- There are more than 200,000,000 blogs.
- 54% of bloggers post content or tweet daily.
- Because of the speed in which Social Media enables communication, word of mouth now becomes *world* of mouth.
- 78% of consumers trust peer recommendations.

So, with the Social Media revolution here and growing, why do 54% of employers block employee access to Social Media networks, (Ostrow, 2009)? According to Ochman (2010), there are at least five good reasons to give employees access. The following reasons can be accessed on Ochman's blog: whatsnextblog.com:

1. *Resistance is futile -* Workers increasingly have Internet access on their smart phones. By the year 2013, 43% of global mobile internet users (607.5 million people worldwide) will be accessing social networks from their mobile devices, according to a new report from eMarketer which can be found at www.emarketer.com and entitled *Mobile Plus Social Equals Opportunity.*

2*. **Don't assume people won't find other ways to waste time**.* If an employee wants to waste his or her time, they will find a way to do it.

3*. **Social networks actually can make workers more productive**.* 75% of the 895 experts interviewed for the recent Pew Internet report -The Future of the Internet 4.0, said that use of the Internet enhances and augments human intelligence, and two thirds said use of the Internet has improved reading, writing, and rendering of knowledge.

4. *You'll miss great ideas.* Great ideas can come from any level in a company. Using Social Media networks internally (wikis, blogs, forums, even [Instant Messaging (IM)] fosters collaboration, and allows workers at all levels to contribute ideas. Experts emerge from within a company when collaboration is encouraged, and along with them come some of the best ideas that would otherwise be lost. Because people can comment on information, companies often learn of internal expertise they didn't know about already.

5. *Employees are much more trustworthy than companies think*. Managers worry that employees will leak confidential information, or speak poorly of the company. Most people have much more common sense than to jeopardize their jobs, with wanton comments in social networks, especially these days. If you can't trust your employees, you have one of two problems**:** you are hiring the wrong people or you are not properly training the people you hire. People who

want to say something negative will find a way, with or without access to social networks during business hours. However, negative feedback also can provide an early warning that changes need to be made, either in policy or employees. "All in all, companies have more to gain than to lose by allowing employee access to social networks. My bet is that it'll take another two years for most companies to figure that out," (Ochman, 2010).

So, what is the impact of Social Media on Internal Communications?

Based on the research to date, there are significant impacts for both the employer and the employee. The following section will explore how technology and Social Media are changing the way that both groups communicate.

The Employer

From the employer perspective, there is a need:

1. for a dramatic shift in mind-set,
2. to potentially revisit existing practices,
3. to develop new policies,
4. to change perceptions, and
5. to continue to adapt to new media.

1. In terms of developing a new mind-set, this really evolves from the need to move past gate keeper and controller and to deal proactively with trust issues. Even before an employee is hired, many companies are going to social networking sites to investigate potential employees. So even before someone is hired, the employer is exhibiting a lack of trust.

> "According to research firm Harris Interactive, who was commissioned by CareerBuilder.com and surveyed 2,667 HR professionals, finding that 45% of them use social networking sites to research job candidates…. According to the study, "35 % of employers reported they have found content on social networking sites that caused them not to hire the candidate" (Van Grove, 2009).

Even if you get in the door and are hired, some employers continue to watch employee behaviour outside of work. According to Van Grove (2009), this same study also cited that 44% of those surveyed dismissed [fired] employees after seeing content on social networks containing alcohol and drugs.
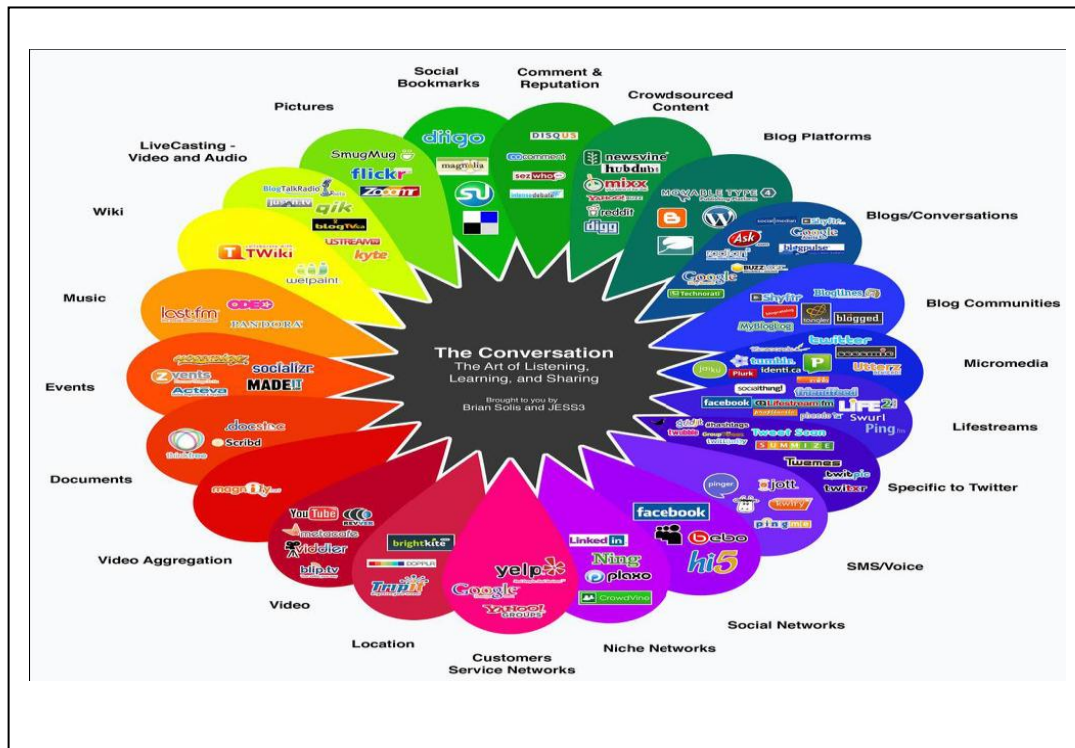
2. In terms of reviewing existing practices and policies, companies that plan to use Social Media for internal communications do need to consider how they are currently communicating. As early as 2008, Boston College was ceasing the use of establishing email accounts for new students. "Many students don't even want a college e-mail address these days because they already have well-established digital identities before they arrive on campus," (Young, 2008). As previously discussed, text messaging has become a prevalent communication medium for most students and with 93% of adults in the United States having access to cell phones, text messaging is easily accessible. As students become employees, employers need to adapt to new methods to reach these employees.

3. This is not dissimilar to the evolution of the printed memo moving to the email memo. It just requires a change. Without making adjustments, key employee segments will be excluded from communications. With this change also comes a need to have Social Media policies in place. According to Kujawski (2010) a policy sets not only the tone, but also the parameters for employees to know what they can and cannot do. Gene Connors of Workforce Management goes further. "Employers must implement social networking policies, obtain employee consent for monitoring and conduct their monitoring legally and responsibly," (in Lupfer, 2010). Connors also offers up "10 Social Media Commandments for Employers" to guide them through the process.

4. Changing perceptions about Social Media will no doubt be the largest obstacle. According to Lichtenberg (2009), "Social Media will become a single, cohesive experience embedded in our activities and technologies…Social Media as we knew it even six months ago has changed. By this time next year, it will have become fully integrated into everything we do online and offline. By the end of this year we'll see a move toward greater control over content and companies will fight over Social Media land grabs in preparation for the future."

5. Finally for the employer it also comes down to the unknown; what social networks and when? Below, figure 4 depicts the current plethora of Social Media options available.

Figure #4 - Social Networking Opportunities – Options

Source: Kujawski, 2010

As early as 2008, employee engagement had become an important theme for HR [human resource] and Communications professionals. According to Paton (2008), global intranet and portal leader at Watson Wyatt,

> "when properly rolled out, Social Media and Enterprise 2.0 tools can help companies meet their number one internal communication goal – engaging employees. Instead of simply mass e-mailing information or posting to an intranet [site] in hopes employees will see it, Social Media tools help employees actively participate in creating and sharing information. This shift to employee-generated content has resulted in employees' becoming more engaged online."
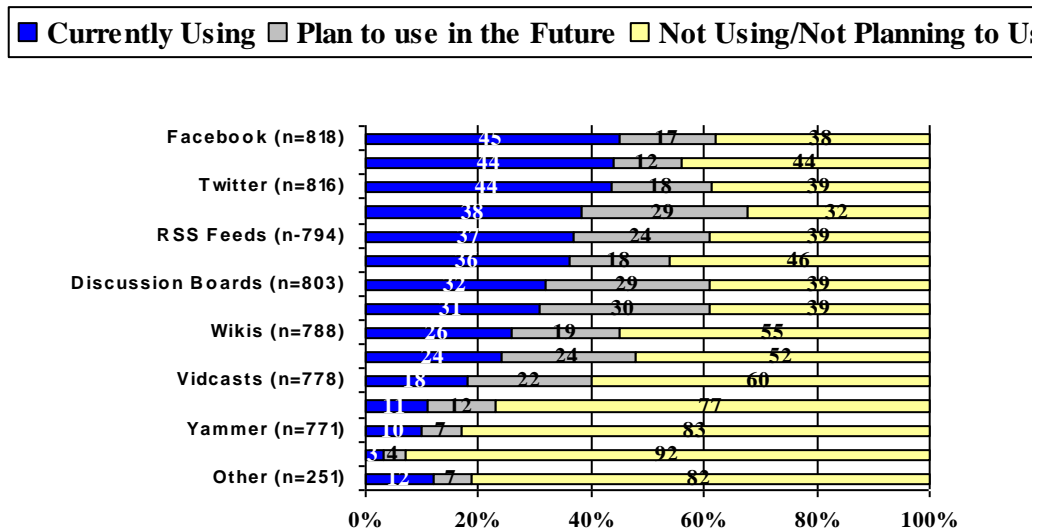
Fast forward to 2010, and it would appear that employers are still not taking the plunge. The following research by IABC further explores employee engagement.

IABC Research

According to the IABC Research Foundation and Buck Consultants Employee Engagement Survey released in June 2010, the usage results for Social Media tools are less than stellar. There were nearly 900 respondents to this survey which revealed great insight into plans for the future. For example, the following chart depicts current communication tools being used for both internal and external audiences as well as those that are planned and not planned to be used.

For employers to truly engage employees, it would appear that they do not understand the communication shift that has occurred. In looking at Facebook (38%), Twitter (39%) and YouTube (46%) alone, the numbers are very disappointing when you look at the percentage of

Figure #5– Internal and External Social Media Tools Currently Used

Source IABC 2010 Employee Engagement Survey

respondents who plan not to use these tools. From that same survey, 83% of respondents claim to use email frequently as the method to engage employees. In terms of having policies in place to either address employee use of internal Social Media or the use of external Social Media, the results are equally startling. The following charts demonstrate the use of policies in-place.

<table>
<tr>
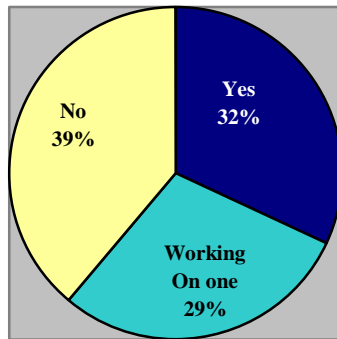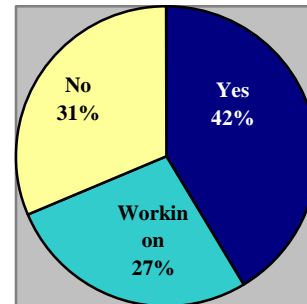<td align="center">Figure #6 – Policy in place to address employee use of internal Social Media</td>
<td align="center">Figure #7 – Policy in place to address employee use of external Social Media</td>
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Yes
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Source IABC 2010 Employee Engagement Survey

Based on the information provided in the IABC survey, it would appear that many employers are not yet engaging employees with Social Media, nor are they ready to move to implementing Social Media for internal or external communications.

The Employee

From the perspective of the employee, all the research points to increasing use of Social Media networking tools for communications. For existing employees, IABC research confirms that email continues to be the standard mode of communications that employers are using. This is not good news for either the employee or the employer. Key information is not and will not reach the internal audiences in a timely and efficient fashion. The authors of this paper argue employers need to understand that Social Media is the communication medium of choice for employees and this is really an opportunity that should be seized. It is better to move there willingly rather than being forced into it.

Regardless of whether employers are moving willingly or not to using Social Media, the authors suggest that more advanced and responsible employers would want to understand what truly engages their employees. For example, who is asking employees what they want access to and for what purposes?

Employers should note that it is not just Generation Y and Z who are making use of these tools. In February 2009, Inside Facebook reported that the fastest growing demographic on Facebook was women over the age of 55. The next fastest growing demographic is the 45-54 year olds with 165% growth. The next block is the 35-44 year olds with women leading at 154% compared to men in the same age group at 138.7%. Overall, 45% of Facebook's 45.3 million active users in the United States are now 26 years old or older. Nearly a quarter of all Facebook users are over 35 years old today – quite a change from Facebook's roots as a social networking

tool for college students just a few years ago, (Smith, 2009). In September 2009, Inside Facebook reported that Canada ranked third for the most usage and had a 38.7% penetration rate, (Eldon, 2009).

Being that employees are asking for more social networking tools to be used at work, the implementation of good and reasonable policies become even more important. According to "Did you Know" Version 4.0 video, among the larger employers in the United States, 17% have disciplined an employee for violating blog or message board policies. Having clear and concise expectations laid out in advance are necessary for employees and employers.

Finally, according to Kelly (2008), employees want trust, access to information, empowerment, and they want to be able to influence. The authors of this paper argue that with Social Media, employees and the population in general can get access to information, they can feel empowered by speaking their minds and they can influence the beliefs and behaviours of others.

Conclusions

If there is one conclusion to be derived from this paper, it is that communicating the way we did last year or even last month is no longer effective. Gone are the days when organizations can force its opinions, beliefs or perceived "spin" on employees, customers or the public in general. Social Media has changed everything. To fully understand this, however, the conclusions are summed up in three fundamental areas: trust, control and empowerment.

1. Trust

In terms of trust, the literature indicates that there are serious trust issues for the employer and the employee when it comes to internal communications.

From the *employer's* perspective, there is a belief that employees will abuse assets and company time to socialize on Social Media networks; or worse, they will sabotage the company by leaking trade secrets and insider information. Due to this lack of trust, it appears employers are not taking advantage of the opportunities provided by employee engagement. Engagement develops trust and a true dialogue. As a result, it appears that employers are more concerned with what may happen as opposed to finding solutions and implementing new Social Media tools to benefit employees, customers and the organization.

From an *employee* perspective, the research is also very clear. Increasingly we are seeing that employees lack the required trust that is needed to believe information that comes from management. In fact, research states that only 53% of employees trust an organization's senior leaders. Instead, they believe information that comes from "people like me", - hence, the power of Social Media. Employees can retrieve information, ratings and recommendations from people like themselves. Expectations of employees continue to rise with respect to access to Social Media networks and new communication tools. It is no longer a one-size-fits-all communication world; a "memo" from management is not sufficient for all audiences.

2. Control

This is a very powerful concept regardless of who you are. It is human nature to want control, but perhaps communications is much like politics - control is at the heart of the matter.

For the *employee*s, the research tells us there is the desire for more information and the need to be empowered to be able to influence and make decisions. With Social Media, all of this is possible.

For the *employer*/business owner it is all about crafting a message in order to get a certain result, determining when the message will be released, to whom and how. For example, an internal memo is only for employees and it will be controlled so that the message will not go public. The end game is to ensure that as an employer your employees are working efficiently and productively to get to a positive bottom line. As a business manager, it is all about increasing sales. Communicating in this controlled manner is completely one-way communication and the employer/business owner controls the entire picture: from what is in the media, to the messages on billboards, magazines and to the public in general.

Perhaps the most obvious conclusion in the control category is that employers/business owners have to change their thinking about control and build more trust by empowering their employees. Employers are used to being in full control, ensuring that employees (and customers) are told the story management wants released. Often large marketing campaigns are undertaken to simply influence opinions and behaviours of employees and/or customers.

With Social Media, the average person does not need a big budget. All one needs is a computer and an Internet account. Then anyone can make a difference. The fact is "people like me" are moving and adopting Social Media tools much faster than businesses. This phenomenon is not restricted to a class or particular age group.

3. *Engagement*

Employers speak about employee engagement. It has become the latest trend in business circles. With fully engaged employees, employers can expect more from the employee that will further the organization's interests. As employees, we want to make decisions for ourselves and speak out when we are in disagreement.

To truly engage employees, employers must take the next step and not only understand the communications preferences of employees, but be prepared to make changes. With or without employers taking the plunge, employees will, and employers may have the difficult task of playing catch up. While employers may need to learn how to effectively communicate in 140 characters or less, they need to trust, understand that control is no longer possible the way we have experienced in the past and finally empower employees to assist the employer to achieve its goals.

Finally *employers*/business owners need to be prepared that not all on-line comments and reviews will be favourable and in some cases the anonymity of the web might push employees/consumers to go further than anyone would like. They need to understand that any communication they prepare has the potential to be uploaded to a Social Media tool and be viral within minutes. Social Media is not a fad. It is a communications revolution.

Appendix 1 – Trust Barometer

About the Edelman Trust Barometer

The 2009 Edelman Trust Barometer is the firm's 10th trust and credibility survey. The survey was produced by research firm StrategyOne and consisted of 30-minute telephone interviews using the fielding services of World One from November 5–December 14, 2008. The 2009 Edelman Trust Barometer survey sampled 4,475 informed publics in two age groups (25-34 and 35-64). All informed publics met the following criteria: college-educated; household income in the top quartile for their age in their country; read or watch business/news media at least several times a week; follow public policy issues in the news at least several times a week. For more information, visit http://www.edelman.com/trust or call +212-704-4834.

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USER EXPECTATIONS OF PRIVACY OF NETWORK TRAFFIC: PRIVACY ISSUES AND CONCERNS IN THE INFORMATION SOCIETY[1]

ASB 2011   Elizabeth A. McLeod (PhD Candidate)
Charlottetown, PEI   Department of Management
                                                      Saint Mary's University
                                                      elizabeth.mcleod@smu.ca

                                             Ron McLeod, CEO (PhD Candidate)
                                                 Select Technology Corporation
                                                      rmcleod@stcsecure.com

A survey was developed to gather user expectations of privacy and concerns related to network traffic monitoring. Data from people originating in 27 countries is presented. Empirical data was collected to determine user expectations of privacy at home, at work and at public hotspots. This data should provide a baseline of user expectations of privacy that may serve as a guide for those engaged in network security and privacy research. Our results indicate that a significant knowledge gap exists. This insight may help to guide training programs not only for individuals who process private data but for all employees.

I. Introduction

Network security practices often include the monitoring, capture and analysis of network traffic data. In 2009, one of the authors of this paper set out to conduct research into network security techniques which involved the monitoring, capture and analysis of network traffic data. This activity is often differentiated between techniques involving flow-level monitoring of network packet headers and full packet capture including payload data (see Figure 1). During discussions with other researchers in the field at that time, comments were made regarding the appropriateness of the application of each technique with respect to the user's expectation of privacy.

The opinions expressed during these discussions included beliefs ranging from 1) user concerns for privacy would prevent the capture of any portion of the network traffic data for security purposes, to 2) users were concerned only with the capture of payload data and did not care about packet header data. While many opinions were expressed there seemed to be little in the way of specific research available from which one could gain insight into what user expectations and concerns actually were with respect to the practice of network traffic capture and monitoring.

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[1] We would like to thank Faculty Advisor, Dr. Dawn Jutla, Saint Mary's University. We would also like to thank all the participants who completed the surveys and the various conference organizers who permitted the survey distribution.

The authors of this paper attempted to identify a body of empirical research specifically related to user concerns and expectations of privacy regarding network monitoring activity. While research existed relating to application layer monitoring of data contained in packet payloads such as the data transmitted in email, web traffic, and other proprietary applications such as electronic performance monitoring systems used in call centre software (Hoffman, Hartman & Rowe, 2003; Ball & Wilson, 2000), we were unable to locate publications that dealt specifically with the act of network traffic capture in a more general sense. We were specifically unable to locate any data set that examined the difference (if any) between user`s concerns for header versus payload capture.
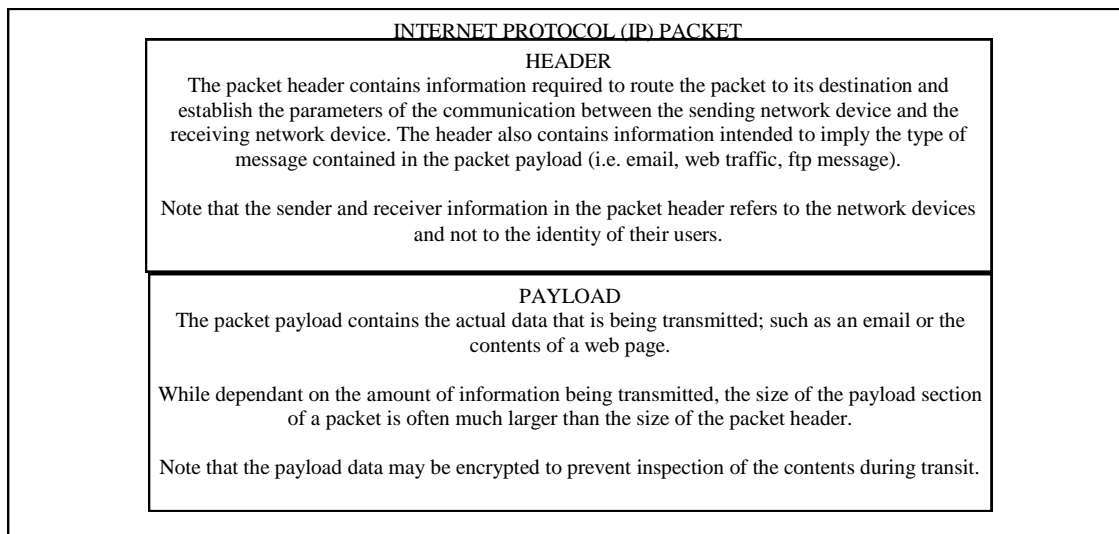

INTERNET PROTOCOL (IP) PACKET

HEADER

The packet header contains information required to route the packet to its destination and establish the parameters of the communication between the sending network device and the receiving network device. The header also contains information intended to imply the type of message contained in the packet payload (i.e. email, web traffic, ftp message).

Note that the sender and receiver information in the packet header refers to the network devices and not to the identity of their users.

PAYLOAD

The packet payload contains the actual data that is being transmitted; such as an email or the contents of a web page.

While dependant on the amount of information being transmitted, the size of the payload section of a packet is often much larger than the size of the packet header.

Note that the payload data may be encrypted to prevent inspection of the contents during transit.

Figure 1. High Level Structure of an Internet Protocol Packet

To help to maintain a balance between privacy and security research the authors of this paper set out to ask users about their expectations and concerns with respect to their network traffic. We believe the results will make a valuable contribution to the literature used by those who wish to investigate the user expectations of privacy of their network traffic at home, at work and at public hotspots.

The results of this study to date have not matched the authors' beliefs prior to the collection of the data. This was despite the high level of awareness and expertise of the authors in the subject matter. Specific areas where the data did not match the authors' a priori beliefs include the high number of participants that had an expectation of privacy in public hotspots and at work. As discussed in the conclusion, readers of this material are encouraged to consider the impact on user behaviour that the described expectations are likely to have when it comes to the handling and processing of private data. The authors also hope that this work will serve to provide researchers and organizations who engage in network traffic collection with additional insight into users'

expectations and concerns. This insight may help to guide training programs not only for individuals who process private data but for all employees. Such training could ensure that individual expectations may be brought in line with the actual practices taking place within the workplace or at other locations.

The survey we developed for this study also allowed the participant to express their concerns in other areas of network traffic privacy. Examples of these additional concerns are described in section IV B. We found that the opinions expressed in these additional responses provided a valuable insight to the privacy concerns felt by the individual participants. These privacy concerns may also serve as valuable input into the design of policy and practices and their associated implementation and training programs. Privacy expectations impact many activities of businesses, government and research communities. There are more privacy issues and concerns with the growing number of pervasive technologies. "With the growing prevalence of social networking sites, behavioural marketing, wireless technology, sensor systems, surveillance systems and nanotechnology, we are just now beginning to see some of the privacy implications of these emerging technologies. Globalization and the growth in online business will only increase the flow of data across jurisdictions" (Stoddart & Denham, 2008). The Privacy Commissioner of Canada's Office has investigated cases involving privacy issues with respect to *Personal Information Protection and Electronic Documents Act* (PIPEDA) ranging across numerous industries including: Financial Institutions, Telecommunications, Health, Insurance, Transportation, Airline, School, Daycare, Law firm, Retail, Restaurant, Internet service provider, E-mail provider, Telemarketing, Landlord/tenant and Real estate industries.

The structure of this paper is as follows. Section II describes related work, section III provides the details of the survey, section IV presents the results and in section V we give our conclusions.

II. Related Work

Xu, Smith, Dinev & Hart (2008:2) state that "the definitions of privacy vary significantly in different fields, ranging from a *right* or *entitlement* in law (e.g. Warren and Brandeis 1890), to a *state of limited access or isolation* in philosophy and psychology (e.g., Schoeman 1984), and to *control* in social sciences and information systems (Culnan 1993; Westin 1967)". In this paper we are focusing on privacy expectations and concerns related to network traffic.

Privacy Expectations

Palm (2009) looked at privacy expectations at work and found that employees' need for local privacy as well as informational privacy should be accommodated. Palm states that this approach is contrary to prevailing workplace privacy protection practices.

Informational Privacy

Informational privacy has been defined as the ability of an individual to control how their information is used, disclosed and who has permission to access it and who does not have permission to access their information (Cavoukian & Hamilton, 2002). The "ability to control the dissemination of personally identifiable data to private parties" is a central element of privacy according to Hermalin & Katz (2005:i). Palm (2009:202) describes informational privacy as "workers' chances of controlling certain data and aspects of themselves".

Personal Information

Information considered to be personal includes names, birth dates, social insurance and social security numbers, home addresses, home telephone numbers, home email addresses, financial information, credit card information, or other contact information and personally identifiable data. Personally identifiable information (PII) may also include age, race, religion, financial and marital status and ethnic or national origin. Joinson, Reips, Buchanan & Schofield (2010:1) measured disclosure of personal information in an experiment where privacy and trust were manipulated. They found at a situational level that privacy and trust interact so "high trust compensates for low privacy, and vice versa".

Privacy Concerns

In 1996 Smith, Milberg and Burke developed the Concern for Information Privacy (CFIP) instrument. This 15-item instrument identified four subscales of individuals' concerns for organizational information privacy practices. The four subscales of concern were collection, errors, unauthorized secondary use and improper access. Levels of concerns may be impacted by various factors (Smith, Milberg and Burke, 1996). Concern may be context-sensitive depending on the type of information. It has also been found that the type of organization collecting and storing the data affects the level of concern. One consequence is "opting out" of activities or services. "A cognitive process, comprising privacy risk, privacy control and privacy intrusion is proposed to shape an individual's perception of a specific Web site's privacy practices (i.e., privacy concerns)" (Xu, Smith, Dinev & Hart, 2008:2). Malhotra, Kim & Agarwal (2004) revised the Concern for Information Privacy (CFIP) (Smith et al., 2006) to adapt for the Internet and called it the "Internet Users' Information Privacy Concerns (IUIPC).

III. Survey

Our survey measured user expectations of privacy of network traffic in various locations; at home, at work and at public hotspots. With the rapid technological changes occuring it is important to understand what the current concerns are related to network traffic privacy. We gathered data describing what these concerns are by many experts in the field.

Survey Questions

Participants were asked "With respect to your network traffic, what is your expectation of privacy in the following locations?"*(Note: Your expectation is what you believe to be true, not what you wish were true.)* The locations included at home, at work and at public hotspots. There were three options provided to choose their expectation of privacy for each location. (1) Do not expect any privacy. (2) Expect privacy of data sent and received (packet payload) but no privacy for the address information of the two computers that are communicating (packet header). (3) Very private, no one should be looking at any part of the communication (not even your employer). See Table 1.

We intentionally avoided a more detailed description of the difference between header and payload data so as to not alienate a less technical audience. While developing the survey with initial test groups we found that there was a general level of comfort and expressed understanding of the difference between the header and the payload data. Whenever possible we made ourselves available to the survey participants for questions. If questions were received regarding the difference between header and payload data, then we used the analogy of an envelope containing a letter. The header data was compared to the information contained on the outside of the envelope, and the payload data was compared to the contents of the letter contained within the envelope. Questions of this nature from the participants were rare.

Participants were also asked "What concerns do you have about network traffic privacy?" An analysis of the content to this question will be discussed. A descriptive analysis is provided of the demographic information collected including: gender, decade of birth, level of education, country of origin, and profession/occupation.

Sample

Surveys were completed by 267 participants in 2009 and 2010. Seven surveys were eliminated from the privacy expectations analysis because the respondents selected more than one answer for their privacy expectation for a location. Information on additional privacy concerns were provided by 150 respondents. The majority of the sample was chosen from conference attendees from defined disciplines such as security and privacy practitioners, information technology and administrative professionals. The conferences were located in Canada, United States and Spain.

Many of these individuals are responsible for privacy and security in their organizations. Conferences were selected for the sample so there was control over who was providing the data. Professionals were targeted where they congregate and were accessible. It is a random sample because we did not choose who attended these conferences. Other survey participants attended security training and awareness workshops and MBA and Information Technology classes.

IV. Results

Table 1 provides the results from the *Privacy Expectations of Network Traffic Survey* at home, at work and at public hot spots for the entire sample. Figure 2 displays the percentage of users' privacy expectations of Network Traffic at Home, Work and in Public Hotspots.

Table I. Network Traffic Privacy Survey

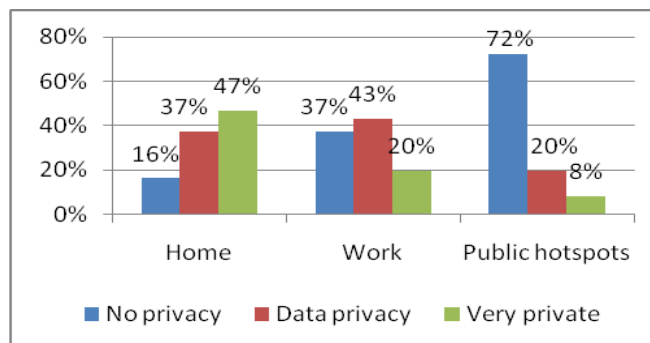| Location	With respect to your network traffic, what is your expectation of privacy in the following locations? *(Note: Your expectation is what you believe to be true, not what you wish were true.)*		
	Do not expect any privacy.	*Expect privacy of data sent and received (packet payload) but no privacy for the address information of the two computers that are communicating (packet header).*	*Very private, no one should be looking at any part of the communication (not even your employer).*
Home	16%	37%	**47%**
Work	37%	**43%**	20%
Public Hotspot	**72%**	20%	8%

Figure 2. Privacy Expections of Network Traffic

The data contained in the preceding figure and table holds several characteristics that should be noted. The most surprising results relate to user expectations of privacy at work and in public hotspots. For example, note that 63% of respondents expected either complete privacy (20%) or privacy of the data sent and received (43%) at work. Also, note that 28% of respondents expected either complete privacy (8%) or privacy of data sent and received (20%) at public hotspots. These findings did not match the authors' expectations. With respect to the work location data, we venture to speculate that these expectations do not match the prevailing thought in the business community of what the user's current understanding is with respect to their actual level of network traffic privacy at work. If it is the intention of a business to monitor the user's network data, our survey may indicate a knowledge gap that exists between the user community (including senior management) and business I.T. managers. The expectation of privacy in public hotspots may also be indicative of a troubling knowledge gap that may lead users to inadvertently disclose data such as passwords, personnaly identifiable information or commercial confidential information in these locations. It is difficult to ascribe negligence or poor judgement to an employee who is unaware that a dangerous practice is dangerous. Similary, indivduals who would otherwise have the right and desire to withhold certain personal information about themselves from others may reveal that information unknowingly based on an erroneous expectation of privacy. In the following graphs we illustrate our preliminary findings based on the data. However, analysis of the data is only just beginning and further refinement of results is expected.

There was little difference in the responses based on gender (shown in Figures 3,4 and 5) with the only exception being that females appeared to have a higher expectation of privacy at home than males. As shown in Figure 3, 21% of the males stated that they did not expect any privacy at home versus only 11% of the females.
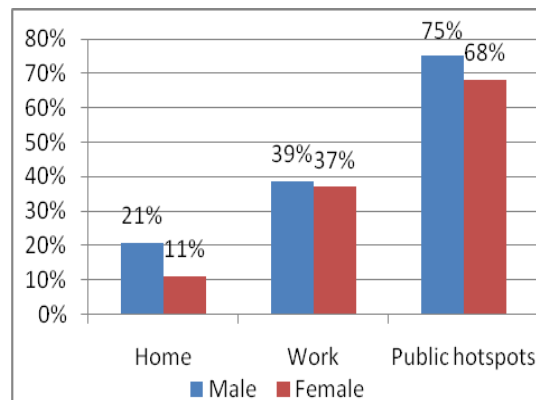

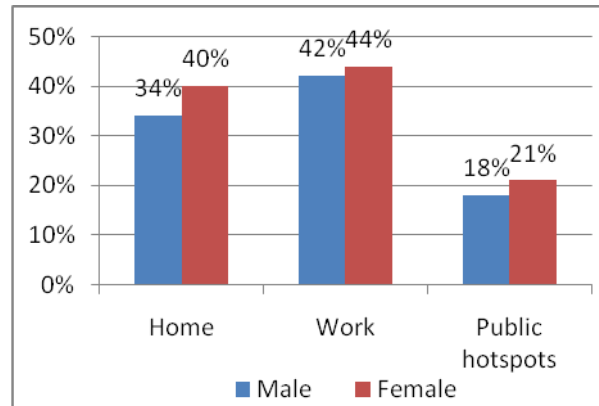**Figure 3.   Do Not Expect any Privacy of Network Traffic**

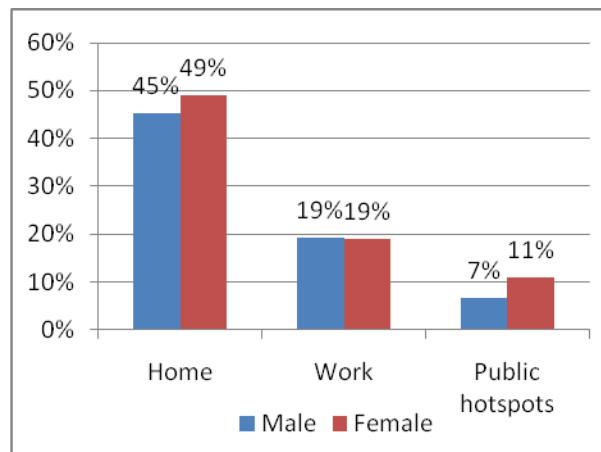**Figure 4.   Expect Privacy of Data but not of Packet Header**

Figure 5. Expect Complete Privacy

We note with interest, but without further comment, that the percentage of individuals who expect complete privacy at work (Figure 6, circles) was low among those with the least education, then increased among those with some university and finally returned to a low level among those respondents with advanced degrees.
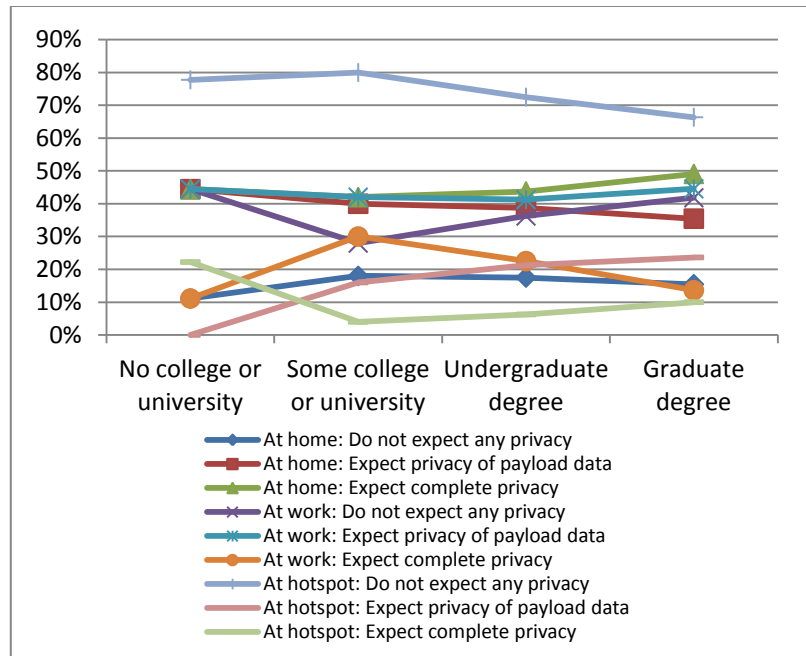
Figure 6. Privacy Expectations by Education Level

Figure 7 shows the expectation of privacy (i.e. do not expect any privacy, expect privacy of payload data, expect very private communication) for each location by the decade of birth for each respondent. For example, approximately 50% of the respondents born in the 1970s believe that traffic at home is very private (triangles). Whereas, a slightly higher percentage of those born in the 1980s believe that traffic at home is very private. The percentage of respondents who believe that traffic at home is very private increases as the age of the respondent decreases and conversely decreases as the age of the respondent increases.

Categories of Privacy Concerns

The themes that emerged for the privacy concerns expressed by the participants are categorized in Table II. Further detail on each theme is given in the following sections. The profession or occupation of the participant is also included to give context and credibility to their privacy concerns. We used content analysis method to categorize privacy concerns.
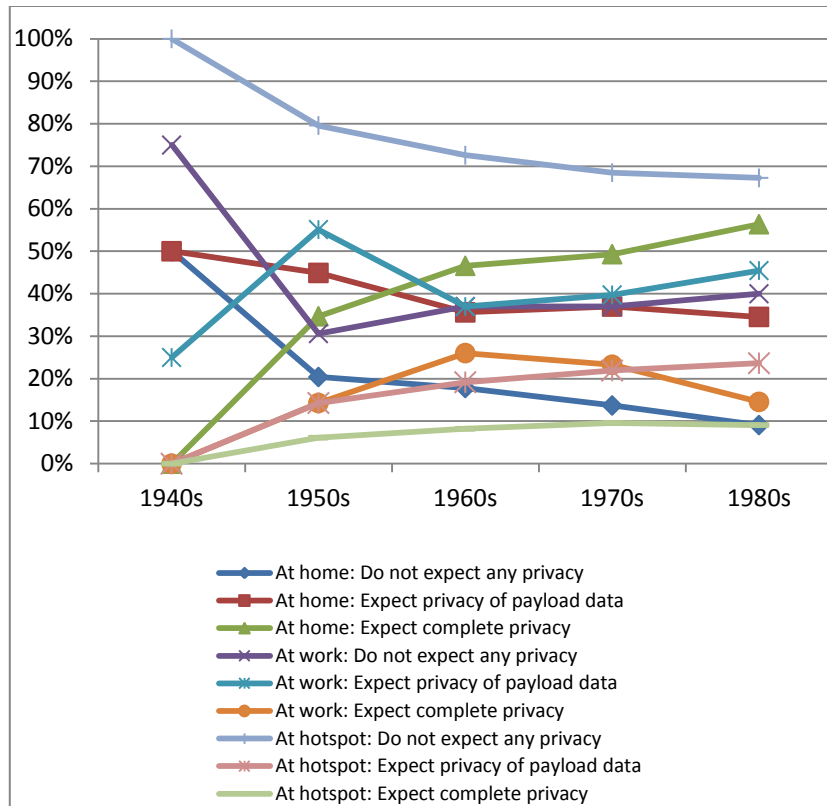
Figure 7. Privacy Expectations by Decade of Birth

Table II. Categories of Privacy Concerns

#	Privacy Concern Category
1	Privacy breaches are to be expected (i.e. disclosure, unauthorized access) so people should be proactive
2	Errors cause disclosure, simpler language is required, people need greater understanding and education
3	Theft of identity, financial information, pictures, personal information, and registration is required everywhere
4	Social Networking
5	Network traffic is not private, controlled or restricted
6	Laws and Regulations
7	People are too "Careless", people should "Be Careful"
8	Privacy is a "Losing Battle"
9	Hope and Desire Privacy
10	Privacy concerns are ubiquitous

1) *Privacy breaches are to be expected (i.e. disclosure, unauthorized access) so people should be proactive* - One Canadian Policy analyst was concerned that "moving to more open source and cloud internet based servers might lend to more large-scale privacy breaches". They suggested that "a solution might be in proactive approaches to best practices". An Access & Privacy Manager stated that, "Nothing is 100% secure. You should expect that there will be a breach and modify communications accordingly and use other data protection software to additionally secure information that is being communicated – if it is sensitive". An Application Database Administrator (IT) says, "I don't expect privacy in Network Traffic unless I choose to encrypt my communications". A Health IT (Information Technology) Consultant disclosed that, "It is easy for people in the know to intercept and view network traffic". They recommended that there "should be more security by default to protect people who don't know". A Canadian Lawyer/Privacy Specialist said their concern was "Disclosure or unauthorized access to my Personal Information" (sic). A Professional Services Consultant (Information Management) is also concerned with "unauthorized access by hackers". "Surreptitious access" is the concern of an Information Technology professional. A FOIPOP (Freedom of Information and Protection of Privacy) Administrator had two concerns: "1) Hackers and 2) Third party disclosure". "Too many people accessing my personal information" (sic) is the concern of a Federal Government Access to Information & Privacy Official.

2) *Errors cause disclosure, simpler language is required, people need greater understanding and education* – An ATIP (Access to Information and Privacy) professional stated that their "Concerns are of personal information being leaked out by error" (sic.). A Manager of Communications stated that their concern is with "Third party access, security and confidentiality of information. Not everyone has the same understanding therefore open for errors!" An Access Coordinator believed that "Simpler language" was required "so that there is no misunderstanding, more education within the youth especially".

3) *Theft of identity, financial information, pictures, personal information, registration is required everywhere.-* A police officer's concern is that there may be a "take over (sic) of my 'personality' and it's use for negligent purposes". An Information Access and Privacy (IAP) Professional said they had "None (no concerns) at work (except spoofing); however, all kinds of concerns with regards to PI (personal information) as a private individual – identity theft, theft of financial information". One respondent was "Concerned that if something should be kept private, and appropriate security actions are taken, it would still be insufficient against a determined attacker. Concerned about 'registration' for almost everything online is easily compromised."

4) *Social Networking* – A Communications professional stated "That too much information – private information – goes out through social networking" This caused another respondent to cancel her Facebook page. She was worried that there was "Too much information about a person (and their acquaintances) on own Facebook page; unknown what others on your friends list do with your pictures or information – a big concern".

5) *Network traffic is not private, controlled or restricted* - A Canadian Lawyer stated "It's not a concern, just a comment: those who think network traffic is private is naïve". A Health

Professional is concerned that "what does get out there is no real privacy" so "one becomes an open book". A Manager of Policy and Planning for Education said, "There is really not much control or restriction on this". They thought it was "sort of (an) unknown area". An Administrator/Consultant stated that "I don't want to be out there! More integrated work is required from all levels of government, business, IT, etc. to somehow bring this in control more". A Manager for the Government of Nova Scotia is concerned with an "invasion of privacy". One person commented that the "U.S. government routinely monitors network traffic, as does AT&T and perhaps other backbone providers". Their concern was that "This access can be abused".

6) *Laws and Regulations* – A Ph.D. in Informatics stated that he was concerned that there was no privacy of the Packet Header. He noted that the "EU discussion about IP (Internet Protocol address of the computer) equal to personal ID" is ongoing. He believed that the payload should be completely private and that it should be "prohibited by Law to inspect payload". One respondent indicated that in "Principle: 1) Any network traffic or other traffic sent over the air is expressly interceptible (sic) under US law. 2) Traffic, once it enters an ISP or other provider's network, is interceptable by the provider (formally) or its employees (informally). Therefore, I as an individual can have no expectation that traffic is private. If I want it to stay private, I better ensure that myself - whether for payload or packet header". One respondent was concerned about "Increasing power of law enforcement. New laws allowing for the mapping of IP address to physical addresses without the need of a warrant".

7) *People are too "Careless", people should "Be Careful"*- A Policy Analyst said that "People are too careless about it, putting in passwords on free Wi-Fi connections". A Privacy and Information Access professional stated that "I have significant concerns about privacy and email traffic. Therefore, I am careful in what I say in email".

8) *Privacy is a Losing Battle* – According to a Database Programmer/ IT Manager *"*I have a feeling it is a losing battle, unfortunately. People in 100 years will find it quaint that there ever was an 'expectation of privacy'"*.

9) *Hope and Desire Privacy* – One respondent wrote "I don't expect privacy, but I do hope it is possible! (I use encrypted channels as necessary). My concerns are primarily social, with a bit of government data (e.g. health information). I worry about the slow accretion of personal info that may not be overly sensitive on its own, but is simply no one's business - such as current location, photos, etc. that I might not want online. It makes a sort of informal (but very complete) dossier on my daily activities. So much info is now online, archived & searchable. It makes me nervous." Another respondent explained that "Privacy expectation is not the same as privacy desire. I would love it if I trusted my ISP not to sell/analyze my traffic patterns & DNS [domain name service] lookups, but profit seems to come first in USA." A respondent stated that "There is no privacy. I am in a big crowd. I hope no one notices me". Another said that they "Wish my answers could have been *very private to all of the above*" with respect to their expectation of privacy of their network traffic at home, at work and at public hotspots.

10) *Privacy concerns are ubiquitous* - A Canadian Coordinator, FOI (Freedom of Information) and Privacy said they have "lots" of concerns about network traffic privacy. A Canadian Coordinator, Security and Compliance used the word "all" to describe their concerns. An IT Professional is concerned about, "Everything in relation to privacy". They "always hope that network access is private but know in reality it is probably not". Another participant's concern was that "Every piece of your information could be revealed to the public".

Demographics

Demographic information of the sample is provided in Table III. The sample was comprised of 38 percent females and 58 percent males and 4% did not identify their gender.

Table III. Sample Demographic Information

Description	Percent (%)
Male / Female / Unspecified	58 / 38 / 4
Born before: 1950 / 60 / 70 / 80 / 90 / 2000 / Unspecified	2 / 19 / 28 / 28 / 21 / 1 / 2
Level of education	
No College or University	4
Some College or University	19
Undergraduate Degree(s)	31
Graduate Degree(s)	42
Did not indicate education	4
Country of origin: Canada / U.S. / China / Other	71 / 13 / 2 / 14
Other: Australia, Bangladesh, Czech Rep., Denmark, England, France, Germany, Haiti, Holland, Hong Kong, India, Iran, Italy, Kenya, Netherlands, Nigeria, Pakistan, Romania, Russia, Slovenia, South Africa, Spain, Trinidad & Tobago, Vietnam	

V. Conclusion

The results to date of this study did not match the authors' beliefs of what the user's expectation of privacy would be in the various locations prior to the collection of the data. Anyone who is concerned with how the privacy of data may be impacted by user behaviour must consider what the users' expectations are in the settings where they send, receive and process private data. A worker who believes that they can expect privacy of network data in a public hotspot, as is the case with 28% of the respondents to this survey, may not consider themselves careless or negligent when accessing private data from these locations. The employee`s belief of what is true regarding their environment must be taken into account when assessing behavior and performance around protecting the privacy of personal information. Similarly, employees who expect a significant level of privacy in data communication at work may be surprised at the amount of information that an employer may actually be able to see. If that employee is a privacy officer of the company, then their oversight or regulatory actions with regard to operations within the company may be negatively impacted by erroneous expectations or beliefs. For example, if a privacy officer is unaware that a network technician regularly collects and stores network traffic, which may contain private data, for security purposes then there is little opportunity for that privacy officer to review those data collection and storage procedures or to assess the level of training required by the technician.

In general, upon viewing the data, one gets the impression that there is a lack of awareness regarding the visibility and handling of network traffic. One of the strengths of this research is that many of the respondents to this study are experts in the fields of privacy, information technology and security. As a result, one would expect that awareness would be higher within the sample than within the general population. While we have no data to support this proposition, its possibility and the resultant lack of awareness that it would imply is troubling. A study of a wider cross section of education levels could be an area for future research so the results are more representative of a diverse population.

Real world data has been collected studying privacy expectations and privacy concerns in naturalistic settings. The main contributions of this paper are to establish the expectations of privacy of network traffic in the home, at work and in public hotspots and also to bring attention to the current privacy concerns of individuals in the information society; thereby providing a foundation for future privacy and security awareness activities including research and training.

With the proliferation of technology in the information society in which we live it is now easier than ever to access, collect, store and distribute personal information. Technology in workplaces has created a new domain and with this new domain there are new problems and concerns related to the privacy of information. We live in an environment with surveillance, e-mail, smart phones, ubiquitous wireless access and social networking. The privacy challenges we face today are more complex. Only one incident involving a breach of customer privacy and security could have a "significant detrimental financial impact on your business" (Herold, 2005, p. 98) and could negatively impact the lives of the individuals involved.

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ASB 2011   Jolene Titus Roberts

Charlottetown, PE   Mount Saint Vincent University

EXAMINING RACIAL DISCOURSE IN THE CHRONICLE HERALD'S SERIES *NOVA SCOTIA BURNING*

In 2010 two brothers, Caucasian, from Hants County, NS, burned
a wood cross on the lawn of a biracial couple. Applying a critical
discourse framework, this research examined print articles
produced by The Chronicle Herald in response to the crime.
What emerged was a discourse of racial power inequalities.

Racial Discourse in *Nova Scotia Burning*

In February 2010 a biracial couple living in Hants County, Nova Scotia, found a cross burning on their lawn. Two brothers, Caucasian, from Hants County, were arrested and later convicted of inciting hatred by burning the cross. The cross-burning in Nova Scotia quickly became a national news story with over 150 media stories produced for television, radio and print on the

incident, aftermath and sentencing. Justin Rehberg was sentenced to two months in jail for inciting hatred and two months for criminal harassment (served concurrently) and Nathan Rehberg to four months plus one day for inciting hatred and six months for criminal harassment (served concurrently) (Brooks Arenburg, 2011b). In February 2011, almost a month after the brothers were sentenced, and a year after the cross-burning occurred, The Chronicle Herald, Nova Scotia's provincial newspaper, ran a four-day series, "Nova Scotia Burning" which focused on the "…story behind the cross-burning" (Brooks Arenburg, 2011a, ¶ 20). Web videos, multiple photos, event timelines, special editorials on the series as well as an online discussion forum complemented the front page print features.

This paper examines the four print articles produced as part of the feature to critically explore the provincial newspaper's treatment of racism through this incident. Using a critical discourse framework, and considering the relationship between media, discourses and society, I contend that the "Nova Scotia Burning" series failed to confront and address issues of racism and, instead, furthered racial power inequalities through language, subject matter and discursive strategies. Three themes explain this overall finding: (1) the construction of difference through otherness and class hierarchy (2) repositioning of victims and villains (3) sustaining power through denial. The paper is structured as follows: summary of literature on racism and media, overview of critical discourse analysis framework, presentation of themes found in the series under study, and discussion of discourse. I conclude with the implications of the paper's treatment of this topic on racial discourse in Nova Scotia.

Media and Racism

News media largely determine our awareness of the world and influence the prominence of ideas. They have signifying power and can represent events in particular ways (Blommaert & Bulcaen, 2000; Fleras & Lock Kunz, 2011; Henry & Tator, 2002; Van Dijk, 1991). Agenda setting theory demonstrates that media prioritize issues, informing readers and viewers about what to think about, and how to think about it (Griffin, 2009): "Agenda setting asserts that audiences acquire [the journalistic salience of an item] from the news media, incorporating similar sets of weights into their own agendas" (McCoombs, 1994, p.4). The media contribute to systems of ideology and power effects at the micro and macro levels of text and discourse (Van Dijk, 1991). Ideology represents socially shared belief systems and media organize and group social representations shared by members of the group and provide a link between social structures, discourses and social practices (Van Dijk, 2006).

The idea that media frame certain issues or have a bias is well established in the literature (Crawford, 1998; Fleras & Lock Kunz, 2001; Henry & Tator, 2002, 2003; McCoombs, 1994; Miller, 1994, 2005/2006; Tator & Henry, 2000; Van Dijk, 1991). Media have the ability to inform racial discourse; they also have the ability to change or perpetuate ideological frameworks used to understand or control ethnic events and relations (Henry & Tator, 2002, 2003; Van Dijk, 1991). Henry and Tator (2003) argue "the mass media are in effect a tool wielded by the dominant culture to reinforce its ideologies and to promote its social, political and economic interests" (p. 11).

Scholars (Crawford, 1998; Fleras & Lock Kunz, 2001; Henry & Tator, 2002, 2003, 2009;

Mahtani, Henry & Tator, 2008; Miller, 1994, 2005/2006) argue the Canadian news media advance racialized discourse and such actions have identifiable words and practices (Henry & Tator, 2009; Tator & Henry, 2000). Tator and Henry (2000) contend, "racialized discourse is a set of social practices that favours the in-group and denigrates the out-group, categorizing, evaluating, and differentiating between groups" (p. 123).

A review of literature regarding media's treatment of racial issues in Canada revealed several key themes. First, African-Canadian perspectives are underrepresented in media. Research (Crawford, 1998; Henry & Tator, 2002; Mahtani et al., 2008; Miller, 1994, 2005/2006) examining the racialization of media has demonstrated that ethno-racial communities in Canada do not experience accurate representations of themselves in media stories. While visible minorities are underrepresented and stereotyped in the news they are overrepresented in news stories related to crime (Adeyanju & Oriola, 2010; Henry & Tator; 2002, 2009; Miller, 1994).

Second, the representation of racial issues is found lacking in the newsroom (Crawford, 1998; Miller, 1994, 2005/2006). This has implications given the power inherent in news production. Replicating a similar study from 1994, Miller (2005/2006) compared the presence of racial minorities employed in the newsroom and found that racial minorities are more than five times underrepresented in daily newsrooms suggesting that a white perspective contributes to the production of news, and to non-inclusive coverage. Moreover, coverage of minorities, and minority issues, lags behind societal representation (Miller, 2005/2006) and Canadian media misrepresent minorities who attempt to challenge the dominant discourses through peaceful protest and dissent (Tator & Henry, 2000).

Third, media's treatment of racial topics typically reinforce negative stereotypes of minorities and further a distinction of the racialized other (Tator & Henry, 2000). Otherness is a rhetorical strategy used to control and isolate individuals and communities at the expense of the dominant social perspective (Crawford, 1998; Tator & Henry, 2000). Minorities (e.g. African Canadians, Aboriginals) are featured primarily within a discourse of crime, cultural differences, poverty, unemployment and tension (Fontaine, 1998; Henry & Tator, 2003). Furthermore, discourses surrounding minorities are produced to signal a racial difference from a Euro-Canadian perspective (Henry & Tator, 2003; Tator & Henry & 2000). A study of select Canadian TV shows found overt racial bias and stereotyping; the series lacked realistic portrayals of minorities, with a focus on the Caucasian representation as the "norm" while minorities saw limited screen presence and the occupation of a passive role in ads (Henry & Tator, 2003). In addition, scholars argue (Fleras & Lock Kunz, 2001; Fontaine, 1998; Henry & Tator, 2003; Tator & Henry, 2000; Van Dijk, 1991) that overt racism has been replaced with less implicit discourses focusing on difference. Such views are embedded in the everyday activities and meanings in that they are taken for granted and assumed. These taken-for-granted meaning systems help explain and justify societal attitudes (Phillips & Hardy, 2002).

The summary of literature identified a gap in empirical research examining racial discourse and Nova Scotia media. African Nova Scotians are the largest minority group in Nova Scotia, representing 2% of the population (Statistics Canada, 2006). In addition, the group's history in Nova Scotia has been plagued with racism, inequality and neglect (Ward, 2002). The role media play in larger social discourses and actions, including the treatment of minority groups in Nova Scotia, cannot be ignored when examining social concerns. Given media's role in the

production and reproduction of language, concepts, and ideologies in our society (Fairclough, 1992; Henry & Tator, 2002; McCoombs, 1994; Van Dijk, 1991) a critical discourse approach provides a powerful lens from which to view the effects and role of media in societal discourse, and from which to examine The Chronicle Herald's treatment of racism through their print series, "Nova Scotia Burning."

Theoretical Framework

Discourse, of which media play an important part, is socially constituted and conditioned (Blommaert & Bulcean, 2000); it constructs how we think about and experience social phenomena (Phillips & Hardy, 2002). Phillips and Hardy (2002) contend, "…social reality is produced and made real through discourses, and social interactions cannot be fully understood without reference to the discourses that give them meaning" (p. 3). Discourse analysis explores the relationship between discourse and social reality through language, text and context (Fairclough, 1992; Phillips & Hardy, 2002). The power of discourse is that it determines the ways in which society interprets and further reproduces discursive and non-discursive practices (Phillips & Hardy, 2002; Jäger & Maier, 2009): "Firstly, discourses form individual and mass consciousness and thereby constitute individual and collective subjects. Secondly, since consciousness determines action, discourses determine action" (Jäger & Maier, 2009, p. 37).

Critical discourse analysis is particularly relevant when issues of power and inequality are of concern as they are with racism. Critical discourse analysis examines the relationship

between language and society, considering structural relationships of dominance, discrimination, power, and social inequality (Blommaert & Bulcean, 2000; Mahtani et al., 2008; Phillips & Hardy, 2002; Van Dijk, 1993, 2009). According to Van Dijk (1993), "critical discourse analysts want to know what structures, strategies or other properties of text, talk, verbal interaction or communicative events play a role in these modes of reproduction" (p. 250). The method critically examines how discourse privileges some in society at the expense of others and how power relations are enacted, reproduced and challenged through discourse (Phillips & Hardy, 2002; Van Dijk, 1993).

This paper broadly follows a three-dimensional model for analyzing text (Fairclough, 1992); however it also considers approaches employed by scholars (see Henry & Tator, 2002; Van Dijk, 1991) interested in examining the media effects of racial discourse. First, when examining discourse as text, the researcher is concerned with the linguistic features as well as the organization of concrete examples of discourse. Second, the researcher examines the texts for discourse as something produced, distributed or consumed; attention is focused on speech acts, and features that link text to context (Fairclough, 1992). Third, when examining discourse as social practice the researcher is concerned with the ideological effects of discourse (Fairclough, 1992). When the research site involves the examination of discourse produced by media, special attention may also be paid to unique features of news production, such as headlines, captions, photos, and story structure (McCoombs, 1994; Van Dijk, 1991).

Completing discourse analysis involves selecting a site or set of texts to examine. According to Phillips and Hardy (2002), selecting a research site involves consideration of the

theoretical framework and research question and practical concerns of access and timing. While

the cross-burning incident in Nova Scotia includes a number of print and broadcast stories, the

scope of this research focuses on the print texts The Chronicle Herald produced as part of its

special feature. Consistent with recommendations for selecting a research site (Phillips & Hardy,

2002), this site is of particular interest given the unprecedented prominence the newspaper

provided to the feature series, the significance of the incident (The Rehberg brothers are believed

to be the first Nova Scotians convicted of inciting hatred by burning a cross (Brooks Arenburg,

2011a), and the perspective from which the story is told: The Chronicle Herald examines the

perspectives of the perpetrators in an attempt to understand racial issues in Nova Scotia.

Findings and Discussion

As part of the print series, journalist Patricia Brooks Arenburg (2011d) wrote, "Many

wondered who could commit such a crime [burning a cross], so The Chronicle Herald set out to

learn more about the siblings" (¶ 6). In doing so, the paper "hopes [the] project leads to real

changes, not only in the hearts and minds of Nova Scotians, but also in our institutions, so that

something like *this* never happens again" (Brooks Arenburg, 2011b, ¶ 27) (emphasis added).

When reading the articles for the first time, I was concerned about the ambiguity of what *this*

referred to - the stories focus on issues of neighbour-feuding, broken homes, alcoholism and poor

education as a backdrop to understand the racial crime. What do the authors aim to prevent:

incidents of racial hatred or the punishment of the two siblings who burned the cross? As a result,

I set out to understand how, through these four texts, The Chronicle Herald treated the event and

the topic of racism.

Consistent with other approaches to discourse studies (Phillips & Hardy, 2002) the text was coded for emergent themes as well as themes established through the literature review. What emerged through analysis is a discourse that furthers a racialized society and the representation of racial inequalities. Three themes help explain this: (1) the construction of difference (2) repositioning of victims and villains and (3) sustaining power through denial.

Difference, Otherness and Class Hierarchy

According to Jäger and Maier (2009), a reoccurring statement in a set of texts is a signpost for sustained effects and a particular knowledge/assumption. By extension, the omission of statements also serves as a signpost. "Nova Scotia Burning" featured four articles and two editorialized pieces explaining the series and the approach; across all articles a Eurocentric perspective on ethnicity emerged through the presence and omission of language.

Establishing racial differences is important for a series focused on examining a crime of racial hatred. However, what is problematic in The Chronicle Herald's treatment of racial relations – and significant for its discursive implications - is that it presupposes a Eurocentric-perspective. Participants in the story who are of a racial minority (i.e., Black, Hispanic) are separated from Caucasians in the text – a discursive strategy that is often used to further issues of power and racial inequality in order to distinguish those who are different from the dominant perspective (Van Dijk, 1993).

When a person who was *not* Caucasian was interviewed or introduced in The Chronicle Herald series, the distinction of their race was often identified (Emphasis added throughout): "Once we [The Chronicle Herald] made contact with Shayne Howe and Michelle Lyon, the biracial couple…" (Brooks Arenburg, 2011b, ¶ 17); "'Being a biracial couple, it was good,' said Howe, who is black." (Brooks Arenburg, 2011a, ¶10); "[Nathan] had recently returned from Halifax to live at his mother and stepfather's house with Mason, who is part Hispanic" (Brooks Arenburg, 2011d, ¶ 35); "'We're not taught what is the truth,' said Michael Paris, a black man who lives in nearby Windsor" (Brooks Arenburg, 2011e, ¶ 8). However, a qualifier was never provided when introducing anyone who was Caucasian.

Second, a class hierarchy also emerged to further isolate minorities in this newspaper series and privilege a Caucasian experience. The only time a racial qualifier was not used to distinguish background was for Wanda Thomas Bernard, who was introduced as "director of the school of social work at Dalhousie University in Halifax" (Brooks Arenburg, 2011e, ¶3). Thomas Bernard's credentials are identified in the final article: a member of the Order of Canada, a researcher on the topic of race and oppression and a member of a predominantly black neighbourhood in Nova Scotia (Brooks Arenburg, 2011e). However, there is no qualifier stating her ethnicity; only by watching the complementary web video do we learn her racial background. It's important to note that her racial background isn't relevant to her achievements; however The Chronicle Herald created a class hierarchy by qualifying racial background when someone *does not* have such educational qualifications and when they are not Caucasian. Qualifying the racial background for those who are not Caucasian is consistent with the findings of other research

(Henry & Tator, 2002, 2003) that examined media's treatment of racial minorities.

Third, the theme of otherness is also demonstrated through the language used to describe the participants involved. The images and captions used to describe the Rehberg brothers, the perpetrators of the crime, include positive qualifiers to demonstrate their characters; however Shayne Howe and Michelle Lyon, the targets of the crime, are treated differently (Emphasis added throughout): Photo Caption: "Nathan Rehberg plays with his dog…" (Brooks Arenburg, 2011b, p. A2); Photo Caption: "Justin Rehberg enjoys a joke over dinner…" (Brooks Arenburg, 2011b, p. A2); Photo Caption: "Justin Rehberg comforts his girlfriend…" (Brooks Arenbug, 2011c, p. A4); Photo Caption: "Wanda Lynn Macumber, the mother of Justin and Nathan Rehberg, weeps for her boys, now in jail for inciting racial hatred by burning a cross: They 'had a rough go growing up'" (Brooks Arenburg, 2011d, p. A1); Photo Caption: "Justin Rehberg volunteered on a neighbourhood dairy farm…." (Brooks Arenburg, 2011d, p.A4).

Conversely, Shayne Howe and Michelle Lyon are not described with the same positive perspectives. Through photos and captions they are known as victims, gossipers or by racial background (Emphasis added throughout): "Shayne Howe, victim of racial hatred" (Brooks Arenburg, 2011a, p. A1); Photo Caption: "Michelle Lyon reflects on the …gossip [that] prompted them [the brothers] to burn a cross on her lawn" (Brooks Arenburg, 2011c, p. A4); Photo Caption: "Shayne Howe and Michelle Lyon pose with their children in their blended family home (Brooks Arenburg, 2011e, p. A6-7). While the Rehberg brothers and their family members are described with verbs and language that suggests an active interaction with family and consideration of others, the Howe-Lyon family is qualified by their racial background. They are

not a family that "shares jokes," "eats together" or that "weeps" for concern, but rather they are a family that is "blended," which discursively separates them based on their biracial relationship.

Repositioning of Victims and Villains

A second theme that emerged through critical discourse analysis involved the positioning of victims and villains. On the surface, the cross-burning incident includes villains (the brothers, who burned the cross on the lawn of a neighbourhood couple) and victims (the targets of racial hatred). However, this positioning is a surface-level distinction. The selection of photos, captions and headlines, as well as the placement of story topics within the articles, serve to reposition the victims as co-creators of the crime and the brothers as victims.

Headlines, leads, photos and captions are among the first - and sometimes only - pieces of information read in an article, and the information contained within those pieces shapes what readers think of the subject under discussion (McCoombs, 1994; Van Dijk, 1991). The front page articles in the "Nova Scotia Burning" series have a consistent layout (a photo is set against a gray-scaled cross with the title "Nova Scotia Burning"), however the treatment of the subjects in the photos has a dichotomizing effect. The photo on the front page of the first article, "Nova Scotia Burning," features Shayne Howe, the target of the hate crime, alone, outside in the cold, in front of his snow-covered lawn (Figure 1). This is contrasted against images used in the second and third articles that feature the perpetrators of crime. The second article, "Why Did They Do It?," features the Rehberg brothers inside with their family with concerned looks on their faces (Figure 2), and the third article, "The Cross-Burners," includes the mother of the perpetrators

inside her home wiping tears away from her face (Figure 3). [Editor's note, figures removed do to permission issues.

The composition and placement of the photos demonstrate a shift of roles between the victims and villains of this incident. In the case of Howe's photo, the colour of the photo is gray and de-saturated creating a feeling of isolation. Whereas Howe is featured outside in the cold alone, the photos of the perpetrators feature them inside with warmer colour hues (i.e., yellows) establishing a more empathetic feeling for the subjects in the photos due in part to the photo composition. Second, while Howe is the victim of the cross-burning, the composition of his photo is contrasted against the headline "Nova Scotia Burning." This creates a criminalizing effect for Howe, suggesting that this person, featured alone, outside and with a solemn look on his face, is responsible for the "burning" in Nova Scotia. This treatment is consistent with research that finds that minorities are often featured in ways that reinforce negative stereotypes (Crawford, 1998; Fleras & Lock Kunz, 2001; Henry & Tator, 2002; Tator & Henry, 2000). However, featuring the mother of the perpetrators crying in her house with the title, "The Cross-Burners," has the opposite effect: it suggests that she has been the victim of some sort of incident, which will be discussed in the newspaper article.

Second, the placement of the subject topics within the story also reframes the victims and villains within the incident. Through interviews Justin and Nathan Rehberg indicate they were motivated by revenge to burn the cross– not racial hatred: "The Rehberg brothers from nearby Avondale insist they are not racists. Instead, the brothers said they burned the cross because they believed Howe and Lyon were spreading rumours that they had herpes" (Brooks Arenburg,

2011c, ¶ 5). The second article, "Why Did They Do It?" is dedicated to examining the impact of the gossip on the brothers' lives (paragraph 10-12). In contrast, we do not learn about the impact of the cross-burning on Howe and Lyon, the targets of the racial hatred, until the end of the article (paragraph 37-38) – after the impact of the rumours has been established:

> …it was the kind of talk [the rumours] that followed the brothers wherever they went. At school. At parties. Socializing with friends. Even when visitors came to their home. 'He couldn't take it,' said Alisha Caldwell, 17, Justin's girlfriend of almost six years… 'He couldn't go to school. He was walking around with me and people were pointing and laughing, calling him names, saying he has different stuff and ... it hurt us.' (Brooks Arenburg, 2011c, ¶ 10-12)

The positioning of rumours is important for several reasons as newspapers demonstrate the significance of an issue by page, placement, headline and length (McCoombs, 1994). Stories are organized in a pyramid style of writing; the most important information, as perceived by the writer, is placed at the top of the article, and more detailed, less important, information provided further within the article. Arguably, information about the rumours precedes details about the consequences of the cross-burning in the article due to sequencing of events. However, reviewed from a critical discourse perspective, the placement also serves to legitimize the role the rumours

play in the crime; they establish that Howe and Lyon spread negative information about the Rehberg brothers and help establish a justification for the brothers' actions. Second, the placement of the rumours, coupled with the article headline, "Why Did They Do It?" suggests to the reader that the actions of the brothers are justifiable through explanation, and helps create a narrative of sympathy for the brothers.

Taken together, the way in which the key players of this incident are featured in photographs as well as the placement of subject topics discursively repositions the couple as co-creators of the crime - as partially to blame for the events. According to Henry, Tator, Mattis and Rees (2009), discourses of blaming the victim are dominant perspectives that are taken for granted in societal systems. Such a theme is consistent with findings Henry and Tator (2009) report: African Canadians are typically positioned in news reports as villains or troublemakers except in issues of racial acts, where they are positioned as victims. However, in this case, the idea that the victims also have a contributing role in what happened to them reinforces racial inequalities and existing power structures.

Sustaining Power through Denial

Scholars (Fontaine, 1998; Henry et al., 2009; Tator & Henry, 2000) report the denial of racism is a dominant discourse engrained in society: "The assumption here is that because Canada is a society that upholds the ideals of a liberal democracy, it could not possibly be racist. When racism is shown to exist, it tends to be identified as an isolated phenomenon" (Henry et al., 2009, p. 116). While The Chronicle Herald's series discusses and offers solutions for racism that has

occurred in Nova Scotia, the series discursively positions broader discourses of denial and system-level issues above these to maintain current power relations and to negate the very arguments the series proposes to address.

First, the multiple definitions used in the series to illustrate one of the most historic symbols of racism and hate ("Ku-Klux," 2011) help sustain a discourse of racial denial. For the targets of the hate crime, the cross-burning represents strong concern: "Burning crosses conjure up images of lynchings, beatings and Klansmen in white sheets during the struggle for black civil rights in America" (Brooks Arenburg, 2011a, ¶ 2); "'I see my house getting burned down,' Howe said, recalling his fears that night. 'I see my family getting hurt. I see me getting killed. That's what I see when I see a burning cross'" (Brooks Arenburg, 2011a, ¶8); "'It's not just that symbolic cross-burning that makes us the Mississippi of the North,' said Wanda Thomas Bernard, director of the school of social work at Dalhousie University in Halifax. 'It's also that insidious, invisible, everyday racism. It's that invisible systemic racism that affects all of us'" (Brooks Arenburg, 2011e, ¶ 3-4).

From this perspective the cross inarguably symbolizes fear, oppression and a racist act. At the same time, however, the cross is positioned within The Chronicle Herald series to represent merely vandalism, an act of stupidity, and a mistake (emphasis added throughout):

> Justin Rehberg said he saw the cross-
>
> burning 'more as vandalism than .... a direct
>
> response to' Howe's skin colour. 'I just didn't
>
> want to do damage to anything. We could (have)

just thrown a rock through the window and then

I would (have) had to pay money. ..... But

burning something, I used my own gas, so that

would be it.' (Brooks Arenburg, 2011a, ¶43-44)

"By the Rehberg brothers' own admission, what followed was an act of <u>drunken, drug-</u><u>induced stupidity</u> [the cross-burning]" (Brooks Arenburg, 2011a, ¶ 16); "<u>It wasn't the best way to</u><u>get revenge, I guess. But we're not racist people.</u> [Justin Rehberg]" ("What the Rehberg Brothers," 2011, ¶8).

While the series states that the cross is symbolic of racism, a discourse of denial emerges through the use of the cross-burning to represent racism, vandalism, and stupidity. While the victims are "victims of racial hatred", The Chronicle Herald refers to the perpetrators of the crime as "cross-burners," which further advances a social discourse of denial by downplaying the role of the brothers as racists, or perpetrators of a racist act, despite the fact they were convicted of inciting hatred. Effectively, the series shifts from examining the implications of burning a cross, an historic symbol of a death threat, or the realities of being a biracial couple in a small town, and refocuses it to examine social inequalities experienced by the brothers.

Moreover, the Rehberg brothers argue they are not racist because they listen to black music, have black friends and are attracted to other racial groups ("We Asked the Rehberg Brothers," 2011). According to Fountaine (1998), calling racism by another name is a technique of denial. By presenting the dual definition of racism, and positioning the brothers as cross-

burners, larger discourses of denial and acceptance are furthered instead of addressed.

Finally, the discussion of system-level failings within the series also reinforced a discourse of racial power through denial. An important first step in addressing everyday racism is to identify the social systems that help reinforce it in overt and hidden ways (Fleras & Lock Kunz, 2001; Fontaine, 1998). The "Nova Scotia Burning" series identifies the roles the community and education systems play in breaking down and reinforcing racism, however the series fails to consider the role media play in this racial discourse. From a critical discourse perspective, language constitutes power and what is not present in the text is equally as important as what is present (Blommaert & Bulcaen, 2000). The significance of this omission is demonstrated through the themes discussed above as well as the distinction made by the newspaper itself in treating the topic of racism; that is, the newspaper minimizes the concern of racial inequalities to that of a separation of communities (emphasis added throughout): "Nova Scotia, a province where racial tensions had often boiled over, was labeled the Mississippi of the North. For many black Nova Scotians, it was no surprise" (Brooks Arenburg, 2011a, ¶ 7); "In interviews with The Chronicle Herald in December, the Rehberg brothers apologized to the victims, Shayne Howe, Michelle Lyon and their five children, as well as the black community" ("What the Rehberg Brothers," 2011, ¶ 1); "For any province, it would be an embarrassment to be called that [Mississippi of the North], but especially for Nova Scotia, where black people have been marginalized…" (Brooks Arenburg, 2011e, ¶ 2).

Instead of confronting and naming racism as an issue that all Nova Scotians need to recognize and address, the Herald relegates it to the "black community." "The presence of racism

is often ignored or covered up with euphemisms as 'disadvantaged' or 'underprivileged'"

(Fontaine, 1998, p. 4). The positioning of racism to be of concern to a select community or racial

background – as opposed to all citizens regardless of ethnicity – is a demonstration of a

euphemism that serves to sustain existing power structures and privilege a Caucasian experience.

Discussion and Future Implications

Blommaert and Bulcaen (2000) identify critiques of critical discourse analysis, including

issues of interpretation and texts, the blurring of concepts, methodologies, and the projection of

prejudices when analyzing text. Yet, the critical paradigm offers important contributions to our

understanding of discourse and its enactment of power in society. Such a framework allows one

to critically ask questions such as Why this topic? Why this way?

The racial discourse identified in the text of The Chronicle Herald's "Nova Scotia

Burning" series is significant for several reasons. First, this is one of the only research studies to

examine the relationship between media and racial discourse in Nova Scotia. Other published

literature points to the dichotomizing effect media have on racial relations in Canada (Crawford,

1998; Fleras & Lock Kunz, 2001; Henry & Tator, 2002, 2003, 2009; Mahtani et al., 2008; Miller,

1994, 2005/2006), and this paper contributes to the growing body of literature by using this in-

depth series to examine how the provincial newspaper in Nova Scotia – with readership of close

to 300,000 (Leger, 2011) - treats racial discourse. Their treatment offers a glimpse into this

paper's treatment of racial issues (and potentially larger racial discourse in Nova Scotia society),

signaling undercurrents of racism taking place in everyday social practices. Such everyday assumptions, left unchallenged, can have lasting implications on social discourse and actions of individuals, communities and judicial institutions.

Yet, these texts represent a moment in time: the meaning or significance of a text can't be decided in isolation from the interaction that shapes the context (Phillips & Hardy, 2002). Thus, while the scope of this paper is confined to the discourse constituted in the text, there are broader contextual issues that also warrant further investigation in order to fully understand the relationship between media, society and racial discourse in Nova Scotia.

First, the broader news and political agendas of The Chronicle Herald must be considered. In the final article of the series, "Why This Difficult Story Had to be Told," Dan Leger (2011), director of news content, provided two reasons for the investment: it's the role of newspapers to address tough issues and they wanted to demonstrate a print newspaper could remain current through new social media practices. However, a more thorough examination of The Chronicle Herald's treatment of racial issues in Nova Scotia over the years – beyond this one event – warrant examination to assess whether the newspaper is, in fact, "tackling important issues" (¶ 2) or selling newspapers.

Consider a brief review of recent articles published in the provincial newspaper to help demonstrate this point. A search of articles published in the newspaper from the last five months related to the terms "African," "Black," and "Racism" returned just over 1,200 articles. A brief review of their content found only 57 related to the topic of black minority issues. Yet the topics,

none of which appear to be treated in depth, continue to be of a stereotypical nature: violence, Black History Month, crime, and limited achievements. I do not put this forward as a full analysis, but rather to help illustrate that the "Nova Scotia Burning" series is linked to other topics that are – or are not – covered in the paper, and they must be explored collectively in order to fully understand broader discourses.

Second, scholars (Fairclough, 1992, Bensen & Neveu, 2005; Van Dijk, 1991) stress the importance of examining news production in the constitution of discourse. The continued use of racial ideology is not the fault of an individual journalist; rather, news production occurs within an ideological system that normalizes Euro-Canadian beliefs (Bensen & Neveu, 2005; Henry & Tator, 2002). "Media racism is manifested in the articulation of policies and ideologies, reflected in the collective belief system of the dominant culture and woven into the language, laws, rules and norms of the institution at large" (Fleras & Kunz, 2001, p. 43). Therefore, further research should explore how news production (i.e., the decisions of the editors, the perspectives of the journalists) shapes racial discourse in Nova Scotia.

Conclusion

Mahtani et al. (2008) contend that developing effective strategies to address racial concerns in Canadian society requires a better understanding of how cultural images, ideas and symbols are produced and reproduced. Media play a critical role in this production. Such techniques as discussed above in the "Nova Scotia Burning" series, while espousing to confront issues of

racism, actually restrict the conversation and must be critically examined in order to support racial equality. This is the first study of its kind to examine how Nova Scotia media treat racial issues.

In considering the issue of racism in Nova Scotia, there are a number of angles the newspaper could have covered, such as what it is like to be a biracial couple in rural Nova Scotia, or the impact the incident has had on the family or community who experienced the cross-burning. However, The Chronicle Herald selected to learn more about the people who committed the crime. In doing so, the series effectively re-positioned the issue to be of concern for the perpetrators of the crime, as opposed to the victims and the larger community affected by it.

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INTEGRATING ICT INTO HIGHER EDUCATION AT THE UNIVERSITY OF MONCTON: ONSITE AND ONLINE STUDENTS FEELINGS

Gérard Fillion
Jean-Pierre Booto Ekionea
University of Moncton

For the past two decades, information and communication technologies (ICT) have transformed the ways professors teach and students learn. This study aims to investigate the feelings of onsite students (blended mode) and of those taking the same courses on the Internet (online mode). To guide the study, a moderator-type theoretical research model was developed, out of which eight hypotheses were formulated. The model was tested in a field experiment. To collect data, we used a multi-method approach, that is, a Web survey involving open- and closed-ended questions. The sample was formed of 192 onsite and online students from the three campuses of the University of Moncton (Moncton, Edmundston, and Shippagan). The quantitative data analysis was performed using a structural equation modeling software, that is, Partial Least Squares (PLS); the qualitative data were analyzed following a thematic structure using QSR NVivo software. In this paper we present the quantitative results got from students (closed-ended questions) and a summary of the qualitative results (open-ended questions).

Introduction

For the past two decades information and communication technologies (ICT) have transformed the ways professors teach and students learn. Some professors have actively shifted the information flow from a face-to-face mode (student listening, onsite presence) to an entirely online mode (student reading, onsite non presence); that is, they have designed courses and curricula offered completely online using the Internet and the Web. Others have developed the blended mode (a combination of face-to-face and online activities; less student onsite presence, ongoing use of ICT both inside and outside the classroom). Hence, knowledge acquisition and dissemination have been re-conceptualized, and new methods developed in order to satisfy the rapidly evolving needs of a population of individuals in search of more knowledge, heterogeneous, and geographically distributed.

In today's global economy, organizations (including universities) who want to survive and strive to stay highly competitive must continually innovate at the human, material, and technological levels. Alavi and Leidner (2001) pointed out that, during the past decade, universities and corporate training facilities have at an increasing rate invested into ICT to improve education and training. Marshall (2002) added that actual classrooms are more and more enriched by technology. Recent studies by the National Center for Education Statistics (Waits & Lewis, 2003), the Sloan Consortium (Allen & Seaman, 2004, 2005, 2006, 2007, 2008, 2009, 2010), Aggarwal and Legon (2006), Borstorff and Lowe (2007), Martz and Shepherd (2007), Kinuthia and Dagada (2008), as well as Washburn (2011) showed a growing appeal and acceptance of online learning. Other recent studies by Kim and Bonk (2006), Gomez et al. (2007), Eynon (2008), Young and Ku (2008), Steele (2008), Moskal and Dziuban (2011), and the Garrison and Vaughan's (2008) book showed the growth of blended learning. Further, it is

argued by Giddens (1999) that one of the most important functions of the university is to allow people to play a significant role in today's new economy. Thus, universities, faculties, and professors are currently looking for ways to improve teaching and curricula, as well as develop new modes capable of satisfying the actual and future needs of organizations and societies. Out of their recursive attempts, the four fundamental questions often revisited are the following: (1) What are we teaching? (2) What should we be teaching? (3) What is the best way to teach it (pedagogy)? and (4) What are the impacts on students?

The study described in this paper aims at helping universities to stay highly competitive in the current global shift in higher education, an approach that is innovative in its exploration of new directions as regards the last two above-mentioned questions. We examine the relation between students' learning outcomes (undergraduate and graduate students) and learning environments integrating ICT. Specific relations between student onsite presence and student online presence are examined as to identify their effect on the basic relation between learning environments and students' learning outcomes. In particular, this study compares onsite technology-rich blended learning environments and online learning environments. Moreover, this study brings to the foreground several moderator variables related to students' characteristics (psychology) and professors' pedagogy to better understand the relation between learning environments and students' learning outcomes.

Building on questions 3 and 4 raised previously (professor's pedagogy and impacts on students), this study focuses on the following three research questions: (1) Are there differences between learning outcomes of onsite students and of those taking the same courses online? If so, which ones? (2) Do students' characteristics influence the relation between learning environments and students' learning outcomes, and are there differences in this influence between onsite and online students? If so, which ones? and (3) Does professors' pedagogy influence the relation between learning environments and students' learning outcomes, and are there differences in this influence between onsite and online students? If so, which ones?

This paper describing the study builds on a framework suggested by Fillion (2004) in the conduct of hypothetico-deductive scientific research in organizational sciences, and it is structured as follows. First, the theoretical background supporting the study is examined; second, the methodology followed to conduct the study is presented; and finally, the results of the study are reported and interpreted.

Theoretical Background

This study is theoretically-based on Leidner and Jarvenpaa's, and Phipps and Merisotis' key research works. On the basis of three case studies, Leidner and Jarvenpaa (1993) developed a theoretical research model for other researchers to test in future studies. And, in a literature review, Leidner and Jarvenpaa (1995) inventoried numerous educational variables to be examined in future studies according to different scenarios using ICT. Several of the variables suggested by these authors are used in this study.

In their literature review on distance learning effectiveness in the 1990's, Phipps and Merisotis (1999) pointed out that the studies comparing the distance ICT-based learning environments with conventional learning environments (face-to-face without ICT use) fall into three categories: (1) students' results (performance); (2) students' attitude toward learning in these two types of environments; and (3) students' general satisfaction. We use the last two categories (learning effectiveness and satisfaction) as dependent variables in this study.

Of the 8,110 papers published over a period of 15 years in the journals and reviews examined, Chin et al. (2003) found only 74 that contained moderator variables. Moreover, several IS dominant theories (e.g., Davis' 1989 Technology Acceptance Model (TAM) and Doll and Torkzadeh's 1991 user participation/involvement model; quoted in Chin et al., 2003, p. 192) as well as the streams of research that have extended these models (e.g., Barki et al., 2007; Beaudry & Pinsonneault, 2010; Bhattacherjee & Sanford, 2006; Brown et al., 2010; Carswell & Venkatesh, 2002; Chin et al., 2008; Davis & Venkatesh, 2004; Devaraj et al., 2008; Hartwick & Barki, 1994; Karahanna et al., 2006; Kim, 2009; Limayem et al., 2007; Morris & Venkatesh, 2010; Ortiz de Guinea & Markus, 2009; Sykes et al., 2009; Titah & Barki, 2009; Venkatesh & Davis, 2000; Venkatesh & Speier, 1999; Venkatesh & Speier, 2000; Venkatesh & Johnson, 2002; Venkatesh et al., 2003; Venkatesh et al., 2008; Venkatesh & Goyal, 2010) most suggest that moderator variables are an important avenue of future development. Furthermore, numerous researchers within the IS field have suggested that models using moderator variables be tested (Anderson, 1985, Doll & Torkzadeh, 1989, Ives & Olson, 1984, McKeen et al., 1994, Sambamurthy & Zmud, 1999, Tait & Vessey, 1988; quoted in Chin et al., 2003, p. 192; Barki et al., 2007; Brown et al., 2010) as have researchers in other fields (Chin et al., 2003). Hence, most of the variables identified by Leidner and Jarvenpaa (1993, 1995) are used as moderator variables in this study. The resulting theoretical research model is shown in Figure 1.

Figure 1. Theoretical Research Model

Student characteristics

- Student autonomy
- Student anxiety
- Student motivation
- Student participation

Learning environments

- Student onsite presence (blended mode)
- Student onsite non presence (online mode)

H1, H2

H3 a, b, c
H4 a, b, c
H5 a, b, c
H6 a, b, c

Student learning outcomes

- Student learning effectiveness
- Student satisfaction

H7 a, b, c
H8 a, b, c

Professor pedagogy
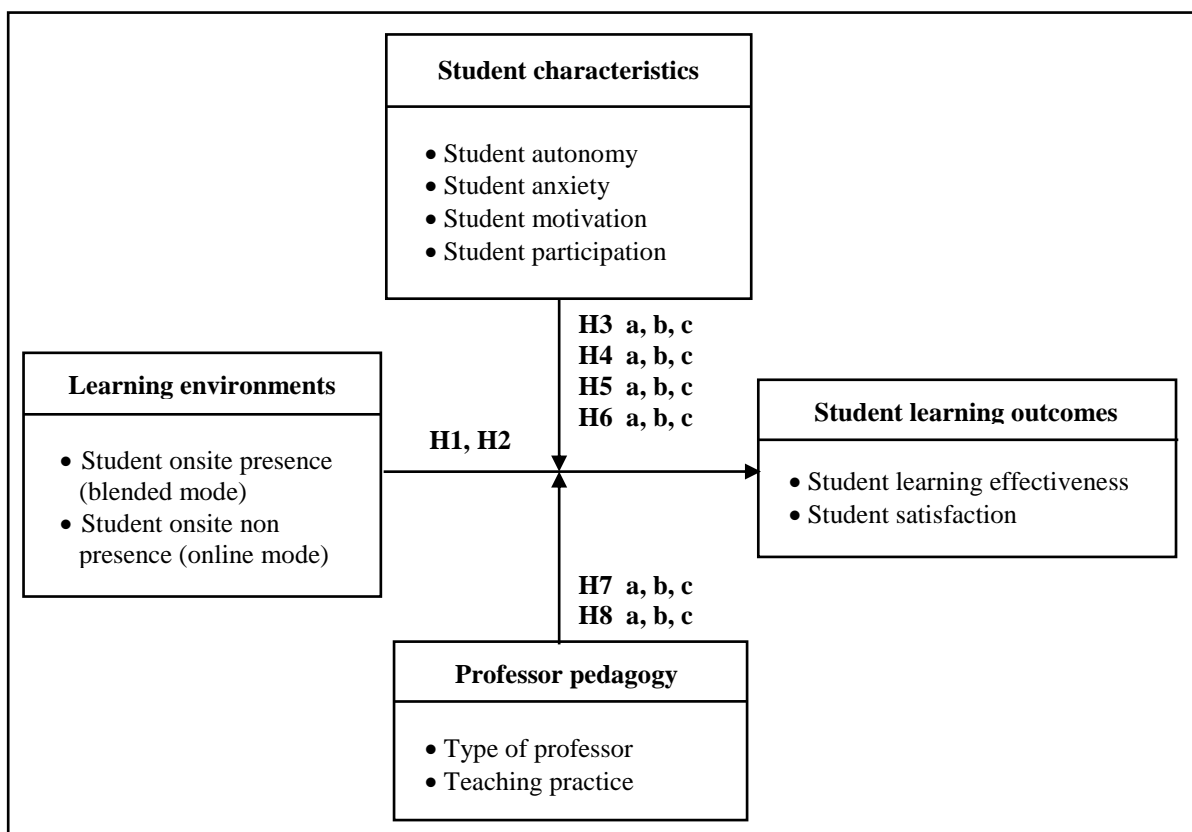
- Type of professor
- Teaching practice

Figure 1 shows that the theoretical research model which guides the study is articulated around an independent construct, learning environments, a dependent construct, student learning outcomes, as well as two moderator constructs, student characteristics and professor pedagogy. On the basis of this theoretical research model, eight research hypotheses are formulated.

H1: Students whose onsite presence is required to take courses (blended mode) find learning more effective than those whose onsite presence is not required (online mode).

H2: Students whose onsite presence is required to take courses (blended mode) are more satisfied than those whose onsite presence is not required (online mode).

H3: Students' autonomy has an influence on the relation between learning environments (students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H4: Students' anxiety has an influence on the relation between learning environments (students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H5: Students' motivation has an influence on the relation between learning environments (students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H6: Students' participation has an influence on the relation between learning environments (students' onsite presence and non presence) and their learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is not required.

H7: Type of professor has an influence on the relation between learning environments (students' onsite presence and non presence) and students' learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is required.

H8: Teaching practice has an influence on the relation between learning environments (students' onsite presence and non presence) and students' learning outcomes ((a) learning effectiveness; and (b) satisfaction), and (c) this influence is more pronounced for students whose onsite presence is required.

In the next section of the paper, we describe the methodology followed to conduct the study.

Methodology

Sample and Data Collection

The theoretical research model depicted in Figure 1 was tested in a field experiment at a small Canadian university, the University of Moncton. The sample was formed of students of eight undergraduate and seven graduate courses, which were offered at the three campuses of the university (Moncton, Edmundston, and Shippagan) in the two modes taken into account in this study: blended mode and online mode. Students were not randomly assigned, that is, for each course selected, the students were asked to participate in the study. The study was spread over two semesters, winter and fall. Each course had to meet the four following criteria: (1) to use a similar set of ICT in the two modes (computer, e-mail, chat, discussion forum, Web browser, Internet-based software, videoconferencing system, etc.); (2) to be taught by a different professor in the two modes; (3) to have the same course content in the two modes; and (4) to have, as much as possible, a similar group size in the two modes. In addition, each course was selected so that groups of students in the two modes were the most homogeneous possible in

terms of age and ICT experience. Finally, the course selection was made in order to cover a large area of administration disciplines. Thus, the sample of the study consisted of 192 students, 105 (42 in winter and 63 in fall) in blended mode courses and 87 (34 in winter and 53 in fall) in online mode courses.

Three weeks before the end of each semester of the data collection, students were asked to fill out an electronic survey on a Web site. To that end, an e-mail, including a URL and a password allowing access to the electronic survey, was sent to students. As follow up, ten days after the students had been asked to fill out the survey on the Web site, an e-mail was sent to students relating the importance of filling out the electronic survey for the advancement of scientific knowledge on integration of ICT into higher education. Finally, a few days later, all professors were asked to relay the importance of the study to students during class or in the discussion forums of the online courses.

In the winter semester, 76 students (42, blended mode; 34, online mode) out of 392 completed the electronic survey for a response rate of 19.5%; in the fall semester, 116 students (63, blended mode; 53, online mode) out of 508 completed the electronic survey for a response rate of 22.9%. Overall, 192 students (105, blended mode; 87, online mode) out of 900 completed the electronic survey on the Web site for a global response rate of 21.3%. And, of these 192 students, 174 (98, blended mode; 76, online mode) completed the qualitative section (open-ended questions) of the Web survey for a response rate of 90.6%.

Constructs Measurements

The learning environments construct was dummy coded with students' onsite presence (blended mode) as "1" and students' onsite non presence (online mode) as "2". And to measure all the variables that made up the other constructs, with the exception of teaching practice, we used various measures validated by other authors in past studies. They are presented in Table 1.

Table 1. Measures of Variables

Variable	*Measure and (# of items)*
Learning effectiveness[a]	Alavi (1994); Centra (1979); Hiltz (1988) (12 items)
Student satisfaction	Hobbs & Osburn (1989) (15 items)
Student autonomy[b]	Hackman & Oldham (1975) (2 items); Wilson (1990) (4 items)
Student anxiety	Spielberger, Gorsuch, & Lushene (1970) (20 items)
Student motivation	Hackman & Oldham (1975) (10 items)
Student participation	Green & Taber (1980) (5 items)
Type of professor[b]	Hiltz (1990) (11 items); Thach & Murphy (1995) (2 items)
Teaching practice[c]	Chickering & Gamson (1987) (7 items)

[a]The measure of this variable was formed using 12 items developed by Alavi (1994) and derived from Hiltz's (1988) survey on the basis of Centra's (1979) theoretical summary.

[b]The measure of this variable was formed using items of two instruments. Following Keller & Dansereau (2001) who showed the importance of retesting the validity and reliability of an instrument after the addition or removal of some items, we pre-tested the modified instrument with a sample of 63 students.

[c]To our knowledge, the seven principles of a good teaching practice proposed by Chickering & Gamson (1987) were only used as a measurement tool until now in a study conducted by Fillion (2005) in which this new instrument was then pre-tested with a sample of 63 students. This one showed a high level of validity and reliability.

Data Analysis

The quantitative data analysis was performed using a structural equation modeling software, that is, Partial Least Squares (PLS-Graph 3.0). And the PLS bootstrap resampling procedure was used with an iteration of 100 sub-sample extracted from the initial sample (192 students)

to ensure the stability of each model developed in order to test the research hypotheses (the interested reader is referred to a more detailed exposition of bootstrapping (see Chin, 1998; Efron & Tibshirani, 1993)). Some analyses were also performed using the latest version of Statistical Package for the Social Sciences software (SPSS; PASW Statistics 18.0). As for the qualitative data analysis, it was made using the Qualitative Solutions & Research NVivo software (QSR NVivo 8). We performed thematic analyses as suggested by Miles and Huberman (1994). The results follow.

Results

Constructs Reliability

To ensure the reliability of a construct using PLS, one must verify the three following properties: individual item reliability, internal consistency, and discriminant validity (Yoo & Alavi 2001; see the paper for more details).

To verify individual item reliability, a confirmatory factor analysis (CFA) was performed on the eight variables of the moderator and dependent constructs. After the first iteration of the CFA, only some items were removed of the following variables given their loadings were inferior to 0.50: type of professor (1 item), student anxiety (4 items), student motivation (4 items), learning effectiveness (2 items), and student satisfaction (1 item). And after the second iteration of the CFA, no item was withdrawn. Indeed, in the whole, items had high loadings, that is, between 0.65 and 0.87, which suppose a high level of internal consistency of their corresponding variables. In addition, loadings of each variable were superior to cross-loadings with other variables of the model. The first criterion of discriminant validity was then satisfied.

And to get composite reliability indexes and average variance extracted (AVE) in order to satisfy the second criterion of discriminant validity as well as to verify internal consistency of the variables, we used PLS bootstrap resampling procedure with an iteration of 100 sub-sample extracted from the initial sample (192 students). The results are presented in Table 2.

Table 2. Means, Standard Deviations, Composite Reliability Indexes, Correlations and Average Variance Extracted of Variables

Variable	M /5	SD	Relia-bility Index	Correlations and Average Variance Extracted[a]							
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Type of professor	3.81	1.30	**0.91**	**0.67**							
(2) Teaching practice	3.90	0.97	**0.86**	0.43	**0.69**						
(3) Student autonomy	4.33	0.73	**0.85**	0.11	0.16	**0.71**					
(4) Student anxiety	2.84	1.44	**0.91**	0.17	-0.21	-0.33	**0.60**				
(5) Student motivation	3.91	1.03	**0.70**	-0.20	0.27	0.31	-0.16	**0.46**			
(6) Student participation	4.03	0.84	**0.88**	0.26	0.28	0.19	-0.33	0.24	**0.77**		
(7) Learning effectiveness	3.81	1.05	**0.94**	0.31	0.49	-0.04	-0.22	0.31	0.26	**0.77**	
(8) Student satisfaction	4.14	0.92	**0.92**	0.39	0.51	0.25	-0.39	0.35	0.21	0.46	**0.66**

[a]Boldfaced elements on the diagonal of the correlation matrix represent the square root of the average variance extracted (AVE). For an adequate discriminant validity, the elements in each row and column should be smaller than the boldfaced element in that row or column.

As shown in Table 2, PLS analysis indicates that all square roots of AVE (boldfaced elements on the diagonal of the correlation matrix) are higher than the correlations with other variables of the model. In other words, each variable shares more variance with its measures than it

shares with other variables of the model. Consequently, discriminant validity is verified. Finally, as supposed previously, we can see in Table 2 that PLS analysis showed high composite reliability indexes for all variables of the theoretical research model. The variables have therefore a high internal consistency, with composite reliability indexes ranging from 0.70 to 0.94.

Test of Hypotheses

First, we performed descriptive statistics of the variables of our theoretical research model using PASW Statistics software. The results of the analysis are summarized in Table 3.

Table 3. Descriptive Statistics of Variables

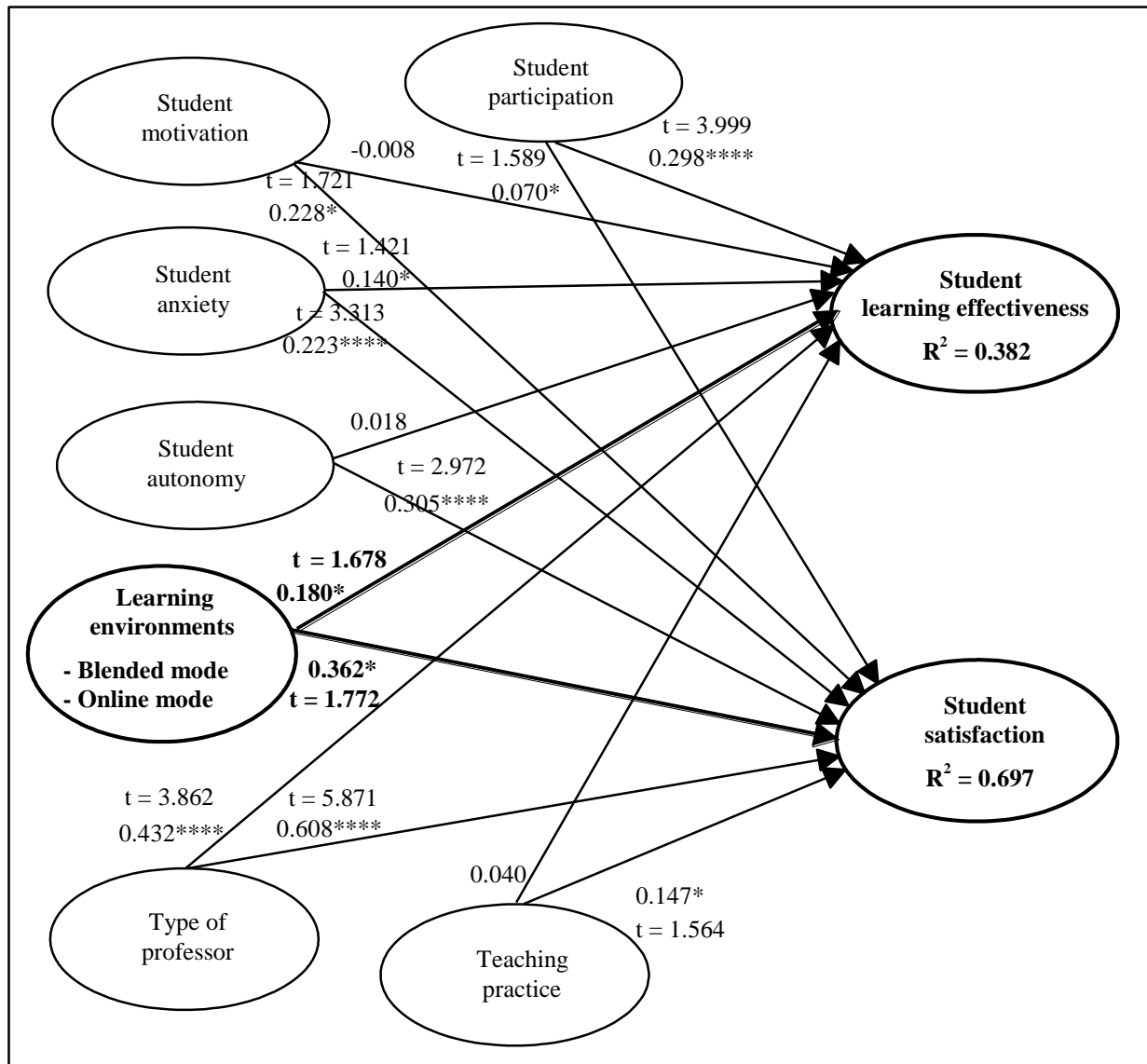| Variable	Blended Mode (n = 105)		Online Mode (n = 87)	
	M /5	SD	M /5	SD
Type of professor	3.83	1.34	3.77	1.26
Teaching practice	3.91	0.88	3.88	1.07
Student learning effectiveness	3.73	1.14	3.90	0.92
Student satisfaction	4.09	0.94	4.21	0.89
Student anxiety	2.84	1.44	2.84	1.45
Student participation	3.90	0.89	4.19	0.76
Student autonomy	4.20	0.77	4.48	0.64
Student motivation	3.79	1.02	4.06	1.01

As shown in Table 3, students who participated in the study were very autonomous (means of 4.20 for onsite students and 4.48 for those online) and motivated (means of 3.79 and 4.06 for onsite and online students, respectively), and not very anxious (means of 2.84 for both onsite and online students). We can also note in Table 3 a high level of participation of the students (means of 3.90 and 4.19 for onsite and online students, respectively). Finally, according to the high means related to satisfaction in Table 3, students were very satisfied about the courses and the professors (means of 4.09 for onsite students and 4.21 for those online). And standard deviations of the whole variables indicate a relative homogeneity between groups of students.

To test hypotheses involving independent and dependent variables (H1-H2), we developed a PLS model similar to those of Fillion (2005), Fillion et al. (2010), and Yoo and Alavi (2001). And the PLS bootstrap resampling procedure was used with an iteration of 100 sub-sample extracted from the initial sample (192 students) to ensure the stability of the model. This model is depicted in Figure 2.

As shown in the global PLS structural equation model in Figure 2, the independent variable (learning environments) and the moderator variables (student anxiety, student autonomy, student participation, student motivation, type of professor, and teaching practice) taken as independent variables are explaining 38.2% of the variance on the dependent variable student learning effectiveness and 69.7% of the variance on the dependent variable student satisfaction, which is very interesting. But, in addition of the percentages of variance explained, what is important for us in this global PLS model is the effect of the independent variable on the two dependent variables in order to verify hypotheses 1 and 2.

As we can see in Figure 2, the t-value (1.678) and beta coefficient (0.180) got in the PLS structural equation model indicate that the path from learning environments to student learning

effectiveness is significant (p < 0.05). But, contrary to what we hypothesized, online students found learning more effective than onsite students. As a result, hypothesis 1 is not supported. Regarding hypothesis 2, similar to hypothesis 1, the t-value (1.772) and beta coefficient (0.362) got in the PLS structural equation model indicate that the path from learning environments to student satisfaction is significant (p < 0.05). But, contrary to our expectations, students taking the courses online were more satisfied than those taking the courses onsite. Consequently, hypothesis 2 is not supported. In summary, in this study, learning environments had a more significant effect on learning effectiveness and satisfaction of online students than on those of onsite students.

*p < 0.05; ****p < 0.001.

Figure 2. PLS Structural Equation Model to Test Hypotheses 1 and 2

To measure interaction effect of moderator variables in order to verify hypotheses 3 to 8 (H3-H8), we developed several PLS models according to the Chin et al.'s (2003) and Carte and Russell's (2003) procedures. And, for each PLS model, the PLS bootstrap resampling procedure was used with an iteration of 100 sub-sample extracted from the initial sample (192 students)

to ensure the stability of the model. So, in the verification of hypotheses 3 to 8 that follows, interaction effect of a moderator variable is significant if, and only if, the path between the latent variable (the multiplication of items of independent and moderator variables forming interaction effect) and the dependent variable is significant, as well as if the change in R^2 coefficient (the difference between the R^2 calculated before the addition of interaction effect and those calculated after the addition of interaction effect, that is, ΔR^2) is greater than 0. Moreover, when an interaction effect of a moderator variable was found significant, Box's M test of equality of covariance matrix (from PASW Statistics software) was used to verify whether there was a difference in this interaction effect between onsite and online students.

The path from the latent variable environments*autonomy to the dependent variable student learning effectiveness is significant (0.521, t = 1.721, p < 0.05). And there is a change in R^2 ($\Delta R^2 = 0.003$). Student autonomy has an influence on the relation between learning environments and student learning effectiveness, and sub-hypothesis 3(a) is supported. The scenario is similar for student satisfaction. The path from the latent variable environments*autonomy to the dependent variable student satisfaction is significant (0.841; t = 1.828; p < 0.05). And there is a change in R^2 ($\Delta R^2 = 0.005$). Sub-hypothesis 3(b) is also supported. To verify whether there was a difference in influence of autonomy between onsite and online students, and test sub-hypothesis 3(c), we ran PASW Box's M test entering learning effectiveness (and student satisfaction for the second test), autonomy, learning environments (the grouping variable) and environments*autonomy (interaction effect calculated in PLS) variables, and the two tests showed to be significant (F = 19.612, p < 0.001; F = 18.432, p < 0.001). In fact, we found that the influence of student autonomy on the relations between learning environments and student learning effectiveness and satisfaction was more pronounced for students whose onsite presence was not required, supporting sub-hypothesis 3(c).

The path from the latent variable environments*anxiety to the dependent variable student learning effectiveness is significant (0.759, t = 2.432, p < 0.01). And there is a substantial change in R^2 ($\Delta R^2 = 0.006$). So, student anxiety has an influence on the relation between learning environments and student learning effectiveness, and sub-hypothesis 4(a) is supported. It is the same for student satisfaction. The path from the latent variable environments*anxiety to the dependent variable student satisfaction is significant (0.920; t = 1.914; p < 0.05). And there is a change in R^2 ($\Delta R^2 = 0.004$). Consequently, sub-hypothesis 4(b) is also supported. To verify whether there was a difference in influence of anxiety between onsite and online students, and test sub-hypothesis 4(c), we ran PASW Box's M test entering learning effectiveness (and student satisfaction for the second test), anxiety, learning environments (the grouping variable) and environments*anxiety (interaction effect calculated in PLS) variables, and the two tests showed to be not significant (F = 0.744; F = 0.508). In fact, we found that the influence of student anxiety on the relations between learning environments and student learning effectiveness and satisfaction was not more pronounced for students whose onsite presence was not required to take courses. So, sub-hypothesis 4(c) is not supported.

The path from the latent variable environments*motivation to the dependent variable student learning effectiveness is not significant (-0.130, t = 0.380). So, even if there is a small change in R^2 ($\Delta R^2 = 0.002$), we found that student motivation has no influence on the relation between learning environments and student learning effectiveness, and thus sub-hypothesis 5(a) is not supported. The scenario is different for student satisfaction. Indeed, the path from the latent variable environments*motivation to the dependent variable student satisfaction is significant (0.867; t = 1.911; p < 0.05). And there is a substantial change in R^2 ($\Delta R^2 = 0.011$). As a result, sub-hypothesis 5(b) is supported. To verify whether there was a difference in influence of autonomy between onsite and online students, and test sub-hypothesis 5(c), we ran PASW Box's M test entering student satisfaction, motivation, learning environments (the grouping

variable) and environments*motivation (interaction effect calculated in PLS) variables, and the test showed to be significant (F = 23.108, p < 0.001). In brief, we found that the influence of student motivation on the relation between learning environments and student satisfaction was more pronounced for students whose onsite presence was not required, and sub-hypothesis 5(c) is supported.

The path from the latent variable environments*participation to the dependent variable student learning effectiveness is not significant (-0.077, t = 0.128). So, even if there is a small change in R^2 ($\Delta R^2 = 0.001$), we found that student participation has no influence on the relation between learning environments and student learning effectiveness, and sub-hypothesis 6(a) is not supported. The scenario is different regarding student satisfaction. The path from the latent variable environments*participation to the dependent variable student satisfaction is significant (-0.351; t = 1.698; p < 0.05). And there is a change in R^2 ($\Delta R^2 = 0.006$). Thus, sub-hypothesis 6(b) is supported. To verify whether there was a difference in influence of participation between onsite and online students, and test sub-hypothesis 6(c), we ran PASW Box's M test entering student satisfaction, participation, learning environments (the grouping variable) and environments*participation (interaction effect calculated in PLS) variables, and the test showed to be significant (F = 23.211, p < 0.001). In fact, we found that the influence of student participation on the relation between learning environments and student satisfaction was more pronounced for students whose onsite presence was not required. Sub-hypothesis 6(c) is then supported.

The path from the latent variable environments*typeprof to the dependent variable student learning effectiveness is significant (-0.527, t = 1.290, p < 0.10). And there is a change in R^2 ($\Delta R^2 = 0.006$). The result is similar for student satisfaction. The path from the latent variable environments*typeprof to the dependent variable student satisfaction is significant (-0.320, t = 1.216, p < 0.10). And there is a change in R^2 ($\Delta R^2 = 0.004$). However, given the level of significance to support the hypotheses in this study is p ≤ 0.05, sub-hypotheses 7(a) and 7(b) are not supported. To verify whether there was a difference in influence of type of professor between onsite and online students, we ran PASW Box's M test entering learning effectiveness (and student satisfaction for the second test), type of professor, learning environments (the grouping variable) and environments*typeprof (interaction effect calculated in PLS) variables, and the two tests were not significant. In addition, as we have not found enough significant interaction effects for sub-hypotheses 7(a) and 7(b), sub-hypothesis 7(c) is then not supported. In short, contrary to our expectations, type of professor had no significant influence (at least to a level of significance p ≤ 0.05) on the relations between learning environments and student learning effectiveness and student satisfaction.

Finally, the path from the latent variable environments*teachpra to the dependent variable student learning effectiveness is significant (-0.469, t = 1.249, p < 0.10). And there is a change in R^2 ($\Delta R^2 = 0.003$). The result is similar for student satisfaction. Indeed, the path from the latent variable environments*teachpra to the dependent variable student satisfaction is significant (-0.276, t = 1.228, p < 0.10). And there is a huge change in R^2 ($\Delta R^2 = 0.045$). However, given the level of significance to support the hypotheses in this study is p ≤ 0.05, sub-hypotheses 8(a) and 8(b) are not supported. To verify whether there was a difference in influence of teaching practice between onsite and online students, we ran PASW Box's M test entering learning effectiveness (and student satisfaction for the second test), teaching practice, learning environments (the grouping variable) and environments*teachpra (interaction effect calculated in PLS) variables, and the two tests were not significant. In addition, as we have not found enough significant interaction effects for sub-hypotheses 8(a) and 8(b), sub-hypothesis 8(c) is therefore not supported. In brief, contrary to what we expected when we formulated our research hypotheses, teaching practice had no significant influence (at least to a level of

significance p ≤ 0.05) on the relations between learning environments and student learning effectiveness and student satisfaction. Table 4 presents a summary of the test of hypotheses.

Table 4. Summary of the Test of Hypotheses

Hypotheses	*Results*	*Software (Sig.)*
H1 **Learning effectiveness**	Not supported[c]	PASW[a] (0.000****) PLS (0.180*)
H2 Satisfaction	Not supported[c]	PASW[a] (0.000****) PLS (0.362*)
H3 Autonomy	(a) Supported (b) Supported (c) Supported	PLS (0.521*) PLS (0.841*) PASW[b] (0.000****)
H4 Anxiety	(a) Supported (b) Supported (c) Not supported	PLS (0.759**) PLS (0.920*) PASW[b] (0.957)
H5 Motivation	(a) Not supported (b) Supported (c) Supported	PLS (-0.130) PLS (0.867*) PASW[b] (0.000****)
H6 Participation	(a) Not supported (b) Supported (c) Supported	PLS (-0.077) PLS (-0.351*) PASW[b] (0.000****)
H7 Type of professor	(a) Not supported[d] (b) Not supported[d] (c) Not supported	PLS (-0.527†) PLS (-0.320†) PASW[b] (0.283)
H8 Teaching practice	(a) Not supported[d] (b) Not supported[d] (c) Not supported	PLS (-0.469†) PLS (-0.276†) PASW[b] (0.482)

[a]Bonferroni's One-Way Anova multiple comparisons test at a level of significance p ≤ 0.05 was used to verify the difference in group means. Bonferroni's test takes into account inequality in group sizes in adjusting the selected alpha level before each separate test to control the overall Type I error rate.
[b]Box's M test of equality of covariance matrix was used to verify whether there is a difference in the interaction effect of the moderator variable between onsite and online students (blended mode vs. online mode).
[c]The test is significant, but the result is in opposition with which is formulated in the hypothesis.
[d]The hypothesis is not supported given the level of significance of the test is too low (p < 0.10).
†p < 0.10; *p < 0.05; **p < 0.01; ****p < 0.001.

In summary, Table 4 shows that online students found learning more effective and they were more satisfied than those onsite (p < 0.05, PLS; p < 0.001, PASW). As for the moderator variables, autonomy had an influence on the relation between learning environments and student learning effectiveness (p < 0.05) and satisfaction (p < 0.05), and this influence was more pronounced for online students than for those onsite (p < 0.001). Anxiety had an influence on the relation between learning environments and student learning effectiveness (p < 0.01) and satisfaction (p < 0.05), but this influence was not more pronounced for online students than for those onsite. Motivation and participation had an influence on the relation between learning environments and student satisfaction (p < 0.05), and this influence was more pronounced for online students than for onsite students (p < 0.001). And type of professor and teaching practice had a significant influence on the relation between learning environments and student learning effectiveness and satisfaction, but the related hypotheses were not supported because the level of significance is too low (p < 0.10). In fact, in the whole, the quantitative results observed in the present study involving a small Canadian university are consistent with those observed in a one year previous study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010). So these results allow us to say, 'cautiously' of course, that ICT use at the university (onsite vs. online) has relatively similar impacts on students and that students have relatively similar behaviors when

using ICT, whether in a small or in a large university. Future similar studies are needed to reinforce these findings. The quantitative results got in this study are also relatively consistent with the body of research that compares these two learning modes: blended learning vs. online learning. In the next paragraphs, we present a summary of the qualitative results of the study.

Open-Ended Questions

Students' preferences in the course when using ICT. In the first open-ended question of the Web survey students were asked to indicate what they appreciated the most in the course. The results from the thematic analysis indicate that the elements most appreciated by both onsite and online students (in order of priority) are professor, course usefulness, course material, ICT use, assignments, access to the course material on the Web site, discussion forums, prompt feedback, student/student and student/professor interaction, course structure, evaluations, nothing, participation, and collaboration. We can then conclude that whether or not students come to class to take courses, when the same set of ICT is used, they appreciate the same elements related to these courses. And, among the elements they appreciate most, professor and course usefulness in every day life and for their career are by far at the lead. Clearly, professors still take a predominant place in the formation of students at the beginning of the 21st century.

Students' suggestions for improving the course when using ICT. In the second question, it was asked of students to suggest ways of improving the course. The thematic analysis show that the elements the students want improved in the course (in order of priority) are professor, presentation of the material, course material, assignments, amount of work, course content, nothing, evaluations, student/student and student/professor interaction, discussion forums, and Desire2Learn (D2L) use. Thus, we can conclude that whether or not the students come to class to take courses, when the same set of ICT is used, generally both sets of students suggest improving the same elements related to these courses. And, of the elements proposed, professor and presentation of the material are by far at the lead. As a result, whether the students take courses onsite or online, they put crucial importance on the professors and their teaching practice, as much to appreciate them when they are satisfied (as we have seen previously in the analysis of the first question) as to criticize them when they are dissatisfied (as we can see here).

Benefits of students' onsite presence when using ICT. The third open-ended question of the Web survey asked students if the onsite presence provided benefits to them with the integration of ICT into higher education, and why? Following our thematic analysis, we regrouped the students' responses to this question in two categories: advantageous and non-advantageous. In the first category, the two themes that are by far at the lead is that onsite presence allows a better understanding of the material and promotes student/student and student/professor interaction. As for the second category, the two themes which are most evident are that the students can learn as well at home with a book and that ICT allow students to take courses at a distance without onsite presence.

Impacts of using ICT on students' characteristics. In the fourth question, students were asked to indicate the impacts of using ICT on students' characteristics (autonomy, anxiety, motivation, and participation). Our thematic analysis reveal that the three impacts that have been by far the most important for students are that ICT use at the university increases the level of autonomy and motivation, and that the students' characteristics (autonomy, anxiety, motivation, and participation) taken into account in this study have an influence on their learning outcomes. And the two next most important impacts for students of the two modes are that ICT use at the university increases their level of participation and anxiety.

Impacts of using ICT on professors' pedagogy. Finally, in the fifth and last question of the Web survey, students were asked to indicate the impacts of using ICT on professors' pedagogy (type of professor and teaching practice) into higher education integrating ICT. The themes derived from the thematic analysis of the onsite and online students' responses indicate that the four impacts that have been by far the most important for students are: when using ICT at the university, professors must be dynamic to keep students' interest, they must make good use of ICT to bring motivation to students, use active learning techniques, and be more familiar with ICT. We can see here that these impacts related to professors and their teaching practices (the two variables taken into account in this study to assess the quality of professors' pedagogy) are of crucial importance to students. And the next most important impacts for students of the two modes are that, when professors are using ICT at the university, they must be there for students and have a well-organized course.

The qualitative results got in this study involving a small Canadian university are consistent with those observed in a one year previous study involving a large Canadian university (see Fillion, 2005; Fillion et al., 2007; Fillion et al., 2008; Fillion et al., 2009; Fillion et al., 2010). As mentioned in the interpretation of the quantitative results, these qualitative results allow us to say, 'cautiously' of course, that ICT use at the university (onsite vs. online) has relatively similar impacts on students and that students have relatively similar behaviors when using ICT, whether in a small or in a large university. Future similar studies are also needed to reinforce these findings.

Conclusion

To conclude, much more research will be needed as technology-rich environments unfold. Better understanding of their impacts on students, professors, and educational institutions will be required in order to improve them or design new ones still better adapted to higher education students. So we will continue to inquire into this exciting field.

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