A CASE STUDY OF

ONLINE COLLABORATIVE LEARNING

FOR UNION STAFF IN DEVELOPING COUNTRIES

by

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A Case Study of Online Collaborative Learning for Union Staff in Developing Countries

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ABSTRACT

Online collaborative learning (OCL) is used by many universities to provide education to geographically-dispersed groups of students who can participate at times and locations of their choosing. However, despite its potential for expanding labour education and building new knowledge, OCL is not being used by the international labour movement.

This dissertation investigates the use of OCL by the staff of unions in developing countries. The focus is on exploring if OCL can be effective and viable for these staff members. Effectiveness is related to evidence of learning, perception of learning, and sense of community. Viability is related to the technological and financial capability to participate in online collaborative learning.

Previous investigations concluded that online learning for unions needs to be collaborative, promote community, be based on constructivist learning principles, provide links to learning in the workplace, and possibly grant a certificate recognized as valuable by the participants. Investigators who studied early online labour education projects emphasized the need to determine the *process* by which groups of unionists learn online.

A case study was conducted. An online course involving 33 union staff members based in 24 developing countries was studied using a mixed-mode research strategy. Both quantitative and qualitative research methods were used. A theory and research methods related to online collaborative learning were used to analyse the process of learning in the course. A questionnaire on the development of community amongst the

participants was applied. Transcript analysis of messages in the course's computer conferences was conducted.

Findings include: OCL can be successfully employed for the education of union staff in developing countries; the collaborative creation of a knowledge artefact, such as a document, which has a public life outside of the online course provides a crucial link to activities in the workplace; the task which is set for the group significantly affects the collaborative discourse process; online collaborative learning can build a strong sense of community amongst participants; and a credential, even if it is not accredited by a university or college, is a significant motivator. The international labour movement could use online collaborative learning to provide educational opportunities globally.

Keywords: labour education, unions, online collaborative learning.

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CHAPTER 1.

INTRODUCTION

The need for educating union staff is becoming increasingly crucial to the survival of labour organizations as they face dwindling membership and the increasing effects of economic globalization. The need is even more acute in developing nations, where labour organizations do not have the financial resources or trained staff needed to address complex bargaining issues created by poverty, informal economies, and a realignment of the world's economic patterns. This dissertation investigates the case for expanding education within the labour movement through the use of computer communications, with a particular focus on its use for union staff in developing countries. The issue is this: universities and other educational institutes are using computer communications extensively to provide educational services, but the labour movement is not. The focus of this dissertation is on whether the labour movement could use computer communications to provide education. A case study methodology was used to explore the pedagogical and technological issues related to the use of online (via computer communications) collaborative learning (OCL) for the staff of unions in developing countries.

OCL is the collaborative group–oriented pedagogy which is explored in this dissertation. It is contrasted to Online Distance Education (ODE) and Online Computer Based Training (OCBT), neither of which are aimed at allowing people to work in groups.

ODE is traditional distance education updated with the use of email: lessons are sent to students and they may have access via email to instructors. With OCBT students interact with computer programs to learn skills. OCL, unlike the other two variants of online learning, is aimed at the creation of new knowledge by groups of learners.

1.1. The Personal Context

I come from a union family. My father, who worked for 25 years for the Ford Motor Company, was a shop steward for Local 707 of the United Autoworkers union (later the Canadian Autoworkers). Local 707 represents production and skilled trade workers at the Ford plant in Oakville, Canada. While growing up I knew we were a union family not only because of discussions with my father about contract negotiations and the occasional strikes which occurred, but because every month a copy of the Local 707 Reporter (the local union's newsletter) came in the mail and stayed on the coffee table until the next issue was published. This impressed on me the crucial role communications plays in developing unions and their cultures. Even if I didn't always read the newsletter, the fact that it was delivered every month to our house served to remind me that we were a union family. When I graduated from Ryerson University in 1974 I was asked to join the communications department of Canada's largest labour union – the Canadian Union of Public Employees (CUPE). For ten years I worked as a communications officer assigned to provide support for CUPE's negotiators and local unions during strikes. In the early 1980s my interest in communications and the labour movement led me to consider the use of microcomputers for unions. I created a computer department for the union and became its director. In that role I managed a project which implemented the first Local Area Network (LAN) in Canada. Through that

experience I became convinced that microcomputers could be used to communicate not only in a building (as with a LAN) but also nationally and internationally for union communications. To learn more about the medium and how it could be used for education I enrolled in the online Master's in Media Studies program of the New School for Social Research in New York. This program, which conducted the first graduate online courses, was organized by Connect-Ed – a company headed by Paul Levinson. Dr. Levinson taught me the basics of computer communications for education and introduced me to online collaborative learning. An added benefit was that the program was conducted on the Electronic Information Exchange System (EIES) – one of the first computer conferencing systems in the world. EIES was being used by Murray Turoff, the inventor of computer conferencing, and Starr Roxanne Hiltz, the first sociologist to study online learning, to explore online collaborative learning and its potential to provide an educational experience equal to, or even better, than classroom-based education. Eventually I earned my Master's degree and in so doing became the first person in Canada to earn a degree completely online.

My experience with online collaborative learning using EIES convinced me that computer communications could be used to provide access to education for unionists who could not afford to take extended periods of time off work. Consequently, in 1985, I organized the labour movement's first email and computer conferencing system, SoliNet (the Solidarity Network), to promote labour communications and education. From the beginning SoliNet was designed to be used by all labour organizations, not just CUPE. It hosted a few seminars with international participation amongst its more nationally-oriented seminars. But it was not until SoliNet moved to the World Wide Web in 1995 that its global reach became extensive. In that year SoliNet was used for the first

international Web-based labour education seminars and courses. Through these seminars and courses the use of computer communications for labour education was proven to be technologically possible, but there were still many pedagogical issues to be resolved. To encourage research into these issues CUPE, in 1995, became a founding member of Canada's TeleLearning Network of Centres of Excellence (TL–NCE). The TL-NCE was created to research, develop, demonstrate and evaluate new learning models using technology. In its first year the network consisted of 130 researchers from 29 Canadian universities working on 56 projects. I was appointed to the Board of Directors of the network and became a member of its Program Committee. As a member of the Program Committee I was introduced to the university research community which was exploring online learning, its principles and its methods. I realized that many of the lessons being learned in university settings had the potential to be transferred to online labour education.

In 1999 CUPE decided that SoliNet should be limited to its members and not provide services to the national or international labour movement. A year later I joined the staff of the training centre of the International Labour Organization based in Turin, Italy. The Workers' Activities Program at the centre (which is referred to by its French acronym ACTRAV) is one of the few international labour education centres in the world. It organizes 12 month-long residential courses per year, numerous seminars in regions around the world, and about 10 OCL courses annually. My primary responsibility is to organize the online courses. The online courses seem to be successful: the participants complete the course; they report satisfaction with the educational experience; and their discussions towards the end of the courses indicate that they have learned the vocabulary and primary concepts of the subject being considered. But all this remained

anecdotal; no extensive study of the online courses conducted by the training centre had been conducted.

At the same time, even though the online courses conducted at the ILO training centre seem to be successful, it is clear that online learning has not been accepted in any widespread way by the international labour movement. It may be that the movement, in order to adopt the medium, needs scientifically researched examples of how it could be used for labour education before encouraging its adoption. This dissertation, which investigates whether effective and viable learning can take place in online labour education courses, reports on a case study which looked at an online course conducted by ACTRAV in 2005.

Chapter 1 is divided into five sections. The first discusses labour education with definitions of its basic terms and a description of its primary pedagogical principles: collaboration, community, relevance to the workplace, and action. To illustrate the range of labour education's activities and shared approaches which will have to be considered if effective global labour education is to be practiced, three national labour movements are surveyed. The second section explores current practices in online learning and distinguishes *collaborative* online learning from other variants of the medium. Collaborative learning, which focuses on encouraging learners to work together, closely reflects the collaborative nature of labour education. The third section focuses on the use of OCL by labour organizations. The questions which guided the research project are presented in the fourth section. Finally, the structure of the dissertation is outlined.

1.2. International Labour Education

As they confront globalization the institutions which represent workers at the global level are recreating themselves. The two organizations which represent most of the world's national labour federations (collections of unions in a country) are the International Federation of Free Trade Unions (ICFTU) and the World Congress of Labour (WCL). They merged in 2006 to create an entity which represents 185 million working people in the world. In the late 1990s the international labour organizations which represented particular employment groupings, such as public employees or textile workers, changed from being primarily lobbying and information-disseminating organizations to become Global Union Federations (GUFs) which started negotiating agreements with multinational corporations. Both the ICFTU and the WCL have regional organizations which conduct labour education. The Global Union Federations have education officers or departments which help their affiliated unions conduct labour education courses for their members. The ICFTU, the WCL and the GUFs all work through the national federations of unions in a country.

The fundamental problem these global labour organizations face is that, like the rest of the world, they have never been confronted with globalization of the current magnitude. In order to minimize the disadvantages of globalization, and maximize its potential for increasing the well-being of working people in the world, these global labour organizations cannot rely on old ways of thinking or on existing bodies of knowledge. They need to renew themselves (Fairbrother & Hammer, 2003). They need to continually create new knowledge.

Creating new knowledge in the labour movement is a process of unionists collaborating to study problems related to the workplace, share information and develop novel approaches to problems and opportunities. For the most part this is done informally in meetings and conferences, but it is also done in activities organized by labour educators. Traditionally this labour education has been practiced locally or nationally in classroom courses lasting a day, a week, and, in the case of labour studies aimed at a degree, years. The participants in most of these courses are union members, not staff – union staff members are largely left to learn on the job (Nesbit, 2003). However, the ever increasing effects of globalization on the workplace, and the need for the international labour organizations which are confronting them to learn new approaches, creates a need for new knowledge. Labour education can play a role in creating this knowledge by utilizing its traditional methods, such as day or week-long courses. But it can also expand its role to support global labour education with the use of computer communications.

Online learning – learning practiced via computer communication networks – has experienced a remarkable growth in the past few years. In the United States alone there were 2.35 million people studying online in 2004. Almost two-thirds of the educational institutes in the U.S. which provide undergraduate degrees offer online courses. More than 40 per cent of American schools which offer Master's degree programs also offer those programs online (Sloan, 2005). Online learning is providing accessible education to many people, especially working people, who find it difficult because of family or work responsibilities to attend strictly scheduled, in-person courses at educational institutes. Its most important characteristic is that it can be accessed at times convenient to

learners from their workplaces and homes, or other venues such as cybercafés (Hiltz, 1994).

Yet, despite its use by universities, online collaborative learning is not being used by labour organizations. This dissertation focuses on whether OCL can be practiced effectively with staff of labour organizations in some of the poorest countries in the world. The focus is on organizations in developing countries because they are most in need of capacity building, but also because they need to be involved in the discussions within the international labour movement as it tries to address globalization and other issues. Without the participation of labour organizations in developing countries discussions concerning those issues would be, despite the best of intentions, slanted toward the views of people in the more economically and technologically advanced countries. A global debate needs global participation. For these reasons – expansion of labour education, widening participation in global union discussions, and building the capacity of labour organizations in developing countries – the research work reported in this dissertation was conducted.

1.2.1. Labour Education Terms

As a form of adult education, labour education shares many of the former's historical roots in Britain, the country in which unionism began: the Mechanics Institutes in the first half of the 18th century, the working people's colleges of the 1850s, the university extension movement, and the establishment of the Workers' Educational Association (WEA) early in the last century (Hopkins, 1985). However, beginning in the 1950s "adult education in general became more professionalized and individualized

while labour education continued to keep alive the spirit of socially engaged education ....” (Taylor, 2001a, p. 2). Today labour education “attracts more participants than any other form of non-vocational adult education [in liberal democracies] and is one of the most important forms of adult education available to working people” (Spencer, 2002a, p. 11).

The term labour education encompasses both union education and labour studies. Union education “is concerned with educating union members to perform union functions and to support the goals and objectives of the union” (Taylor, 2001a, p. 6). Labour studies is “labour education conducted in post-secondary educational institutions” and is “committed formally to impartial, open and critical education about labour in society...” (p. 7). Workers' education refers to activity aimed at all workers, regardless of their union affiliation. “Workers' education is that sector of adult education which caters to adults in their capacity as workers and especially as members of workers' organizations” (Hopkins, 1985, p. 2). While it may encompass topics specific to union activity, such as collective bargaining, workers’ education also includes vocational training, literacy programs and general education on social and economic subjects. Labour organizations may be involved in the provision of any of these streams of educational activity, but they most often concentrate on union education with subjects such as shop steward training, contract negotiations, workplace safety and other topics tied directly to their activities and their need to train volunteer workers in the operations of their organizations.

It is the emphasis on the individual which most clearly differentiates union education and labour studies. The latter is aimed at individuals pursuing studies in educational institutes which, if they were unionists, might help the labour movement by

having more highly educated people in its ranks, but it is still an individual pursuit. Union education, on the other hand, is group oriented. It “is ‘social’, as opposed to personal, education. It is designed to benefit a larger number of members because the course participants are expected to share the learning they have gained with other union members” (Spencer, 1996, p.1).

Other terms used in this dissertation need to be clarified. First, the phrase *labour union* is used instead of *trade union* when referring generally to unions because not all union members are trades people. This distinction is rarely made, even amongst unionists, but has been occasionally acknowledged (Spencer, 2002b, p. 17). Secondly, it uses unionism to mean the philosophy and practice of creating and developing unions. Unionism is informed by the range of knowledge addressed by labour studies and workers' education, but is aimed specifically at creating more, larger, better organized and more effective unions. Unionists are members or staff of unions who practice unionism. Finally, the labour movement is defined as labour organizations such as unions, labour councils, federations and congresses, plus organizations which support unions with activities aimed specifically at union members, such as co-operatives and some non-governmental associations (NGOs), as well as individuals who work to support the goals of labour organizations.

1.2.2. National Labour Education Structures

The national labour education structures which have been established around the world, mainly since the late 1940s, vary in their organizational characteristics and aims according to the goals set by the labour organizations they serve. The best way to

illustrate this range is to consider some examples of national experiences. Three examples are discussed below. Britain was chosen not only because it is the birthplace of unionism and labour education, but because labour education is being used in the country today to help unions participate more effectively in a knowledge-based economy (Forrester, 2002). The United States was chosen as an example because it began to use labour education to renew itself in the 1990s with its commitment to shift from a *servicing* mode, in which the union provides services such as protection from disciplinary action, to an *organize the organized* philosophy where the members are continually organized to address their problems (La Luz, 1991; *Labor Research Review*, 1991).

Finally, Brazil, a developing country, was chosen because it has a labour movement which used labour education to re-create itself after years of military oppression and to help build democracy in the country (Langevin, 1994; Lopes, 2002). These three national examples demonstrate the range of pedagogical and organizational approaches being used in the labour movement, but they also serve to illustrate the many commonalities of labour education as it is practiced around the world. It is these commonalities, based on a shared union culture, which need to be considered if new approaches to international labour education, including the use of online collaborative learning (collaborative learning via computer communications) are to be adopted.

1.2.2.1. Labour Education and Organizational Needs

Labour education has played a significant role in how unions address two primary organizational goals. First, they need to build a solid financial basis in order to cover costs such as office rentals, payrolls and strike funds. Second, they have to train the large number of volunteers needed to maintain operations in local union or branches

at the workplace. Both needs affect the goals of the organization. The cost of operations means that income has to be generated from membership dues or other sources. Reliance on non-paid activists in the workplace means labour organizations have to train local volunteers in basic operations such as accounting or bargaining.

1.2.2.2. Labour Education in British and American Unions

When unions were first being created they concentrated on their organizational needs and left labour education to others. In pre-World War II Britain most labour education was conducted by the Workers' Education Association (WEA) and the National Council of Labour Colleges (NCLC), with relatively little funding from the country's labour organizations (Hopkins, 1985; McIlroy, 1980). WEA raised funds from local authorities and the central government. "Its educational philosophy had perforce to be anchored in what would be acceptable to the educational establishment, the universities, local authorities, and ultimately the state" (Corfield, in McIlroy, 1980, p. 203). On the other hand, the NCLC, which was independent of the unions and committed to socialism and class struggle, received no funding from the state. This left it "...uncontaminated by any obligation to serve the interests of those in power" (Stocks, cited in McIlroy, 1980, p. 204).

The situation was similar in the United States before the Second World War. Labour education was largely the work of organizations allied to the labour movement. They did not receive much funding from unions, which were "weak, organizationally and financially, and engaged in a desperate struggle for survival" (Gray, 1966, p. 162). A consequence of this union dependence on outside organizations for education was that their members were subject to the particular philosophy of those organizations. The

WEA in Britain, while providing some union-specific teaching, was focused on providing general education to workers and avoiding links with political parties (Hopkins, 1985, pp. 97-98). Meanwhile, the NCLC in that country was quite clearly aimed at promoting socialism (McIlroy, 1980). Organizations involved with labour education in the United States between the two world wars were also oriented to socialism. The goal for many of these organizations was to have workers' education act as an aid to the "efficient and successful assumption of power by the workers themselves" (Samson, 1991, p. 57).

1.2.2.3. Unions Take Control of Labour Education

When unions in Britain and the United States did take control of labour education after the Second World War they immediately steered it towards the study of basic union operations. In large part this was because the weak and struggling organizations of the inter-war years were challenged by success: governments were adopting laws to legitimize unions and provide a legislative support system for unionizing and collective bargaining. In the U.S. "labour education became a tool for organizing the unorganized and building loyalty to the expanding union movement" (Gray, 1966, p. 194). In keeping with its changing goals labour education also adopted new curricula aimed not at a broad liberal arts or socialist education, such as practiced by Britain's WEA and the NCLC (McIlroy, 1980, p. 67), but at the "practical needs of the labour movement" (Dwyer, 1977, p. 89). In Britain, especially after the Trades Unions Congress began to receive government funding for labour education in the mid-1970s (McBride and Miller, 2000, p. 46), the TUC maintained strict control over the curriculum and how it was taught. Some educators began to complain that:

> ...the tutor, as a result of the standardized syllabus, has been reduced to being a coordinator rather than a teacher in the classroom....Short-term steward courses are no substitutes for programs which teach the individual to generalize, to analyze ideas, to enter new intellectual areas and to understand the connections between shop and state. (Nash, 1980, p. 257)

The TUC replied that far more stewards were being trained and that its organizational priorities had to be met first. Long-term liberal arts programs would have to wait until those priorities were realized (Nash, 1980, p 51).

1.2.2.4. Staff Training

Even with unions controlling labour education so that it could be directed at basic operations, an important constituency of the labour movement – union staff – continued to lack access to training. These staff members were charged with representing the union to the members and outside bodies, organizing the union's members, analyzing new legislation, and negotiating contracts. They were left, however, to train themselves. The situation, for the most part, remains the same today. Nesbit (2003) has reported that the levels of participation of union staff in Canada, Great Britain and the U.S. in training and educational opportunities "remains remarkably low" and "far too few officials [are] able to engage in such sustained programs of education" (p. 122). As Nesbit points out, if the labour movement is to revitalize itself it will need to pay attention to the training and education of those who will lead and implement that revitalization. Investigating the case for doing this for the staff of unions in developing countries was one of the primary aims of this dissertation.

1.2.2.5. Brazil and Labour Education

While labour education practised by unions in the United States and Britain began after the Second World War many developing countries had to wait until they were able to develop free and independent labour movements. Brazil's labour movement, for example, was under strict fascist or military control until 1985. Any labour education which took place before the advent of democracy was designed to tie workers more closely to government-controlled unions or to quell dissent. After the return to civilian rule a new constitution was adopted which included new labour laws legalizing independent unions and, as was the case in Britain and the United States, unions in the country embarked on training programs to teach workers and their representatives the new regulations (Langevin, 1994, p. 78). Unlike the American and British movements, however, Brazilian unions also had to support a fledgling and weak democratic system on which the new laws depended (Visser, 2003, p. 90). Consequently, CUT (Central Unica dos Trabalhadores), the largest labour federation in the country, embarked on an extensive labour education program designed to increase the participation of workers in unions and minimize the state's influence over the labour movement (Langevin, 1994). Right from the beginning CUT's agenda was class-oriented and aimed at building political activism amongst workers (Munck, 1987). A three-prong labour education strategy was developed: the creation of an educational methodology which married the experiences of workers and the knowledge of labour educators; the creation of a national system for linking labour educational efforts with local labour organizations; and the building of an organizational structure which included labour schools (Langevin,

1994). By the end of the 1990s CUT had in place an extensive network of labour institutes and educators specializing in a wide range of subjects (Lopes, 2002).

Labour education also helped support CUT's goal to become the largest labour organization in the country. In the late 1980s and early 1990s it was competing with other more leftist organizations, as well as the vestiges of the old regime's union structure, in its attempts to represent Brazil's unions and workers. Because labour education helped CUT successfully recruit and train new union members it helped the organization become the predominant labour central in the country.

1.2.3. Dual Role of Unions

Unions exist to improve the wages and working conditions of their members and their lot in society. This means they are intimately involved in the social, economic and political issues of the countries in which they operate. They are concerned with democracy, racism, women's rights, employment, and other issues such as health and safety. Unions have a dual role in confronting these sorts of issues: first, to represent the views of their members, and second, to educate their members about the issues. The danger for labour educators is that they may find themselves teaching viewpoints that are not necessarily those of the members, either because they have been directed to do so by the union leadership or because they do not understand the views of their members. A way of minimizing this danger is to build into the practice of labour education ways of ensuring the views of members are not only listened to, but cultivated for wider application. The Brazilian labour movement has gone a long way towards doing this.

1.2.4. Theory Building from Workers' Experiences

Labour education in Brazil before 1985 was designed to have working people accept, or at least acquiesce to, government policy. CUT changed this by “incorporating the experience and knowledge of workers and unionists with educational programs framed by the systematic knowledge and theory employed by labour educators” (Langevin, 1994, p. 61). Workers are encouraged to think about their experiences and devise preliminary theories concerning their work. Labour educators take these theories and formalize them so they can be presented in organized and coherent ways back to the members. Then the cycle begins again.

Much of this work was informed by the theories of the Brazilian educator, Paulo Freire, whose book *Pedagogy of the Oppressed* (1972) became a major influence on labour educators outside of Brazil. His theories, combined with the pedagogies CUT developed in the 1990s, led to the promoting of *popular education* in North America.

> Popular education as both a liberating theory and a critical reflective practice is especially well suited for adult learners....It begins with people's own experiences. It gives them the tools to analyze their situation and to take action to transform themselves and their conditions. (Bernard, 2002, p. vi)

The use of popular education by labour educators such as Darcy Martin (1995) considerably widens the range of issues addressed by unions. Burke, Geronimo, Martin, Thomas, and Wall (2002) group the issues into “community, collaboration, democracy, equity, class consciousness, organization-building, and the greater good (p. vi.)”.

1.2.5. Popular Education and Organizing the Organized

Labour education using the techniques of popular education could help re-energize a labour movement which has been beaten down and demoralized by concentrated attacks on its right to exist. It could do so especially if it is tied to the *organizing the organized* concept which was developed by the North American labour movement in the late 1980s and early 1990s (Labour Research Review, 1991). This view contrasts the organizing model of unionism with the more traditional servicing model. The servicing model was based on union representatives (both permanent and volunteer) helping to solve members' problems as they cropped up. The organizing model emphasized continually organizing members by involving them in actions and decisions which affected them. It became a way of engaging members in continuing educational activity, a way to "foster a learning environment out of every challenge before the union in order to increase the members' understanding of the role they can play in building their own union (La Luz, 1991, p. 65).

In the early 1990s a number of unions, including the Canadian Union of Public Employees (CUPE), adopted the organizing the organized approach for union renewal. CUPE adopted a policy paper which:

> ... started from the premise that the union must change in order to address a widening gap between the union and its members who do not feel connected to the union and don't want to be involved. More emphasis was placed on developing new activists and involving more members, especially to counter the growing trend for members to treat the union like an insurance agency where they pay their dues to get the service of a professional organization without having to get directly involved. (Stinson & Ballantyne, 2006, p. 151)

The CUPE paper argued that all union activities – including educational activities – should become opportunities to create union activists in the workplace and community.

CUPE was the organization which created the first union computer communications system, partly as a response to the need to expand education amongst its membership and staff and keep union activists in touch.

Another approach to organizing the organized and countering the feeling that a union is an insurance company useful only in times of need is the Brazilian approach to labour education which starts with the experiences of the members and then bases union theory and work on those experiences. In a developing country such as Brazil, this means the labour movement has to become involved in issues such as illiteracy and unemployment (Lopes, 2002, p. 71). The issues are different in advanced economic countries and are increasingly related to work in a knowledge-based society. In these societies, workers may be more interested in issues such as life-long learning.

1.2.6. Life-Long Learning

Encouraged by the TUC's strategy for creating a *new unionism* and *a lifelong learning culture* a number of unions in Britain have recognized the strategic role education can play in building more and better connections between members and their unions. They offer learning facilities, tutors and learning advisers to members and sometimes the families of their members and the unemployed. Most unions in the country have appointed what are variably called union learning representatives, learning advisors or learning advocates to promote educational opportunities (Forrester, 2002). In 2003 these learning representatives were granted, by legislation, the same rights as health and safety representatives in the workplace. Britain's large public sector union, UNISON, may have gone the furthest along the line towards using education as a way of

building member loyalty and engagement. Its Open College initiative conducts programs ranging from shop steward training to entry-level academic courses to credit-granting programs which can lead to a degree. UNISON is discovering that education can bring new activists into the union, build greater loyalty amongst existing activists and project a modern image to workers in the nation's knowledge workplaces.

1.2.7. Labour Education and Union Needs

As noted in the examples above, labour education can be used for a variety of purposes by unions, depending on their political and organizational goals. Organizationally, unions have to ensure a trained core of volunteers and convince members of the need for membership dues. Politically they can concentrate on issues related directly to their needs – called *business unionism* in the United States – or take a wider approach based on political analyses such as class struggle, as in the Brazilian movement in the early 1990s. Some unions, such as the UK's UNISON, have adopted labour education as a way of portraying a more modern image of a union engaged in issues related to life-long learning and knowledge-based economies. This allows the union to recruit members and build loyalty amongst existing members.

However, despite the wide range of organizational and political approaches which exist, the current practice of labour education in many different countries has many commonalities such as the commitment to collaborative work, community-building, relevance to the workplace and action. This may be due to a shared union culture.

> Union culture is the web of knowledge and prejudice, common sense, good sense, and nonsense that union activists share. It is the way things are done among unionists. It constitutes the social glue of the movement and distinguishes union activists from other people. (Martin, 1995, p. 30)

This union culture influences the educational aims, philosophies, and methodologies of labour organizations and encourages the adoption of pedagogies which fit into its mores and methods. This may be why the popular education techniques of Freire were so quickly adopted outside of Brazil by labour educators in Canada, the United States, Britain, and other countries. They resonated with the views of the labour movements in those countries concerning collaboration, community, relevance to the workplace and action. Recently the teachings of Marxist psychologist Vygotsky have been attracting the attention of labour educators (Sawchuk, Gawron, & Taylor, 2002).

The common elements in labour education pedagogies around the world include: building on the workplace experiences of the learners; supporting a sense of community; creating collaborative learning events using group work, role play and other active learning methods; encouraging instructors to be facilitators not dictators of the learning process; and above all encouraging learning which produces action in the workplace to improve the wages and working conditions of employees. These elements need to be reflected in online labour education if it is to be adopted in any widespread way.

1.3. Collaborative Learning

Collaborative learning is a process which emphasizes group efforts amongst educational activity organizers and participants, leading to the construction of new knowledge (Bouton & Garth, 1983; Bruffee, 1993; Johnson & Johnson, 1975). It views knowledge “as a consensus among the members of the community of knowledgeable peers – something people construct by talking together and reaching agreement” (Bruffee, 1993, p. 3). Kuhn referred to the consensus as a *paradigm* – a set of models which provides a community, especially a scientific community, with shared coherent

traditions. The study of these paradigms is what primarily prepares students seeking to join the community (Kuhn, 1962, p. 10). Bruffee describes the process by suggesting that students re-acculturate – break from their previous communities of knowledge – by working collaboratively with other students to create transition or support groups while they learn the language, mores and values of the community they are trying to join. They work in groups at the boundaries of the community by talking and writing collaboratively, with the guidance of teachers, until they gain access to the community as full-fledged members (Bruffee, 1993, p. 20). The collaborative learning in which they participate can be thought of as a type of cooperative work (Turoff, 1995, p. 2). In fact, the term derives from the concept of co-labour, where people work together to produce (Harasim, 2003, p. 7). Collaborative work designed to create new knowledge is crucial to the future of the international labour movement.

1.3.1. Knowledge-Building

In the late 1980s, Scardamalia and Bereiter (1994) coined the term *knowledge-building* to refer to the creation of new knowledge by a community. They prefer the term over other descriptions such as *communities of learners and thinkers* (Brown & Campione, 1990) and *community of inquiry* (Lipman, 1988, p. 67) because " it suggests continuity with the other knowledge-building communities that exist beyond the schools, and the term building implies that a classroom community works to produce knowledge..." (Scardamalia & Bereiter, 1994, p. 4). The key idea in the concept is that the community produces a collective product which can exist outside the learning environment. The learners are engaged in producing knowledge artefacts. The

production of these artefacts is what changes a discussion in a computer conference from a general conversation, where many participants may be just superficially involved, to a collaborative work experience which fully engages the participants as they create something which will be found valuable as a result of their learning experience.

Labour educators who have investigated the use of online collaborative learning have called for a better linkage between activities in the online environment and activities in workplaces of the participants (Sawchuk et al., 2002). The creation of knowledge artefacts, such as documents, action plans or policy papers, which can have a life outside the online collaborative learning experience can help meet this requirement.

1.3.2. Online Collaborative Learning

Collaborative learning becomes *online* collaborative learning (OCL) when it takes place via computer communication systems – usually the Internet. The term *online collaborative learning* as it is used in this dissertation is synonymous with the more formal term Asynchronous Learning Network (ALN):

> ALN combines self-study with substantial, rapid, asynchronous interactivity with others. In ALN learners use computer and communication technologies to work with remote learning resources, including coaches and other learners, but without the requirement to be online at the same time. (Campbell, 1997, p. 1)

The distinction between online learning and online collaborative learning is that the latter uses collaborative learning techniques such as group work while the former may not. *Asynchronous* refers to the ability of people to communicate at times and places of their choosing, such as with the use of electronic mail (email). Asynchronous

communication is delayed time communication (email, voice mail, computer conferencing, forums). It is usually contrasted to real time, *synchronous*, communication which refers to the use of a communications medium by people at the same time. Telephoning, instant messaging and chat rooms are synchronous. The asynchronicity of computer conferencing offers one of its most significant educational advantages: the capability of learners to use it at their convenience (Hiltz, 1994). Asynchronous formats are ideal for geographically-dispersed communities of people who live in different time zones and have varying levels and forms of hardware, software, and Internet-access capability (Agger-Gupta, 2004, p. 46). The key technical attribute of online collaborative learning is that it uses asynchronous communications to create collections of messages called *conferences* (occasionally referred to as *forums*), which can be shared by many people. The result is that the medium has become known as *computer conferencing*. The use of computer conferencing for online collaborative learning is the focus of this dissertation.

Collaborative learning concepts began to be considered in the analysis of computer networking for group work and education in the 1980s (Black, 1985; Harasim, 1987; Hiltz, 1986; Johnson-Lenz & Johnson-Lenz, 1982). In 1982, the first online learning program was conducted (Feenberg, 1993). Two years later the first totally online undergraduate course started (Hiltz, 1986). These early efforts convinced many investigators that a sense of community was at the core of effective online learning. “The most basic premise from which all online teaching should begin is that the goal is to build a learning community and to facilitate the exchange of ideas, information and feelings among the members of the community” (Hiltz & Benbunan-Fich, 1997, p. 7).

Like labour education, online collaborative learning is a *social* activity in which community members work together to construct new knowledge for themselves and the group. It takes place in the social spaces created by the conferencing systems (Harasim, 1987; 1990). It is this social aspect of OCL which distinguishes it from approaches such as Online Distance Education (ODE) and Online Computer-Based Training (OCBT) which emphasize individual learning. ODE refers to individuals using computer communications to access prepared lesson materials and background resources. The learners read the pre-packaged information then complete assignments to be sent by email to tutors for grading. The UK's Open University, for example, relies heavily on ODE. It has hundreds of prepared courses which individuals can study from home or work, as part of their degree. ODE is pedagogically not much different than traditional distance education, except that email is substituted for postal mail for the delivery of course materials and assignments and telephone access to tutors. Online Computer-Based Training differs from ODE in that learners make more use of computers as they interact with software to learn specific skills (Harasim, 2006). Both ODE and OCBT are based on learners working individually in order to receive a pre-determined body of knowledge. Unlike in online collaborative learning, participants in ODE and OCBT do not work with other people in order to construct new knowledge.

Online collaborative learning can contribute to learning in a number of ways. First, because of the asynchronous nature of the medium, it allows time for considered responses and so critical thinking skills are enhanced (Gokhale, 2002). This can improve in-depth investigation of a topic (Harasim, 1990). It can also provide social support and encouragement for individuals and thereby increase the total effort put forth by group members (Benbunan-Fich & Hiltz, 1999). Because of the lack of social presence,

learners concentrate on the content of the course rather than the presenter (Harasim, 1990). This lack of social presence also produces a more egalitarian, democratic environment in which the instructor becomes a guide for knowledge construction instead of a lecturer passing on a pre-packaged body of knowledge (Campos, Laferrière, & Harasim, 2001).

In the end, the participants in online collaborative courses have an increased perception of learning (Benbunan-Fich & Hiltz, 1999).

The study of intellectual development online is crucial. If the process of this development is understood it becomes possible to create successful activities and software tools which encourage it. Consequently the use of theories which promote better understanding of online intellectual development becomes important. One of the first theories of how online collaborative learning proceeds is Harasim's theory of Online Collaborative Learning (1990; 2002; 2004b) which describes three main phases for intellectual development or conceptual change in an OCL conference: idea generating, idea organizing and intellectual convergence. Harasim's theory provided the theoretical framework for the research conducted for this dissertation.

1.3.3. Growth of Online Learning

In the United States 2.35 million people were enrolled in online courses in 2004 – an online course being defined as a course having at least 80% of course content delivered online (Sloan, 2005, p. 8). The increase in the number of online learners was 18.4% in 2004, about the same as in 2003. This growth rate "greatly exceeds the overall growth rate in the higher education student body" (p. 8). Two-thirds of the American

universities that offer face-to-face classroom education also offer education online (p. 15). Fifty-six per cent of universities in the United States report that education online is important to their long-term strategy (p. 11).

However, despite the growth of online learning, it has not been adopted by the labour movement. The focus of this dissertation is on investigating the case that OCL could provide effective labour education, even with participants from the poorer countries of the world.

1.3.4. Online Collaborative Learning and Unions

In 1985 the labour movement's experiments with educational computer communications started in Canada with the establishment of the Solidarity Network – SoliNet – by the Canadian Union of Public Employees (Lee, 1997; Mazepa 1997; Taylor 2001b). But more than 20 years later, and after a world-wide explosion in the use of online learning, computer communications for learning remains little used by unions or other labour organizations. UNISON – the UK union at the forefront of much of the innovative practice of labour education today – does not use online learning. The George Meany/National Labour College in the United States - one of the few accredited labour universities in the world – uses computer conferences only as a peripheral activity to complement its traditional classroom and distance education courses. The European Trade Union College, which spearheaded a major investigation into the use of online learning in the late 1990s and early 2000s, does not use the medium. The only organizations which are practicing online collaborative labour education are outside the unions in labour studies centres such as the University of Indiana and the Workers'

Activities Program (ACTRAV) at the training centre of the International Labour Organization in Italy.

Perhaps even more discouraging to those who would like to see the labour movement adopt a medium which is being used effectively by universities and corporations worldwide is that *new initiatives* in international labour education are ignoring – quite consciously – the use of OCL. When the Global Labour University (GLU) was established in 2002 its organizers deliberately rejected the use of online collaborative learning. When the American-based Solidarity Center – a funding body affiliated with the AFL-CIO – approached the Workers' Educational Association in 2002 to devise an international course on globalization the potential use of OCL was given only cursory attention in the proposal document. Even observers who understand the power of computer communications have ignored the possibilities of online education. In an extensive study of the use of computer communications by the international labour movement, Diamond and Freeman (2002) have outlined the great potential the Internet provides unions. They argue that unions can use it for creating virtual unions at non-union firms; improving services to members; enhancing democracy in unions; aiding in industrial disputes; and strengthening the international labour community. They point to the thousands of websites that have been created since the first union website was opened in 1995 by the British public service union UNISON. However, they fail to mention the use of the Internet for labour education.

The potential for involving unionists from around the world in effective online labour education, and eventually informing the practice of other online activities such as meetings and conferences, is too great to ignore. While it has not yet been adopted, there are signs that more internationally-oriented labour organizations are becoming

interested in online learning. A meeting of labour educators from eight of the Global Union Federations in 2004 concluded:

> The international labour movement has been using computer communications for various projects and programmes, but it can increase its influence on the effects of globalization by developing solidarity networks based on computer communications. Solidarity networks can be developed for unions, central federations, works councils and other organizations, plus labour groups. They can be used for inter-organizational communication, disseminating news, conducting campaigns, creating online unions, staff training and educational projects with affiliated organizations. (ACTRAV, 2004, p.4)

As well, a 2005 meeting of ICFTU regional educators – the first in ten years – concluded that one of their priorities was "to enhance networking through a computer communication network for information exchange and education" (ICFTU, 2005 p. 3).

There are also some labour educators in developing countries studying the possibility of implementing OCL in national programs. For example, the Development Institute for Training Support and Education for Labour (DITSELA) in South Africa has considered the use of OCL in its courses. A report on the topic prepared for DITSELA suggested that while delivering all its courses online would not be feasible a "slow phasing in of e-learning to all courses – with due concern for questions of access – was the best approach" (Allais, Lewis, Moussouris, Pantland, & Siluma, 2004, p. 64).

The work reported upon in this dissertation was initiated as a way of supporting the labour educators of the ICFTU, the Global Union Federations and labour education institutes such as DITSELA as they consider the adoption of computer communications by providing evidence that it could be used effectively for collaborative learning amongst the staff of unions even in developing countries.

1.4. Research Questions

The research conducted for this dissertation was grounded in a review of the literature related to labour education and collaborative learning. Five key research questions were identified for further research and were used to guide the investigation for the dissertation. The aim was to explore whether OCL could be used effectively and viably by labour organizations, especially those in developing countries. The questions posed were:

RQ1: What is the empirical evidence of learning and how does it take place in online collaborative courses conducted for labour education?

RQ2: What are the perceptions of learning of participants in online collaborative learning labour education courses?

RQ3: What are the perceptions of collaboration and community by participants involved in online collaborative learning labour education courses?

RQ4: How is the provision of a credential to the participants in online collaborative learning courses involving the staff of unions in developing countries a significant motivator?

RQ5: What are the key issues related to the effective and viable participation in online collaborative learning courses for union staff in developing countries?

1.5. Structure of the Dissertation

The dissertation is divided into five chapters. Chapter 2 describes the literature review which was conducted. A review of the literature related to labour education allowed for a description of the major pedagogical approaches and educational philosophies used in the labour movement. A specific focus on the small amount of literature available on distance labour education via computer communications pointed

to the need for a collaborative learning approach and the need for a theory which described the process unionists go through as they learn online. This led to a review of the literature related to online collaborative learning and theories related to its practice. Chapter 3 describes the conceptual framework, research design and methodology. The framework which was used is Harasim's theory of Online Collaborative Learning (OCL) which views discourse as central to knowledge-building, an understanding which reflects the labour movement's view of knowledge-building through group discussion. The methodology was based on a blend of quantitative and qualitative research methods known as mixed mode. The central research instrument was a case study of an online collaborative learning course conducted for staff members of labour organizations in 24 developing countries. The course was held over an 8-month period in 2005. The online discussions conducted during the course were analyzed quantitatively by looking at statistics such as number of messages sent (and read) per participant, log-on times and message patterns, and qualitatively using the indicators provided by the OCL theoretical framework. The participants were asked to complete two questionnaires: one which was designed to understand the technological environment in which they were working and another which was aimed at eliciting their views concerning the extent of the sense of community and learning which was developed during the course. The participants studied the syllabus set by the International Computer Driver's License – a certificate attesting to expertise in information technology – in order to sit for the examinations set by the ICDL credentializing agency. Chapter 4 provides analysis and findings in relation with the research questions which were posed. Chapter 5 provides conclusions and recommendations for further research.

The dissertation reports on the first research project to study the use of online collaborative learning for the staff of unions in developing countries.

CHAPTER 2.

LITERATURE REVIEW

A literature review surveys scholarly articles, books and other scientific sources such as dissertations or conference proceedings relevant to a particular area of research. The purpose is not to “determine the answers about what is known about a topic, but in contrast to develop sharper and more insightful questions about the topic” (Yin, 2003, p. 9).

The literature review conducted for this dissertation concentrated on sources related to online labour education and online collaborative learning. Online labour education was chosen as a focus for the study because of its potential for increasing the training and educational opportunities for union staff, especially in developing countries. Collaborative learning was chosen as a pedagogy because it was cited as a need by investigators who have conducted research into online labour education and because it has an extensive base of literature pointing to its efficacy in creating new knowledge – a crucial requirement for the international labour movement as it faces the ever-increasing effects of economic and cultural globalization.

2.1. Labour Education

The research project was designed to contribute to discussions of the future of labour education. It focuses on labour organizations in developing countries because

they are, within the international labour movement, most in need of capacity-building. Its premise is that OCL could be used effectively in labour education if a number of factors are considered: that it is seen as an extension of labour's concept of education organizing; that the pedagogies adopted in its use are compatible with the pedagogies used in labour education; that access to the appropriate technologies is available; and that union staff are introduced to it as a training medium for themselves and the union's members. The study builds on lessons learned in a number of projects and studies related to the use of educational computer communications in the labour movement.

2.1.1. Labour Education as Organizing

A labour educator working for a union is at the same time a teacher, a trainer, an animator and a union representative. The role has been described as being that of an "education-organizer" (Hopkins, 1985, p. 181).

To *organize* means "to coordinate or manage the activities (of a group of people); to set up (an institution, enterprise, society, union or other political organization)" (Oxford, 2005). In the context of union activity *organizing* refers more specifically to two activities: the recruitment of new members and the coordination of members to work towards a particular goal, such as an improved collective agreement. In the late 1980s the labour movement, starting in the United States, began emphasizing the ongoing organizing of union members with the same energy that was being applied to the recruitment of new members (Conrow, 1991; Muehlenkamp, 1991). The concept, labelled *organizing the organized*, included labour education (La Luz, 1991). The idea was extended to include the design and production of union-oriented technology, a

process which was called *technology organizing* (Bélanger, 1990; 1999a, 2001a). Technology organizing includes organizing labour education and the technologies associated with it (Bélanger, 2001b).

At the forefront of labour-education organizing today are initiatives aimed at addressing the educational needs of employees as well as their economic and social justice rights. Some unions have recognized that workers today are increasingly employed in workplaces which demand a high base-level of education and lifetime learning (Bélanger, 1999b, 2004) and are responding. In what reflects a return to its roots in workers' education, labour education is being used by some unions not only as a way to teach new members the basics of unionism or train unionists in organizational subjects, but also as a tool for recruiting new activists into the movement. In the United Kingdom the Trades Union Congress (TUC) is implementing a strategy for creating a *new unionism* and a *lifelong learning culture* based on a wider role for labour education. It encourages its affiliated unions to recognize the strategic role education can play in building more and better connections between workers and their unions. Unions in the UK are offering learning facilities, tutors and learning advisers to members and sometimes the families of their members and the unemployed. Many unions have appointed what are variably called union learning representatives, learning advisers or learning advocates to promote educational opportunities (Forrester, 2002).

Perhaps the British union most advanced in the use of labour education is the public employees' union UNISON. It is using the provision of personal and career-oriented life-long learning opportunities for its members as a way of building member loyalty and engagement and to recruit new members. The union conducts courses such as *Return to Learn* for members who want to re-introduce themselves to educational

activities and *Women's Lives* which looks at issues faced by women at work, at home and in the community. Through its Open College program the union is promoting entry-level academic courses and access to credit-granting programs which can lead to a degree. While doing this, the union has built partnerships with a large number of employers and outside educational providers, including the country's Open University. According to the union's General Secretary, Dave Prentis, UNISON is trying to establish a culture of learning throughout the union.

> Creating a culture of learning is about creating life-changing opportunities for UNISON members. But it is also about enabling our branches to develop with new activists and new directions with benefits all round.
>
> The new learning roles and rights are clearly revitalizing and strengthening our capacity in the workplace and serve as a clear signal that learning is a core activity for the union. There is no doubt that it sits at the very heart of our work. (Prentis, cited in Ramsden, 2004, p. 1)

UNISON is discovering that education can bring new activists into the union, build greater loyalty to the union amongst existing activists, and project a modern image to workers in the nation's knowledge workplaces. Its labour education activities could be seen as a way of organizing the organized for two reasons: first, because they follow the principle of providing opportunities for current union members to join in ongoing union-sponsored activities, and second, because the learning representatives can be considered labour education organizers since they bring people and educational resources together as part of their commitment to union activism. Spencer and Frankel (2002, p. 174) have argued, “the importance of the UNISON initiative...for the future of labour education cannot be overstated”.

However, as important and innovative as the UNISON initiative is, it has potential for improvement. For example, all of its union-provided distance education courses (as

compared to distance courses provided by partners such as the Open University) are based on traditional correspondence methods. Participants are provided with kits of materials they can study according to their own schedule. They have access to tutors via email and, occasionally, they attend regional meetings to meet other participants. Despite evidence that group-oriented computer communication systems can be effective in providing access to labour educational activities, UNISON does not use them. If UNISON provides a model for how labour education can be used for re-energizing and renewing a union, the model might benefit by addressing the use of media such as computer conferencing and online collaborative learning.

2.1.2. Union Staff and Labour Education

The staff of unions are key to the adoption of educational computer communications by labour organizations. Unlike UNISON, most labour organizations in the world do not have the resources or legislative support to appoint workplace educational organizers. Consequently, the responsibilities for organizing educational activities are left to the staff of these organizations. These staff members may be full-time, part-time/occasional, or as is the case of many developing countries, volunteers. They can be education officers or staff with other primary responsibilities (such as negotiating collective agreements) who are expected to occasionally perform as educators. A strategy for developing the use of OCL in labour organizations could be to first use it for staff education. This would have two effects: to provide increased labour education for people who have little or no access to it, and, by introducing the use and potential of OCL to union staff, to encourage them to apply it in their organizations.

Sixteen years ago, Gray (1980, p. 23) noted that, “Academic literature is virtually devoid of studies that deal with the structure and administration of unions, much less the functions and problems of union staff”. Little has changed. But the few investigators who have studied the subject are unanimous that more training programs for union staff are necessary – especially as the demands put on unions become more complicated due to economic globalization, changes in the nature of work, and concerted attempts by corporate and governmental interests to lessen union influence in society.

> As the needs of members become increasingly diverse and the issues with which union officials must concern themselves become increasingly complex, investing in training for union officials is becoming imperative....The days of taking a worker from the ranks without any business or industrial relations experience to run a union with only ‘on-the-job training’ appear to be over. (Olney, 1996, p. 234)

Nesbit (2003, p. 110) argues that pressures from the membership for a high standard of professional service “are felt throughout the levels of union organization, but nowhere more directly than by the union's professional employees: those full-time officials and staff who act as the union movement's key administrators, organizers, and leaders”. His study of the education and training of professionals who work for labour organizations in Canada, the United States and Great Britain showed that “there seems to be little established training for union staff who, by and large, acquire their leadership skills via an ad hoc 'sink or swim' approach” (p. 111). Union employees are expected to learn on the job, subjugating their educational and training needs “to the organization and the demands of the membership that employs them” (p. 122). Those training and educational programs which do exist are sporadic and partial. The result is that “respondents in each country reported that far too few officials were able to engage in...sustained programs of education” (p. 122). Nesbit concluded that, “Significantly,

there is insufficient recognition of the power of labour education as a tool of transformation and innovation, and how increased investment in staff training and leadership development might foster and support organizational change...” (p. 128).

One of the serious concerns raised by respondents in Nesbit's study was “the continued presence of sexism and racism within labour organizations and the apparent inability to do much about it (p. 123)”. This is despite “the often crucial role that women officials can play in transforming union culture” (p. 125).

2.1.3. Women Union Members

Women workers can be not only advocates of the organizational renewal needed by unions as they face their current challenges, but also a significant source of new membership. Yates has shown that “when women are given the opportunity to join a union, they are more likely to join unions than men” (Yates, 2006, p. 110). She argues that “if unions want to reverse the waning of union membership and influence, they need to pay heed to the challenges of women workers” (p. 110). In her study of American unions, Lundy (1998) agrees that women workers are more interested in joining unions than men, however:

> Even with this interest shown by women and the potential to increase trade union membership, the number of females in leadership positions is not proportionate to their numbers in trade union membership....The majority of these women continue to face educational and informational barriers as they move up the ladder at the local level and their lack of union skills tends to shut them out of the power structure. (p. 74)

If unions are to represent the needs of their women members effectively and recruit more women to the labour movement they must ensure that women are present at the bargaining table where workplace issues are resolved (or ignored). To do this,

women “need training that will give them the necessary skills and education to run for and hold union elected officer positions” (Lundy, 1998, p. 76).

A survey by Hunt (2004) of the Global Union Federations' policies and practices concerning gender and minority issues showed that “shifts towards more inclusive policies and practices have been impressive” (p. 254). The survey indicated that every GUF has anti-discrimination policies explicitly protecting women, a women's caucus or committee, and all but one have a mechanism for women's representation on their management boards. Most have an executive office devoted to issues related to women and all of these organizations have undertaken targeted political campaigns and education programs to raise the profile of gender bias in the labour market and beyond. Hunt suggests that the key to this increased awareness of the needs of women workers is that feminists in the labour organizations “advocated separate organizing inside unions as a way to build skills and confidence, and articulate demands for change” (p. 255).

Labour education can play an important role in promoting this organizing, according to Lundy (1998, p. 77): “For unions, the need for strategic decision-making toward labour education is vital. Women members not only need to be encouraged to join and participate in the union, but also need organizational support to develop into leaders who can act as a voice for the issues and concerns of women”. Unfortunately, it seems that women in unions do not have access to the same educational opportunities as their male counterparts. Partly this is because of the extra family responsibilities they may carry, but also because they have less influence in the union.

> Reasons for the lack of informational and educational opportunities for women are that women are clustered in positions of low rank and little power, so they are the least likely candidates to be sent to educational

> conferences or training workshops. And because they have not developed the requisite skills, their opportunities for upward mobility are limited. (Lundy, 1998, p. 75)

Some observers have suggested that training via the Internet might be a viable solution for providing labour education and networking possibilities to women union members (Greene & Kirton, 2003; Lundy, 1998).

2.1.4. Labour Education Pedagogy

The literature on the practice of labour education is not extensive, but a number of works have addressed the subject (Arnold, Burke, James, Martin, & Thomas, 1991; Atkins, Crane, & Hope, 1992; Burke et al., 2002; Delp, Outman-Kraman, Schurman, & Wong, 2002; Hopkins, 1985; ILO, 1976; ILO, 1983; Martin, 1995; Newman, 1993). These works, for the most part, demonstrate agreement that the primary characteristics of current labour education include: an emphasis on group work, building from the experiences of the participants, peer-to-peer learning, applicability of lessons to the workplace, and learning-by-doing.

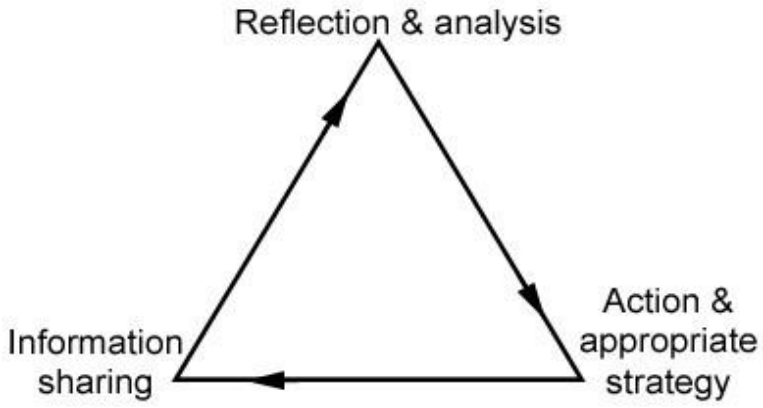
In labour education particular attention is paid to the existing knowledge of the participants in recognition of the fact that they are situated in the workplace with intimate knowledge of its conditions. The new knowledge they develop must be relevant to the issues of that workplace. This can only be accomplished if the process pays attention to their experiences and provides educational resources to build on those experiences. Courses founded on these principles:

> ...begin by drawing on the experience, skills, knowledge, attitudes and objectives of the participants. Experience and knowledge are reviewed, attitudes are analyzed and skills are developed and improved through working collectively. As part of this process, participants are encouraged

> to apply the result of their work to their local environment. (Atkins et al., 1992, p. 8)

The process used in courses (see Figure 1) conducted according to organizing principles emphasizes critical analysis and action. La Luz (1991), who was the educational director of the Amalgamated Clothing and Textile Workers Union (AWCTU) when the principles of organizing-based labour education were being defined, notes that: "Our pedagogical process discards the use of lectures and speeches, encouraging instead more active methods that lead to critical analysis and examination of the reality the union operates in, without making any previous assumptions" (p. 64).

Figure 1. Labour Education Pedagogical Process



Note. Adapted from La Luz (1991, p. 4), by permission.

> In their classes, ACTWU teachers often use the pyramid above to illustrate the nature of our pedagogy. Beginning at the lower left base with information sharing, the process moves to reflection upon and analysis of that information, and then to strategizing about what action should be taken. After the action has been taken, the process begins again with sharing information about the action. (La Luz, 1991, p. 64)

This process needs to be reflected online if OCL is to be successfully adopted in the labour movement.

Instructors involved in the education-organizing process described above become peer-learners. They learn about the conditions and issues of the workplace from the participants and use that knowledge as their starting point. The participants learn from the expertise of the instructors, or from each other in the learning environments created by the instructors. Most significantly, the instructors are hired by the unions which the participants control through the democratic instruments of their organization. Newman (1993) characterizes the interplay of these relations as contracts. The first contract is between the union and the instructor. The second is between the instructor and the participants. The third is between the participants and the union.

> This third contract is crucial. It enables the participants to bypass the trainer and report directly to the union. It is the contract that prevents the trainer misusing her or his position as an expert in the process to assume a position of authority or control over the participants. (Newman, 1993, p. 39)

2.1.5. Unions in the Developing World

There are many more developing countries in the world than rich ones. A recent report by the World Bank showed that, out of the 208 countries it surveyed, 59 were in the high-income category and 149 were considered developing countries (World Bank, 2005). The majority of the world's union members are in developing countries. An analysis of the latest figures on world union membership provide by the ILO (1998, pp. 236-237) shows that there are approximately 254 million union members in developing countries as compared to about 83 million in high-income countries. This means that approximately 75% of the world's 337 million union members work in developing countries. Even if China is excluded from the analysis (because its union structure is

considered by the ICFTU as part of the Chinese government) developing countries still have a large majority (64%) of the world's union membership.

The relationship between a high rate of unionization in a country and economic benefits for the country and its workers has been clearly established. The World Bank has acknowledged that high unionization rates and highly coordinated collective bargaining results in lower earnings inequality, reduced wage discrimination against women and improved economic performance by, for example, helping to reduce unemployment (Aidt & Tzanattos, 2003). In other words: helping to build the capacity of unions in developing countries to expand their membership and negotiate for their members can help improve the lot of people in the world's poorer countries. This possibility is borne out by the experience of unions in the industrial world. As they developed from uncoordinated protest groups of workers to socially-influential organizations they helped improve the economic conditions of their countries (by, for example, encouraging income distribution) and strengthening democratic institutions. Jose argues (2002, p.17) that unions in developing countries can do the same in their countries. What's more, unions in the richer countries have a stake in helping their counterparts in the developing world work on strengthening their economic and democratic influence. Jose points out:

> Developing countries offer a vast array of opportunities to the labour movement. Rising inequalities amongst workers in those countries points to a need for unions to strengthen their role as guardians of social cohesion. A coordinated global strategy is required for raising the floor price of labour and protecting the workers who crowd into the lower end of markets; it should be complemented with support programmes for the development of democratic institutions. (pp. 17-18)

Labour education can play a pivotal role in helping unions in developing countries develop their economic and democratic influence. Whitehouse (1977) argues for labour

education to be used as part of a popular participation strategy which guides and motivates the development process. He notes that “participation in decision-making, in the context of industrial relations, involves participation by the occupational and social groups, i.e. workers' and employers organizations, at all levels in various public and semi-public bodies set up for the purpose” (p. 148). For this participation to be effective three conditions must be met: the parties involved must positively commit themselves to participatory action; appropriate institutions and systems must be constructed to support this action; and finally, “educational facilities must be available through which the parties may acquire representative training for effective participation” (p. 148). Hopkins (1985) echoes this need for training:

> As worker organizations grow in membership and in socio-economic importance, they find the need for more expert staff for specialized duties...[however] it is only in countries where union activities are on a massive scale that the unions themselves can organize their own training of such specialist staff: more often it will entail attendance at full-time courses run by outside organizations. (p. 65)

As necessary and useful as these outside organizations may be, they most probably will not have advanced knowledge of the pedagogies, views, and strategies of the labour movement. There may be a need for union specialists to be trained by labour educators who understand union techniques and viewpoints. These educators, however, especially in developing countries, are not numerous. The challenge is to devise methods by which the expertise and education-organizing capabilities of labour educators can be made more available to staff in developing regions. With the rise in popularity of the Internet in the 1990s some labour educators have considered online learning education as one possible solution.

The topic was discussed at a conference on *Bridging Africa's Digital Divide* held at the Tom Mboya Labour College in Kisumu, Kenya in 2003. The participants included 35 union staff from 25 countries in Africa plus labour educators and technical consultants invited from outside the continent. A report prepared for the conference outlined the technological state and needs of unions in Africa (Bélanger, 2003). Suggestions by the conference participants for digitally developing Africa's unions included increased use of open source software, the development of website hosting services, financial partnerships between unions in developed and developing countries, the creation of a communications network, and the need for online courses (Mwamadzingo, 2003). A key conclusion of the conference's discussions was the need for educating union staff because almost all of the unions represented at the conference did not have staff education programs. The lack of such programs amongst African unions is not surprising, given that even unions in economically advanced countries such as Canada, the United States and Britain have few staff training programs (Nesbit, 2003). A crucial question is whether it is possible to use OCL in developing countries effectively to train union staff.

One requirement may be to develop affordable technology which is suited to the conditions of developing countries. This will entail the development of inexpensive hardware and, for educational computer conferencing, offline readers which minimize time on the Internet (Bélanger, 2002).

In his study of open and distance learning in the developing world, Perraton (2000) concludes that, while courses based on computer communications “cannot at present reach the large, often rural, audiences of many of the world's distance-teaching

institutions [they] may be appropriate for small audiences and in specialized subjects" (p. 145). He notes that:

> Constraints on enrolment are no longer a matter of geography but of access to the Internet and the ability to pay the enrolment fee and cost of communication... Computer technology may, therefore, begin to reshape open and distance learning – for the minority of the world with ready access to computers and cheap telecommunications. (Perraton, 2000, p. 145)

Computer technology may not be appropriate for the large numbers of people who are in need of education in developing countries, but there is potential for using it to train educators. Hiltz and Benbunan-Fich (1997) point out that OCL can play a significant role in developing countries:

> In less developed regions, the lack of required infrastructure blocks the use of ALN (asynchronous learning networks) for mass education in the near future. However, it might be used to 'train the trainers', and to decrease the 'brain drain' of university students who might otherwise go abroad and not return. (p. 8)

The concept of training the trainers could be applied to the staff of unions in developing countries.

It must also be recognized that, even if technological conditions and technical systems used in developing countries are not as sophisticated as in economically advanced countries, the educational opportunities provided by computer communications can be significant. As Tom Calvert, a co-leader of the program which produced the computer conferencing system used in the research conducted for this dissertation, has suggested:

> In discussing the merits of technical systems, it is important to remember that different approaches may have merit in different circumstances. For an isolated learner in northern Canada, Web access by a slow dial-up phone line is much better than no access at all. (Calvert, 2002, p. 4)

The same could be said for learners in developing countries: access complicated by technological or other problems is better than no access at all. What needs to be considered are the problems and potential solutions.

A consideration of the conclusions reached at the conference of African unionists and the suggestion that a 'train the trainers' strategy might be effective in developing countries led to the posing of one of the questions which guided the study: What are the key issues related to the effective and viable participation in online collaborative learning courses for union staff in developing countries?

2.1.6. Online Education Via the Internet: SoliNet

With the advent of the World Wide Web in the mid-1990s interest in using the Internet for educating union staff increased dramatically. It was seen as a potential method for educating employees who could not take time away from their membership-servicing duties, women who had extra family responsibilities, marginalized groups who could use the medium to build networks, and labour organizations interested in providing life-long learning opportunities for their employees and members. Lundy (1998) suggests that "unions and labour education centers could provide classes on the Internet in order to reach a wide audience" (p. 79). In his study of union staff, Nesbit (2003) raised the possibility of using "emerging technologies for distance and online learning" (p. 126). Walker (2002) has written:

> Potentially, distance learning offers opportunities to trade unions by extending the reach of education activists both geographically, to those remote from existing educational facilities, and socially, for example to potential learners unable to attend conventional trade union education because of "atypical" work arrangements or caring commitments. (p. 300)

Almost all labour education is conducted face-to-face in union establishments, workplaces, post-secondary institutes or other venues such as hotels. But starting in 1985 with the creation of the Solidarity Network (SoliNet) by the Canadian Union of Public Employees (CUPE), the labour movement began using computer communications for education. SoliNet was “the first national labour network anywhere” (Lee, 1997, p. 28). It was used to conduct conferences on issues related to gender, technological change, collective bargaining, health and safety, labour journalism, free trade, pay equity, employment equity, and international labour movements. It provided computer conferences for groups such as women unionists, gay activists and people of colour (Mazepa, 1997, p. 82). The first conferences on SoliNet were established for union staff who were learning how to use computer programs. They had a dual role: to be a source of advice provided by members of the community, and to provide a practical way of learning the basics of computer conferencing. In her study of SoliNet, Mazepa (1997) described two such conferences which were active in the 1980s:

> SoliNet's WordPerfect (WP) conference has only a technical moderator, as the conference participants keep the conference alive. Beginners and more experienced WordPerfect users post questions, and share information and tips they have learned from working with the software....Following this format, a later conference called *Problems* was added for questions and suggestions regarding SoliNet use. Although Belanger is the official moderator, he encouraged the participants to answer each other's questions from the start. (p. 63)

From the beginning the strategy I adopted as SoliNet's principal organizer was online collaboration. This was partly because collaborative learning was the educational strategy considered most suited to how the labour movement conducted its educational activities. But it was also because I was trained on the EIES computer conferencing system while taking courses with Connected Education in the early 1980s (Bélanger,

1999a, p. 59; Mazepa, 1997, p. 52). EIES was developed by Murray Turoff and Starr Roxanne Hiltz for online collaborative learning (Hiltz & Turoff, 1978). It was used by Connected Education to provide the first online graduate courses (Levinson, 1997, pp. 131-132).

Labour education was one of SoliNet's primary objectives. The system was used for pre- and post face-to-face courses as well as courses conducted completely online. It was also used for building networks of labour educators who could "discuss the establishment of schools and the problems they were having in their private computer conference and through SoliNet's email system. They could also use SoliNet's file transfer mechanism to co-write and edit educational materials" (Bélanger, 1992, pp. 4-5). This experience led to considerations of labour education at a global level:

> Working people who do not have the time to upgrade their job skills, union knowledge or academic qualifications could take certificate or degree courses via computer conferencing. SoliNet is working with the University of Athabasca to develop a labour undergraduate degree to be provided completely online. There is no reason why this could not be done on a worldwide basis. We could have a global labour university. (Bélanger, 1992, pp. 6-7)

In 1992 SoliNet was used for the first online course conducted jointly by a union and a university (Spencer & Taylor, 1994, p. 218). Participants were located mainly in Canada, but they also included people from the United States, Russia and Africa, making it the first international labour education course conducted via computer communications. The course, aimed specifically at labour education as a subject, was conducted in collaboration with the Labour Studies program of Canada's Athabasca University which was, at the time, the only distance education labour studies program in the world. The Labour Studies program was based on traditional distance education techniques (material sent to students by mail; tutor support by telephone). It was

interested in “adapting its offerings for electronic delivery on a union-based network” (Spencer & Taylor, 1994, pp. 217-218).

Discussions in the SoliNet course followed a suggested agenda, with new topics introduced every week or two. They included: the provision of labour education in Canada and abroad; links between internal union education programs and educational providers; the differences between industrial relations and labour studies; and the role of distance education and new communication technologies in labour education. The discussions also ranged across other topics, such as the implications of post-Fordism for labour, the role of intellectuals in the labour movement, and the nature of trade unionism. “The majority of the messages provided information, insights and opinion on labour education that participants had experienced or offered” (Spencer & Taylor, 1994, p. 218). In 1994, SoliNet was used by the Athabasca Labour Studies program to conduct the first university-credit course via computer communications (Mazepa, 1997, p. 79; Taylor, 2001a, p. 226).

The possibility of creating an online international labour university was first outlined in an edition of the ILO’s Labour Education magazine (Belanger, 1992). In 1995 the idea was discussed at length on Labor-L, an Internet email list. Eric Lee reported:

> The proposal attracted attention immediately. Not only was it coming from the originator of the first, and still most important, national labournet, but Belanger had already organized transnational trade union courses online.
>
> ... The discussion focused on six issues:
>
> - Cooperation with existing organizations.
> - Accreditation.
> - Curriculum.
> - Language.

- Delivery systems.
- Funding.

(Lee, 1997, pp. 175-178)

As Lee noted, "Whether this initiative will lead to the creation of a full-blown online labour university remains to be seen" (p. 178).

During the 1980s and early 1990s SoliNet used CoSy, a text-based computer conferencing system developed by the University of Guelph, as its technical program (Bélanger, 1990, 1999a). In 1996, SoliNet moved to the World Wide Web using a new conferencing system developed at Simon Fraser University called Virtual U, which

> ...like the older CoSy-based system, allowed participants to conduct online workshops and meetings, but since it was on the World Wide Web was accessible to anyone in the world with a Web browser and Internet account. (Taylor 2001a, p. 226)

In 1996 and 1997 the web-based version of SoliNet and the Athabasca labour studies program collaborated to offer a series of non-credit online labour education workshops. Beginning with a general course called Labour Education and the Internet, designed in part to give potential online facilitators some familiarity with the new medium, the series consisted of twelve month-long workshops covering a range of topics from *The Third World and the Internet* to *Women Organizing*. Over one thousand participants from around the (mainly developed and English-speaking) world registered for at least one of these workshops. With the exception of one women-only course, all of the workshops were open to whoever wanted to participate (Mazepa, 1997, p. 82). In 1998 the CUPE leadership decided to make SoliNet accessible only to its members. The system was shut down a year later when I left to join the ILO training centre in Italy. The Athabasca Labour Studies program continued to operate its own version of SoliNet and

began working with the Canadian Labour Congress to provide online courses (Taylor, 2001a, p. 227).

Meanwhile, spurred by the dramatic growth of the World Wide Web in the mid-1990s, other labour organizations began investigating the use of computer communications for labour education. Studies of some of these distance labour education experiences, including the SoliNet project, have been conducted (Creanor & Walker, 2000, 2005; Sawchuk et al., 2002; Taylor & Briton, 1996; Taylor, 1996). Significantly, however, all of the projects which have been investigated were organized in economically-advanced countries.

A major investigation on the use of computer communications for labour education was conducted by Taylor, Briton and Sawchuk between 1996 and 2001, using the Web-based version of SoliNet. In its later stages this investigation was organized as a research project funded by Canada's TeleLearning Network of Centres of Excellence (Sawchuk et al., 2002). The project consisted of conducting and analyzing a series of eleven online workshops conducted on SoliNet. The workshops included 10 informal learning computer conferences and one credit course conducted in conjunction with Athabasca University. One of these computer conferences was dedicated to a discussion of the use of computer communications by women unionists. Most of the participants were labour activists or union staff educators.

A second major source of research into the use of computer communications for labour education are two labour distance education programs (ETUDE and Dialog On) organized by the European Trade Union College (ETUCO). These programs, which were conducted between 1999 and 2004, involved most of the major union

confederations in Europe, plus sectoral (industry-based) labour organizations (Creanor and Walker, 2000; ETUCO, 2004).

Other sources in the literature of particular relevance to this study include: a description of the computer needs of unions in Africa (Bélanger, 2003); a report on two case studies in the UK by Creanor (2002); and two papers on the use of computer communications by women unionists (Greene & Kirton, 2002, 2003).

2.1.7. The TeleLearning Network of Centres of Excellence Project

The TeleLearning Network of Centres of Excellence (TL–NCE) was a program funded by the Canadian government in the late 1990s. Its objective was to explore the use of technologies for education. One of the projects of the TL–NCE was aimed at investigating the use of computer conferencing for labour education. This project concentrated on the design, delivery and evaluation of union-based OCL (Briton and Taylor, 2001; Sawchuk et al., 2002). The conferencing system used in the project, SoliNet, was based on Virtual U – one of the beacon technologies of the TL-NCE.

From the start of the labour OCL project the aim of the investigators was to develop communication and online learning tools which “not only enhanced individual learning opportunities but also fostered collaboration, cooperation and contributed to community (Briton & Taylor, 2001, p. 121)”. Briton and Taylor concluded:

> ... that what we need is not more effective and efficient individualized learning technologies but a deeper insight into workers' shared understandings and the common labour culture that serves as the basis for an online learning experience that not only enhances individual learning opportunities but also fosters the kind of collaboration and cooperation that contributes to the establishment of a global labour community. (p. 119)

This call for a better understanding of how online labour education can foster collaboration, cooperation and community led to the consideration of online collaborative learning for the dissertation and the posing of one of the questions which guided the study: What are the perceptions of collaboration and community of participants involved in online collaborative learning labour education courses?"

Briton and Taylor and other investigators working with them also called for a better understanding of *how* learning occurs online: "Learning was clearly taking place in the asynchronous computer conferences we examined, but to what degree and to what end is almost impossible to decipher" (Taylor, Briton, & Gawron, 1999, p. 3). They called for an analytical model which could provide more insight into the process of online labour education:

> In order to accurately interpret the educational outcomes of the various SoliNet courses we have conducted, we need to know much more about *process* [emphasis added] than frequency and extent-of-use statistics can tell us...what we needed was not more data, but *an analytical model* [emphasis added] that would help understand the relationship between context and CMC resource, how that relationship affects student activity and how that relationship might change over time.... (p. 4)

The need to provide both evidence of learning and an analytical model which described the process of that learning led to the posing of one of the dissertation's research questions: What is the empirical evidence of learning and how does it take place in online collaborative courses conducted for labour education?

2.1.8. The European Trade Union College Projects

The distance education projects organized by the European Trade Union College (ETUCO) were also aimed at discovering how computer conferencing systems could

foster collaborative learning of the sort prevalent in face-to-face labour education. In the mid-1990s, ETUCO organized two projects (ETUE-net and ETUE-net II) which investigated the use of the Internet for training unionists. Between 1999 and 2000 the college organized the European Trade Union Distance Education (ETUDE) project. Then, beginning in 2000 and ending in 2004, it organized its largest project, Dialog-On, which involved 10 national union confederations, four European industry-based federations and two universities. Almost all the participants in the ETUDE and Dialog-On projects (except the resource people) were staff members of unions.

Two findings which flowed out of the ETUCO projects are particularly relevant here. First, the online conferences were not very active. The participants attended the face-to-face activities of the project, but "participation in online activities was less well sustained (ETUCO, 2004, p. 20)". The "anticipated learning communities did not materialize" (Creanor & Walker, 2000, p. 267). Second, the online activities were not seen positively by the participants: "The only area in which a majority of participants rated the course 3 or lower (on a scale where 1= poor and 5= good) was the usefulness of the distance phase" (ETUCO, 2004, p. 20). The result was that after the project ETUCO ended its OCL activities. None of the organizations which had been introduced to OCL in the project went on to develop their own online labour education programs. Clearly the negative perception of the participants towards OCL hindered the expansion of the medium. This is understandable; if participants in online labour education, such as the staff of unions in developing countries, do not see their experiences as positive they are unlikely to promote its use. This led to the posing of another question to guide the study: What are the perceptions of learning of participants involved in online collaborative learning labour education courses?

2.1.9. A Comparative Study of OCL

In an effort to better understand the lack of participation in the ETUCO online activities Creanor (2002) reports on two case studies: one involving a Web-based Master's Program in Lifelong Learning and the other an ETUCO online course for European trade union educators. In the ETUCO course there were "disappointingly low engagement levels with only 17% of participants contributing regularly and 25% taking no part at all in the online discussions....Group work, which had been considered beneficial to motivation, was eventually abandoned in favour of individual activities due to lack of participation" (p. 61). In the Master's conference, however, "participation rates were consistently high (92%) with animated discussions taking place on a wide variety of topics" (p. 61). Creanor concluded that "a major motivating factor is clearly that of gaining a qualification, an option which was not offered by the ETUCO course" (p. 62). She also pointed to the importance of building collaboration and community in an online experience and concluded that:

> The notion of fostering group identity through effective tutoring leads us back to the guidelines put forward by experienced practitioners such as Harasim who remind us that the ability to identify common interests and forge personal and theoretical links are competencies which the online tutor must strive to acquire. (p. 65)

A number of lessons can be drawn from the case studies described by Creanor. First, group solidarity in the learning process needs to be fostered by techniques which encourage participants to identify common interests. In other words, there is a need for community and collaboration. Second, participants need to work together to create theoretical links as advocated by researchers such as Harasim. And, most significantly, participation rates in online labour education may be low if the educational activity does

not lead to a credential recognized by the group as valuable. This last consideration led to the posing of another research question: How is the provision of a credential to the participants in online collaborative learning involving the staff of unions in developing countries a significant motivator?

2.1.10. Credentializing Labour Education

The credentializing of labour education – the orienting of it towards certificates, diplomas or degrees - has been a controversial topic in the labour movement especially since the 1960s and 1970s when labour studies centres were created in North American universities (Brickner, 1976; Golatz, 1977; Gottfried, 2002; Gray, 1976; Lieberthal, 1977, 1980; MacKenzie, 1976; Nash, 1978). Instructors in these centres faced problems consolidating the centres within their universities while maintaining a sympathetic yet critical approach to the labour movement. Some tried to approach these problems by positioning university-based education as an extension to the labour education which was being practiced by unions. For example, Richard Dwyer in his review of labour education in the U.S. (1977, p. 202) argued that labour studies centres should provide a wide range of services to unionized workers. He proposed a trajectory from basic services (short classes or seminars) to intermediate (union leadership academies) to advanced (Master's and PhDs). This was seen by some in the labour studies centres as an "academization" of labour education. Mil Lieberthal, for example, wrote "labor educators should not enthusiastically endorse academization without recognizing its serious impairment of labour education's most valuable goals and practices" (1977, p. 235). He argued that labour educators had avoided the use of credit courses and

grading systems because the focus should not be on meeting academic standards, but on courses “designed in response to requests from workers and unions (p. 236)”. One of his objections was the push for a PhD requirement for labour educators.

For the most part the reaction of union leaders and educators up until the late 1990s was to reject the credentializing of labour education. They argued that the primary thrust of labour education was to train union members in the work and organization of their unions. There was no need to have this educational activity accredited by outside agencies such as universities. A major impetus for the response by labour leaders was that instructors in labour studies centres were not employed by unions and therefore not controllable in what they taught union members. The labour leaders often saw the academically critical stance of labour studies instructors as meddling by people who did not have to carry the day-to-day responsibilities of representing employees in the workplace. The instructors replied that they were in fact serving unions by helping them to see more clearly the context of their activities and by expanding labour education curriculums to include broader liberal art subjects which union leaders needed in order to better understand the complexities of modern workplaces.

In the late 1990s, however, in response to the rise of knowledge and information workplaces, some labour educators began to re-consider labour’s traditionally negative stance towards credentials. Sue Schurman, the president of the National Labor College in the United States, argues that “the standard credit system is the best way of converting work-based and union-based education and training into recognized credentials that are both portable and transferable” (Schurman, 2002, p. 132). Meanwhile, some unions, including a number in Britain, Ireland and the United States, have designed their educational programs to be acceptable to their national credit-

granting institutions (Schurman, 2002; Spencer & Frankel, 2002). The British union UNISON, is using the incentive of outside credentials to motivate their members to participate in union activities and portray an image of an organization engaged in a knowledge-based economy. While it remains true that much of the content of labour education, such as local union administration or collective bargaining, does not need to be credentialized by agencies outside of the unions, some subjects taught by labour educators, such as economics or labour history, could be. What's more, the credential need not always be a university degree. For example, the course looked at in the case study performed for this dissertation offered its participants the opportunity to earn the International Computer Drivers' License, a credential testifying to the computer competence of its holders and recognized worldwide.

2.1.11. Women and Union Online Networks

A thread running through all the discussions in this dissertation related to the research questions concerns women and educational computer conferencing. This is primarily because labour organizations recognize the substantial role women play in the workplace and design their labour education courses to reflect this. For example, the ILO program which sponsored the course analyzed in the dissertation's case study calls for 50% participation by women in all its educational activities. A second reason for considering the participation of women is that the only literature concerning union women and online learning is a study which reports that the female participants in a case study were very negative about their experience. If women do not find online learning beneficial and in keeping with the community focus of labour education then the medium

is unlikely to be adopted by unions, or if it is, it could lead to a further marginalization of women in the organizations.

The case study concerning union women was conducted by Greene and Kirton (2003). They have focused on the use of computer communications in two areas: first, as a way of encouraging more women to become active in their unions, and second, in aiding the careers of women working for unions.

Their investigation into the possibilities of using online communications to mobilize more women activists (Greene & Kirton, 2003) was initiated because there are barriers to women becoming more active in their unions. In particular, they are burdened with more family responsibilities than men, which lessens time available to attend meetings or courses. Also, conventional structures of union democracy "require physical presence at meetings at times and in spaces incompatible with caring responsibilities and atypical hours" (Greene & Kirton, 2003, p. 320). This "effectively undermines democracy in trade unions because non-attendance is not evenly distributed through all social groups, rather it is especially associated with women and part-time workers" (p. 320). The intriguing possibility is that by increasing online activity in their organizations, unions could promote greater democracy by bringing into the decision-making process marginalized groups such as women workers. "This could occur directly (e.g., through the vehicle of virtual meetings, online membership consultation exercises) or indirectly (through dissemination of information necessary to challenge the leadership, or via web-based campaigns)...." (p. 321). However, the online experiences they studied produced mixed results. Women unionists participating in an online course "were less motivated to participate in the virtual classroom activities, finding them less stimulating than their previous experiences of conventional trade union courses. They found discussions in the

chat room awkward and stilted, feeling that the high trust atmosphere normally engendered on union courses did not develop" (p. 326). Participants also reported that finding time to participate in the course was a problem. However, the women in this case study found some advantages to online courses "generally approving of the addition of this mode of learning to trade union education provision...[and] that online courses might work best with information-based learning – for example health and safety courses or legal rights – rather than courses intended to develop skills involving interaction" (p. 327).

The investigation into the use of computer communications for aiding the careers of women working for unions (Greene & Kirton, 2002) was conducted because it was perceived that online communications might lessen some of the barriers faced by female union staff members. A major barrier is that the typical route to paid official positions in a union is a lengthy pre-employment period of activism and volunteering for local or branch union positions. Women face obstacles in participating in this volunteering and activism, mainly because of family responsibilities. At the same time, labour organizations do not put many resources into training their paid staff (Kelly & Heery, 1994; Nesbit, 2003). Staff members are expected to learn on the job. The result is that women who do get a union staff position usually have less experience than men and do not have access to training by the union. This puts them at a disadvantage in relation to men who gained more experience in the pre-employment period. As well, there are often fewer women than men on paid staff and so they have fewer networking opportunities within the organization.

Greene and Kirton (2002) conducted a case study of an online course involving nine women union staff members. The primary medium of the course was a website

which included educational material, email addresses of the participants and a ‘chat room’. The primary conclusion of the investigation was that the “participants' views of their experiences were fairly negative” (p. 177). Most participants reported difficulty in fitting in participation because of the pressures of work and family life. They also found the discussions which took place in the ‘chat room’ were “stilted, time-consuming and laborious and not an adequate substitute for face to face contact” (p. 176). But the most significant factor was that “no participant felt that a sense of community had been generated among the group and no networking contact had been maintained after the course was finished” (p. 177). Greene and Kirton concluded:

> ...participants were dissatisfied with the kind of interaction and learning experience facilitated by the online mode... their views of the capabilities of the present online course, were that it could not support or deliver the same kind of shared learning and sense of community achieved within the conventional mode. (p. 178)

Still, Greene and Kirton argued that “online learning could have a role to play in managing women's trade union careers by providing the opportunity for female paid officials to network with one another, to share ideas and experiences with other women” (p. 178). The challenge is how this can be achieved.

2.1.12. Online and Workplace Learning

As they studied OCL and the labour movement, Sawchuk et al. (2002) determined that what was needed was a theory of learning grounded in constructivism (pp. 84-85), which reflected the labour movement's oral culture and tied online activity to offline activity. This was partly in response to their finding that “the oral culture and learning traditions of organized labour did not mix easily with e-learning environments”

(p. 93). The result of which was “a failure to generate real educational coherence from the [online] experience” with activities in the workplace (p. 89). The central question for them became: “... why union culture did not translate as powerfully into the on-line world as it does in the off-line world of, for example, the convention floor, the picket line, or the union hall meeting?” (p. 93).

In an attempt to clarify a response to this question they adopted an approach rooted in the work of Marxist psychologist Vygotsky (1978) called *cultural historical activity theory* (CHAT). This approach allowed them to consider online/workplace labour education with an understanding that learning is “more than simply an information or knowledge exchange: learners actively construct knowledge together....” (pp. 84-85). Moreover, learning is not something which takes place at particular places and times, but “learning is anywhere and everywhere that human practice is mediated by cultural and material tools (Vygotsky, 1978)” (p. 85). It became clear to them that a “deeper exploration of informal on-line and off-line learning was necessary” and that the notion “that e-learning can be thought of as a hermetically sealed environment separate from action in the off-line world” (p.85) was not supported by their experience. This led them to argue for an intimate relationship between what happens in the workplace and the OCL activities. “If e-learning could be linked tightly with the informal learning in the course of the real world of union activity, it could prove invaluable” (p. 89).

The two elements of this equation – the learning that takes place in the workplace and the learning that takes place online – are both in need of further research. Sawchuk and others continued the work by focussing on learning in the workplace (Bratton, Helms-Mills, Pyrch, & Sawchuk, 2003; Livingstone & Sawchuk, 2004). Since there was a need for further investigation of the second element (how labour education

takes place online) this study was conducted. One of its goals was to provide a contribution to the development of the online/offline labour learning theory developed by Sawchuk et al. by exploring the online side of the question.

2.2. Collaborative Learning

A common theme running through all the literature concerning online labour education addressed in the previous section is the need to know more about how to make it effective within a democratic and participatory labour movement. Referring to computer-mediated computer communications – a formal term for the technologies related to online learning - Taylor et al. (1999 p. 4) called for an "analytical model that could help us understand the relationship between context and the CMC resource". Creanor (2002, p. 65) argued that course organizers "need to...identify learning processes and make judgments on which pedagogical techniques to bring into play". Taylor and Briton (2001, p. 121) were interested in developing OCL tools which "fostered collaboration, cooperation and contributed to community". Given the emphasis by these investigators on collaborative learning, and how it could be conducted effectively online, a review of the literature related to online collaborative learning was conducted.

2.2.1. Collaborative Learning and Group Knowledge

Harasim, Hiltz, Teles and Turoff (1995) argue that the most educationally effective mode of online learning is collaborative learning: "an interactive group knowledge-building process in which the learners actively construct knowledge by formulating ideas into words that are shared with and built upon through reactions and

responses of others" (p. 4). Significantly, both the TL-NCE and ETUCO labour education projects called for the use of collaborative learning. This may be because union education emphasizes learning in groups, for groups (Arnold et al., 1991; Burke et al., 2002; Delp et al., 2002; Hopkins, 1985; Newman, 1993).

Collaborative learning emphasizes group effort amongst educational activity organizers and participants leading to the construction of new knowledge (Bouton & Garth, 1983; Bruffee, 1993; Johnson & Johnson, 1975). It can be seen as a particular type of cooperative work (Turoff, 1995). In fact, the term derives from the concept of co-labour, where people work together to produce (Harasim, 2003, p. 7). As well, collaborative learning has its roots in the peer-to-peer learning of the labour and women's movements:

> In nineteenth and twentieth-century America, autonomous peer groups were the only educational resource available to women and to most working men. In the 1920s and 1930s interest in educational peer learning influence continued to flourish. In the forties and fifties it nearly died out. Then in the 1960s, interest revived, encouraged in part by the growth of self-help mutual aid groups, by the systematic study of social group work and especially by the impetus, experience, and expertise gained in support groups developed by the women's movement. (Bruffee, 1993, p. 5)

Collaborative learning was invented by working people and feminist organizers who wanted to learn in groups. Crucially, however, they were interested in more than simply learning bodies of existing knowledge, because that knowledge had been defined and packaged by employers interested in discouraging the rise of unionism and men who wanted to continue the subjugation of women. They were more interested in the creation of *new knowledge* which could help them understand their situations and lead to action which could improve their conditions. This resonates with the primary principle of collaborative learning that knowledge is a social construct. Bruffee writes: "Collaborative

learning assumes... that knowledge is a consensus among the members of the community of knowledgeable peers – something people construct by talking together and reaching agreement" (p. 3). This emphasis on oral communication is also a central concept of labour education. Unionists need to talk together to create new knowledge in order to understand how the dynamics of the workplace affect them as workers and how they can organize themselves to improve their wages and working conditions (Bélanger, 1990, p. 244). The new knowledge they develop flows out of their experiences in the workplace. If workers had had to wait until some existing body of knowledge was passed on to them, they would never have created unions. They would have been forever subject to the self-serving knowledge promoted by employers. Today, the labour movement's need to create new knowledge is becoming even more crucial as forces of unfair globalization promote a degrading of wages and working conditions towards the lowest common global denominator. The movement needs to widen its knowledge-creation globally. Computer communications might provide another way for unionists to "talk" and build new knowledge through online dialogue.

2.2.2. Learning and Knowledge-Building

Collaborative learning is a pedagogical approach based on a model that treats the learner as an active participant in the construction of knowledge by applying concepts to problems and formulating ideas into words which are then elaborated upon through reactions and responses of others (Benbunan-Fich, Hiltz, & Harasim, 2005, p. 22; Alavi, 1994; Bouton & Garth, 1983). Active involvement takes place through communication with co-learners mediated by the instructor and with references to

external knowledge. It is not simply an approach of facilitating conversations, but is focused on facilitating the construction of meaning and understanding by learners, through interaction with one another and with references to external knowledge. Online collaborative learning, as defined by Harasim (1990) refers to a multi-phase process of conceptual change, in which the individual and group move from divergent thinking (idea generating) to increasingly convergent thinking (idea organizing) and intellectual convergence (i.e., co-production). The notion of co-labouring to arrive at co-production is central to the theory and to the potential value of OCL for labour education.

The concept of *knowledge-building* has become popular in the educational literature and has often been equated with such approaches as discovery learning, project-based learning, and learning by doing. The creators of the term, Scardamalia and Bereiter, have vigorously distinguished knowledge-building from activity-based learning modalities. Scardamalia even distinguishes between knowledge-building and constructivism, in order to emphasize the concept that knowledge builders do more than learn; they build knowledge. Knowledge-building is "activity focused on the generation of new knowledge and the improvement of ideas that have a public life and that are of value to others" (Scardamalia, 2004, p. 269). Both parts of this definition are equally important: not only is new knowledge created, but this knowledge has a public life outside of the environment in which it was created. People engaged in this sort of online collaborative learning activity construct knowledge artefacts such as ideas, documents, web pages, action plans and concept papers which can be useful outside the learning environment. Scardamalia and Bereiter point out that when the term is used in business contexts it is roughly equivalent to knowledge creation and is associated with innovation, intellectual property, intellectual capital and knowledge work (2003, p. 1). But, when the

term is used in educational situations, it tends to be used as a description for familiar approaches such as learning-by-discovery and project-based learning. However:

> As originally introduced into the educational literature, (e.g. Bereiter & Scardamalia, 1989, p. 388) "knowledge building carries a meaning closer to its meaning in business and professional contexts. That is it refers to the creation and improvement of ideas that have a life out in the world, where they are subject to social processes of evaluation, revision, and application. One marker of a knowledge building environment is that it can support idea development in both education and workplace situations. (Scardamalia & Bereiter, 2003, p. 2)

Thinking about the practice of online collaborative learning in this way, as the co-production of knowledge artefacts with value in the workplace, meets the requirement for successful online collaborative labour education set by Sawchuk et al., (2002). It provides a way of linking what happens in the online learning experience to the workplace. Learning online becomes part of the process of being engaged in the workplace, not something practiced in isolation from the daily experiences of working people. In this way, the unique capability of online learning to leave people in their workplaces (as compared to removing them for extended periods of residential education) becomes an important advantage for the medium.

Central to the knowledge-building learning experience is the discourse which occurs. Scardamalia and Bereiter point out that "it is the nature of the classroom discourse that determines whether the classroom functions as a knowledge-building community rather than, say, a classroom focused on pursuit of individual interests or on teacher-organized activities" (1994, p. 8). This raises the possibility that the design of the learning activity or process (i.e., the educational tasks) set by the instructor or the group can be key. The task undertaken by the learners in their collaborative learning could

determine the flow of the discourse: how it proceeds, how it engages the participants and how it leads or doesn't lead to conclusions, outcomes, and artefacts.

The design of educational activities for knowledge-building and collaborative learning are key concepts in the dissertation for two reasons. First, there is a requirement to build linkages between what happens in the online environment and the workplace by the online creation of knowledge artefacts which can be used in the workplace. This helps meet the need for the creation of new knowledge by labour organizations as they confront the effects of globalization and other phenomena such as declining membership. Second, the notion of collaboratively building this new knowledge reflects the central principle of labour education pedagogy: people working together to produce positive effects for their co-workers.

2.2.3. Principles of Effective Online Collaborative Learning

The possibilities and techniques for using computer communications for global learning have been extensively explored (for example: Campos, 2004; Carr-Chellman, Dyer, & Breman, 2000; Curtis & Lawson, 2001; Dufner, Kwon, & Rogers, 2001; Gay, Sturgill, & Martin, 1999; Gokhale, 2002; Hafner & Ellis, 2004; Harasim, 1987; Harasim, 1990; Harasim, 1993b; Harasim et al., 1995; Harasim, 2002; Hiltz & Turoff, 1978; Hiltz, 1994; Hiltz, Coppola, Rotter, Turoff, & Benbunan-Fich, 2000). The literature includes a rich collection of good practices for online collaborative learning (Achtemeir, Morris, & Finnegan, 2003; Harasim et al., 1995; Khan, 1997; Owen, 2000; Rossman, 1999; Schrum & Hong, 2002). Harasim (2004a) has written a history of online learning.

A potential critique of the use of online collaborative learning for training union staff in developing countries is that technological conditions in those countries do not allow for high bandwidth applications such as video, sound and extensive graphics. On the contrary, though, these limitations may work in favour of effective OCL in those countries because they force the use of low bandwidth, text-based communications. They force people to *write* using media such as email or computer conferencing. As Bruffee (1993) argues, “writing lies at the centre of collaborative learning” (p. 52). Feenberg (2002) notes that “even after all these years the exciting online pedagogical experiences still involve human interactions and for the most part these continue to be text based (p. 130). Harasim et al. (1995) point out that “Most of the systems that support Learning Networks are text only....The written word is uniquely suited to the construction, group revision, and sharing of knowledge” (p. 3). This means that when learners based in developing countries are forced to use low-bandwidth text-based systems because of their technological situation, they are participating in an educational process that is not inferior to that being used in developed countries. They can be considered as participating in text-based collaborative learning, not because they cannot afford high bandwidth media, but because it is the most effective pedagogically. This puts them (pedagogically at least) on par with their counterparts in the richer countries. It also means that learners using text-based computer communications in developing countries can take advantage of the lessons being learned in the use of the same medium in the richer countries.

A number of key principles for the practice of effective online collaborative learning have emerged as the use of computer communication networks has been researched over the past thirty years. Primary indicators of effectiveness have been

defined as high completion rates, student satisfaction and evidence of learning (Fjermestad, Hiltz, & Zhang, 2005, pp. 39-41).

Perhaps the most significant characteristic of OCL for unionists in developing countries is its accessibility – which has been found to be important in developed countries (Hiltz, 1994). Union staff could have access to educational activities without travelling from their countries where educational facilities and trained labour educators are scarce. However, this might be offset by the technological problems associated with connecting to the Internet (Morse, 2003). Connection problems might also increase the frustrations involved with the lack of continuity in computer-mediated group discussion or *login-lags* (Benbunan-Fich & Hiltz, 1999). As well, the sort of technological problems found in developing countries might also provoke large dropout rates. Studies of university students in the United States have shown slightly higher drop out rates in online courses when compared to face-to-face courses (Hiltz, 1997).

Once people have resolved their technological access problems, indications are that effective learning can take place. Studies have shown either no significant difference in learning outcomes or significant advantages of asynchronous learning networks as compared to traditional classrooms (Hiltz, 1997). Also, critical thinking skills are enhanced with the use of online networks (Gokhale, 2002). This may be because students in OCL have the time to engage in reflective thinking before having to answer or discuss issues. This can improve in-depth investigation and development of a topic (Harasim, 1990). Overall, students in online courses have an increased perception of learning (Benbunan-Fich & Hiltz, 1999).

One of the requirements for any pedagogy to be adopted by the labour movement is its potential to promote democratic participation in educational activities.

This requirement might be met by OCL because, due to reduced social presence, students in OCL concentrate on the message rather than the presenter, thereby promoting a more egalitarian, democratic environment (Harasim, 1990). The democratic nature of the networked environment is shown most clearly in the role of the instructor. In online collaborative learning the effective instructor becomes a facilitator who designs and schedules activities which promote discussions and group work by the students. The role of the instructor becomes to observe, monitor, facilitate and provide information (Harasim et al., 1995).

> In particular, the instructor/facilitator must re-conceptualize his or her role as a teacher and create a set of situations and reward structures that encourage students to look upon their interactions with their peers as valuable resources for learning rather than to focus on memorizing lecture-type material presented by an instructor. (Coppola, Hiltz, & Rotter, 2004, p. 1)

This is a significantly different role than the one played by the traditional university lecturer. It may fit more effectively into labour education, where the instructor is seen as an equal who has a contract with both the union and the participants to organize educational activities relevant to the workplace (Newman, 1993).

Berge (1995) has identified four roles played by the online instructor: pedagogical, managerial, social and technical. Teles, Ashton, Roberts and Tzoneva (2001) conducted a study in part to determine the subcategories of each role and found:

Pedagogical:	offering feedback; giving instructions; giving information; providing opinions/preferences/advice; questioning; summarizing student comment; referring to outside sources.
Managerial:	coordinating assignments; coordinating discussion; coordinating courses.
Social:	empathy, interpersonal outreach; metacommunication; humour.

Technical: user issues; system issue; unclear technical issues (symptoms of problems are reported without a clear idea of the cause – i.e. user or system).

A clear trend emerged in the courses studied by Teles et al., that: "in all courses instructor postings contained more Pedagogical and Managerial codes than Social or Technical" (p 49). Also, their study showed that while the number of students rises, the number of instructor postings does not (p. 49).

The instructor has a particular responsibility for quickly building trust and establishing community in an online course (Coppola et al., 2002). By creating *swift trust* at the start of a course participants unfamiliar with OCL can grow more rapidly comfortable with the procedures, be made to feel less isolated and come to know the other participants more quickly. If correctly accomplished, the participants can form a temporary team which is successfully engaged in learning. Coppola, Hiltz, and Rotter (2002, p. 103) suggest that the instructor:

- Establish early communication so the participants can feel his or her presence as soon as they enter the course.
- Promote a positive social atmosphere and model solidarity, congeniality and affiliation.
- Carefully structure activities and provide regular responses and feedback.
- Involve team members in meaningful tasks.

In the context of labour education this may mean that online labour educators need to immediately introduce themselves as part of the labour movement, encourage participants to build a sense of solidarity as a team, provide feedback, and create real tasks which are related to the needs of the participants and the organizations they represent. The goal is to build a team to create new knowledge in the labour movement.

Online collaborative learning has been shown to promote group work. When used for collaborative learning, networks tend to increase the total effort put forth by the group members (Benbunan-Fich & Hiltz, 1999, pp. 413-414). At the same time, though, confidence in the decisions of the group are decreased, possibly because the group's members will agree with initial suggestions made by the group in order to hasten the process (Harasim, 1990, p. 48).

An issue mentioned in the literature on collaborative learning echoes observations raised in the labour education projects by Creanor (2002), namely the motivation of students to participate in course activities. In her comparative study of an accredited Master's course and an online course by the European Trade Union College, Creanor concluded that the credential provided by the Master's course was "a major motivating factor" (p. 62). Hiltz (1997) has noted that students must be told they are being graded to make them participate effectively in collaborative learning exercises:

> Simply making an ALN (Asynchronous Learning Network) available and telling students that they can use it to ask questions about the readings or to discuss aspects of the course at any time does not ensure its use. If it is not a 'required' and graded, integral part of the course, the majority of the students will never use it at all; and those who start to use it, will generally decide that 'nothing is going on there' and stop using it. (p. 2)

If online collaborative learning in the labour movement is to be successful, motivational factors stronger than simple requests for participation may be necessary. There may be a need for a credential that is recognized by the course participants as valuable.

2.2.4. Computer Conferencing and Women

Research into gender and online learning began in the late 1980s when the potential of the medium for education and connecting geographically-dispersed people became evident. Smith and Balka (1988) described how the medium was being used by feminists to build grassroots activism. Harasim's early work, which showed that computer conferencing could not only equal but improve on classroom learning, was based on courses with predominately female participants (Harasim, 1990). By 1987, SoliNet had organized private women-only conferences for members of Canadian unions (Bélanger, 1990, p. 238; Briton & Taylor, 2001, p. 120). As the Internet made computer conferencing available to more people in unstructured ways fears were raised that women were being subjected to unfriendly, even hostile, online behaviour (Herring, 1992; 1993). This prompted the creation of many women-only groups on the Internet (Balka, 1993).

What became apparent as more women found their way on to what had been an almost exclusively male Internet was that men and women communicate and work online differently (Herring, 2000). Women tend to be more cooperative, making more personal and social comments, while men are more confrontational, using more aggressive language and tending to denigrate the comments and views of women (Blum, 1998; King, 2000; Owen, 2000). Women are also more likely to be, initially at least, less confident when working online than men (MacDonald & Spencer, 2000; Richardson & French, 2000). There are also indications that women navigate through and use the Internet differently than men. Women tend to look at the informational signposts as they go through a site; men tend to barge on with a predetermined view of

how and where to find what they want. Women read the information presented; men are less concerned with content (Fisher & Craig, 2000). However, despite the difference in styles, men and women are equally efficient in navigating a website (MacDonald & Spencer, 2000).

This finding – that men and women use different styles, but end up with equal results – carries over to involvement in online learning. In online courses men and women students earn roughly the same grades and have about equal completion participation rates (Richardson & French, 2000; Wu & Hiltz, 2003). What seems to be the determining factor is the protected environment established by a university course and the leadership of the course instructor. This holds true for courses organized by men as well as women. Female students participate more, sometimes more than male students, even when the instructor is a man (Herring, 2000). This is because the instructor plays a crucial role in creating an environment of mutual respect, support and consideration for others (Graddy, 2004; Herring, 2000; Owen, 2000). Techniques for creating this environment include posting behaviour policies (Owen, 2000) and making sure that women's voices are not drowned out by men (King, 2000). The online classroom can be a “women-friendly place” (Shea, Fredericksen, Pickett, Peltz, & Swan, 2000). The result is that women can “fare well in the online course environment, which provides them with opportunities for self-expression that role socialization may inhibit in the face-to-face environment” (Anderson & Haddad, 2005, p. 9).

The role of women in creating a sense of community in the online classroom can be crucial to the success of the activity. The connected voice of women (“us”, “we”), as contrasted with the separate voice of men (“I”, “you”), promotes community-building amongst the participants. Blum (1998) has characterized the voice of male messages as

tending to be more confrontational, autonomous, certain, abstract, arrogant or controlling. On the other hand, the voice of female messages tended to be more empathetic, mentioned self, family or spouse or had a cooperative tone. This may be why women manifest a stronger sense of community in online classrooms than men (Blum, 1998; Rovai, 2001). Female students place an emphasis on relationships and prefer to learn in an environment where cooperation is stressed over competition (Rovai, 2001).

The emphasis on cooperative work can also lead female students to use and appreciate the use of collaborative learning tools such as conferencing systems more than male students. In a study of a web design course (Gay et al., 1999) in which students were provided with a conferencing system which they could use on a voluntary basis, gender was the most significant factor in student perceptions of the usefulness of the system. Twenty-nine per cent of the women said they believed using the system helped them learn; only eight per cent of the men agreed. Gender also seemed to have an impact on whether students felt the comments on the system helped them create better sites. Fifty percent of the men believed the system helped; 88% of the women said that the system was helpful (p. 8).

An argument could be made that ensuring a high percentage of women in an online class may promote community building and group knowledge creation. But this may be true only if women are in the majority. There is some evidence to suggest that the minority gender in an online community tends to modify its communicative behaviour in the direction of the majority gender: women tend to be more aggressive in male dominated groups than when they are in women-dominated groups; men tend to be less

aggressive in female dominated groups than in groups controlled by men (Herring, 2000).

Paying particular attention to how women use computer communications is important to the future of the labour movement. If they are to be a source of new membership and leadership they cannot be ignored as the movement adopts the medium. If unions begin using computer communications more, women members could find themselves without the access or skills to participate in important union activities, and, therefore, be further weakened in their attempts to widen the issues addressed by the union and to run for office. The movement runs the risk of actually increasing gender inequality as it adopts computer communications. As Dale Spender (1995) has noted, “It is no coincidence that the computer is becoming a significant site of inequality, for it is at the centre of the future web of wealth and power” (p. 180).

> The electronic medium is the way we now make sense of the world, and that is why women have to be full members of the computer culture. Women have to take part in making and shaping that cyber-society, or else they risk becoming the outsiders: they will be the information poor, as they were for so long after the introduction of print. (p. 168)

The key concept here is the involvement of women (and indeed any group at risk of being marginalized) in “making and shaping”. Working people need to be part of the design of the new societies being potentialized by the advent of computer communications (Bélanger, 2001b). That can only be done if they are part of the discussions which define the potentials of those societies. Increasingly those discussions could take place online using collaborative learning.

2.3. Towards a Theoretical Framework

One of the criticisms of research into OCL is that often it does not include a theoretical or conceptual framework (Phipps & Merisotis, 1999). A theoretical framework can help focus and guide research by providing hypotheses which are open to empirical testing or avenues for the qualitative exploration of a subject (Marshall & Rossman, 1999; Palys, 2003). To better understand online labour education and contribute to its increased effectiveness there is a need to work within a theoretical framework which recognizes its particular characteristics and requirements – especially the need to understand the process of OCL and the need for a sense of community amongst workers.

The first step in devising or adopting a theoretical construct for online collaborative learning is to understand that online courses designed for collaborative learning are structured in fundamentally different ways than those which do not apply the pedagogy. The design of a collaborative learning course has two determining characteristics: the first is that the course is structured by the instructor to provide opportunities for the participants to interactively construct knowledge as a team (Harasim et al., 1995); the second is that it involves progress towards shared goals (Palloff & Pratt, 1999). The techniques for doing this include structured small and whole group activities, the creation of learning dyads where learners are grouped into pairs, team presentations, simulation or role-plays, and debating teams. The course is organized by the instructor to produce learning events according to topic, tasks, group and timeline (Harasim et al., 1995, pp. 125-139). In contrast, there are online courses which do not use collaborative learning techniques, some of which are organized by

instructors who are quite negative about the use of those techniques. While these courses may be designed to create a sense of community, promote dynamic discussion and even acknowledge the importance of the social construction of knowledge they are not focused on building the group as a team aimed at creating new knowledge.

Meyer (2004) studied four different theoretical frameworks in analyzing seventeen online discussions in two doctoral-level classes in educational leadership. The frameworks were: King and Kitchener's reflective judgment model; Perry's model of intellectual and ethical development; Garrison's four stage critical thinking model; and Bloom's taxonomy of education activities. Meyer concluded that each framework has value because each focuses attention on a particular aspect or quality. She concluded that investigators may need to use different frameworks to suit different situations. In order to do this investigators need a list of preliminary criteria which should be met by the use of a particular framework in their specific project. The following are criteria, drawn from the study of labour education literature, which could be used for judging the applicability of a conceptual framework for online distance labour education. Such a framework would:

- Address online collaborative learning.
  (Briton & Taylor, 2001; Creanor & Walker, 2000, 2005; Sawchuk et al., 2002).
- Reflect constructivist labour education pedagogies.
  (Sawchuk et al., 2002).
- Describe how learning takes place in computer conference discussions.
  (Briton & Taylor, 2001).
- Recognize the importance of a sense of community.
  (Briton & Taylor, 2001; Creanor & Walker, 2000; Greene & Kirton, 2002).

The application of these criteria to the frameworks studied by Meyer suggests that all four of the frames she studied may be immediately set-aside in discussions of

online distance labour education. None of the frameworks provided “a way to assess how a group conversing online works as a group, how it works together to develop an understanding of and solutions to a problem” (Meyer, 2004, p. 113). This is precisely what is needed in order to better understand how online labour education takes place. Because the frameworks Meyer studied do not meet these criteria, other potential frameworks were considered.

A reading of the literature concerning online learning, guided by the criteria listed above, led to the closer study of two other attempts at developing theories of online learning. They were chosen because of their potential relevancy to online labour education, but also because they serve to highlight the two major approaches to online learning currently being applied. The first, a theory developed at the SUNY Learning Network (Shea et al., 2000) acknowledges that online learning is a collaborative and social activity, but denies the efficacy of collaborative learning activities. The second, Harasim's theory of online collaborative learning (Harasim, 1990, 2002, 2004b) is quite firmly grounded in collaborative learning activities and, moreover, argues that they are necessary for the social construction of new knowledge.

2.3.1. SUNY Learning Network

The SUNY Learning Network is the online instructional program used today by all 64 colleges that are part of the State University of New York (SUNY). Shea et al. (2000) have reported on SUNY's early online experiences in the late 1990s which involved 5,000 participants. The report has a conceptual framework for understanding student satisfaction with online learning which includes the following concepts:

- Learning is primarily a social process involving interaction between student and teacher and between students.
- The quantity and quality of interaction with the instructor is significantly correlated with reported learning.
- The quality and reported level of student interaction and participation is also significantly correlated with reported learning.
- Prompt feedback, quality of feedback and communication of clear expectations are significantly correlated with reported learning.
- Low levels of technical difficulties are also correlated with reported learning and satisfaction as they help break down barriers to collaborative social interaction.

The study found that “consistency in course design, contact with the course instructors and real communication through discussion” contributed significantly to the success of the online courses (p. 13). The identification of these factors is “supported by social constructivist theory and supports social constructivist notions of the importance of the development of knowledge-building communities” (p. 13). The study found:

> Students who reported the highest levels of learning and satisfaction also reported the highest levels and quality of interaction with the instructors and with other students, i.e., they had the greatest opportunity to collaborate.... Students who reported that their instructors provided prompt and high quality feedback and clear expectations for success also reported the highest levels of satisfaction and learning. (p. 13)

Another finding in the SUNY study was that “the greater the percentage of the grade that was based on cooperative or group work, the less students believed they learned from the course” (p. 15). This may have led the investigators to include comments on collaborative learning techniques in their report. After reporting a significant “correlation between perceived learning and the percent of course grades based on discussion and between perceived learning and the specificity of instructor's discussion instruction” (p. 13), the authors wrote:

> Such findings indicate that interaction among students is an important factor in the success of online courses. This could lead us to suspect that collaborative learning activities might also be supportive of success. However, researchers who have investigated collaborative learning online have found it remarkably unsuccessful [emphasis added] (Hawisher & Pemberton, 1997; Siegel, et al., 1998; Sturgill, Martin, & Gay, 1999). Whether collaborative learning itself does not mesh well with asynchronous formats or we have yet to discover effective ways to support collaboration online remains to be seen. (p 14)

Investigators who have found that using collaborative learning activities can be effective (e.g., Graham & Scarborough, 1999; Hafner & Ellis, 2004; Harasim et al., 1995; Harasim, 2003; Hiltz, 1997; Hiltz & Benbunan-Fich, 1997; Schrum & Hong, 2002; Teles & Collings, 1997) are not cited in the SUNY study. Perhaps a start to discovering the effective ways to support collaborative learning called for in the SUNY study might be further research which builds on the work of the investigators just mentioned and others. As well, further research on the topics and conclusions found in the SUNY study itself might prove valuable. Two avenues of potentially valuable research might be: the effect the instructor's presence in the courses has on the students' perceptions of passing the course and the extent of the knowledge-building being achieved.

The SUNY study reports that the students who indicated high levels of learning and satisfaction also reported the highest levels and quality of interaction with the instructors. This may be "because students may get quicker answers, and often more considered answers to their questions than in the classroom" (Shea et al., p. 20). As well, students reported that they thought they learned less from the course as the percentage of the grade based on cooperative or group work increased (p. 15). These findings could lead to a conclusion that what the students reported was satisfaction with greater access to the instructor so they could discover what they had to learn to pass the course. This might be why the students report less learning when they are forced to

interact not with the instructor but with other students. If this is true, then what is being built is an instructor-centred pedagogy and the learning that is taking place is based on the traditional objectivist notion of passing on pre-determined bodies of knowledge from teacher to student. This may have implications for the study's conclusion that its findings support the “social constructivist notion of knowledge-building communities” (p. 13). For socially constructed knowledge-building to be happening the students must be creating new knowledge. Bruffee points out that in classes of students working with collaborative learning techniques “... the knowledge that group members wind up with was not 'given' to them directly by the teacher. They constructed it in the course of doing the task the teacher supplied” (Bruffee, 1993, p. 49). They created new knowledge. The notion of creating new knowledge is crucial to the future of labour education. Given the challenges currently facing the labour movement, it needs extensive amounts of new knowledge in order to more effectively represent its members, recruit new members and confront government and corporate attempts at diminishing its influence. Every possible opportunity in the labour movement, especially educational courses, should be taken to create new knowledge.

The SUNY conceptual framework has a number of features which could make it acceptable for online collaborative labour education. It emphasizes the social nature of the educative process. It accepts discussion as a central feature. It promotes interaction between the participants – the instructor and the students. It acknowledges the need for community-building. It recognizes that technical difficulties must be resolved in order for students to participate in collaborative social action.

However, there are factors which might not make it effective for online collaborative learning in labour education. It does not use collaborative learning

techniques. It may not adequately reflect constructivist labour education pedagogies because of a possible centering on the instructor. It does not describe how discourse in educational computer conferencing takes place.

2.3.2. The Online Collaborative Learning Theory

The second conceptual framework, which was given closer study because it provided preliminary indications that it might be effective in improving online labour education, is Harasim's theory of Online Collaborative Learning (OCL) (Harasim 1990, 2002, 2004b). It is of particular interest because Harasim “employs the notion of discourse as central to knowledge building and views learning as a social, negotiated, consensual process” (2002, p. 181). The capability to analyze the process involved in online conferencing discourse is a crucial requirement for any theoretical framework to be applied in online labour education.

The OCL theory “draws on the processes of democratic participation, intellectual progress and gradual convergence to adumbrate the trajectory of online learning from idea generation to idea linking to intellectual convergence” (Harasim, 2002, pp. 181-182). This 3-phase process resonates quite strongly with La Luz's labour education process of: information sharing, reflection and analysis, and action.

The formulation of Harasim's theory was informed by the Global Educators' Network (GEN) which began in November, 1999. GEN was “an online learning community" that described itself as 'for online educators, by online educators'” (Harasim, 2002). It used the Virtual U conferencing system which had been designed especially for online collaborative learning (Harasim, 1999). Within two years GEN grew from fewer

than 50 educators to 2000 members (Harasim, 2002, p. 188). In its first 24 months 44 online conferences were organized, each averaging 100 messages. These conferences and related activities generated 6,000 messages which provided a rich source of data for further exploration of the OCL theory.

The theory provides a framework for analyzing how communities converse online to create new knowledge. It provides precise indicators of success which can help researchers study the theory's application. These include “contextual indicators (user reports, active participation and longevity, engagement indicators) which provide descriptors of success, and substantive indicators (social discourse, intellectual progress), which provide analytical markers” (Harasim, 2002, p. 188).

An attribute of Harasim's theory most relevant to labour education is its recognition of work as central to the process.

> Collaborative learning is an interactive group knowledge-building process. The term derives from the concept of co-labour, where people come together to produce. In educational usage, collaborative learning refers to the process whereby learners construct knowledge by formulating their ideas into words and then develop these idea/concepts as they react to other students' responses to their formulation. (Harasim, 2003, p. 7)

However, simply inviting participants to come together online to work is not enough. The conditions for producing learning situations have to be well-planned, clearly described and constantly evaluated. This is the role of the instructor, who “carefully structures the learning activities, focuses on particular content, encouraging participants to both use and apply relevant analytical concepts and frameworks, and monitors student work – thus providing important feedback” (Harasim, 2003, p. 7). This is a description of an instructor who acts as a facilitator, an organizer, who works to provide the environment in which the participants can work together to produce knowledge. This

organizing role is in contrast to the instructor-centred role played by educators in courses which do not use collaborative learning activities.

An element which is more apparent in the earlier formulation of the theory (Harasim, 1990) is the theory's implications for system design as well as pedagogy. In the 1990 formulation, emphasis is placed on how to translate insights into the processes of conceptual change into system design ideas which will help the participants and the group at each stage of the discourse.

> What is the learner creating or producing online? And how can the online environment support the conversations and shared explorations that form part of the user's active creation or co-production of knowledge?....Current computer conferencing systems support idea generating, but additional enhancements are required for idea linking and idea structuring within online group activities. There are specific cognitive tasks associated with these processes that need to be considered in order to address how computer systems might facilitate the procedures involved. (Harasim 1990, p. 55)

This emphasis on discovering the cognitive processes so they can be used in improving systems reflects Murray Turoff's seminal notion that educational computer conferencing should provide, not just an experience educationally equivalent to in-class education, but a *better* experience. “Our objective is not to merely duplicate the characteristics and effectiveness of the face to face class. Rather, we can use the powers of the computer to actually do better than what normally occurs in the face to face class” (Turoff, 1995, p. 1). This is a call for a revolution in education by the inventor of computer conferencing. “Once we free ourselves from the mental limits of viewing this technology as a weak sister to face-to-face synchronous education, the potentials to revolutionize education and learning become readily apparent” (p. 9).

A crucial first step in realizing this potential is to understand the process by which learners online can come together intellectually. As the dynamics of this process

become clearer pedagogies and software tools can be designed to foster, enhance and support it during online collaborative learning activities. The OCL theory, by delineating the process by which online learners move from divergent thinking to intellectual convergence, could provide a step towards Turoff's educational revolution.

Harasim's theory of online collaborative learning meets the criteria for the adoption of a theoretical framework for understanding online distance labour education. It addresses collaborative learning, reflects constructivist labour education pedagogies, describes how learning takes place in online collaborative discussions, and recognizes the importance of community. The OCL was adopted as the conceptual framework for this dissertation.

2.4. Labour Education and Collaborative Learning

Labour education and collaborative learning have many factors in common. They share the same roots in the peer-learning movements of the early 20th century (Bruffee, 1993). They are both concerned with social activity, with labour education being defined as such (Spencer, 1996, p. 1) and online collaborative learning creating the spaces for its practice (Harasim, 1993b). Investigators studying online labour education have called for theoretical models describing how learning online takes place (Taylor et al., 1999). Collaborative learning investigators have been building these models (for example: Benbunan-Fich et al., 2005; Harasim 1990, 2002, 2004b). Labour education is based on democratic participation (Hopkins, 1985; Newman, 1993). Online collaborative learning can enhance democratic participation (Harasim, 1990). Both are concerned with groups (Arnold et al., 1991; Benbunan-Fich & Hiltz, 1999). They share an interest in defining the role of the instructor differently than the way it is defined in traditional post-secondary

institutions (Newman, 1993; Teles et al., 2001). Research into the practice of both pays particular attention to the participation of women (Greene & Kirton, 2002; Herring, 2000). They are equally concerned with building a sense of community (Briton & Taylor, 2001; Rovai, 2001). Investigators into both online versions are concerned with motivation (Creanor, 2002; Hiltz, 1997). Perhaps the most important factor is that they both see work as a central question: labour education being addressed to working people and centred on the workplace (Newman, 1993), and collaborative learning being focused on encouraging participants to work as a team on creating new knowledge (Harasim, 1990).

2.5. Setting the Research Questions

The research conducted for this dissertation builds on the work performed by investigators who have written on the subject of online labour education. It was guided by questions these investigators considered important for further research.

The theoretical framework which was used to address the questions was chosen after taking into account a recommendation by Taylor, Briton and Gawron that what was needed "was not more data, but an analytical model which would help understand the relationship between context and CMC (computer-mediated communication) resource, how that relationship affects student activity and how that relationship might change over time" (1999, p. 3). After considering a number of frameworks, Harasim's theory of Online Collaborative Learning was adopted. It met the requirements set by labour educators for the social construction of knowledge, conceptual change (learning), community and collaboration. It also resonated with La Luz's (1991) description of the three-stage process of organizing labour education. The OCL theory was used to guide the work performed to address the research questions.

The research questions, presented below, were generated by a reading of the labour literature.

RQ1: What is the empirical evidence of learning and how does it take place in online collaborative courses conducted for labour education?

RQ2: What are the perceptions of learning of participants in online collaborative learning labour education courses?

RQ3: What are the perceptions of collaboration and community by participants involved in online collaborative learning labour education courses?

RQ4: How is the provision of a credential to the participants in online collaborative learning courses involving the staff of unions in developing countries a significant motivator?

RQ5: What are the key issues related to the effective and viable participation in online collaborative learning courses for union staff in developing countries?

The conceptual framework, research design and methodology used to address these questions are described in the following chapter.

CHAPTER 3.

METHODOLOGY

This chapter discusses the general research aims and purposes of the dissertation, how those aims and purposes were translated into a practical research study, and the methods used for implementing the study.

3.1. The Problem Statement

The general problem which was addressed was the potential of online collaborative learning for effective and viable education of union staff in developing countries. The literature review, which concentrated on labour education and online collaborative learning, suggested five key questions for further research within the larger problem. It also pointed to the importance of a theoretical framework which would provide coherence and meaning to the data which was collected and provide indicators of conceptual change.

The context for the problem statement is that online learning is being used by many universities and organizations around the world and its use is growing rapidly. In 2000 there were an estimated four million people learning online (Bates, 2000). In 2004 there were 2.35 million people studying in the United States alone. The increase in the number of online learners in the U.S. was 18.4% in 2004, about the same as in 2003. This growth rate "greatly exceeds the overall growth rate in the higher education student

body" (Sloan, 2005, p. 8). Meanwhile, many international organizations interested in education, such as UNESCO and the World Bank, have been implementing online learning programs. Yet, despite its potential for expanding the reach of labour education and building the new knowledge it needs, the international labour movement has not adopted online collaborative learning.

This dissertation addresses the wider problem statement by investigating the potential of OCL for the international labour movement with the use of a case study methodology. The case study is of a labour education course which was conducted entirely online over a period of eight months with 33 unionists from 24 developing countries in 2005. The study includes multiple sources of data collection including: computer-generated verbatim transcripts of group discussion, computer-generated usage statistics and user surveys.

For the purposes of the study the term educational effectiveness is related to indicators such as empirical evidence of learning (defined as conceptual change), significant completion rates, high rates of participant satisfaction in terms of learning processes and community, plus high levels of motivation. A final and key research issue is the viability of online collaborative learning for unions in the developing world.

The problem statement addresses the need for scientific research and data analysis to illuminate issues related to the effectiveness and viability of online collaborative learning for labour education in developing countries. The dissertation addresses this issue with the intention of advancing knowledge and scientific evidence related to online collaborative learning for labour education particularly in developing countries, but potentially world-wide.

3.2. The Focus and Research Questions

The problem statement was addressed with five specific research questions (RQs). The question subject areas are:

RQ1: Empirical evidence of learning.

RQ2: Participant perceptions of learning.

RQ3: Participant perceptions of community.

RQ4: Course credential as a motivation.

RQ5: Issues related to the viability of OCL in the context of unions in the developing world.

3.3. The Research Instruments

The research methodology employs a mixed modality of qualitative and quantitative approaches and thus both qualitative and quantitative data were collected. The instruments for collecting the data included: the computer-generated verbatim transcripts of the participant's online discourse; computer-generated usage data (messages stamped with time, date and author); surveys; user reports; documents; and participant observations. The research methods are presented below. In Table 1 they are related to the research questions.

- Harasim's Online Collaborative Learning theory and transcript analysis (OCL).
- Rovai's sense of Classroom Community Scale (CCS).
- A questionnaire on the expertise and technological environment of the participants (ITq).
- Analysis of the conference messages entered by the participants (Transcript Analysis).

- Conference usage (Stats).
- The collaborative production of documents by the participants (Docs).

Table 1. Relation of Research Instruments to Questions

Questions	OCL	CCS	ITq	Transcript Analysis	Stats	Docs
RQ1	•			•	•	
RQ2		•		•	•	
RQ3	•	•		•		
RQ4				•	•	•
RQ5			•	•		•

3.4. Validity and Reliability

The two primary instruments used in the analysis and collection of data were Harasim's Online Collaborative Learning theory (OCL) and Rovai's Classroom Community Scale (CCS). Both the OCL and the CCS were developed and validated through extensive studies involving participants in online collaborative learning.

The OCL theory (Harasim, 1990, 2002, 2004b) was used as the theoretical framework for the study and as an instrument for gauging conceptual change by the participants during the course. The theory was first formulated after studying the experiences of online learners participating in courses conducted by the Ontario Institute for Studies in Education (OISE) in the 1980s. It was further informed in the 1990s by its use in studying the activity of participants who were using the collaborative learning system, Virtual U, which was a beacon technology of Canada's TeleLearning Network of Centres of Excellence. Virtual U was used by the Global Educators Network which involved some 2000 educators who worked in 44 online conferences. These

conferences and related activities generated 6,000 messages which provided a rich source of data for further exploration of the OCL theory. The theory provides precise indicators for gauging the process of conceptual change through three phases: idea generating, idea organizing and intellectual convergence.

Rovai's Classroom Community Scale (CCS) was field-tested using 375 graduate students enrolled in 28 different online courses (Rovai, 2002a, p. 208). It consists of twenty questions. Following each question is a five-point Likert-type scale of potential responses: strongly agree, agree, neutral, disagree and strongly disagree. A scoring-key which ranges from a maximum of 40 to zero is provided for a learning subscale. In addition to providing aggregate scores on the perception of learning, responses can also be collated on individual questions. This allows for a probing for views on specific items such as timely feedback and opportunities to learn. This was especially useful in determining the views of the women participants in the course.

3.5. Research Strategy

Yin (2003) suggests that the choice of research strategies should be based on the type of questions which are posed:

> ... the first and most important condition for differentiating among the various research strategies is to identify the type of research question being asked. In general "what" questions may be either exploratory (in which case any of the strategies could be used) or about the prevalence (in which surveys or the analysis of archival records would be favoured). "How" and "why" questions are likely to favour the use of case studies, experiments or histories. (p. 7)

The questions which were identified in the literature review included both *how* and *what* questions. Consequently a case study approach, which could address both types of questions, was deemed most appropriate.

The decision to adopt a case study approach was supported by the experience and investigation of other researchers who have examined the use and suitability of case studies. Marshall and Rossman observe that "studies focusing on society and culture, whether a group, a program or an organization, typically espouse some form of case study as an overall strategy" (1999, p. 61). Darke, Shanks, and Broadbent (1998) point out that "case study research is the most widely used qualitative research method in information systems research and is well suited to understanding the interactions between information technology-related innovations and organizational contexts" (p. 273). A case study approach was adopted by earlier investigators of online labour education (Briton & Taylor, 2001; Creanor & Walker, 2000; Sawchuk et al., 2002).

3.6. The Case Study Methodology

A case study is "an empirical inquiry which investigates a contemporary phenomena within its real-life context; when the boundaries between phenomena and context are not clearly evident" (Yin, 2003, p. 13). Case studies are particularly valuable for understanding complex phenomena in context and, according to Yin, "when users' intentions, technology use patterns, and social impacts cannot be clearly separated from the social, technological and organizational contexts in which they occur" (p. 47). This is especially relevant to the study of OCL because the phenomena (conceptual change) cannot be separated from the technological context (the conferencing system).

Once the decision to utilize a case study methodology was taken the next step was to define the conduct of the study.

Building on the work of Yin, Soy (1997) suggests a six-step process in conducting case studies.

- Determine and define the research questions.
- Select the case or cases and determine the data gathering and analysis techniques.
- Prepare to collect the data.
- Collect data in the field.
- Evaluate and analyze the data.
- Prepare the report.

Soy's process was used in the design and conduct of the case study conducted for this dissertation. What follows is a description of the steps which were taken.

3.6.1. Determining and Defining the Research Questions

The literature review suggested five key questions needed to be addressed if international online labour education was to be conducted successfully. There is first a need to determine the process and empirical evidence of learning in online labour education courses. Second, understanding the perception of learning of the participants is crucial to the adoption of the medium by labour organizations. Third, developing and gauging the sense of community generated during an online course is essential because online collaborative learning has to generate a sense of community if it is to be accepted as a pedagogy which reflects the principles of labour education. Fourth, the effect of a course credential recognized as valuable by the participants is important to determine. Finally, understanding the viability of computer conferencing and collaborative learning in the context of unions in developing countries is crucial if the medium is to be adopted by those labour organizations.

3.6.2. Selecting the Case

A crucial decision at the start of a research project using a case study approach is to determine if the study is to be a single or multiple-case design. Yin offers (2003 pp. 39-40) a number of rationales for a single case design. One rationale is that it represents the use of a well-formulated theory. In this case the theory which was used was the OCL. A second rationale is if the case it studies is unique. The course studied in the dissertation's case study was the only online collaborative learning course being conducted for staff of unions in the developing world. For these reasons it was concluded that a single case design was appropriate. The data gathering and analysis techniques for the study were based on extensive review of the relevant literature (Chapter 2) and on personal experience with online education and research (Chapter 1).

3.6.3. Preparing to Collect the Data

Preparation for collecting the large amount of data which would be generated by the case study was conducted prior to its commencement. An open source database program was written which could be used by coders to collect and report on the message coding which would be performed while applying the OCL theory. The program was written specifically for analyzing messages according to the theory. Another possibility would have been to use computer-assisted qualitative data analysis software (CAQDAS) such as Nvivo, Nu*dist, Atlas ti, or Qualrus. However, all of these are proprietary and aimed at providing general tools which can be configured for particular purposes. By producing a database in an open source programming environment, and specifically configured to be used for work with the OCL theory, the database became

available for other researchers who want to apply the theory and analysis in their work. As well as the coding database, an online form which the participants could use to complete the CCS questionnaire was created and released as open source.

3.6.4. Collecting Data in the Field

Researchers of OCL have an advantage over those who rely on field observations, interviews and other instruments which generate large amounts of data which must be typed and catalogued before analysis can begin: the computer conference comments are created by the participants themselves as they go along. Consequently, a written record is automatically generated and instantly ready for analysis. In addition, the computer conferencing system which was used (Virtual U) collects participation data such as the number of messages read by individual participants. To augment the study of conference comments two questionnaires were applied: one on the use of information technology by the participants and one on their sense of community and perceptions of learning.

3.6.5. Evaluating and Analyzing the Data

The data generated during the case study was analyzed quantitatively and qualitatively. Questionnaire responses were tabulated; the number of messages read were reported; online times were calculated; and the number of messages per participant were counted. The OCL theory was used to analyze the conference comments in order to gauge conceptual change.

3.6.6. Preparing the Report

Cresswell (2003, p. 222) suggests that the report of a mixed-methods study depends on whether the strategy for conducting the study was sequential or concurrent. A sequential study is one where qualitative and quantitative phases are conducted separately in phases. The report for this type of study would therefore be structured in three sections: a discussion of the findings in the quantitative phase; a discussion of the qualitative findings: and then an interpretation or conclusions section. A concurrent study is one in which the quantitative and qualitative methods are applied concurrently, as was the case in the work performed for this dissertation. The report of a concurrent study is structured so that the "analysis and interpretation combines the two forms of data to seek convergence among the results" (p. 222). This was the structure adopted for the analysis section of this dissertation.

3.7. Sampling

Sampling refers to the definition of the population on which the research will focus. The sample for the dissertation's case study was determined primarily by the fact that at the time of the study the course was the only online collaborative learning course being conducted for staff of unions in the developing world. It was offered by the Worker's Activities Program of the training centre of the United Nation's International Labour Organization (ILO). The training centre is in Turin, Italy.

The online course involved thirty-three unionists from 24 developing countries. Of the thirty-three, 18 (54.5%) were males and 15 (45.4%) were females. They ranged in age from 30 to 45 years of age. Fifteen of the participants worked full-time directly for a

national labour federation; twelve worked full-time for affiliated unions. Three people worked in the field offices of the ILO. One participant worked full-time for a Global Union Federation. Two participants were not employed by a labour organization: one was an educator who worked only for unions; the other was a volunteer working with the federation. The group included eight labour educators, seven information officers and nine administrative assistants. Four participants were elected officers: a president of a federation, a general-secretary, and two secretary-treasurers. There were two researchers and one organizer. One participant was a member in an affiliated union. Another was working for a company in his country and acting as a volunteer to manage the federation's website.

The participants were based in developing countries in Africa, Palestine and the Caribbean. The countries are listed in Appendix A. The labour organizations they represented are listed in Appendix B. All of the countries, except one, use English as a primary or secondary official language. (The working language of the exception, Suriname, is Dutch).

Most of the participants (24) had been using computers for more than five years before the course started. Seven had at least three year's experience. Two had used computers less than a year. Almost all reported a high level of comfort in using computers. Only two described themselves as at the beginner level; the rest reported their computer skills as either at the intermediate level (26 people) or the expert level (5). Thirty-two said they knew how to install computer software (with 20 saying they could do so easily). Perceived email usage skills were also high: 30 participants reported having intermediate or expert skills in using electronic mail.

3.8. Ethical Considerations

All research projects need to be conducted with respect to the ethical issues involved. Informed consent of the participants in this study was solicited by the use of a printed form that needed to be dated and signed. The content of the forms outlined that the employers of the participants would be notified of the study; that the participants could withdraw at any time; and that anonymity would be guaranteed. Participants were provided with a contact name at Simon Fraser University for registering concerns about the project. Anonymity was ensured by using student numbers in the coding program and substituting names in this dissertation.

3.9. Theoretical Framework

A theoretical framework is a crucial element in any research project because it "effectively combines diverse and isolated pieces of empirical data to create an intelligible conceptual model which is capable of being more generally applied" (Walliman, 2001, p. 82). The need for such a model in online labour education was emphasized by Taylor et al. (1999) after they analyzed ten online labour education courses conducted on SoliNet. They concluded that: "....we need to know much more about process than frequency and extent-of-use statistics can tell us... what we needed was not more data, but an analytical model that would help understand the relationship between context and CMC resource, how that relationship affects student activity and how that relationship might change over time" (p. 4). The OCL theory was used to provide the analytical theory called for by Taylor et al.

3.10. Qualitative and Quantitative Research

Habermas argues that research is motivated by interests and values (Braa & Vidgin, 1997; Dahlbom & Mathiassen, 1993; Flood & Jackson, 1991). Stimulated to action by these interests and values, the researcher is engaged in the subject being addressed and, until recently, chose to be engaged uniquely within one of two broad research perspectives: quantitative or qualitative. The former is focused on counting and assessing numbers; the latter is aimed at measuring and evaluating qualities (Walliman, 2001, p. 20). Researchers who adopt one of these perspectives may differ in their practices from researchers who adopt the other, but both types of practitioners are still fundamentally motivated, as Habermas insists, by their interests and values. The key question then becomes, not what research strategy is adopted, but the *purpose* of the research. To what end are the researchers motivated by their values and interests?

Within the context of discussions concerning technology, Habermas' argument is that the result of research may be, not only findings and conclusions generated by the interests and values of the researchers, but also the uncovering of the neutral instrumentalities of technology. This view reflects the idea that technologies are neutral "tools" ready to be used by people for their purposes and not the products of the interests and interests of the people who produced designs for them. Feenberg, an early practitioner and designer of online education pedagogy, disagrees with Habermas that a technology is a neutral instrument "indifferent to the variety of ends it can be employed to achieve" (Feenberg, 1991, p. 5). He argues that a technology has "potentialities" which can be enlisted, for example, "in re-designing technical processes

to take into account their side effects on workers and the environment" (p. 182). These potentialities or possibilities can be brought out by social action.

> ... technology is not a thing in the ordinary sense of the term, but an 'ambivalent' process of development suspended between different possibilities. This 'ambivalence' of technology is distinguished from neutrality by the role it attributes to social values in the design, and not merely the use of technical systems. On this view, technology is not a destiny but a scene of struggle. It is a social battlefield, or perhaps a better metaphor would be a parliament of things on which civilizational alternatives are debated and decided. (Feenberg, 1991, p. 4)

If technology design is a process of debate in a "parliament of ideas" it should be researched with tools which can, as much as possible, capture the richness of the debate. What's more, the research approach should recognize the role of the people – the debaters – in the process. In order to do this, the work performed for this dissertation used an approach known as mixed methods research.

3.11. Mixed Methods Research

Quantitative research is the mainstream approach most widely applied in disciplines such as sociology, economics, political science and business administration (Palys, 2003, p. 5). It has been characterized as "hard" science because the data collected and analyzed with its methods are in the form of numbers and statistics. Quantitative researchers use the deductive method which "involves making predictions and assessing their success in an ongoing process of theory development" (p. 8). Theory comes first and then is tested. The goal is to create variables that are amenable to statistical analysis. The researcher in the quantitative approach strives to remain "objective", separate from the "subjects" being observed. One of the major quantitative research tools is a questionnaire.

The other major research perspective is qualitative research, which has been described, perhaps derogatively, as “soft” science. Its data are in the form of words, pictures, audio, video or objects. Qualitative researchers use inductive methods where observation in the field comes before the development of theoretical constructs (although existing theories developed with qualitative methods can also be used to guide further field work and analysis). The aim of qualitative research is a more complete and detailed description than can be provided with quantitative research methods. The people involved in the qualitative studies are not “subjects” but participants, and consequently the qualitative researcher tends to become immersed in the subject matter. He or she becomes the data gatherer. A major tool for qualitative researchers is a case study methodology.

The strengths and weaknesses of quantitative and qualitative research provoke forceful debate, especially in the social sciences. In recent years, however, the strict boundaries between the two perspectives are being questioned by researchers who argue for an integration of techniques, in what is referred to as a "mixed methods" approach (for example: Bolden & Moscarola, 2000; Cresswell, 2003; Palys, 2003; Trochim, 2002). It has been defined as “the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study” (Johnson & Onwuebbuzie, 2004, p. 17). Johnson and Onwuebbuzie argue that “the bottom line is that research approaches should be mixed in ways that offer the best opportunities for answering important research questions” (p. 16).

A mixed methods approach particularly relevant to this dissertation, because it addresses online learning, is the quisitive research model (Goldman-Segall, 1998) which

"combines both the quality of inquisitiveness and inquiry and the notion of the quantitative numerical quiz to understand the learning event" (Goldman, Crosby, Swan, & Shea, 2005, p. 111). An example of a research tool for gathering quantitative data suggested by Goldman et al. is Rovai's Classroom Community Scale (CCS) which explores the development of learning communities. The CCS was used for this dissertation. An example of a qualitative method provided by the authors is to "analyze the data transcripts of online discussions ...these transcripts of online discussions are digitally stored, and thus they provide readily accessible records of the evolution of social relationships in online classes" (p. 109). Transcript analysis was used in the work performed for this dissertation in order to study conceptual change amongst the participants.

3.12. Transcript Analysis

The 'automatic' availability of a transcript of the group discourse as well as computer-generated usage data has, since the 1980s, led to numerous new research approaches, particularly those based on qualitative transcript analyses. The availability of a verbatim stored transcript of each participant's message according to when it was input was a significant advance for the study of group discourse and the process of conceptual change. The availability of verbatim, archived online group discussions, seminars and project team interactions offers an important potential for revealing *learning processes*, rather than relying on the traditional measures of *learning products* such as examinations, papers, portfolios, or journals.

In the mid-to late 1980s, Harasim and her research team began analysis of the online transcripts generated by the accredited online graduate courses at OISE

(Harasim, 1990). She began by conducting a detailed descriptive analysis of course messages and transcripts. However, she found that there were no existing taxonomies of learning to categorize these data and link them to a theory of learning. Based on techniques known as grounded theory, she organized the descriptive data into three phases of learning or conceptual change that developed from divergent intellectual processes to intellectual convergence (Harasim, 1990, p. 55). A grounded theory-based content analysis involves the study of the artefacts of the investigation (often the transcripts of computer conferencing) and coding the content into categories. Harasim continued to work on a theory of OCL, and to develop a research methodology that can be used by researchers, educators, conference moderators, and learners to understand and advance the process of learning (Harasim, 2004b, pp. 65-68). The OCL theory, which is described in more detail below, was used in this dissertation to set a theoretical framework for the study.

3.13. The OCL Theory and Learning

Harasim's theory of Online Collaborative Learning (OCL), which describes the process of online discussions, provides an approach to the analytical model called for by Taylor et al. (1999). The theory was used for the dissertation with the understanding that one of the procedures in research is "to try to extend the coverage of an existing theory" (Palys, 2003, p. 42). In this case the coverage was extended from university courses and online networks of teachers to unionists in online labour education. Additionally, Virtual U, the computer conferencing system which was used by Taylor et al., was the system that Harasim used to investigate and further develop her theoretical insights. Virtual U was also used in this project.

If international labour organizations are to work towards the adoption of OCL they need to know that it results in effective learning. Educators largely view learning in terms of cognitive or conceptual change (Rovai, 2002d, p. 321). Rekkedal has described the process in relation to online learning in this way:

> Learning is a change in the student's perception of reality related to the problem areas studied and increased competence in solving problems in a field, ability to differ between focal and more peripheral questions, analytical skills and competence in using the tools within a field in appropriate ways. This means that learning results in a qualitative change in the student's understanding, academic, social and technical competence. The learning is a result of active processing of learning material and solving problems individually and/or in groups. The view is often opposite to what we can find in many so-called e-learning programmes, where knowledge often is seen as a larger amount of information or ability to recall and reproduce facts. (Rekkedal, 2005, p. 5)

If, as Rekkedal argues, learning is a "qualitative change in the student's understanding", then evidence of learning is the demonstration that students have progressed from one state of understanding to another as defined by the educational body which organizes the educational experience, the instructor, the group, or as Bruffee insists (1993, p. 3), the knowledge community to which the student seeks entry. Consequently, understanding the progression through which a student passes becomes crucial to determining how and if online learning has occurred. The tracking of this process is the central aim of the OCL theory. It echoes Bruffee's view that "knowledge is a construct of the community's form of discourse, maintained by local consensus and subject to endless conversation" (Harasim, 2002, p. 183). Learning is defined as a social, negotiated, consensual process in which discourse which leads to knowledge-building is central. The trajectory of this discourse is what the theory is focused upon. This trajectory identifies "three processes/phases describing the path from divergent to convergent thinking" (Harasim, 2002, p. 184). The theory resonates with "Bruffee's

(1999) theoretical position that intellectual convergence through collaborative discourse is key" (Harasim, 2002, p. 184). The OCL theory was used to analyze conferences conducted during the case study organized for this project. This involved the coding of conference messages in order to discover indicators of the three phases in the theory: idea linking, idea organizing and intellectual convergence.

3.14. The Online Collaborative Learning Theory

The OCL theory has its roots in Harasim's use and design of educational computer conferencing systems in the 1980s and her readings of early collaborative learning theoreticians. The first online courses she studied were courses she conducted while at OISE (Harasim, 1987, p. 120). In 1993 she became a design leader of the Virtual U educational conferencing system which was "to provide a flexible framework to support advanced pedagogies based on learning, collaboration, multiple perspectives, and knowledge building... in 1995 the VU became one of the key research applications within the TeleLearning Network of Centres of Excellence" (Harasim, 1999, p. 45). In 1999 VU was used for the creation of the Global Educators' Network (GEN), "an international community of online educators that aims to encourage educator exchange and to leverage experience and expertise in e-learning models and methods through moderated seminars and participant interaction and discussion"(Harasim, 2002, pp. 187-188).

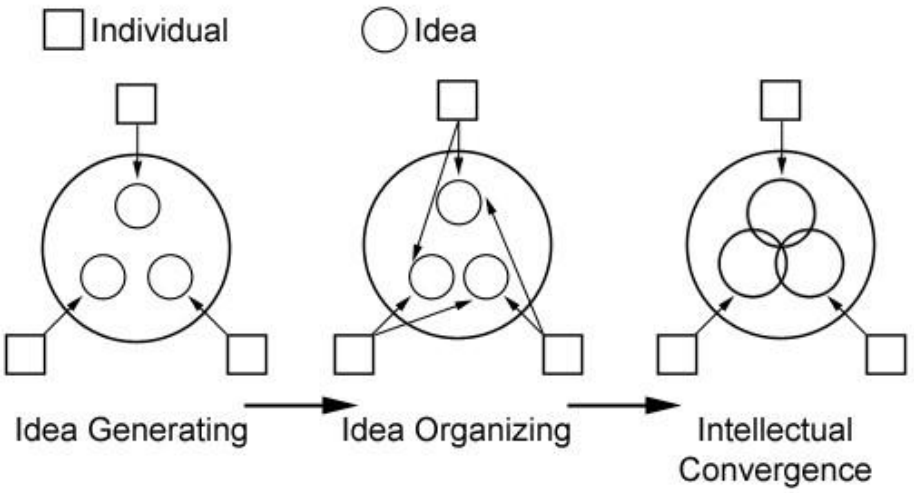
In parallel with the development of educational computer conferencing in the 1980s were the beginnings of theories of group work and collaborative learning. Harasim's theoretical work was informed by, amongst others, the works of Hiltz and Turoff (1978), Bouton and Garth (1983), Brown (1989), Bruffee (1993) and Roschelle

(1996). Bruffee's works are especially important in understanding the foundations of Harasim's OCL theory.

> Bruffee (1999) argues that knowledge is a construct of the community's form of discourse, maintained by local consensus and subject to endless conversation. Learning is a social, negotiated consensual process in which discourse plays a key role. Bruffee presents a process in which students collaborate in small groups, then in larger or plenary groups to increasingly come to intellectual convergence (even if that means agreeing to disagree) and through this process, they approximate the substantive and procedural language of the knowledge community towards which they aspire. (Harasim, 2002, p 183)

The OCL theory is a model of conceptual change which "focuses on collaborative learning in the online (Web-based) discourse environment, identifying three processes/phases describing the path from divergent to convergent thinking: idea generating, idea linking and intellectual convergence" (Harasim, 2004b, p. 67). Harasim also uses the label "idea organizing" for the second phase described in the theory (Harasim, 2002, p. 185; 2003, p. 10). Since the term "organizing" resonates with the organizing model of labour education (described in Chapter 2) and evidence was found during the study of people organizing, not only ideas, but themselves during the second phase, "organizing" was adopted for this dissertation as the terminology to describe Phase 2 of the theory. Figure 2 provides a graphic view of the phases of the OCL theory.

Figure 2. Online Collaborative Learning Phases



Note. Adapted from Harasim (2002, p. 185), by permission.

3.15. OCL Research Methods: OCL Transcript Analysis

Transcript analysis (also described as content or discourse analysis) refers to the definition of specific indicators and the search for their appearance in the content being investigated. "These indicators are then counted, classified, and interpreted as descriptive data by the e-researcher to create a deeper understanding of the content" (Anderson & Kanuka, p. 173). While transcript analysis has been frequently distinguished as either qualitative or quantitative, analyses of online interactivity increasingly use both approaches to qualify and quantify the discourse of online applications – especially with educational content. "Content analysis can be used with any type of artefact of human discourse or activity. It is often associated with the analysis of text documents, and in e-research investigation these documents are often email, chat, or computer conferencing transcripts" (p. 174).

3.15.1. Qualitative Transcript Analysis

The history of online learning, especially OCL, has a rich tradition of research to help better understand and explain the strengths, weaknesses, advantages and disadvantages of this new field. While traditional research methods such as interviews and surveys were widely employed in this research, it became evident that the new medium required new research methods. Crucially, because OCL provides a verbatim archive of all of the online discourse within a computer conference it enabled transcript analysis of the discourse of each individual and the group over time. It therefore offered an unprecedented opportunity for the study of understanding and learning by the individual and by the group because the text-based verbatim archive of the discourse offers unique and powerful insight into the learning process. In order to "participate" in a text-based discussion, participants must verbalize and articulate thoughts and ideas. Hence, the transcript of an online seminar or group discussion or work group illuminates the thought processes and intellectual contributions and progress of both the individual and the group. The text-based transcript of the discourse provides an audit trail of conceptual change and learning which can be subjected to research and analysis.

Harasim (1990) has argued that writing is thinking made visible, and argues that earlier literature on reading and writing can offer initial insights into online transcript analysis. The notion of text as frozen thought and of writing as involving purposeful construction of meaning is further delineated by Gage (1986):

> Writing is thinking made tangible, thinking that can be examined because it is on the page and not in the head invisibly floating around. Writing is thinking that can be stopped and tinkered with. It is a way of holding thought still enough to examine its structure, its flaws. The road to clearer understanding of one's thoughts is travelled on paper. It is through an attempt to find words for ourselves in which to express related ideas that

> we often discover what we think. (Cited in McGinley & Tierney, 1989, p. 24)

Harasim came to the conclusion that the power of transcript analysis required a theory of learning to locate and investigate the learning processes and outcomes (Harasim, 1990). A theoretical framework which served as a standard for learning was needed and essential to assess the value of particular or ongoing processes and contributions.

3.15.2. Quantitative Usage Analysis

The use of the computer in OCL also enabled the collection of quantitative usage data, enabling Quantitative Usage Analysis. Each message sent to a conference is stamped according to when the message was sent, the name of the sender, if it was a reply, the sequence in which it was received by the system, and often the message size or volume. Such quantitative data provides additional important illumination of the nature and patterns of discourse.

3.16. Identifying OCL Characteristics and Indicators

The OCL theory describes three phases of discourse through which participants pass as they learn online. In the first they present their ideas independently as in brainstorming sessions. In the second they begin to organize themselves and link ideas put forward by the group. In the third they began to group ideas and develop intellectual convergence. Each phase has identifiable characteristics and indicators. The characteristics are descriptors of the process which is taking place, such as participant engagement. The indicators are concrete actions such as the entering of introductions.

These characteristics and indicators were used to analyse the discourse in the course which was studied. The OCL phases are described in more detail below.

3.16.1. OCL Phase 1: Idea Generating

This early process is characterized by participants providing information and ideas generally unconnected to the contributions of others. It is the period of self-introduction, brainstorming, initiating new ideas which point to many divergent paths, presentations of individual points of view which produce multiple perspectives and democratic participation. Its primary indicators are verbalization and divergent thinking. However, by presenting their ideas and information to the group in writing (via conference messages), participants begin to see potential patterns or agreements plus disagreements to be dealt with "...the participants begin to relate to each others' ideas" (Harasim, 2004b, p. 67).

3.16.1.1. Characteristics

- Divergent thinking.
- Brainstorming and verbalization leading to sharing of ideas and positions.
- Participants are engaged and contribute.
- Democratic participation.
- New ideas generated.
- Individual points of view presented leading to multiple perspectives.
- Idea generating is high at the beginning of a conference.
- Individual comments contribute to building of the shared space.

3.16.1.2. Indicators

- Introductions.
- Verbalization.
- Divergent thinking activities such as brainstorming.
- Generating input.
- Providing input.
- Generating information.
- Providing examples.
- Use of “I”, “my”

3.16.2. OCL Phase Two: Idea Organizing

In this phase the participants begin to link ideas, cluster them into categories and organize themselves. The beginnings of intellectual convergence and progress are seen. Ideas are clarified. Multiple perspectives are aligned then brought together or set-aside. "...discrete ideas start to come together; many smaller ideas become a few big ones; and individual understandings grow into group shared understanding" (Harasim, 2004b, p. 67).

3.16.2.1. Characteristics

- Idea linking.
- Identifying associations between ideas.
- Ideas become clarified and grouped into various positions (agreement/disagreement; questioning/ elaboration).
- Movement from individual comments to collaboration.
- Early form of convergence as participants contribute to shared ideas.

- Intellectual progression is demonstrated as multiple perspectives are recognized and related or not related to each other.

3.16.2.2. Indicators

- Increased number of reply messages.
- Increased number of references to previous messages.
- Increased number of name referencing.
- Qualitative changes in the nature of the discourse.
- Examples of agreement/disagreement, enhanced individual understanding, shared understanding, elaboration on ideas, quoting a person and then commenting.
- Examples of participants organizing themselves: choosing a discussion leader or report; setting a deadline for a report or document; agreeing to post draft reports for comment (added by author).

3.16.3. OCL Phase Three: Intellectual Convergence

Working from their ground of shared understanding the participants actively begin to construct knowledge in the third phase. They "synthesize their ideas and knowledge into explicit points of view or products (such as theories, positions, works of art, manifestos, scientific theories/hypotheses" (Harasim, 2004b, p. 67). Intellectual convergence is "most evident when participants are engaged in co-production, whether it be producing a report, a presentation, a point of view, a work of art, or a scientific theory" (Harasim, 2002, p. 195). Intellectual convergence could also be found in the agreement of a plan of action for activities such as a political lobbying campaign or a strike.

3.16.3.1. Characteristics

- Shared understanding.
- Idea structuring builds to intellectual synthesis, consensus agreements to disagree, co-construction of knowledge based on shared understanding, and outcomes of discussions consolidated, (especially apparent in co-production of a theory, publication, an assignment, a work of art, or similar output by a group or sub-group).
- Discussions leading to conclusions on plans or ideas for action (added by author).

3.16.3.2. Indicators

- Increased number of substantive contributions (messages that compare, structure, extend, and synthesize ideas).
- Increased number of conclusive supported position statements.
- Convergent messages are prevalent throughout the conference but do not become dominant until towards the end.
- Use of “we”, “our”.

Using the OCL characteristics and indicators listed above the discourse in the course was analyzed. The first step in this analysis was to code the conference message to discover particular characteristics and indicators.

3.17. Coding the Conference Messages

The number of messages in the course conferences allowed for a rich database which could be used for an analysis guided by the OCL theory. However, the volume of messages to be coded posed a problem. Investigators have discovered that coding a large number of messages can be prohibitively labour intensive and even result in a loss

of inter-coder reliability caused by simple coder fatigue (Teles et al., 2001, p. 48). To address this issue a two-prong strategy was developed.

The first part of the strategy was to define the unit of analysis as the conference message. Anderson, Rourke, Garrison, and Archer (2001) identify five units of analysis which have been used in research concerning online learning: proposition units, sentence units, paragraph units, thematic units, and message units. The most commonly used is the thematic unit, but analyzing by thematic unit can also be prohibitively labour intensive (p.9). Instead, in a study of teaching presence in computer conferencing, Anderson et al. used a modified message unit analysis. Rather than assigning only one indicator to a message, which had been the usual practice, they allowed for the assignment of multiple indicators to each message.

> In the present study we again used the message unit. However, rather than simply assigning each message unit that demonstrated some sort of teaching presence to one and only one of the categories of teaching presence, we allowed for the possibility that a single message might exhibit characteristics of more than one category. Therefore, each message posted by the instructor was coded as exhibiting or not exhibiting one or more indicators of each of the three categories of teaching presence. (Anderson et al., 2001, p. 11)

The advantages of this procedure included: lessening the workload of the coders by pre-determining the number of coding decisions (to three); quick implementation; and meaningful description by reporting the percentage of total messages which contained indicators of each OCL category. "We feel that the procedure is reliable, efficient and practical" (p. 11). The method described by Anderson et al. above was used for coding messages of the course which was studied for this dissertation. Each of the messages in the selected conferences was coded as indicating instances of any of the three phases described by the OCL theory.

Another strategy for addressing the large amount of messages in the conferences and coder fatigue was to employ five independent coders, only three of whom would be involved in coding a particular conference. This helped in distributing the workload. As well, training sessions were held to help the coders learn how to make their decisions. This increased their confidence and promoted more rapid coding.

The database which was created to support the work of the coders was designed specifically for analyzing computer conference discussions according to the OCL theory. Coders were provided access to the database via a unique username and password. Each message in the conference to be coded was entered individually into the database with separate fields for:

- Message number
- Author ID (real name replaced by a number)
- Conference Name
- Subject
- Date
- Message text
- Cder ID – from C1 to C5

Each coder could see only that a message had been coded, not how it had been coded. A secondary screen showed the message and three buttons corresponding to the three phases outlined in the theory. By highlighting a section of the text and clicking on one of the buttons that section of text was marked as having been the text which prompted the code. Up to three coding decisions per message were allowed. A message was accepted as demonstrating evidence of a phase if at least two of the three coders agreed. In doing this, the inter-coder reliability was between ninety and ninety-seven percent for the conferences which were analyzed.

3.18. Conference Usage Statistics

A significant source of data is the conferencing system itself. It provides statistics on the conference participation of the group members, such as the number of messages they have entered, read and not read. The conference message headers are also a source of information. An example is given below:

Date: Mon, 24 Jan 2005 (7:50)
Message: #1
Subject: Start of Course
Keywords:
Author: Marc Bélanger

This message header provides the date the participant enters the message, the number of the message, the subject, and the author. The author's name is constructed as an email link so participants can send an email to the author of the message.

3.19. Questionnaire on Information Technology

Another source of data was a survey of the technological expertise and environment of the participants in the course which was studied. A questionnaire consisting of fifty-eight questions was designed to elicit information about the state of the technology available to the participants, their perceived expertise in the use of common software applications, and their ability, if any, to create websites. Participants were asked if they were able to train others in computer-related applications. A copy of the information technology questionnaire with responses is provided in Appendix C.

3.20. Analyzing Perceptions of Learning

The primary instrument used to assess perceptions of learning was the Classroom Community Scale (CCS) developed by Alfred Rovai (2001, 2002a, 2002b). The CCS includes a learning subscale which Rovai describes as representing “the feelings of community members regarding the degree to which they shared educational goals and experienced educational benefits by interacting with other members of the course” (Rovai, 2004, p. 4).

The CCS questionnaire was applied twice during the course: just after the first module and after the online course was completed. This allowed for tracking to see if perceptions of learning had altered over the eight months the course was conducted. Appendix D provides the questions posed in Rovai’s Classroom Community Scale.

Two other research strategies were used to gauge the perception of learning amongst the participants. First, the group was asked to address the question in a final report they prepared. Secondly, the conference messages were searched for comments related to participant views on their learning experience.

3.21. Analyzing Perceptions of Community

One of the research questions which was posed focused on the perceptions the course participants had of collaboration and community. In considering the results of the SoliNet distance labour education conferences in 1996, Briton and Taylor (2001) concluded that there was a need for "an online learning experience that not only enhances individual learning opportunities, but also fosters the kind of collaboration and cooperation that contributes to the establishment of a global labour community” (p. 119).

The sense of community generated in the online course was investigated with the use of Rovai's CCS. While developing the instrument Rovai conducted a review of the related literature and concluded that the "characteristics of sense of community, regardless of setting, include feelings of connectedness, cohesion, spirit, trust and interdependence among members" (Rovai, 2002a, p. 201). His questionnaire was designed to search for these feelings and provide a score that can "vary from a maximum of 80 to a minimum of zero. Interpret higher CCS scores as a stronger sense of classroom community" (Rovai, 2002b, p. 2). The results could also be disaggregated to discover the views of the males or females in the course. In addition, because the questionnaire was applied twice during the duration of the course, the level of the sense of community could be tracked over time.

Another source of data for gauging the sense of community and collaboration in the group was the conference messages. They were searched for replies to messages and references made to other participants in order to discover the change in group cohesiveness over time. As well, the messages were searched for comments related to community and collaboration.

3.22. Credential as Motivator

In her comparison of courses conducted by the European Trade Union College, which is not accredited, and a university Master's course, Creanor (2002) found: "A major motivating factor is clearly the gaining of a qualification... " (p. 62).

Consequently, another question which guided the study was posed in order to explore how the provision of a credential was a significant motivator for the participants. This question was addressed by asking the participants to collaborate on the creation of

a document which outlined why they thought the provision of the International Computer Driver's License (ICDL) was important to them and their organizations. As well, conference comments were searched for comments by participants concerning the ICDL.

The course studied in the case study used the syllabus of the ICDL. The certificate is granted to people who pass examinations set and monitored by an examiner appointed by the ICDL credentializing agency. The ICDL started as the European Computer Driver's License.

> With over 5.5 million participants, the European Computer Driving License (ECDL) is the world's largest vendor-neutral end-user computer skills certification and is internationally recognized as the global benchmark in this area. ECDL is currently available in 140 countries and has been translated into 36 languages, making it the world's leading certification programme. (ECDL, 2006)

3.23. The Viability of Online Collaborative Learning in Unions

The final research question was aimed at exploring the key issues related to the effective participation in online collaborative learning of union staff in order to determine its viability. Viability is related to the technological, financial, and other capabilities needed for participation in online collaborative learning. This question was addressed by giving the participants the task of preparing a document in response to the question. After eight months of online activity they were the most experienced users of educational computer conferencing and online collaborative learning in the international labour movement. Their perceptions were substantially different than if they had been asked to respond to the question before their course experience. A conference was established for the participants to work in while they addressed the question. It lasted three weeks

and was aimed at producing a common document to be submitted to the educational officers of the International Confederation of Free Trade Unions (ICFTU). The officers were in the process of developing the educational policy of the new organization which would be formed by the merger of the ICFTU and the World Congress of Labour.

The following chapter reports on the findings and analysis which were based on the theoretical framework and methodology discussed in this chapter.

CHAPTER 4.

FINDINGS AND ANALYSIS

In order to study how effective online collaborative learning for unions in developing countries is managed, a case study was conducted of an online course which involved unionists from 24 countries in the developing world. The course was chosen for study because of preliminary indications that it was effective, with effectiveness being related to evidence of learning, course completion and participant satisfaction.

4.1. The Course Participants

Thirty-three participants from developing countries studied in an online labour education course which lasted eight months 2005. The group consisted of 18 males (54.5%) and 15 females (45.4%). None had participated in educational computer conferencing previously. All of them were nominated to attend the course by the central federation of labour unions in their country. (A federation is a collection of affiliated unions.) The federations were told that the course would be conducted via the Internet and consequently ensured that the people they nominated would have access to a computer and Internet communications.

4.2. Participant Use of Computer Technology

Most of the participants (24) had been using computers for more than five years before the course started. Seven had at least three year's experience. Two had used computers less than a year. Almost all reported a high level of comfort in using computers. Only two described themselves as at the beginner level; the rest reported their computer skills as either at the intermediate level (26 people) or the expert level (5). Thirty-two said they knew how to install computer software (with 20 saying they could do so easily). Perceived email usage skills were also high: 30 participants reported having intermediate or expert skills in using electronic mail.

Twenty-five of the participants had access to the Internet from a computer at their workplace dedicated to their exclusive use. The eight other participants involved in the course had access, but it was from a computer shared by co-workers who were not participating in the course. Many participants (17) had a computer at home, but only 10 had access to the Internet from their home computers. Speed of communication was limited to the capabilities of 56K baud modems and telephone lines for most participants (two had ADSL lines at home).

Most of the participants used computer communications extensively. Twenty-six participants reported using the Internet every day with another five reporting that they used it often. Email usage was quite high amongst the group members: 23 emailed messages every day; eight said they used email often; two used email occasionally. Two of the participants did not have a personal email address - they preferred to use the address of the organization. All of the participants except two used email for union business as well as personal correspondence.

During the course the participants communicated to the conferencing system mainly during working hours on weekdays. Table 2 shows the daily messaging for a sample conference. Messages were entered every day, although messaging decreased on the weekends.

Table 2. ***Daily Conference Message Entry: First Course Conference, January 24 to February 14, 2005***

Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
44	16	29	62	37	18	3

The time of day that messages were entered was consistent throughout the three weeks of the first conference with almost all the messages (92%) being entered during the core working hours of seven a.m. to seven p.m.

4.3. Completion Rates

Thirty participants completed the course; three participants (one male and two female) did not complete the course. This represents a completion rate of 91% and a drop out rate of 9.0%. Fifteen females, comprising 45.4% of the group, started the course. Thirteen females finished, resulting in a female completion rate of 87% and a drop-out rate of 13%. Two female participants did not complete the course: one for medical reasons (pregnancy) and one because she had already taken the ICDL course. Eighteen males, comprising 54.5% of the group, started the course. One dropped out due to a heavy workload resulting in a male completion rate of 94% and a drop out rate of 6%.

4.4. The Online Course

The course which was studied consisted of eight modules corresponding generally to the syllabus of the International Computer Driver's Licence plus one extra module on the creation of websites. The course was conducted from January 2005 to October 2005.

The subjects which were studied were:

1. The International Computer Driver's License.
2. General concepts of information technology.
3. Computer software.
4. Computer networks.
5. Information technology in society.
6. The Internet.
7. Email.
8. Websites.
9. Key issues related to the use of online collaborative learning by unions in developing countries.

As was described in the previous chapter on methodology, the activities of the participants were analyzed with the use of transcript analysis, questionnaires, documents and usage statistics. What follows is the analysis and findings of the case study organized according to the research questions which were posed to guide the study.

4.5. RQ #1: The Evidence and the Process of Online Learning

One of the questions which guided the research was: What is the empirical evidence of learning, and how does it take place, in online collaborative learning courses conducted for labour education?

The Online Collaborative Learning theory was used to analyze the activity in the nine main conferences of the online course which was studied. The analysis was conducted by searching for indicators of the three phases described in the theory: idea generating, idea organizing, and intellectual convergence. These phases describe the process by which a group of online learners work together to build knowledge. The key to building knowledge according to Scardamalia and Bereiter (1994) is to create an artifact, such as a document, which has a useful life outside of the learning experience. Consequently, in addition to analyzing the conference discourse to discover evidence of learning it was also analyzed to determine the effect of having, or not having, artefact creation as part of a conference's objectives. This involved analyzing the discourse of all the conferences in order to determine the techniques and strategies used by the participants as they built knowledge.

4.5.1. The Process of Learning in the Online Course

Learning is defined as "a change in the student's perception of reality related to the problem areas studied and increased competence in solving problems in a field, ability to differ between focal and more peripheral questions, analytical skills and competence in using the tools within a field in appropriate ways (Rekkedal, 2005, p. 5)". The emphasis here is on conceptual change where participants move from one state of

understanding to another. The vital element in comprehending this change is to study the process by which the change happens. This is what Taylor and Briton emphasized as the crucial question when they analyzed a series of educational conferences on SoliNet in the mid-1990s: "... in order to accurately interpret the educational outcomes of the various SoliNet courses we have conducted, we need to know much more about process (1999, p. 4)". The OCL theory is aimed at describing this process. It indicates that learners online move through three phases: from divergent thinking to idea organizing to intellectual convergence. It provides indicators to demonstrate how participants undergo conceptual change and the process by which this change happens.

4.5.2. The Course Conferences

The OCL theory was used to analyze the nine main conferences conducted during the case study. This involved coding conference messages in order to discover indicators of the three phases in the theory. Four types of conferences were conducted during the course: co-production of a document; active collaborative reading; general discussion; and technical workshop. Five of the conferences were organized to produce a common artefact which could be used outside of the course. These artefacts included documents and lists. All of the conferences had a duration of three weeks. Table 3 describes the conferences.

Table 3. Types of Conferences

Conference	Type	Common Artefact
1. ICDL	Co-production	Document
2. Concepts	Active collaborative reading	List of Qs and As
3. Software	Active collaborative reading	List of Qs and As
4. Networks	Active collaborative reading	List of Qs and As
5. IT in society	General Discussion	None
6. Internet	Technical workshop	None
7. Email	Technical workshop	None
8. Websites	Technical workshop	None
9. Issues	Co-production	Document

In all the conferences the participants were asked to read resource material concerning the subject matter before entering messages into the conference. This is a crucial element in the process of conceptual change because the participants must be informed by information or knowledge provided by the instructor in order to move from their initial conceptual positions to altered ones at the end of the course. In collaborative learning courses this information or knowledge is augmented by the other participants in the course.

In total, 1,579 messages, entered over an eight–month period, were analyzed using the OCL theory. What follows is a detailed look at the conferences, starting with an analysis of the two conferences which had document production as their objectives.

4.5.3. The Document–Producing Conferences

Two of the nine conferences conducted during the course were organized as conferences in which the participants collaboratively produced a document: the first

conference of the course (on the ICDL) and the last (on the key issues concerning the use of OCL by union staff). The first document was presented to the ICDL credentializing agency. The second was given to the educators of the international labour federation, the ICFTU. This emphasis on document production reflects the need for labour education to produce results which can be useful in the workplace. This is in keeping with the knowledge-building principle that learners should produce artefacts which will have a useful life outside the course (Scardamalia & Bereiter, 1994, 2003). Also, the OCL theory predicts that more instances of intellectual convergence will occur in an OCL group if a common task such as document production is set (Harasim, 2002, 2003, 2004b).

4.5.4. The first Document-Producing Conference: The ICDL

The first course conference of the course, which concentrated on the International Computer Driver's License (ICDL), was structured to encourage the production of a common document. An analysis by three independent coders of the messages generated during the conference showed that there were indicators in the discourse of all three phases described in the OCL theory.

Of the total 306 messages in the conference, 20 (6.5%) were posted by me as the instructor and not categorized as indicating any of the phases. This was done in order to concentrate on participant messages. Excluding my messages from the coding left 286 participant-generated messages to be analyzed. Of these, twenty-three messages were coded as *other* – as not showing any indicators of the phases. Some of these were coded as such because the coders could not agree on how to classify them.

Most, however, were social entries relating to subjects such as weather, personal comments concerning other participants, and closing comments such as “we’ve done a great job!” Social comments made up five per cent of the total messages in the conference.

Figure 3 shows the percentage of messages which included OCL indicators. Table 4 presents the distribution in numeric form.

Figure 3. Percentage of Messages with OCL Indicators in Conference 1: The ICDL

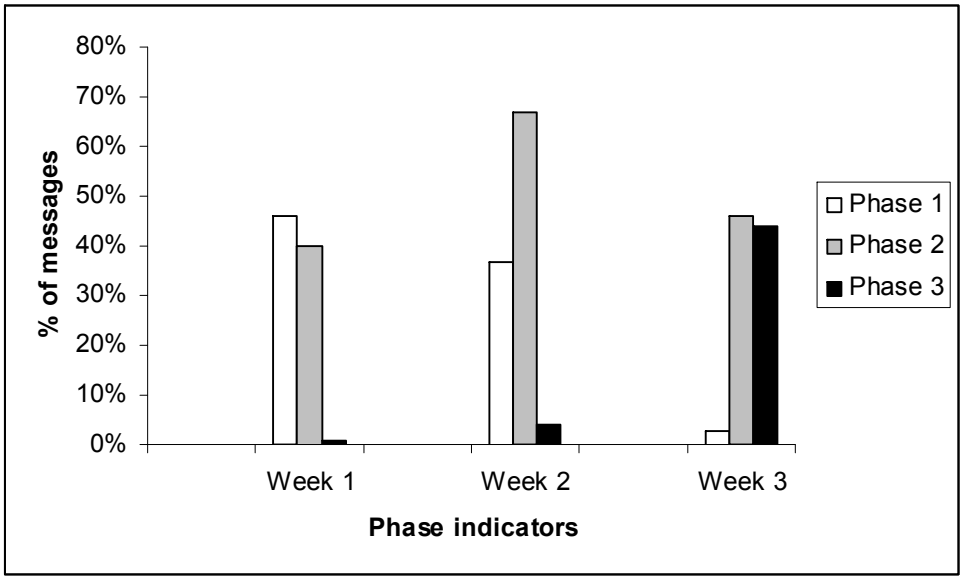


Table 4. Percentage Distribution of OCL Indicators in Conference 1: The ICDL

Week	Messages	Messages with Phase 1 indicators	Messages with Phase 2 indicators	Messages with Phase 3 indicators
Week 1	65 messages	46%	40%	1%
Week 2	97 messages	37%	67%	4%
Week 3	101 messages	3%	46%	44%

The process in the discourse of the first conference generally followed the pattern described in the OCL theory: movement from Phase 1 (mainly divergent, information-providing activity), to Phase 2 (participants beginning to organize themselves and link ideas), to Phase 3 (with a much larger percentage of messages indicating convergent thinking). Messages with indicators of intellectual convergence increased from 1% in the first week to 44% in the third.

What follows is an analysis of the three-stage process of conceptual change undergone by the participants in the first conference of the course (the ICDL conference).

4.5.4.1. ICDL Conference, Phase 1: Idea Generating

During the first week of the ICDL conference the participants discussed whether or not they wanted to organize the activity as a general course on the use of information technology or as a preparatory course for the International Computer Driver's License examinations. Their discussion on this topic demonstrated indicators of OCL Phase 1 activity:

- Participants engaged and participating.
- Divergent thinking.
- Information being provided.
- Input being given.
- New ideas being generated.
- Individual points of view being presented leading to multiple perspectives.
- Democratic participation.
- Use of "I", "my".

The following is an analysis of the conference using the indicators listed above.

4.5.4.1.1. Participants Are Engaged and Contribute

All the participants were engaged by reading the messages. Four did not enter messages; two of these participants sent emails to me indicating that they could not participate as fully as they would have wanted because of their workload at the time.

In total, the 33 participants active in the conference and I entered 306 messages. The individual rate of message entry by participants ranged from zero to 33. Of the three participants who entered the most messages, one was the discussion leader (33 messages). The person with the next highest amount of entered messages (15) was the person assigned to be the discussion reporter.

4.5.4.1.2. Divergent Thinking

At the beginning of the discussion the primary area of divergent thinking focused on whether or not the group should be involved with the International Computer Driver's License program. The ICDL was unknown to most of the participants and there were some who questioned what it was: "When I first came across the term International Computer Drivers' License, I wondered what it was all about. It left a lot of questions on my mind". Some were sceptical because they had had experience with an ICDL program previously: "I'm not sure what to think about the ICDL course. It used to be offered here in Bermuda at the Bermuda College, but was somehow phased out and replaced by other Computer Information Technology (CIT) courses". Some participants questioned the value of the credential, wondering if it was recognized widely: "Out of interest, had anyone heard of these qualifications before? Although (the instructor) says that they are recognized I had not heard of them in Trinidad and Tobago and so I don't know how widespread their acceptance is". Most participants however endorsed the idea

of conducting the course as a preparation for the ICDL examinations. A typical comment was: “The idea of the ICDL is novel and being pioneers of the programme is the challenge to strive to improve existing and new capacities. I wholeheartedly endorse and subscribe to have the course converted to it”.

4.5.4.1.3. Providing Information

While the participants were discussing the worth and acceptability of the ICDL some voluntarily sought out information concerning the License in order to help the group in its decision-making process. For example, one participant entered a comment saying: “I have made some research and found out that there are at least three computer training centres in Mauritius providing ICDL...this means that trade union cadres and workers at the shop floor level might be able to take their exams here. There is also an African Section of the ICDL too”. Another found information and asked the group for confirmation that information-providing was what it wanted as it deliberated: “I saw this article today whilst surfing around on the net and thought it might be of benefit to us here. Please let me know your feedback and if I am on the right track on getting some information”. Others pointed to resources on the World Wide Web: “It seems the organisation that deals with most of the Caribbean is the Jamaica Computer Society Education Foundation. You can find their website at: www.jcsef.org”.

4.5.4.1.4. Providing Input

Participants entered arguments which could be used in helping the group come to a decision. Most of these comments were in support of working towards the computer license. A number said that having the course operated as part of a credentialized

program was important for having the course acknowledged by their organizations: “My organisation welcomes the move to the course being an ICDL course and the opportunity to have one of its members receive such a license with regards to technology”. Others argued that it would make them more useful to their organizations: “For me, I need such a licence in order to approve having this course and to be useful for the trade union movement”. A few participants argued that an online course on the ICDL would encourage unionists to share information via the Internet: “There is a need to develop an intranet in the trade union movement with a view to helping in sharing vital information such as collective bargaining agreements and other communications”. It was also pointed out that by training people in the use of information technology unions could be better prepared to confront employers: “Management in developing countries are quick to intimidate unions and union officials with ‘excess’ information, data and statistics to more often than not confuse unionists leaving them defeated often. The ability to articulate their positions using facts and figures provide balance of power, yield results, and elicit respect from the management(s)”. This argument was linked by a number of participants to the training of staff. One participant wrote: “With the growing age of technology I think all unions should have staff that are computer literate and be able to operate the computer as well as to access the Internet”. This view was supported by another participant: “It is imperative that for trade union activities to be more successful in the world of technology, staff in developing countries must be trained with such a course”. Many supported the argument that there was a need to train staff in order to better represent the union’s members. For example: “... we in the trade union movement need to get acquainted very fast with IT for purposes of efficiency when discharging our duties to the workers”.

4.5.4.1.5. New Ideas Are Generated

The discussion leader (who was one of the participants) started by asking the group for new ideas which could be included in the document it had been asked to prepare: “Can everybody please put in ideas as to why unions in developing countries need such a course like ICDL”. Participants began to submit their ideas, respond to the flow of ideas being generated, and support those who were entering comments. One participant wrote: “The volume of material folks are churning out is amazing. We surely have a lot to say and to learn ....” Another wrote: “More people are signing on and asking the right questions and making important and salient points”. Participants began to acknowledge others by name and support their ideas: “Asnath’s additional comments on the ICDL project and OpenSource are very relevant and we need to make sure that in some form they are included in our initial application that we are now about to develop”.

4.5.4.1.6. Individual Points of View Presented Leading to Multiple Perspectives

In entering comments with new ideas the participants began considering the views of others and building a collection of different viewpoints. A typical comment was. “I have so far looked at contributions done by some members of the group and they have all presented good cases....Below is my contribution to the debate”. So many new ideas were being presented that a number of the participants began feeling overwhelmed. One participant wrote: “...I suggest the pace should be dictated in earnest and taken gradually. This is more so because one finds him/her self having to read and assimilate so many documents from this programme and other sites”. Many of the comments which provided viewpoints were accompanied with statements that the views were provisional and entered as part of the ongoing brainstorming. One participant, for

example, finished a long message which included a number of new ideas with the comment: “My ideas are not final”, indicating that he was ready to modify his views towards the group’s.

4.5.4.1.7. Democratic Participation

Once I set the primary task (the preparation of a document) the group democratically chose its discussion leader/reporters, decided on the pace of message entry (two per week), devised a schedule, discussed the ideas to be included in the document, commented on a draft, and then agreed to the final product. I, as the course instructor, intervened in the main conference only to help with technical problems. My participation was limited to a parallel conference established as a forum for the discussion leader and reporter. In this way the group took control of the process.

Participants contributed to the feeling of democratic involvement by providing approval for decisions being made by the group. Typical comments included: “I am very glad hearing that you are all supporting this step. As you all said it is a great idea and improvement and it is a challenge”. Others encouraged participants to join in the growing consensus to work with the ICDL curriculum: “Come on guys, hop on board!!!!!”

4.5.4.2. ICDL Conference, Phase 2: Idea Organizing

In Phase 2 the participants began to organize themselves and their ideas. They chose discussion leaders, devised a schedule, started linking ideas, and began the co-production of the document. The emphasis given here on the participants organizing themselves to produce the work is not highlighted in Harasim’s formulations of the

theory. However, it can be seen as variant of idea linking and a possible enhancement of the theory.

Indicators of Phase 2 activity include:

- Role organizing (such as choosing group leaders).
- Organizing the process of the discussion.
- Linking ideas.
- Agreement and disagreement.
- Increase in referencing (mentioning others by name).

4.5.4.2.1. Role Organizing

The first task, set by me as the instructor, was for the group to choose a discussion leader and a reporter. This emphasized the democratic nature of the course and reinforced the feeling that the group was responsible for the work to be accomplished. Some people volunteered to take on the roles: “I don’t know if you allow me to volunteer to be the reporter of this first task. I will be very glad if you agree. If you see yourself much better in implementing this task, do not hesitate to say and you will be the reporter”. In reaction to the volunteers some people nominated other participants: “We have volunteers for reporters – I support Mostefa and Robert. I propose Asnath to be a discussion leader... he is a good facilitator”. Others continued to nominate people for positions even after the choices were finalized as a way of objecting to the choices: “Well, I would have suggested that Jim be the first to lead a group discussion since I am convinced he has the depth and impetus to initiate a start-up process....However this is not to take away the shine and spirit of Namava’s volunteerism”. Finally, some participants helped close the decision-making process with comments such as: “Let’s

stick with Mostefa and Namava (as reporter/ discussion leader) and get this first session going. We have plenty to do later and so we will be needing more volunteers".

4.5.4.2.2. Organizing the Process

The participants took control of the process by which they discussed their ideas and produced a document draft and final version. They did this in a number of ways. One method was to suggest ways of moving ahead: "Great to know the ICDL programme is taking shape and that administration/coordination works great with Namava providing the leadership and Mostefa, the reporting". Others were concerned about the pace that would be adopted in the course: "I hope the right pace will be set in order for all participants to succeed". This generated responses such as: "I think the pace of the course so far is excellent and adequate. It takes cognisance of developing countries peculiarities in terms of access to computers, electricity supply, Internet service provider(s) (in)efficiency), work schedules., etc." Some began to encourage the group to work towards a schedule: "There is a question and we need an answer... be sure and very sure that we need a comment before Friday". This was supported by others who reiterated the task set for the conference: "We need to start working on developing our application to the ICDL. If you remember, from (the instructor's) early messages, what we need to do is put together a two-or three page document, describing the IT situation in your unions and providing reasons why the labour movement needs the ICDL credential for its people". Some people began suggesting that the brainstorming part of the discussion be terminated and that the group should move to the production of the common document: "It seems that Mostefa needs to start looking at the similarities of the contributions to condense it down to 2 or 3 pages". Another

participant suggested: “Mostefa, the notes from colleagues are swelling, hope you’re noting them. I suggest you look through all these suggestions and adjust the draft to reflect/accommodate points that speak to the assignment”. Finally, the participants began to encourage the group to move on: “I am just wondering when we are going to get started because we have seven modules to work on – Rose”.

4.5.4.2.3. Idea Linking

The key activity of Phase 2 is that participants begin identifying associations between ideas. Ideas become clarified and grouped into various categories.

Instances of idea linking increased significantly at the start of the second week after the discussion leaders had been chosen and the participants took control of the course. Participants began commenting on each other’s messages: “I think Jim raised a legitimate concern about the popularity and acceptability of the certification”. Others pointed specifically to messages which had been entered: “Look at Asnath’s contribution in Message #113 – Ideas for our ICDL application letter”. A few participants asked others to clarify their ideas: “Hi Asnath. sorry to say that I am not getting your point”. Others began re-wording the arguments of other participants as a way of approving the views that were put forward. “I think what Peter is saying is that ....” Some ideas were picked up and expanded upon: “I was interested in the comment that employers give unions ‘excess’ information in order to confuse them....” Others pointed to comments which had been entered and disagreed: “Samuel observes that...but my question is ....” A number of participants began responding to questions which had been posed: “This is just a small contribution that can be used for our application letter. I hope it will address some of Namava’s questions!”

4.5.4.2.4. Examples of Agreement / Disagreement

An indicator that people are engaged in the group discourse process is when they begin to explicitly agree and disagree with each other. Engagement increased in the course as the participants moved from Phase 1 to Phase 2. One participant, for example, objected to a comment entered by another person saying: “Jim, you seem so critical, why don’t you suggest any other alternative course that could suit the world of work?” The response was: “Hi Namava. I don’t know why you think I was being critical. I am very supportive of the idea. Here’s why....” When a participant entered a comment which seemed to be off topic another responded with a message objecting: “In Message 129 Jacobus wrote on – Democracy, Unilateralism and International Solidarity – but I think he is trying to drag us into deep dangerous waters by introducing another question/ discussion. I think the question/discussion that Jacobus is posing is illegal and redundant. Please, Jacobus don’t hit me!” A long discussion was initiated when one of the participants objected to the use of a term in the draft document:

> I found the (draft) paper to be interesting and a good start....However I have a few observations to make. On para one I do not agree with the term colonization....(Adom)
>
> ’colonization’ sound like a bowel complaint! I think this should be colonialisation! (Jim)
>
> I think Jim’s proposal to replace the “electronic colonization” by “electronic colonialisation is a sound one. (Candice)
>
> I join some colleagues to submit that the term ELECTRONIC COLONISATION may not be well perceive....(Joseph)
>
> Unlike Adom. I don’t have a problem with the phrase ‘electronic colonialisation. (Khoload)
>
> Personally I think it is important that we keep this in. We are a group of trade unionists (that means we have strong views about things) from developing countries (which means we know about the struggle in our

> recent past for independence, our economies, and therefore the ability to run our countries, still remains outside our control). The situation with ICT [Information Communication Technologies] is not different. It is, by and large, owned by big business and the parallels with neo-colonialism are very strong. We should not be frightened of putting in an application to the ICDL that reflects who we are and where we are coming from. (Robert)
>
> I agree the word 'colonialization' should be adopted. (Asnath)

Activity in the Phase 2 part of the conference showed the participants organizing themselves and their ideas. They laid the ground work for the next phase: the coming together of their ideas and viewpoints.

4.5.4.3. ICDL Conference, Phase 3: Intellectual Convergence

Phase 3 of the process described by the OCL theory involves intellectual convergence. Participants develop shared understanding. New knowledge is co-constructed. The outcomes of discussions are consolidated. Convergence is especially apparent in the co-production of a theory, document, publication, a work of art or similar output by a group or sub-group. Convergence could include the creation of action plans (a task often undertaken by unions).

There was a significant increase in the percentage of messages indicating intellectual convergence through the first conference of the course: week one – 1%; week two – 4%; week three – 44%.

Indicators of intellectual convergence include:

- Development towards shared understanding.
- An increase in substantive comments.
- Working towards closure.
- Use of "we", "our".

4.5.4.3.1. Development Towards Shared Understanding

As the participants discussed the topics to be included in the document they began to share viewpoints and ways of articulating subjects. Some participants began picking up threads in the discussion: “A common theme seems to be that trade unions are gradually getting computers and using them and that ICT is a steadily growing phenomena in all our countries”. Others indicated approval of ideas or viewpoints found in the messages of other participants: “I am in full support of what Samuel is saying”. A few acknowledged that others were articulating their views. For example, one participant wrote: “That’s just what I was talking about Jim, but I just didn’t know how to get it across into words ... you hit the nail on the head”. Another wrote: “I believe Asnath has effectively captured the requirements for the application for an ICDL certification for our course”. This viewpoint was supported by another person in the course: “What we need is mostly formalized by Asnath, as if she is in our mind”. Some participants contributed to the building of ideas presented by others: “I just wanted to add this because, like Mary, I share the views expressed by everyone so far”. Others indicated approval of views or ideas which were presented. For example, one participant wrote: “This was great! I like the pointers about ICDL”. Another entered a comment saying: “Very good suggestion. It should be adopted”.

4.5.4.3.2. Increase in Substantive Comments

Longer and more substantive comments were entered by participants as the group moved towards convergence. Before this phase almost all messages were under 15 lines. But as convergence began to take place more messages of longer length were entered. More significantly, there was an increase in the number of substantive

contributions. Participants did not simply enter their own ideas or viewpoints and wait for the conference discussion leader or reporter to pull together a document. They began comparing, extending, synthesizing and structuring the ideas put forward by the group. After a number of long messages (50 lines or more) were entered into the conference, participants began to show approval or disapproval concerning particular ideas which had been put forward. For example, in response to a long comment one participant wrote: “The comment by Candice was very important. But we need to show [the ICDL credentializing officials] not only why getting certification is important for union activists in developing countries, but why using open source software is also important. Can comrades think of some advantages of open source compared to commercial software?” Other participants responded with arguments supporting the use of open source software, for example: “On the issue of property rights: this makes technology difficult to transfer and software expensive which impedes and often times stagnates the development strides of developing countries. Open source hardware design and software could produce a practice of ‘positive affirmative action’ intended to put people of developing countries on the technology super highway”. Another participant articulated the argument that the group would be one of the first to study at the global level for the ICDL using open source software (also referred to as “free” software”): “This will be the first group at the global level using solely Free Software...for a course which will lead to the ICDL. The use of free software is crucial in our present initiative. Proprietary software is becoming more and more expensive... It is becoming quasi impossible for people, let alone working people like us in developing countries, to afford the exorbitant prices of software. Furthermore the free software movement promotes

the philosophy of freedom which is more compatible to the ethics defended by the labour movement".

The increased length of the comments and their substance led to suggestions that if the group were to meet the deadline for producing the document it needed to start structuring it. For example, one participant wrote: "I think that, as a team, we should agree that a blend of the contributions from Jim, Candice and especially Asnath would adequately produce the material for Mostefa to draft a report". This provoked a response from another participant: "Yes! We will all then scrutinise this draft, make suggestions and inputs and move on quickly. I think this suggestion will save us plenty of time".

4.5.4.3.3. Working Towards Closure

As the participants neared the end of the conference some began suggesting that the discussion be wrapped up and a draft produced. This may have been a way of arguing that the group was nearing consensus. A participant entered a message saying: "If Namava and Mostefa agree then we could call for a halt to contributions until there is a draft for comment". Others agreed: "I agree with Samuel that the best way to move forward is for our reporter to take the inputs and prepare a draft that we can then comment on". Once the draft was produced a discussion concerning it was started. After a number of comments on the draft, participants began to suggest that the process be brought to a close by entering comments such as: "I think we are getting very close to finalizing this..." and "at this stage any additions are going to be small I would think". One participant wrote: "the comments are all very interesting. This is our last few days to enter them so it might be helpful if we do not add new information in order to move on with the final document". Once the final document was produced there were some

comments on formatting, style and spelling, but most of the comments indicated that the process should be declared over and successful. A typical comment was one directed at the reporter: “Frankly I am very impressed with the ability to pull all the varying comments and suggestions into the document and making sure that you captured everyone”. The reporter responded with a comment saying: “I think we’ve all done brilliantly well so far. The task of the assessment and hopefully, consent lies now with the ICDL certification administrators. Thanks for all your comments....I do believe that we are a great team and group.”

4.5.4.4. The Discourse Process in the First Conference

The first conference of the course – the conference on the ICDL – was designed to produce a knowledge-building artefact and encourage intellectual convergence. The group was asked to organize itself to produce a common document. Analysis of the discourse showed that participants moved from a stage in which they entered disparate, unconnected comments, to a period of idea linking and organizing. Then they moved to a third stage where they began to cluster their ideas and views into commonly agreed categories and pushed for closure. This pattern was echoed in the other conference of the course which was designed for document production: the conference on key issues.

4.5.5. The Second Document Producing Conference: The Key Issues

The last conference of the course was designed to have the participants prepare a document on the key issues involved in the use of OCL by union staff in developing countries. By this point in the course – after seven months of online collaborative

learning – the participants were amongst the most experienced practitioners of OCL in the labour movement, certainly within developing countries. The document the participants produced was used to guide ICFTU educators as they wrote a policy paper on labour education. The discussion the participants had in creating the document, and the document itself, were studied in the process of addressing one of the questions which guided the research project.

As with the first conference that was organized as document producing, the discourse pattern in the last conference generally followed the phases described by the OCL theory. The discourse moved from divergent thinking to idea organizing to intellectual convergence. Figure 4 graphically presents the percentage of conference messages with OCL phase indicators. Table 5 provides the numeric data. In both instances the messages entered by me as the instructor, or those that were not coded because they were either social messages or not agreed upon by the coders, are not included. In total there were 113 messages. Seventy-one were coded as indicating phases of the OCL theory. Three messages were not coded. Thirty-nine messages (34.5%) were coded as social messages that included comments such as “We’ve done a great job!” or “I am going miss you all!!” The coder agreement rate was 94.32%.

Figure 4. ***Percentage of Messages with OCL Indicators in Conference 9: Key Issues***

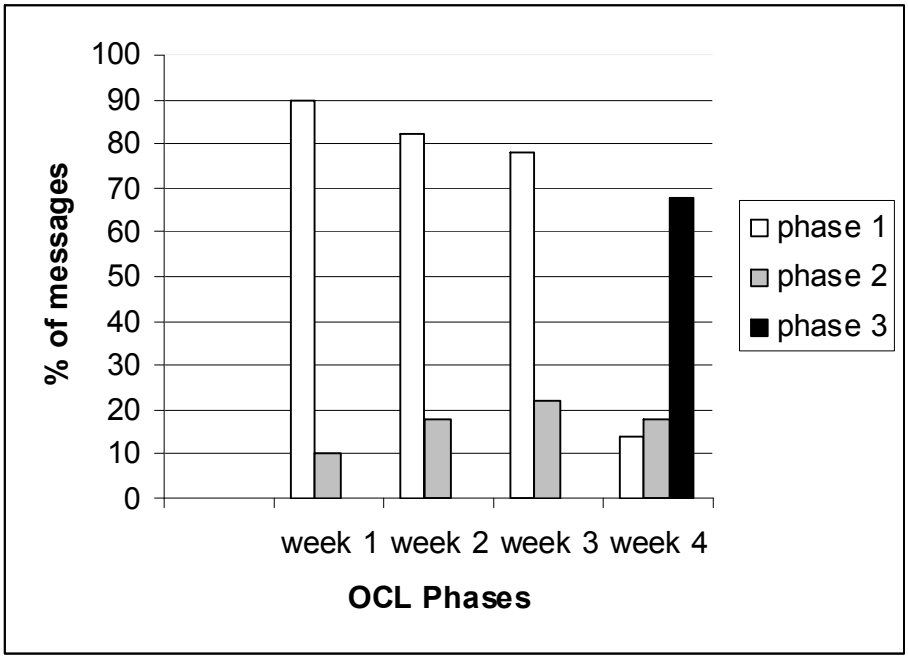


Table 5. ***Percentage Distribution of OCL Indicators Conference 9: Key Issues***

Week	Messages	Messages with Phase 1 indicators	Messages with Phase 2 indicators	Messages with Phase 3 indicators
Week 1	20 messages	90.00%	10.00%	0.00%
Week 2	11 messages	81.81%	18.00%	0.00%
Week 3	18 messages	77.70%	22.22%	0.00%
Week 4	22 messages	13.63%	18.18%	68.18%

The second document-producing conference had a number of significant characteristics. First, the number of social messages was much higher than in the first document-producing conference (34.5% as compared to 5%). This is understandable

given that the second-document producing conference was the last in the course and the participants wanted to say good-bye to their fellow participants. Social messages in the first conference were minimal because an introductory session had been held before it started. The social factor also influenced the number of messages which could be considered for OCL analysis. A number of participants entered messages which were purely social without addressing the topic under discussion. Another significant factor is the speed at which the discourse moved from idea linking to intellectual convergence. The first document-producing conference had a significant number of Phase 2 messages. In the second document-producing conference there were fewer Phase 2 messages than Phase 1 messages. Intellectual convergence messages dominated the last week of the second document-producing conference. This pattern developed because the course reporter produced a draft document using the Phase 1 messages entered during the first three weeks of the conference.

4.5.6. Active Collaborative Reading Conferences

The second type of conference conceptualized and conducted for the course is called active collaborative reading (ACR). In these types of conferences participants are asked to read the course material, prepare a question and answer to be proposed for inclusion in a common list and then debate the makeup of that list. The participants are not allowed to enter a question and answer which another participant has already entered. The number of questions and answers allowed into the final list is less than the number of participants in order to encourage debate about the inclusion or exclusion of particular questions. An ACR conference is most appropriate for technical subjects

which do not normally encourage much debate, such as the design of a computer hard disk. Because they are technically oriented they involve more message entry by the instructor. The topics for the three ACR conferences were: computer concepts, software, and networks.

The active collaborative reading task set for the second conference of the course, which discussed computer concepts, was: What are the 15 most important questions concerning basic computer operations for unionists in developing countries? The conference, which was conducted for three weeks, had 196 messages. Excluding the 11 messages entered by me as the instructor left 185 messages to be coded for indicators of the three phases. Table 6 shows the distribution of the indicators assigned to messages entered by the participants. The coder agreement rate for this conference was 94.3%.

Table 6 shows there was very little movement towards intellectual convergence. The predominate indicator in the conference was Phase 1 (158 messages) which represented 85.4% of the messages. Phase 2 messages constituted 7.6% of the total. There were no messages with Phase 3 indicators.

Table 6. Distribution of OCL Indicators in Conference 2: Concepts

Messages with Phase 1 indicators:	158 – 85.4%
Messages with Phase 2 indicators:	15 – 8.1%
Messages with Phase 3 indicators:	0 – 0.0%
Messages not agreed upon or other:	12 – 6.4%

The conference was designed to produce a knowledge-building artefact – the list of questions and answers. The artefact was produced because almost all of the

participants made their contributions and the reporter compiled a suggested list of 15 questions and answers from the more than 30 which were proposed. The result was a high percentage of messages indicating Phase 1 (idea generating) messages. However, the debate on the makeup of the list did not occur–the group accepted the list as compiled by the reporter. The result was that there were few linking or convergence messages.

The pattern was repeated in the two other conferences which were organized for active collaborative reading. The participants contributed to the list of questions and answers which was called for, but accepted the reporters draft compilation without debate. Tables 7 and 8 show the conference messages with their related OCL indicators. The conference on software had 79 participant messages and a coder agreement rate of 97.4%. The conference on networks had 82 messages. The coder agreement for it was 96.6%.

Table 7. Distribution of OCL Indicators in Conference 3: Software

Messages with Phase 1 indicators:	65 – 82.2%
Messages with Phase 2 indicators:	11 – 13.9%
Messages with Phase 3 indicators:	0 – 0.0%
Messages not agreed upon or other:	3 – 3.7%

Table 8. Distribution of OCL Indicators in Conference 4: Networks

Messages with Phase 1 indicators:	68 – 82.9%
Messages with Phase 2 indicators:	12 – 14.6%
Messages with Phase 3 indicators:	0 – 0.0%
Messages not agreed upon or other:	2 – 2.4%

An active collaborative reading conference is designed to produce an artefact which has been produced by collaborative knowledge-building following debate by course participants. The artefacts proposed as tasks in the course – the lists – were produced, but with little debate. Still, even without the expected debate, the active reading exercises and the contributions of questions and answers for the list maintained the collaborative atmosphere of the course. The engagement level of the participants in the conferences was high. The participants proposed questions and answers. Many participants, who had been asked to add one question and answer, contributed more. Participants then read the messages which were entered by others. The collaborative nature of the course was maintained despite the technical nature of the conferences' subject matters.

4.5.7. Analysis of the General Discussion Conference

The fifth conference of the course was organized as a general discussion of the use of information technology in the participants' countries. No task of creating a common artefact was set. The participants were simply asked to discuss the issue of the use of information technology after reading the course resource material. Forty-eight messages were entered into the conference, five by me, leaving 43 participant messages to be analyzed. The coder agreement rate was 96.8%. Table 9 presents the findings of an analysis of the discourse in the conference.

Table 9. Distribution of OCL Indicators in Conference 5: IT Usage

Messages with Phase 1 indicators:	38 – 88.3%
Messages with Phase 2 indicators:	3 – 6.9%
Messages with Phase 3 indicators:	0 – 0.0%
Messages not agreed upon or other:	2 – 4.6%

Twenty-eight participants entered a single message. Three entered two messages. One participant entered 3 messages. The conference had the lowest number of entered messages and the lowest percentage of linked messages. It had no Phase 3 messages.

Because there was no common task set the participants did not engage in a discussion focused on a task. The result was that most of them entered one message which was unrelated to the comments made by their fellow participants. Consequently there were few linking comments and no comments indicating intellectual convergence. This finding provides further evidence that participants must be given a common task to work on if idea organizing and intellectual convergence is to be encouraged

4.5.8. Analysis of the Technical Workshop Conferences

Three of the nine conferences in the course were technical workshops. The subjects included email, the Internet and the creation of websites. The significant factors concerning these workshops were: a higher percentage of messages entered by me as the instructor, and the lack of Phase 2 (idea organizing) and Phase 3 (convergence) messages. The focus in all three workshops was on training for individual use of the computer programs being studied. The technical workshop on the use of the Internet

was focused on the use of an open source web browser (Firefox) and search engines. The total number of messages entered into the conference was 246. The coder agreement rate was 97.1%. Table 10 shows the distribution of messages with related OCL indicators.

Table 10. Percentage Distribution of OCL Indicators in Conference 6: Internet

Messages with Phase 1 indicators:	147 – 59.7%
Messages with Phase 2 indicators:	0 – 0.0%
Messages with Phase 3 indicators:	0 – 0.0%
Instructor messages:	82 – 33.3%
Not agreed upon or neutral:	17 – 6.9%

Another technical workshop which was conducted concentrated on the use of an open source email program (Thunderbird). This session was reported by some participants to be difficult for two reasons. First, establishing some of the technical settings for sending and receiving email was not well understood. Secondly, some of the participants were working on computers which were behind network firewalls which restricted email traffic. Twenty-one participants were able to successfully send an email message using Thunderbird. The total number of messages in the conference was 279. The coder agreement rate was 95.8%. Table 11 shows the distribution of messages in the conference on email.

Table 11. Distribution of OCL Indicators in Conference 7: Email

Messages with Phase 1 indicators:	183 – 65.5%
Messages with Phase 2 indicators:	0 – 0.0%
Messages with Phase 3 indicators:	0 – 0.0%
Instructor messages:	79 – 28.3%
Not agreed upon or neutral:	17 – 6.0%

The third technical workshop – on the creation of websites – involved the use of an easy-to-use HTML (hypertext markup language) editor for creating web pages and a file transfer program for uploading the pages to a World Wide Web server. Two hundred and thirty messages were entered into the conference. I entered 71 (30.8%) messages. The coder agreement rate was 89.2%. Table 12 shows the distribution of the messages using the OCL theory.

Table 12. Distribution of OCL Indicators in Conference 8: Websites

Messages with Phase 1 indicators:	134 – 58.2%
Messages with Phase 2 indicators:	0 – 0.0%
Messages with Phase 3 indicators:	0 – 0.0%
Instructor messages:	71 – 30.8%
Not agreed upon or neutral:	25 – 10.8%

Many participants reported having difficulty with the subject matter of this conference. Thirteen entered few messages, or none at all, after the start of the conference. Only 11 participants (35% of the participants active in the conference) were able to create and install websites. This low rate of participation and success may be due to two factors: first, website creation is not part of the ICDL syllabus and some

participants may have decided not to participate for this reason; second, the resource material provided for this part of the course may have been inadequate. Although publicly-accessible websites were created by 11 of the participants, these websites cannot be considered collaborative knowledge-building artefacts as defined by Scardamalia and Bereiter because they were individual projects not the results of collaborative work.

4.5.9. OCL Phase Indictors and the Creation of Knowledge Artefacts

An analysis using the OCL theory was conducted of all 9-course conferences to determine the effect of the existence of an artefact which would be useful outside the course. As Table 13 shows, the setting of a task to produce a useful artefact significantly influenced the number and distribution of indicators. Conferences in which an artefact-producing task was set included more indicators of idea organizing and intellectual convergence. Moreover, the *type* of task was significant. A task set to promote the creation of a common document promoted convergence. A task set to promote active collaborative reading (the creation of a common list of questions and answers) did not. Table 13 shows the number and distribution of the OCL indicators found in the messages of all nine of the conferences of the course. All the conferences, except the last, had a duration of three weeks. The final conference (Issues) lasted four weeks. (It should be remembered that it was possible to code a message with more than one indicator.)

Table 13. Percentage of OCL Indictors in Conferences

Conference	Type	Artefact	Idea generating indicators	Idea organizing indicators	Intellectual convergence indicators
ICDL	Co-production	Document	27.27%	53.75%	18.97%
Concepts	Active collaborative reading	List	85.40%	8.17%	0.00%
Software	Active collaborative reading	List	82.20%	13.90%	0.00%
Networks	Active collaborative reading	List	82.90%	14.60%	0.00%
IT in society	General Discussion	None	88.30%	6.90%	0.00%
Internet	Technical workshop	None	59.70%	0.00%	0.00%
Email	Technical workshop	None	65.50%	0.00%	0.00%
Websites	Technical workshop	None	58.20%	0.00%	0.00%
Issues	Co-production	Document	61.97%	15.49%	22.53%

As Scardamalia and Bereiter (1994) have argued, the existence of an artefact which has a useful life outside of the educational experience is a significant motivator for participants. The work conducted for this dissertation shows that the type of artefact, specifically co/production, significantly effects the discourse of the experience by promoting more or less activity aimed at idea organizing and intellectual convergence. In response to this finding more work was performed to discover how participants build knowledge artefacts.

4.5.10. The Knowledge Artefact Building Process

Scardamalia and Bereiter relate knowledge-building to “the creation and improvement of ideas that have a life out in the world where they are subject to social processes of evaluation, revision, and application” (2003, p.1). The ideas may be presented in artefacts such as documents, action plans, policy statements and other

media such as video. The primary characteristic of a knowledge-building environment is that “it can support idea development in both education and workplace situations”. The term may be used in educational environments synonymously with activity-based learning modalities, but according to Scardamalia and Bereiter “knowledge building carries a meaning closer to its meaning in business and professional contexts”. In other words knowledge-building can be considered as creating knowledge artefacts in the workplace.

Artefacts produced in online labour education courses provide a link between the course and the workplace. Their production in online collaborative learning courses can help provide the linkage between online labour education and the workplace that Sawchuk et al. (2002) called for. The key is that the artefact creation must be a real task, not merely an exercise which lives within the boundaries of the course.

A primary characteristic of an artefact is that it be useful outside the learning environment and be perceived as such by the participants. This was the case in the course conferences which had the creation of an artefact as an objective. During these conferences there were many references to the organizations which would be given the documents that were being produced: the ICDL credentializing agency and the ICFTU committee of labour educators. The participants were quite clearly motivated by the idea that their work would have a useful life outside the course.

The fact that a document was being produced provided structure and boundaries to the discourse. Participants mentioned in their comments that the document could be only two or three pages and so there were negotiations between them on what arguments could be included or not because of space restrictions. The production of the artefact also provided impetus for closure in the discussion. Since the participants had a

deadline for presenting the documents to the outside organizations, they concentrated their discussion on the most relevant arguments and encouraged others to stay focused and not add side topics. Collaborative work on the document promoted group solidarity, a key requirement for labour education.

4.5.10.1. Group Knowledge-Building in the Conferences

The participants were clearly aware that they were in a group knowledge–building process. Typical comments included references to the group as "knowledgeable people" or the group having "so many great views". The feeling of being a group at work was reinforced by comments such as "we're a great team" and "welcome to the group". The cohesiveness of the group was often reinforced by participants writing messages such as "all the submissions are good". Many participants acknowledged that they were learning from the group and indicated their willingness to learn more from it. Members who were obviously having trouble with the conferencing system's operations were voluntarily adopted by other group members and helped along. There was an overall feeling that the group could be asked for support and it would be provided.

The act of writing a message is crucial to the conceptual change of participants. Participants who entered comments approving a decision by the group, or helping it work towards a conclusion, were undergoing a change in the way they thought about the topic under discussion. Their conceptual change was reinforced by having to write a message. Writing, as Bruffee (1993), Feenberg (2002), Harasim (2002) and others have argued, is the key to success of conceptual change – learning – in an online experience.

4.5.10.2. The OCL Theory and Conference Discourse

The OCL theory provides a framework within which the discourse in online collaborative learning can be studied. Better understanding of the techniques and strategies online learners use during the three phases of artefact-creating, knowledge-building courses can help instructors guide the flow of the discourse and aid system designers in creating computer facilities which make the process more transparent and easier to undertake. Consequently, an analysis of the discourse in the conferences conducted during the case study was conducted to highlight discussion strategies and techniques used during the three phases of the discourse.

4.5.10.3. Discussion Techniques and Strategies: OCL Phase 1

During the first phase the participants enter comments unrelated to the comments of others, brainstorm ideas and become accustomed to the discussion dynamics of the particular group they are working with. They use a number of strategies and techniques during this phase. First, and most obvious, is the entering of personal viewpoints which have not been influenced by a reading of many other comments. But participants also:

- Say that their ideas are not final; that they are subject to the group's acceptance or correction.
- Ask for alternative ideas as they mention their ideas.
- Mention ideas in passing as a means of suggesting points without necessarily being strongly tied to them in order to provide the group the power to accept, reject or correct.
- Bring in information from outside sources.
- Raise intermediate ideas (intermediate ideas are ideas which in a brainstorming session lead to other ideas).
- Use "I" or "my".

4.5.10.4. Discussion Techniques and Strategies: OCL Phase 2

The predominate OCL indicator in all the conferences which were organized for the creation of a common artefact were Phase 2 indicators. Participants spent significant time organizing and linking ideas which flowed out of the discussions. The techniques and strategies they used to do so can be grouped into four categories: organizing the participants; organizing the discourse; group etiquette; and idea linkage.

Participants who are in a collaborative learning experience need to organize themselves to focus on the task. In the conferences considered during the case study they chose discussion leaders, set schedules and decided on how to proceed in matters such as producing a draft document. During this process some participants volunteered for roles or tasks. Some suggested other participants take on a role or a set of responsibilities. Objection to people chosen by the group to be leaders was recorded by pointing to other participants who could do the work.

Another technique used in organizing people for the work to be accomplished including adopting participants who were having trouble using the computer conferencing system. A participant would voluntarily aid somebody who was having trouble.

The key lesson here is that participants in an OCL experience must be given the time and power to organize themselves and set their schedule.

The second major category of techniques and strategies relates to how participants keep the flow of the discussion going in an online knowledge-building experience. In the conferences participants:

- Thank others for entering comments as a way of reinforcing group. movement to an idea or position.

- Make suggestions about the pace of the discussion, especially if they are concerned that they will be left behind.
- Request clarifications of positions taken by courses leaders in order to politely object to what the leaders have said or proposed.
- Ask for directions from the group leaders.
- Ask for a declaration that the group is on track if they get confused by the process or the goal.
- Suggest ways of proceeding to the objective.
- Reiterate the goals of the discussion.
- Provide instructions for performing technical tasks in order to keep group members who are less technically adept from holding back the group.
- Give navigating instructions to messages entered by other participants as a way of reinforcing their own views.
- Make references to the collaborative nature of the work in order to promote group cohesiveness and help resolve problems related to conflicting ideas.

A third category within the idea organizing phase of the discourse relates to how participants link ideas. They:

- Mention people by name as a way of winning support for their view: “Like Paul, I say...”.
- Ask others for clarification of ideas which were put forward.
- Challenge people on the ideas they presented.
- Summarize discussions.
- Define and explain terms and concepts in an attempt to develop a common vocabulary for the group.
- Respond to messages entered by others.
- Point to comments made by others as “relevant” or “interesting”.
- Expand on the ideas of other people.
- Show agreement with ideas that have been put forward.
- Say that their comment is in response to somebody else’s comment.
- Ask for others to enter comments in the manner of another participant: “Put in a comment like Mary’s”.
- Suggest ways to re-phrase a thought.

- Make comments such as “Mostafa: that’s exactly what I meant”.
- Provide clarification of points made by others.
- Find middle ground in the multiple ideas put forward by other participants.
- Say: “I am not getting your point. Can you explain more?”.
- Indicate agreement with another participant as a way of seeking support for their own view. For example. “I agree with Asnath that we should do [that] if we do [this]”.
- Make comments such as “I agree with Robert and Rose on this”.
- Provide suggestions for improving or changing a draft document.
- Thank people for particular comments.

These sorts of techniques and strategies help the participants win support for ideas, link their ideas to others, and promote the group’s movement towards the completion of the task.

Another major category of messages in Phase 2 activity is related to group etiquette. Phase 2 is the part of the process in which participants agree and disagree. During this phase the participants use language which continues to support the cohesiveness of the group even while people are disagreeing. They argue points in a polite way. They thank the group for work done. They correct others in a friendly fashion. They reject ideas gently. They make humorous comments. It is likely that the friendly and supportive behaviour found in the conferences considered in the case study was promoted by the fact that all the participants were unionists and shared a common union culture.

4.5.10.5. Discussion Techniques and Strategies: OCL Phase 3

Phase 3 of the process is when the participants reach intellectual convergence and bring closure to the activity. The discourse strategies and tactics they use during this phase include:

- Encouraging others to stay on track.
- Making comments reinforcing group decisions.
- Asking to move ahead.
- Setting or reminding people of deadlines.
- Entering comments such as “I agree with all”.
- Requesting closure on the initial part of the discussion.
- Asking for a draft document to be produced.
- Giving comments on the draft.
- Showing approval of a draft.
- Saying “additions to the documents will be small”.
- Commenting that “ we are close to finalizing this”.
- Telling participants not to enter any more comments.
- Encouraging the group reporter to close the discussions.
- Adding congratulations for “ a job well done”.

4.5.11. Findings: Evidence and Process of Learning

An analysis of the conferences conducted during the case study guided by the OCL theory and the concept of knowledge-building produced a number of findings.

First, the setting of a task which produces an artefact useful outside of the educational experience is crucial to the group’s process of conceptual change. It acts as a significant motivator as participants see themselves producing something that will be used by the people or organizations to which the artefact will be given. This is especially

important for labour education because the production of the artefact provides the link between the online activities and the workplace which Sawchuk et al. called for.

Second, as described by the OCL theory, the creation of a common artefact promotes learning because it encourages the participants to move through all the phases of collaborative discourse: idea generating, idea organizing and intellectual convergence. This is crucial to labour education because one of the objectives of labour education is to produce solidarity amongst the learners as they produce plans for improving conditions in the workplace.

Third, the type of task influences the discourse. A task such as the production of a common document will promote Phase 3 activity. Exercises which do not emphasize group debate will promote Phase 1 activity but little Phase 2 and 3 activity. Individually oriented tasks, such as producing a website, will not encourage idea linking or intellectual convergence. As well, the type of tasks will impose guidelines and restrictions on the discourse. For example, a task to produce a one or two page document will force the participants to work towards that structure. Boundaries to the discussion are set because of the design of the artefact to be produced.

4.6. RQ #2: Perceptions of Learning in the Course

The second question which guided the research was: What are the perceptions of learning of participants in online collaborative learning labour education courses?

The case study demonstrated that staff of labour organizations in 24 developing countries could participate in an online course over an 8-month period and learn. But, crucial to the potential adoption of the medium, is recognition by the participants themselves that educational computer conferencing can result in effective learning. If the

participants at the end of the course believed that their experience had resulted in little or no learning it is unlikely they would recommend or encourage the medium's use in their countries or for international labour education.

4.6.1. Participants' Sense of Learning

The perception of learning of the participants was explored with the use of the Classroom Community Scale (CCS) which includes a subscale for learning. The CCS was chosen as the research instrument because it related questions of perceived learning to the sense of community developed in an OCL group (which was one of the other research question chosen to guide the study). The subscale related to learning represents "the feelings of community members regarding the degree to which they share educational goals and experience educational benefits by interacting with other members of the course" (Rovai, 2004, p. 4). The questionnaire was applied twice: just after the first module in which a common document was produced and after the course. Results are reported in Table 14. Higher CCS scores are to be interpreted as a stronger sense of learning. The maximum score is 40.

Table 14. Participants' Sense of Learning

	1st questionnaire February 2005 *n* = 31	**2nd questionnaire October 2005 *n* = 27**
Mean	32.80	32.16
S.D.	3.50	3.50

The sense of learning of the participants was high. Using the highest score of 40 as the 100% benchmark, the participants reported a sense of learning level of 80%. This level did not change significantly from the first questionnaire application to the second.

For discussion purposes a study of the responses to the questions in Rovai's sense of learning subscale (Appendix D) can be grouped into four categories: posing and getting responses to questions; feedback/help; demonstrating a lack of understanding; and perceived learning. The results reported below refer to the second application of the questionnaire which was applied at the end of the course.

The category concerning the posing and answering of questions is crucial because questioning is at the core of any learning experience. In the questionnaire applied after the course, 88.8% (24) of the participants agreed that they were encouraged to ask questions. This response is made more significant when it is recalled that I kept my messaging in the first conference to a minimum (20 out of 306 messages – 6.5% of the total). The participants must have felt encouraged to pose questions by the group, not only by me.

The second category into which the learning subscale responses can be grouped is feedback/help. Almost all of the participants agreed (96. 2% – 26 participants) that it was not hard to get help when they had a question. The feeling of support was related to perceptions of the help other students provided: 88.8% (24) of participants disagreed with the statement that other students did not help them learn. As well, the participants (85.1% – 23 participants) reported getting timely feedback. This feeling of getting timely feedback must have been generated by the group activity, not me as the instructor, because of my limited amount of message entry.

The third category – demonstrating a lack of understanding – is important because if participants are frightened or shy about showing their ignorance about a subject their learning process may be impeded. The questionnaire responses showed that 88% (24) of the participants disagreed with the statement that they felt uneasy exposing gaps in their understanding. Reported shyness in front of the group was also low: 92.5% (25) participants disagreed with the statement that they felt reluctant to speak openly.

Finally, the fourth category relates directly to perceived learning. Almost all (96.2% – 26) of the participants felt that their educational needs were being met. Most (81.4% – 22) felt that they were given ample opportunities to learn. Significantly, almost all of the participants (88% – 24) felt that the course promoted a desire to learn. One anomaly was the response to the question: “I feel that this course results in only modest learning”. Seventeen participants (62.9%) disagreed with this statement, but ten either agreed or chose a neutral position. This response contrasts with other more positive responses of the participants (such as 92.2% felt their educational needs were being met). However, the response may be related to the fact that many of the people in the course did not have English as their first language. The term “modest” in the question might not have been understood in the way the creators of the questionnaire may have intended. This might be an indicator of cultural misunderstanding created by the use of a questionnaire designed primarily for one linguistic and national group.

4.6.2. Sense of Learning of Female Course Participants

The women in the course reported a high sense of learning. Table 15 shows the results for the female sense of learning from the second CCS questionnaire (the one applied at the end of the course). For comparison purposes the results for the male sense of learning are provided in Table 16. The maximum score is 40 and higher CCS scores are to be interpreted as a stronger sense of learning.

Table 15. Female Participants' Sense of Learning

	2nd questionnaire October 2005 *n* = 12
Mean	32.00
S.D.	3.32

Table 16. Male Participants' Sense of Learning

	2nd questionnaire October 2005 *n* = 15
Mean	32.1
S.D.	3.9

The CCS sense of learning index for the females in the course was 32. This was not significantly different from the sense of learning index reported by the men (32.1). Using 40 as the 100% indicator, the women participants reported a sense of learning level of 80%.

The responses of the women participants for the learning subscale did not vary significantly from the responses of the group as a whole. For discussion purposes the

responses can be grouped into four categories: posing and getting responses to questions; feedback/help; demonstrating a lack of understanding; and perceived learning.

All twelve of the women responded that they felt encouraged to ask questions. In the category for feedback/help eleven (91.6%) disagreed with the statement “I feel it is hard to get help when I have a question”. The same percentage (91.6% – 11 participants) agreed that they received timely feedback. Almost all of the women participants (91.6% – 11) agreed that the other students helped them learn.

A particularly important category of questions when studying the activity of women in mixed gender conferences is related to the feelings they have about speaking openly. Eleven of the 12 women participants (91.6%) disagreed with the statement “I feel reluctant to speak openly”. The same number disagreed with the statement “I feel uneasy exposing gaps in my understanding”.

The fourth category in the learning subscale is directly related to perceived learning. Ten of the women (83.3%) felt that there had been given ample opportunities to learn; two answered with neutral responses. Significantly, all the women in the course agreed that their educational needs were met.

The responses to the questionnaire showed that the women in the course felt supported by the group and encouraged to ask questions. They thought they received timely feedback. They agreed that the other students helped them learn. They did not feel reluctant about speaking openly or exposing gaps in their knowledge. They thought they had been given ample opportunities to learn and, significantly, they all agreed that their educational needs were met.

4.6.3. Participant Comments About Learning

In addition to the use of the CCS questionnaire, a computer conference was held at the end of the course to record participant views concerning the course including their views about learning. Comments in the conference focused on:

- The potential of OCL for staff training.
- Collaborative learning.
- Building the capacities of labour organizations.
- Contributing to the practice of labour education.
- The sharing of cultural perspectives.
- Online learning.

4.6.3.1. Staff Training

Many of the comments concerning the use of OCL were related to its potential for improving the training of union staff. A typical comment was: “This is a new tool that brings with it great potential for online learning for labour leaders in developing countries. It needs to be promoted”. One participant said: “There is indeed value added using computer communications for distance education in trade union organizations. It is relevant, efficient, cost effective and sustainable. It presents an opportunity towards distance education for staff of unions throughout the world”. Many participants mentioned the accessibility of the medium, especially for staff with heavy workloads and tight schedules. One of the participants wrote: “For union staff who have very tight schedules to attend classes about ICT this is the ideal way of learning and advancing themselves. Distance education allows you to be more flexible with your time, have easy access to information from the Internet, and you can communicate with your tutor

easily". Another participant wrote: "Most trade union officials I know find it very challenging to find the time to sit in a classroom so this method of learning by distance in front of a PC can be very effective". Many of the participants mentioned the potential of OCL to promote the sharing of information and knowledge between people in a course. For example: "The information learned, which would have been difficult to learn on our own, can be shared easily with our colleagues. For me it was a plus as I have started to share the new ideas I learned in the course with my colleagues at work". There was also recognition amongst the participants that OCL which was being used by universities could be used by unions. One of the participants wrote: "The biggest thing I realized was that re-skilling of labour leaders, educators, trainers, organizers, etc. could be accomplished using a knowledge-based computer medium, the same medium that universities are pushing through the use of online distance education".

4.6.3.2. Building Capacities of Labour Organizations

Another theme which was raised in the conference used to discuss OCL was the medium's potential for building the capacities of labour organizations. One of the participants wrote: "Trade unions could use this medium as a way to improve existing capacities and build new capacities which would help in the formulation of strategies for negotiating or intervening in issues that affect their members and the masses". Some commented that they could see their organizations adopting OCL to help train their members. One of the participants wrote: "I have seen this project as an eye opener for trade unions to embrace as they can capitalize on the training for their members". Others argued that OCL should be built into the development plans of labour organizations. As an example: "For sometime trade union distant learning has been dangling in the air in

Belize, now it is at hand!! The idea of having unions participating in IT through distance education has now become an integral part of our labour movement's development". Many participants also mentioned the potential for strengthening the international labour movement. One of the participants wrote: "There must be a networking of all unions around the world so ideas will be shared and solidarity will be born that will help to look at calamities and interest with a common vision. This objective may be met through distance learning due to the development of communications and IT".

4.6.3.3. Collaborative Learning

The participants found the focus on collaborative learning in the course useful and valuable. One participant wrote: "Everybody was a learner and a teacher at the same time!"

A number of participants wrote comments in support of the group work which was organized in the course. One of the participants wrote: "The group work afforded opportunity for local knowledge sharing, thereby serving also as a medium for problem solving, borrowing from the participants' country experiences". Another commented: "Team work was made a reality and not an illusion. It seemed everybody felt duty bound to add his/her bit into the conference". The group brainstorming sessions were also acknowledged as useful: "There were many ideas and answers from all participants (like brainstorming in group discussion). This is good when learning and studying. Two heads are better than one". One participant mentioned that group work lessened the anxiety of studying a technical subject: "The fear of computer learning was reduced. Many people get tightened when computer terms and languages come up! I felt much more comfortable during this course". Many participants mentioned the support they received

from the group as they were learning. A participant wrote: “Whenever I encountered difficulties I quickly managed to get assistance from the group and this enable me to move on with the rest of the group”.

The use of active collaborative reading in the course was found to be useful. A typical comment was: “The technique of drawing questions out of the papers (which were themselves well prepared) worked perfectly and is adapted to the multi-level skills of participants”. Another participant wrote: “The idea of reading the text and providing relevant answers prompted all of us to comply with and at the same time invite interaction”.

4.6.3.4. Labour Education

Many of the participants mentioned that the course maintained the feeling of labour education. A participant wrote: “The atmosphere of trade unionism was maintained, which was very very excellent”. This was linked to the idea that while the participants were studying for a certificate individually they were also collaboratively learning information which would be useful for their unions. A typical comment was: “...while acquiring knowledge and obtaining a diploma for ourselves, we are also promoting values and principles which corresponds and are cherished by the working peoples’ movement i.e. cooperation and sharing”. There was general agreement in the group that OCL could contribute to the development of labour education: “The programme of long distance learning using computer communication has not only worked well but also added value to the general concept of labour or trade union education”.

4.6.3.5. Cultural Diversity

The fact that the participants came from many countries was seen as a factor contributing to the success of the course. One of the participants wrote: “This type of education goes further because it affords you more than computer training because of the diverse cultural gathering”. Another entered a comment saying: “The rich mix in the participants’ organizational and cultural background afforded the group the rare opportunity to learn more about the cultures, nuances and challenges facing their people. We were able to better understand our cultural diversities, similarities and commonness. This aided cordiality and bonding, breeding friendships and solidarity”.

4.6.3.6. Online Collaborative Learning

Online collaborative learning was seen by the participants as valuable for themselves and the labour movement. One participant wrote: “The possibility/fact of some colleagues starting from total ignorance about IT and website design and getting – at least – basic knowledge within such a short time without a marked interruption in our work schedules is a miracle”. The ability to fit a learning experience into their schedules was mentioned by many other participants. A typical comment was: “With this novel idea of on-line learning, I’ve been privileged to learn many things without, of course, disruption to my work schedule”. Some pointed to the value of writing of messages in online conferences: “Education through computer communications stimulates one to research and write each time a new topic comes up. I found this very helpful as one broadens his knowledge even on issues that one previously overlooked”. Another participant mentioned that his experience was not limited to just the topic of the course: “I wish to report that it has widened my understanding and using of elearning as a very

important methodology not only in trade union subjects but other areas too. In fact now I can enrol for any elearning programme because of the experiences I have so far acquired". Finally a number of participants commented that they enjoyed learning how to teach online. One of the participants wrote: "I personally learned from this course how to teach and animate a distant learning course. This was very new to me".

4.6.4. Findings: Perception of Learning

The perception of learning amongst the participants was high. This was confirmed with two applications of a questionnaire during the case study which showed that the participants reported a high level of perception of learning. This conclusion was confirmed by the participants in the last conference.

The questionnaire results and the participant conference showed that the people in the course felt supported by the group and comfortable asking questions. They agreed that other students had helped them learn. They agreed that they had received timely feedback. They believed that they had been given ample opportunities to learn. They all agreed that their educational needs were met. There was no significant difference in the perception of learning between the males and females in the course.

4.7. RQ #3: Perceptions of Collaboration and Community

One of the recommendations for further research suggested by Briton and Taylor (2001, p. 119) is to learn more about learning opportunities which "foster collaboration and cooperation that contribute to the establishment of a global labour community". This led to the posing of the third research question: What are the perceptions of

collaboration and community of participants involved in online collaborative learning labour education courses?

Investigating the development of the sense of community in the course involved two strategies: use of the Classroom Community Scale (CCS) and the application of the Online Collaborative Learning (OCL) theory.

4.7.1. Gauging the Participants' Sense of Community and Connectedness

To help gauge the sense of community which developed during the course the CCS was used twice: once at the beginning and once at the end. The CCS provides an overall measure of community and a subscale which allows a more detailed look at the responses concerning connectedness. Many of the factors considered by the CCS are crucial to the conduct of collaborative learning. These include: feeling connected to others; trusting other group members; feeling that group support is available; sensing encouragement to ask questions; and believing that other participants will help a person learn.

Table 17 shows the results of the two applications of the CCS questionnaire. The scale includes a key which provides scores which vary from a maximum of 80 to a minimum of zero. Higher scores are to be interpreted as a stronger sense of classroom community (Rovai, 2002b). For comparison purposes the results of a study of 26 online courses conducted by a small American university (Rovai, 2002d) are included.

Table 17. Participants' Sense of Community

	Maximum of 80		
	1st questionnaire February 2005 *n* = 31	**2nd questionnaire October 2005 *n* = 27**	**U.S. university 2002 *n* = 314**
Mean	63.78	62.09	66.50
S.D.	7.46	6.34	13.18

Table 17 illustrates that the sense of community level for the participants was high. Using the maximum score of eighty as the 100% benchmark the participants reported in the first questionnaire a level of sense of community of 79.7%. This level did not vary significantly in the second questionnaire which was applied at the end of the course. The sense of community which was developed by the union staff was close to the level reported by the participants of online courses at the American university who had access to inexpensive, if not free, Internet services, dependable telephone lines and faster transmission speeds. The sense of community level reported by the union staff after three weeks of activity was within the top ten level of the American university courses – courses which lasted three months.

Connectedness in relation to the CCS subscale is defined as representing "the feelings of students regarding their cohesion, community spirit, trust and interdependence" (Rovai, 2004, p. 4). Table 18 shows the results of the questionnaires completed by the participants in the case study. Once again for comparison purposes the highest result from an application of the questionnaire in 26 online courses conducted by an American university (Rovai, 2002d) is supplied.

Table 18. Participants' Sense of Connectedness

	Maximum of 40		
	1st application February 2005 *n* = 31	**2nd application October 2005 *n* = 27**	**U.S. university 2002 *n* = 314**
Mean	30.96	29.96	32.25
S.D.	4.00	3.82	7.41

The level of connectedness reported by the unionists did not vary significantly between the beginning of the online course and the end. They felt as connected after three weeks as after eight months. Also, the level reported by the union participants did not vary significantly from the level reported by the students in the courses conducted by the American university. The union participants' level (as demonstrated in the first questionnaire) is in the top five of the 26 online courses conducted by the American university.

4.7.2. Questionnaire Responses: Community and Connectedness

A more detailed picture of participant views concerning community and connectedness is provided by studying responses to the questions. The responses did not vary significantly between the first and second questionnaires. Unless otherwise noted the analysis of the responses which follows is based on the first application of the questionnaire (n=31). Percentage figures are followed with the number of participants responding.

For the purposes of this discussion the responses to the questions related to connectedness can be grouped into three categories: the sense of community; feelings of isolation or connectedness; and perceptions of being supported by, or relying on, group members. Significantly, the sense of community was quite high, with 93.5% (29) disagreeing with the statement that they did not feel a spirit of community. Conversely put: all but two participants agreed that there was a spirit of community amongst the group members. Twenty-seven participants felt that the course group was like a family. When asked if the participants cared for each other, all except one (96.7%) agreed.

In the second category (feelings of isolation or connectedness) the participants reported high rates of feeling connected (87% – 27). Only two participants in the group reported feeling isolated, with most (87% – 27) disagreeing with the statement “I feel isolated in this course”.

In the third category it can be seen that the participants reported a high level of feeling that others in the group would support them (90.3% – 28). The level was lower when the participants were asked if they could rely on others in the course: 74.1% (23) agreed, but four disagreed, while 12.9% (4) chose a neutral response. This question on reliance was one for which the response varied significantly between the first and second application of the questionnaire. While 74% (23) responded in the first questionnaire that they could rely on other participants, that rate increased significantly to 96.2% (26) in the second. This might indicate that reliance on others online is dependent on the amount of shared experiences developed over time.

Interestingly, the question which prompted the widest spread of responses was related to how participants felt about others being dependent on them. When asked if others in the course depended on them, 16% (5) agreed. Ten people (32.2%) did not

agree that people depended on them. Fully half of the group (51.6% –16) chose a neutral response. The response to this question also demonstrated a shift in views from the first to the second questionnaire. The number of people who agreed that others in the course did not depend on them increased from 32.3% (10) to 51.8% (14). The number who said that others did depend on them remained stable at 16.1% (5). The total number of participants who chose a neutral position dropped from 51.6% (16) to 25.9% (7). In other words, after eight months of shared online collaborative work the number of people who thought the group depended on them personally dropped.

The analysis of the responses to the questionnaires concerning community, both with the use of the CCS and a detailed look at the aggregate responses, showed that the sense of community amongst the participants was high.

4.7.3. Community and the OCL Theory

Other evidence which demonstrates that the group began to cooperate and act like a community was found by using the OCL theory. The theory predicts that as the group moves towards intellectual convergence the participants will begin to increasingly reply to each other's messages and refer to the authors of other messages by name. A reply in a conferencing system is a physical linking of a message by the author to another participant's message. In some conferencing systems a reply is the automatic response when a participant chooses to enter a message. However, in the conferencing system which was used for the course (Virtual U), participants must deliberately decide that a comment is a reply to a message. The Virtual U system records that the message being written is a reply with text which reads "In-Reply-To:" It then allows users to read

the conference messages in a “thread” which shows all the messages displayed in a way which highlights the replies to messages. An increase in replies indicates that the participants are reacting to the ideas put forward by others (either to agree or disagree). A reference is the use of another participant’s name in a message. For example: “Rashmi made a good comment about training”. An increase in the number of messages which include references to other participants indicates that people are reacting (positively or negatively) to the ideas being put forward by others.

In the first conference of the course (structured to foster intellectual convergence) there was an increased number of replies as the discussion moved along. There was a significant increase in replies immediately after the first person volunteered to be a discussion leader and the group took charge of the process. The percentage of reply messages increased significantly in the first two weeks of the conference as the participants moved from idea generating to idea organizing: 21.5% in the first week; 46.2% in the second week. By the third and final week of the conference more than half (53.12%) of all the messages were replies.

The conference discussion also demonstrated an increasing number of references as it progressed. Messages with references increased significantly as the participants moved from idea generating to idea organizing: from 20.0% in the first week to 43.2% in the second. By the third week, in which there were more indicators of intellectual convergence in the conversation, half (50.5%) of the entered messages were references.

The use of the OCL theory added evidence to the conclusion that there was a high sense of community in the group.

4.7.4. Female Participants' Sense of Community

Greene and Kirton (2002, 2003) have argued that education delivered via the Internet could be effective in training women staff and members of unions, but in order to be successful there are problems to be addressed. In one of the studies they conducted (2002) they concluded that the women unionists involved in their study "were dissatisfied with the kind of interaction and learning experience facilitated by the online mode" (p. 178). The most important factor causing this sense of dissatisfaction was that "no participant felt that a sense of community had been generated among the group" (p.177). The course they studied did not use collaborative learning techniques.

Results of the second application of the CCS questionnaire – the one applied at the end of the course – are shown in Table 19. The second application did not show a significant change in results from the first. Included, for comparison purposes, is the result from the use of the CCS questionnaire with 224 female participants of 26 online courses at a small American university (Rovai, 2002d). The maximum score is 80 and higher CCS scores are to be interpreted as a stronger sense of classroom community.

Table 19. Female Participants' Sense of Community

	Female ***n* = 12**	**Female (U.S.)** ***n* = 224**
Mean	62.08	58.23
S.D.	5.44	12.68

The results shown in Table 19 show that the women unionists felt a high sense of community (62.08). This was not significantly different from the sense of community

reported by the males (61.86) shown in Table 20. Using the maximum score of 80 points as the 100% benchmark the females reported a sense of community level of 77.6%. Their sense of community rate was higher than the rate reported for the American female students who had a point score of 58.23 – 72.7% of the possible total. This finding is especially significant considering that the women unionists were working under more adverse technological conditions than the American students. They were also working in many different countries and consequently more culturally diverse.

Table 20. Male Participants' Sense of Community

	Male ***n* = 15**	**Male (U.S.)** ***n* = 90**
Mean	61.86	55.40
S.D.	5.31	11.99

All but two of the twelve women who completed the questionnaire (83.2%) disagreed with the statement "I do not feel a spirit of community". The two exceptions did not disagree, but chose a neutral response. All the women participants agreed that they could rely on others in the course. The majority (75% – 9) said they trusted the other participants, with the other three not disagreeing but adopting a neutral position. All of the women participants felt confident that others in the course would support them.

The women, who made up 45.1% of the course membership, entered 25% of the messages. Of the total reply messages in the conference they entered 12.6%. They entered 20.3% of the reference messages. The result was a male dominated discussion, with the men entering 75% of the messages in the conference.

4.7.5. Findings: Perceptions of Community

The case study showed that there were high levels of perceptions of collaboration and community amongst the participants. This was confirmed by an application of the Classroom Community Scale. The sense of community reported by the participants was 79.7% of the total possible in the scale. There was no significant difference in the sense of community between the male and female participants. A reading of the participant comments in the final course evaluation conference confirmed that the group members felt that there was a high sense of collaboration and community amongst themselves.

The high sense of community was evident after the first three weeks of the course and was maintained until the end. This indicates that online courses which use collaborative learning techniques can generate high levels of a sense of community and collaboration after three weeks.

4.8. RQ #4: Credential as Motivator

In her comparison of an online course conducted by the European Trade Union College, which is not accredited, and a university Master's course, Creanor (2002) found "A major motivating factor is clearly the gaining of a qualification..." (p. 62).

During the case study the participants were offered the possibility of studying for the examinations set for the International Computer Driver's License. This led to the posing of a fourth research question: How is the provision of a credential to the participants in online collaborative learning courses involving the staff of unions in developing countries a significant motivator?

A search for indications that the opportunity to earn the ICDL was a significant motivator involved an analysis of the course's participation rates and the use of a computer conference in which the participants discussed the ICDL.

4.8.1. Participation Rates in the Course

Creanor concluded that a credential was a significant motivating factor because in the online course conducted by the European Trade Union College that she studied, there were "disappointingly low engagement levels with only 17% of participants contributing regularly and 25% taking no part at all in the online discussions" while in the Master's course "participation rates were consistently high (92%) with animated discussions taking place on a wide variety of topics" (Creanor, 2002, p. 61).

The online course looked at in the case study conducted for this dissertation was the first outside of a university to offer unionists an opportunity to study for a credential. The participation rates in this course were quite high with consistently 85 to 100% of the participants reading and writing in each main conference. The course, which was conducted over an extended time period – eight months – had a completion rate of 91% and a drop out rate of 9.0%.

4.8.2. Participant Conference on the ICDL

In order to better understand their views concerning the possibility of earning an ICDL the participants were asked to collaboratively work on a document discussing the topic. All the participants, except one, entered comments supporting the idea. The one

exception was a person who had already taken the licence (and she became one of the three people who did not finish the course).

Reasons participants gave for approving the idea of working towards the ICDL included:

- To provide higher standards for labour education courses.
- To help the organization by having a person qualified in information technology.
- Promote the use of information technology in labour organizations.
- To help other organizations adopt IT.
- Add value to the course.
- Increase participation in the course.
- Personal achievement incentives.

Below is an analysis of the conference discussion on the ICDL credential which could be earned by the participants.

4.8.2.1. Provide Higher Standards for Labour Education Courses

There was general agreement amongst the participants that the provision of a credential provided by a body such as the ICDL was important for improving the standards of labour education courses. One of the participants wrote: “This is an important development in my view. Whenever we attend courses in the labour movement we will generally get a ‘Certificate of Participation’ but this says no more than we attended the course. Not that we learnt anything! What (the instructor) is proposing with the ICDL will change all of this. It will set standards and help ensure that those going through these courses will be able to take these higher standards back into the labour movement.”

4.8.2.2. To Help the Organization by Having a Person Qualified in Information Technology

Some of the participants commented that having a person trained in information technology subjects would benefit their labour organization. A typical comment was: “My organization welcomes the opportunity to have one of its members to have the opportunity to receive such a license with regards technology”. Another participant wrote: “This will be an asset to us because we will be fully equipped on completion of the course thus to use it to improve our communication methods in our unions”.

4.8.2.3. Promote the Use of Information Technology in Labour Organizations

Another reason mentioned by the participants for having a person certified in information technology in a labour organization is that it would promote the teaching of computer technology. A typical comment was: “I think having the certification would be a step further in promoting IT education, its relevance and uses to labour organizations, especially in a globalized world of work”.

4.8.2.4. To Help Other Organizations Adopt Information Technology

A person working for a labour organization and certified in information technology could provide support to other unions. One of the participants wrote: “I think being the pioneers for the ICDL will be good, it will help all unions to learn about each other, and we will be able to help our sister unions with the age of technology”.

4.8.2.5. Add Value to the Course

Many of the participants commented that the provision of a credential such as the ICDL would add value to the course. A typical comment was: “With the indication that the course will be certified, an added value and advantage has been given to the course”.

4.8.2.6. Increase Participation in the Course

The provision of a credential was also seen as a way of promoting participation in the course. One of the participants wrote: “The fact that a credential through ICDL was introduced gives the impetus for participants to remain active in the course”. Another commented: “The fact that the course was able to successfully introduce the ICDL certificate as part of the programme made it more interesting and encouraging as participants, not out of competition, saw the certificate as a tonic to effectively participate and learn”.

4.8.2.7. Personal Incentives

The possibility of earning a credential was recognized as not only an encouragement for group participation, but also as a personal incentive. One of the participants wrote: “I certainly cannot wait to have my ‘Computer Driver’s License’”. Another commented: “I think we will be able to fully utilize the ICDL upon completion of this course and be well respected throughout the Information Age world”.

4.8.3. Findings: Credential as Motivator

The provision of a credential which is deemed valuable by the participants in an online labour education course can be a significant motivator for course participation and completion. This finding was confirmed by the participation rate of the unionists who actively participated in an online course over a period of eight months. The completion rate for the group as a whole was 91% with a drop out rate of 9.0%. The completion rate for women in the course was 87% with a drop out rate of 13%. Further evidence for the finding that a recognized credential is an important motivator was provided by the participants in the conference organized to discuss the course being used a preparation for the ICDL. Their reasons for working towards the license included: To provide higher standards for labour education courses; to help the labour organization by having a person qualified in information technology; to promote the use of information technology in labour organizations; to help other organizations adopt information technology; to add value to the course; personal achievement; and encouragement for increased participation in the course.

4.9. RQ # 5: Key Issues Related to OCL Labour Education

The fifth question which guided the research was: What are the key issues related to the effective and viable participation in online collaborative learning courses for union staff in developing countries? This question was addressed by the participants of the course themselves in a computer conference. After eight months of working together online they were uniquely experienced in the use of online collaborative learning by labour organizations in developing countries. During a final course

conference they were asked to provide their insights concerning the key issues related to the use of OCL by union staff in developing countries. Their discussion, and the final report they prepared, highlighted seven issues:

- Problems adopting distance education.
- Working in groups.
- The technical operation of the conferencing system.
- Organization and delivery of the course.
- Advantages and disadvantages of computer conferencing.
- National and international solidarity.
- Distance labour education.

4.9.1. Problems Adopting OCL

The single most important problem faced by unions in the developing world that want to participate in online collaborative learning is the lack of computer equipment. Even if the union does have equipment it is usually shared amongst a number of users. The final report pointed out that: “Most participants share computers in their offices and so cannot conveniently follow the course”. Co-workers not participating in the course did not perceive the educational activity of the participants as being part of the day-to-day union work. Consequently, many participants felt uncomfortable taking the time to read and write messages. One participant wrote: “Lack of access to IT equipment when one needed it most was the biggest problem. I mostly use Internet facilities only at work, but due to busy work schedules, opportunities to learn at night or at home could not be utilized. In developing countries, access to IT equipment can be an even bigger challenge where one is expected to share computers with others at work”. Working at home was not an option either: “Participants would have liked to follow the courses from

the confines of their homes, since the schedules of office leave them with just little time, but could not afford to do this because most do not have personal computers". Even many of those who did have computers at home could not access the course because they did not have communication equipment such as modems.

Other technological problems were related to the telecommunications infrastructure of the country. "In developing countries like ours, we may experience lack of IT equipment, lack of adequate power supply and sometime server connection problems" wrote one participant. Another pointed out that: "Internet accessibility is unreliable or uncertain". Another added: "One of the challenges trade unions are likely to face is the cost of running online programmes because ideally the participant(s) must have access to a PC and must have connection to the Internet".

Financial resources available to unions in developing countries are limited and so the purchase of computer technology or communication time necessarily has to be given a lower priority than collective bargaining or membership recruitment. One participant was late getting into one of the conferences "because of the fact that my organization defaulted in her payment of subscription to her Internet provider! That's one of the challenges of e-learning". Often staff members who want to participate in an online course have to pay the costs themselves: "I have to pay if I want to access to the Internet café (US $1) per hour".

Many of the participants commented that convincing the union to budget for computers and communication time is difficult due to the lack of awareness within the top leadership. "Union leadership have little or no knowledge of IT. They lack rudimentary competencies! They don't understand. So a rescue mission is needed." The final report pointed out that this lack of awareness concerning information technology

negatively affects the management of the union: “Most trade union leadership personnel lack ICT competencies which goes a long way to affecting their contributions to modern debates and management of unions. So the issue of ICT for unions, workers and members should start with the leadership”.

Even the staff members who do have affordable access face the problem of coordinating their work schedules with the demands made on them by the course. Many of the participants commented on this problem: “The beginning was rather smooth, but the path became somewhat bumpy for me towards the latter part. The course bumpiness was all due to unprecedented pressure of work as I had to endure extreme travel schedules”. Another wrote: “The burden and difficulty of balancing work schedule with participation in the e-learning sessions was quite daunting”. One participant apologized for not being able to moderate a discussion as he had promised because “I have to go harass an employer who wants to make 147 workers redundant!” Another, who had also promised to moderate a session, had to stop participating in the course for a time because his union went on strike. One other became involved in a protracted union organizing campaign and was able to “only read through all the lots of messages”.

Other problems related to the technology included: lack of training for members: “Participants with low skill in computers may have a lot of difficulty in understanding technical terms”. As well: “there is a challenge of access for the physically impaired challenged persons”. Different quality of equipment could also affect the conduct of the course: “The computers used by participants might not be uniform (speed, type, system, etc)”.

4.9.2. Working in Groups

The participants agreed that working in groups – one of the requirements of collaborative work – was effective, but initially daunting and often difficult to participate in because of work schedules. One the participants wrote: “The networking among participants stimulates confidence, helps share experiences and brings a change in mind-set in union management which of course means better services to members and less manual work”. Another entered a comment saying: “I truly liked the idea of being among the group that pioneered this approach to learning for trade unions”. One reason why group work was looked upon positively was that it encouraged the group to provide support to individuals: “Participants were excellent with rendering assistance and offering support”. The collaborative work also contributed to the cohesiveness of the group: “Group activities were conducted after every module with participants leading and reporting the sessions, bringing about group cooperation and progress and better team work spirit”. Knowledge sharing in the group was often mentioned by the participants as a benefit: “Information sharing helps each individual”.

A number of participants suggested that the collaborative work helped the group control their educational experience. One wrote: “Collective ownership of the course was an essential part, thus enabling everybody to be reporters and others to help colleagues”.

For some the collaborative work in the course helped them handle the problem of work load and course work: “When you have been out of touch due to tight work schedules for sometime like me, there is always the feeling given that you will catch up as everyone seems to helping and urging along”. But for others keeping up with the

group was a problem. “The greatest challenge for me was working in tandem with the group, my schedules did not permit it many of the times” wrote one participant. Another admitted: “ I was offline for quite sometime and did not seem to catch up pretty well with the rest of the crew due to my crazy work schedule....”

Fear of group work, and intimidation while working in the group, were also factors in the participation of group members. One person wrote: “The first fears I had when I read through all that we were going to do were as follows: How could we work in a group when we had never met in a face-to-face interaction? The issue of group leaders also gave me some bit of confusion and doubt as to how it was going to work”. Another commented saying: “A challenge when you are working in a group like we are doing is the ‘intimidation’ or ‘nervousness’ one gets when he/she sees that others are doing the right stuff and are pretty fast at learning. This, not well addressed, may tend to leave some off the course”.

Others raised the problem of different skill levels amongst the group members. A participant pointed out that: “One thing that was causing some problems was the difference of IT knowledge of various comrades, it gave me problems concerning the right level and speed of this course”. Another commented: “The participants have come with various degrees of competence in IT. This makes progress either too fast or slow”.

Some participants were also concerned with the cultural diversity of the group. One admitted to being worried at the beginning of the course: “When we started working together I had some fears such as: How can I work with these people who I never met face-to-face? Oh my God....All these cultures I had to work with. I am the only one from Asia and all the other participants are from Africa and the Caribbean”. Another participant wrote: “A fear I had was how to reconcile our different ideas given the

diversity in terms of regions (Asia, Africa, Caribbean, etc.), knowledge and levels in trade union matters". But once initial fears dissipated as the group worked together the participants enjoyed working with people of other cultures. One of the participants wrote: "The opportunity to meet persons from around the world and learning from them was great".

4.9.3. Use of the Conferencing System

As evidenced by the lack of activity in the technical "problems" conference the participants quickly mastered the use of the computer conferencing system. This was due partly to the user manual and computer tutorials which were provided at the start of the course. But the ease of use of the system was the major factor in making the participants quickly comfortable in reading and writing messages. A number of participants admitted that they only skimmed through the manuals or did not read them at all. "I had no problem with the conferencing system" was a typical comment. However the participants did report feeling overwhelmed by the number of messages which often confronted them. One participant wrote: "The messages sometimes get too many and it takes some effort to focus or search through to get what you want". Another admitted that: "Having missed out on some sessions because of pressure of work and some technical problems I found catching up was a real problem at times. Trying to read back all those missed messages was a daunting task. I now have a high speed Internet connection and it took me some time. Using a slower connection would be really difficult". Another participant pointed out that: "a disadvantage to me was that sometimes

my heavy workload made me enter the conferences late and I had a lot of catching up to do".

There were some technical problems, however, which needed to be addressed. One participant who had not entered a comment for over a week wrote: "I was out for awhile, as I was having trouble entering the conference from my end, but thanks to the instructor I am back". Working through local area networks in the workplace also caused some difficulties: "I had to do this session at home because of the firewall in our computers. This was very time consuming because I had to download the email programme".

4.9.4. Course Structure and Delivery

The structure and delivery of the online course prompted many comments by the participants. They discussed the schedule of the course, resource materials, assignments, the difficulties related to learning technical subjects, and the need for some face-to-face instruction and course evaluation.

There was a strong feeling that the course schedule needed to be negotiated by the participants at the start of the course and revised according to their needs as they went along. One participant wrote: "I very much appreciated that we were let to re-plan the schedule of the course as participant workloads and lives changed". Another wrote: "The course programme schedules were collectively discussed and agreed to by all participants with the assistance of the faculty providing a guide". This flexibility, however, was not appreciated by all. One participant responded: "Deadlines should be strict and never get extended; every participant should keep working with others and we should

never accept excuses". The planning of the schedule was also linked to the need for a pre-course survey: "The course assumes Internet accessibility and affordability of participants or their organizations. I think a little survey must be done before the course and seek ways addressing those issues before the course".

A course-planning element which was mentioned by a number of participants was the need for assignments after modules. One of the points made in the final report prepared by the participants was: "The lack of assignments after each module was also observed as one drawback of the programme, which, if present, should have served as extra tonic to hone and test the understanding of participants". One participant commented: "Lack of assignments was a problem: some programs need more actions in implementing assignments and homework in order to discover the new aspects of the program".

The availability of well-prepared course material was seen as essential to the success of an online course. A typical participant comment was that "the course material that we were required to read before each exercise was done very user friendly – simple to read and understand. It therefore made each task given to us quite easy". In the final report: "Particular mention is made on the clear-and-easy-to-read manuals used for the on-line training". Some course material was mailed to the participants before the course, but material related to a module was placed on the course website for downloading. This allowed for quick revision of the material as the course was conducted in response to participant comments or changes in the course content that the participants asked for. Participants appreciated the opportunity to download material from the Internet. One participant commented: "Besides being an affordable educational tool, the experience gained from the distance education is that well structured training materials were

instantly delivered to participants". Another wrote: "Downloading the training materials to the PCs and studying them later meant that not much time and money was spent on the Internet for e-learning, especially important in developing countries where phone charges for Internet access are still quite high".

Despite the recognition of the course material as well-written and organized there were still frustrations for many of the participants when the technical training modules were conducted. These modules included sessions on installing an email program (Thunderbird), creating a website with a Hypertext Markup Language editor, and using a web browser (Firefox). A participant wrote in the final conference: "...when it came to the Mozilla Thunderbird and Firefox part, this is where I got completely lost. I just didn't seem to get anything moving and all the help the group tried to provide me with did not get me anywhere. Also due to my busy working schedule in the office, everything turned out to be very frustrating thus making it unable for me to get focused". This frustration was shared by other participants: "At times when things became so technical it was not easy to grasp some instructions". This lack of understanding was attributed by one participant to the course materials: "Sometimes the instructions are clear and precise, other times the instructions are difficult to decipher".

The frustration felt by some of the participants contributed to the feeling that online technical courses may need to be augmented by face-to-face classroom sessions. A typical comment was "... certain parts of the session should have been taught directly in front of a computer for a better understanding". This sentiment was echoed by another participant: "Lack of hand-on training was a problem. Some innovative programs such as web design need direct contact or hands-on training".

Another commented: “Some items need to be done behind the PC with the tutor next to you”.

Many participants mentioned that, in order to help the learning process, ongoing evaluation should be built into the course structure. A typical comment was: “While we go through each module there must be a way we can find to conduct some sort of evaluation through this distance education learning programme so as to capture certain pertinent issues”. A number of participants suggested the need for a final evaluation for online courses. One participant wrote: “There is a need to have an evaluation after the completion of different courses in case other participants join such courses”.

4.9.5. Advantages and Disadvantages of Computer Conferencing

The comments on the use of a conferencing system for teaching technical subjects led to a discussion on the advantages and disadvantages of using computer conferencing systems for education.

The advantage raised most often was that asynchronous computer conferencing allowed access to the discussion and resource material at times the participants could coordinate with their workloads and family lives. One participant wrote: “...you can practically learn at your own leisure which can be very effective being a busy trade unionist with never ending work schedules and not wanting to deal with rigorous class times”. Another commented during the discussion: “It doesn’t matter where you are, you are still connected to the course. This is the advantage of the programme we are engaged in now. Currently I am in Tunisia attending the 14th ICFTU-Afro Congress, but I am still able to follow the proceedings!!”

Another advantage mentioned by some participants was that the conferencing system documented the discussions as the course went along. “The fact that communication is documented gives us the opportunity to share ideas and read them and gives easy access to revisit points made by individuals. This way one can see what everyone has communicated, whilst in a classroom we may have selective hearing or listening”.

Democratic participation was also mentioned as an advantage. “There was equal opportunity for everyone to participate,” wrote one participant. Another commented: “...everyone has the opportunity to say something or participate without being interrupted”. The idea was echoed by a participant who wrote: “There was a problem of ‘not seeing each other’ but this also means shy, silent colleagues could freely express themselves and contribute effectively in the conferences”.

However, while recognizing the advantage of being able to communicate asynchronously in a conference, some participants wrote that they missed face-to-face interaction, especially during the technical subject modules. One participant wrote: “Everyone is friendly and willing to work, however I couldn’t see my colleagues (like in a classroom) when I am talking to them or having a discussion”. Another commented: “Interaction was bad for me due to lack of face to face interaction”.

Another element of asynchronous computer conferencing which was mentioned was the time it sometimes took to receive a response. This was related to the multiple times zones in which participants were situated: “A disadvantage was the time differences of the different countries” wrote one participant. Another factor was the “lag time” – the time it took for somebody to respond – especially for technical problems. A participant wrote: “The downfall of this technological way however may be not being able

to address troubleshooting concerns in a quick turn around time". This was supported by another participant: "Response to problems were a bit slow. Still, better late than never".

4.9.6. National and International Solidarity

Many of the participants mentioned that one of the advantages of using computer conferencing for international labour education was that it promoted solidarity amongst unionists. One of the participants commented: "This course has enabled union staff to communicate with other colleagues within and outside the country more easily and more efficiently". Another pointed out that "a large number of our members can be reached simultaneously and ideas shared". Others commented on the possibilities for building international solidarity. A participant wrote: "Another huge advantage of the programme is that it is helping to build trade union international solidarity". This feeling was echoed by another participant who wrote: "This project has given the opportunity to trade unionists from various continents to be together and share ideas and work together on problems that be affecting each other".

4.9.7. Distance Labour Education

The participants were quite positive about their OCL experience. One participant wrote: "The mere conception of the fact that IT could be tutored through distance education, to unions worldwide is an amazing feat. The potential in such a task is amazing". Another, echoing other comments in the final conference, wrote: "I recommend that such a programme be extended to all [our labour organization] staff and all affiliates who have the interest. They will gain a lot after the course".

The reason for supporting the use of OCL amongst unions in developing countries most often mentioned was its capability of delivering education to people at their work sites. Echoing the view of many of the participants, one group member wrote: “In the past such conferences involved travelling to distance places leaving families and place of work at tremendous emotional and financial costs, but today through distance learning the cost factor is almost negligible and we do not have to leave our work. This involves also time saving”.

Another participant wrote: “The fact that workers/participants can learn without disruption to their work schedules makes the medium more organizationally-friendly and speaks volumes for its flexibility. It afforded participants the latitude to spread, plan and determine their work-plans and still fit into the programme since they can join the ‘class’ from anywhere (home, cafe, even outside their countries of domicile), and anytime!”.

4.9.8. Findings: Key Issues of OCL for Union Staff

The key issues related to the participation in online collaborative labour education course, as outlined by the participants, are: the availability of computers, the cost of the Internet, sharing computers, heavy workloads, the telecommunication infrastructure of developing countries, lack of awareness of OCL by the union leadership, lack of training on the use of computers amongst staff, fear of working online in groups and problems associated with varying skill levels amongst the participants. Also mentioned was the requirement for flexible course schedules, the need for well-structured courses backed up by appropriate resource material, and the availability of an easy-to-use conferencing system.

The course participants reported that despite potential problems online collaborative learning can be effective for union staff because they do not need to leave their workplaces in order to access labour education and it can promote international solidarity.

This chapter has presented the findings of a case study of an online labour education course conducted for the staff of labour organizations in developing countries. Conclusions based on the findings of the case study are presented in the following chapter.

CHAPTER 5.

CONCLUSIONS AND DISCUSSION

The work performed for this dissertation was guided by five research questions. The conclusions drawn from addressing those questions are described below. The chapter concludes with a discussion of the implications posed by the conclusions and the need for further research.

In summary, the case study showed that there was empirical evidence of learning in the online collaborative learning computer conferences which were studied and that the process of conceptual change undergone by the conference participants flowed through three stages, as described in Harasim's OCL theory. A significant finding was that, in order to promote movement towards intellectual convergence and linkages to the workplace, there is a need to focus the learning group on the creation of a knowledge artefact which can have a public life outside the course. This artefact is a product of the *process* of online collaborative learning (which proceeds through three phases: idea generating, idea organizing and intellectual convergence). The case study showed that organizing an online course in this fashion – with collaborative learning and the building of knowledge artefacts in mind – promotes a high perception of learning amongst the participants as well as a high sense of community and collaboration. There was no significant difference between the male and female participants for both sense of community and the perception of learning. The study also showed that the provision of a

certificate recognized as valuable by the participants was a significant motivator, as indicated by a high level of engagement throughout the course, a high completion rate, and participant comments. The participants concluded that OCL held significant potential for expanding access to labour education for the staff of unions in developing countries despite technological and financial problems.

5.1. RQ #1: The Empirical Evidence and Process of OCL

Learning is defined in the dissertation as "a change in the students' perception of reality" (Rekkedal, 2005, p. 5). Educators largely view learning in terms of cognitive or conceptual change (Rovai, 2002d, p. 4). Investigators who studied the early instances of online labour education emphasized the need to better understand the *process* by which online learners undergo this change (Taylor & Briton, 1996, p. 4). To work towards this understanding conference discussions in the case study were analyzed using the theory of online collaborative learning which demonstrates that conceptual change in an OCL experience flows through a process of three phases: idea generating, idea organizing and intellectual convergence. Progress through all the phases is especially prevalent when the learners are creating knowledge-building artefacts which have a useful life outside the educational experience. The artefacts (such as a theories, political positions, policy papers, strategies or arguments) are the product of the process the learners move through as they participate. The OCL process supports the creation of these artefacts while the learners are enjoying a high perception of learning and community.

The case study provided evidence that the phases described in the OCL theory were present, depending on the type of conference and the tasks which were set. There were four conference types in the course: document production, active collaborative

reading, technical workshop, and general discussion. There were indications of activity of all three phases in the document production type of conference. The participants started with individual, divergent thinking as demonstrated in a brainstorming session. They then started to organize themselves and their ideas. Finally, they developed intellectual convergence as they worked on the production of a common document. The second type of conference, active collaborative reading, demonstrated evidence of Phase 1 (idea generating) and Phase 2 (idea organizing) activity. The participants contributed individual ideas and organized the ideas presented by the group. However, there was little evidence of intellectual convergence as the discussion aimed at approving a common list of questions and answers (a goal of the active collaborative reading assignment) did not occur. The situation was duplicated in the third type of conference, a technical workshop. The participants posed questions and contributed ideas to the process of group study of a computer program. But there was no evidence of intellectual convergence because the participants were working on their individual use of the program. The fourth type of conference was aimed at general discussion and did not include a common task such as the production of a document. There was evidence of Phase 1 (idea generating) in this type of conference but little Phase 2 (idea organizing) and no Phase 3 (intellectual convergence). The participants entered a message and did not comment on the messages entered by other participants. The result was a discussion in which the participants did not interact with each other. This finding provides further support to the contention that a common task is needed in order to encourage intellectual convergence. Intellectual convergence is especially important in labour education because the learners are expected to work collaboratively and with a

sense of solidarity towards action plans and strategies which can improve the wages and working conditions of their fellow workers.

However, while the setting of a common task is crucial to the development of intellectual convergence, the *type* of task is also important. A task such as the creation of a common document will encourage participants to engage in debate over its contents and structure. A task which can be completed simply by adding elements, such as the creation of a commonly-agreed upon list, will not promote debate.

The task of creating a useful knowledge-building artefact was an important motivator for the participants and a significant impetus to the structured organization of the discourse. Participants in the case study were clearly motivated by the recognition that the artefact they were producing would be found useful by people in organizations outside of the course. They saw the production of the artefact as real work, not merely an exercise performed for the course. Also, the initial design of the artefact encouraged the participants to work within and towards a particular structure. In the case of the production of a document, they were focused on compiling their evidence and arguments within the space of two or three pages.

An artefact which has a useful life outside of the online course is the link between the online activity and the workplace which Sawchuk et al. called for as they studied the factors which would promote successful online labour education. Its existence and correct design is crucial to a labour education course which endeavours to promote participant engagement and course completion. The role of the knowledge-building artefact in online labour education is critical to the success of the activity.

The conclusion is that, if labour educators want to promote conceptual change, encourage solidarity, and ensure linkages to the workplace in their online courses, they

need to: structure their courses to produce artefacts which will be useful outside of the educational activity and set tasks which will encourage their participants to move through all three phases of a collaborative learning experience.

5.2. RQ #2: Perception of Learning

Evidence of learning in online labour education courses is vital if labour organizations are to be convinced to spend money and deploy staff resources in the use and development of online learning. The use of the Online Collaborative Learning theory demonstrated that learning – conceptual change – had occurred as the participants moved from divergent to convergent thinking. But equally important is that the participants in online collaborative learning themselves perceive their educational experience as valuable.

The case study looked at the sense of learning perceived by the participants in the online labour education course. This sense of learning was defined as “the feelings of community members regarding the degree to which they share educational goals and experience educational benefits by interacting with other members of the course” (Rovai, 2004, p. 4).

The sense of learning amongst the participants was high. The people in the course felt supported by the group. They were comfortable in asking questions. They agreed that others had helped them learn and that they had received timely feedback from the group. They believed they had been provided ample opportunities to learn. They all agreed that their educational needs had been met. There was no significant difference in the sense of learning between the male and female participants.

In the final conference the participants were asked to discuss online collaborative learning and their perceptions of it for labour education. Their view of OCL was enthusiastically favourable. They agreed that it would be useful for training the staff of unions, especially in developing countries which do not have extensive labour education resources. They appreciated the sense of solidarity that the collaborative learning activities promoted and felt that the online experience was in keeping with the traditions and atmosphere of labour education. They appreciated the wide range of cultures and national perspectives which were brought into the course. They felt that they had learned.

5.3. RQ #3: Sense of Collaboration and Community

Even if an OCL course demonstrates evidence of learning and the participants feel that they have learned, these factors do not add up to successful labour education. For effective labour education to take place there must also be a high sense of collaboration and community amongst the participants. The goal of labour education is to provide an experience which promotes group solidarity and action – precisely the factors needed for effective unionism in the workplace. In their study of the early online labour education courses Briton and Taylor (2001, p. 119) called for learning experiences which "foster collaboration and cooperation that contribute to the establishment of a global labour community".

In the course analyzed in the case study there was a high sense of community and collaboration. This was apparent in the discussions, and confirmed with a questionnaire, after three weeks of collaborative course work. The sense of community

was maintained throughout the course. There was no difference in the sense of community between the male and female participants.

The finding that the females in the course reported a high sense of community and learning is in contrast with the conclusions of Greene and Kirton (2002) that women in the online course they studied "were dissatisfied with the kind of interaction and learning experience facilitated by the online mode" because "no participant felt that a sense of community had been generated among the group" (pp. 177–178). The crucial difference between the course Greene and Kirton studied and the one analyzed in the case study performed for this dissertation is that the latter was conducted according to collaborative learning principles. The course Greene and Kirton studied was not.

The conclusion is that online courses conducted according to collaborative learning techniques can be conducted so they promote the essential elements of labour education courses: solidarity, cooperation and community. The clear lesson is that if labour educators want to promote learning and community in their online courses they should apply the principles of collaborative learning.

5.4. RQ #4: Credential as Motivator

However, despite the possibility of effective learning, high perceptions of learning and a heightened sense of community in online collaborative labour education courses, one other factor may be necessary for the successful conduct of online labour education: the provision of a recognized credential. When Creanor looked at what made a Master's online course effective in terms of engagement and completion compared to an online labour course which showed the opposite, she concluded that "a major motivating factor is clearly the gaining of a qualification... " (Creanor, 2002, p. 62). This finding was

confirmed in the case study. The participants were clearly motivated by the provision of a credential they viewed as valuable. This was confirmed by the high course completion rate (91%) and the participants themselves when they discussed the earning of the International Computer Drivers' License. They argued that: structuring a course according to the ICDL curriculum would encourage higher standards in labour education and add value to the course; labour organizations would be helped by having credentialized, trained people amongst their staff; holders of the licence would be able to help other unions; and participation in the course would be encouraged.

The labour movement has traditionally provided certificates of achievement to people who attend courses. But this may not be enough to encourage the adoption and use of online collaborative learning. There may be a need for the provision of a certificate which is seen as valuable by the participants. The participants responded affirmatively to the possibility of earning the ICDL for a number of reasons. They noted that it was provided by an internationally respected agency outside of their own union which maintained high standards of certification. It was granted for work done, not only participation in a course. And it was widely recognized in the world.

The conclusion is that a credential recognized as valuable is a significant motivator for participants in online labour education courses.

5.5. RQ #5: Issues Related to the Use of OCL and Unions

Still, knowing that online collaborative learning could produce effective labour education would not mean much if unionists could not participate in online courses because of technological, financial or time-availability problems. The case study demonstrated, however, that it is possible to overcome these problems, even in the case

of developing countries where the poorest labour organizations are found. Unionists from 24 labour organizations in the developing world were able to participate in an online course which lasted eight months. Even more significant is that all of these unionists participated in the computer conferences from work (with some also working from home or cybercafés). This means that the organizations where the participants worked have the capability of providing the resources for others on their staff to participate in online learning. Many more union staff members in these organizations could become online learners.

This is not to say that there are no problems to be addressed. In the final course conference the participants, who were by then the most experienced online learners in the labour movement, mentioned a number of issues which would have to be considered if online collaborative learning was to be expanded. They pointed to: the lack of computer equipment in many unions in the developing world; the sharing of computers with co-workers who were not in the course; heavy workloads; poor technological infrastructures in their countries; Internet costs; initial fears of online group work; difficulties related to cultural diversities; and technologically uninformed union leaders. At the same time however, they agreed that well-structured courses using adequate learning materials, organized according to collaborative learning principles, and conducted on easy-to-use computer conferencing systems, could be effective in expanding educational opportunities for the staff of unions in developing countries.

5.6. Discussion

The case study showed that it is possible to conduct collaborative online labour education courses even for unionists in developing countries. Participants in online

courses conducted according to collaborative principles learn. They feel that they have participated in a valuable educational experience. And they experience a sense of cooperation and collaboration. Online collaborative learning could be a valuable additional tool for labour education. More consideration should be given to: the pedagogy of online collaborative labour education; the system design implications of past experiences; the use of OCL in the labour movement; the participation of labour in technology design; and the certification of the learning experiences.

5.6.1. Pedagogy

The roots of participatory education, where the participants help define the curriculum, schedule, activities, and goals of the educational experience, can be found in the peer-to-peer learning efforts of the early labour movement. Workers met in union halls, classrooms, churches and other venues to study their situation collaboratively and devise strategies for improving their working conditions. This tradition can be carried on into the non-physical spaces afforded by computer communications. The key to the success of this transition lies in the adoption of the same sort of techniques which participatory labour education currently uses: an acknowledgement of the existing knowledge of the participants; small group work leading to whole group sessions; participant-negotiated schedules and curricula; discussions tied to current issues in the workplace, and the development of action plans or other knowledge artefacts such as policy documents. Many of these techniques have been explored and implemented by university-based educators who have been adopting the use of online collaborative learning. It is not a question of labour educators adopting a new pedagogy, as they did

in the late 1960s and early 1970s when they moved from traditional lecture-style teaching to the participatory learning methods of the Brazilian Paulo Friere and Myles Horton of the Highlander Folk School in the United States. No such great leap in pedagogical techniques or philosophy is needed simply because the principles of the online university-based community are compatible with those of the labour movement. What is needed, in terms of pedagogy at least, is that online labour educators become more aware of the research and practices of the university-based community and apply the lessons which have been learned.

At the same time, however, the labour movement must be able to maintain what is unique in its approach and practices. For example, there is a fundamental difference between university-based educators and labour educators which must be recognized. The role of the university educator in a collaborative learning environment is to design the educational experience so that the participants learn and create knowledge inside the boundaries of the knowledge paradigm of the discipline being studied. Bruffee points out that the goal of the student in a collaborative learning situation in a university is to join a “larger, more inclusive community of knowledgeable peers” (1993, p. 23). The students are trying to, and expected to, learn and participate in the development of new knowledge in the community they wish to join. Respect may be given to their past experiences, but the goal is to have them become participants in the community of knowledge peers they aspire to join.

This is not the case in the labour movement. The participants who attend labour education activities are already members of their knowledge community. They are people engaged in the conditions and issues of the workplaces they come from. They attend labour education sessions not to win entry into another community (as university

students do), but to better understand how they can improve the wages and working conditions of their co-workers. They are not applicants to another community. This is a crucial difference between university-based and union–based collaborative learning.

The role of the instructor in all of this is important. The university-based collaborative learning community recognizes that the instructor should be a designer of the learning experience. He or she is responsible for creating experiences in which the participants can emulate the knowledge-creating practices of the people in the community to which they wish entry, and learn, at different levels, the knowledge held by that community. The labour educator on the other hand is not a representative of a knowledge community unionists want to join. His or her job is to devise educational situations and provide resource materials so the participants can create new knowledge that is related directly to the workplace. Newman (1993) has best articulated the unique position of the labour educator. He points out that the crucial relationship in a labour education setting is not between the participants and the instructor, but between the participants and the union that hires the instructor. It is this relationship which allows the participants to ultimately control the educational process in which they are engaged. They are the ones in the workplace, hired and therefore controlled by the employer, not the labour educator. Labour instructors have more to learn from the workers than the workers have to learn from them.

This is not at all to say that collaborative learning as practiced in universities and other educational institutes is irrelevant to the labour education community. On the contrary, as this dissertation shows, there is much to be learned from the university-based community by online labour educators, especially as research into the relatively new discipline of online collaborative learning develops. It is simply to say, that labour

educators should approach university-based collaborative learning with a view to adapting not merely adopting the pedagogical tools they discover.

An example of this approach could be the melding of Harasim's Online Collaborative Learning theory with La Luz's organizing-based theory of labour education. They have compatible three-stage phases. In the first phase of the labour education process the participants share information. This is reflected in the first phase of the OCL theory which describes the participants as generating ideas. In the second phase of the labour education process the participants reflect on the information they have and work with it. In the second phase described by the OCL theory the participants work with the ideas they generated and begin to link them. In the final phase of the labour education process the participants develop appropriate strategies and action plans. In the last phase of the OCL theory the participants begin to develop intellectual convergence as they work on a common document or set of ideas. Each phase of the theories echo and complement each other. Significant work could be accomplished, especially in the field of online labour education, by further exploration of their compatibilities.

Labour educators can learn from the lessons being generated by the university-based community of collaborative learning practitioners. But they would best serve the discipline, and the members they work for, if they find ways to work with OCL in ways that are compatible with the participatory, member-directed pedagogies of the labour movement. A critical area of further research for labour education is to study the role of the instructor in facilitating the OCL process and how the artefacts which could be created are suggested or drawn from the group's discussion.

5.6.2. Use of Online Learning

The most obvious potential use of online collaborative learning in the labour movement is for courses in subjects such as shop steward training, health and safety, bargaining skills and economics. But that reflects a narrow definition of labour education – one in which the education is defined as something which occurs in formal settings such as classrooms.

Learning happens everywhere, all the time. This is especially true for working people who are engaged in the workplace for most of their day. Labour education can be built into the everyday practices of union members and union leaders. Instead of thinking of labour education as an activity in a physical location at a scheduled time it could be considered as a continual activity. The early definers of the organizing concept of labour education thought of using the daily experiences of workers as stimulants for learning. All activity in the workplace became opportunities for education. But they were encumbered in the practice of this style of education by the need to call meetings or organize events to discuss the activities which provoked the educational opportunity. However, with computer communications the venue for educational discussions can always be open. Members who are provoked to think about their working conditions by some event in the workplace can be in touch with union-organized discussions via their computers. These computers could be available at work, at home or in cybercafés. The point is that a union educational space is always available to the members or potential members. There is no need to wait for the next meeting, weekend school or month-long course to discuss workplace issues.

Online collaborative learning practices could help this process by being used in ongoing computer conferences to which workers have access. Attracting union members into small group conversations, setting common tasks for groups, facilitating groups to decide on subjects to be discussed and other techniques of online collaborative learning could encourage union members to be in constant communication with their union and, more importantly, other union members.

Other uses for online communications – and therefore the techniques of online collaborative learning – include meetings. This is an especially important potential use of the medium as globalization quickens. Globally-dispersed worker representatives in multinational corporations, for example, do not have the financial resources to meet physically. They could meet online to discuss workplace issues and develop action plans. Some of the Global Union Federations have developed computer communication networks for this purpose, but they use email lists, not computer conferencing which is more suited to group work. If computer conferencing were to become more widespread in the labour movement the principles of online collaborative learning could be invaluable in making it more effective.

5.6.3. System Design Considerations

Murray Turoff, the father of computer conferencing, has set an ambitious but attainable goal: “not only to merely duplicate the characteristics and effectiveness of the face to face class” but to “use the powers of the computer to actually do better than what normally occurs in the face-to-face class (Turoff, 1995, p.1). In the early (1990) formulation of the OCL theory Harasim emphasized the design of the conferencing

system: "... in order to facilitate sense-making and knowledge building within online group discussion activities, the *system* [emphasis added] needs to support three educational processes: idea generating (and gathering), idea linking, and idea structuring" (Harasim, 1990, p 55.) Both Turoff and Harasim worked on building the power of the computer into the system design of conferencing systems (Turoff with EIES and Harasim with Virtual U).

The need to build into conferencing systems methods to aid and improve the educational experience continues. For example, the system should be able to analyze the discourse of a conference and present findings as a participant writes a comment. As he or she mentions an idea a split screen could show an index of other messages which have included the idea explicitly or implicitly. Or, if a participant mentions another participant the split screen could show what other ideas the other participant contributed. Or, a pattern-mapping of ideas could be presented organized according to the three phases of an educational discourse with graphic linkages. Or, a subset of the World Wide Web relevant to the subject under discussion could be being searched with a search engine built into the software and an index of potentially relevant sites displayed. Or, to help the flow of the discussion, an indicator set by the discussion leader or the software could show the group the stage they were at as they moved from idea generating to idea organizing to intellectual convergence. All this, given the processing power potential of computers, could happen at the same time the participant is writing a message. The idea is to use the power of the computer to help the writer contribute to, and be informed by, the collaborative process.

None of this was possible when the early pioneers of online collaborative learning began practicing. But today the sort of ideas presented above are possible

because of the recent coming together of two phenomena: the increasing processing power of computers and the open source “free” software movement. The former provides the technological potential as computers become faster with each new generation. The latter provides a way to harness the interests and talents of thousands of users and programrs to design and build systems which could produce collaborative learning systems which mimic the human mind as an assistant to the process.

Open source provides a new paradigm for software development. Programmers can contribute bits of programming code according to their interest and abilities. Users can participate in the design of new technologies by using the systems and making suggestions. The key is that both groups feel that they are contributing to a collaborative project, not a proprietary product over which they could not exert control or use to make new, as yet unimagined, products. The open source movement should be considered the largest collaborative learning project in the history of humankind. It is the democratic technological community’s reaction to proprietary software and globalization. It could be what makes possible Feenberg’s vision of increasing the “potentialities” in technologies (1991, p. 5) and encourages a new form of civilization based on increased participation in its design and control by working people.

5.6.4. Credentializing Labour Education

As was described in the literature review, the credentializing of labour education has been a controversial topic in the labour movement especially since the 1960s and 1970s when labour studies centres were created in North American universities. Some labour educators based in these centres, such as Dwyer, argued that labour education

should be seen as having a trajectory from the basic union instruction level to the PhD (1977, p. 202). Others such as Mil Lieberthal objected to the “academization” of labour education (1977, p. 235). Union leaders generally saw credentializing labour education as ceding influence to educators who did not report to the union and held no responsibility for day-to-day union struggles.

As with most complicated issues there is truth on both sides of the argument to credentialize or not credentialize labour education. There was no doubt that the unions needed to concentrate on basic union education in the years after the Second World War when legislation was adopted to expand the rate of unionization. It was mainly this sort of basic union education which Lieberthal and others were referring to when they said labour studies courses should be designed in response to requests from workers and unions. But the requests from workers, and increasingly their unions, have changed as the industrial-based economies of the 1940s and 1950s (when unions experienced their greatest growth) change into knowledge-based economies. Education is no longer a peripheral activity relegated to a few years before a person’s working life. It is a life-long need tied to the ever-changing requirements of workplaces organized to handle information and create knowledge. The workers in these workplaces are demanding life-long learning. In unionized environments they are asking for their unions to represent them by negotiating educational benefits with their employers, such as paid tuition and time off for education. Some unions, such as the UK’s UNISON, are responding to these requests by organizing educational programs which help workers expand their learning capabilities and working with national accrediting agencies or universities to provide access to university or college education. If unions are to survive and expand in the 21st century, especially in developing countries, they need to pay attention to the broader

educational needs and aspirations of their members. One approach they could use is to promote the adoption of ILO Convention 140 on Paid Educational Leave which specifically mentions union education for workers.

From a labour perspective Dwyer was incorrect in posing the labour education trajectory as extending from teaching the basics to a PhD. Labour education has goals, pedagogies and requirements which differ from those of universities. First, its instructors still need to pay attention to Newman's reminder of the third contract where the member-participants control the educational process through their union (1993, p. 39). This control is not possible in a university setting. Second, the emphasis in labour education must remain on the group not the individual, as is the focus in university-based education, because group solidarity is at the core of unionist philosophy and action. Third, while there may be a need for people with undergraduate or even Master's degrees to teach specialized subjects, there is no great need for union-based labour educators to have PhDs.

At the same time, labour unions should be complementing their labour education offerings, as UNISON is doing, by providing opportunities to their members to link into the accredited educational pathways of their countries. This should be done, not as an extension of labour education, but as recognition that higher education is a requirement of the new knowledge-based workplaces. Just as health and safety provisions are crucial in industrial workplaces, educational opportunity is crucial in knowledge workplaces. This needs to be recognized in national legislation as is the case in the UK.

There are two exceptions to the rule that generally union labour educators do not need a PhD in labour education. The first is tied to the establishment of labour-controlled universities such as the National Labor College in the United States. Institutions such as

these need labour educators with PhDs in order to make university-level organizational and pedagogical decisions and perhaps conduct basic research. But these sorts of institutions are few. The second is related to the need for some labour educators to act as mediators in the boundary between labour organizations and universities as unions begin to recognize the complexities of knowledge-based workplaces. These educators need the understanding of academic work which education at the PhD level provides. At the same time though they need to have experience in the labour movement so they understand labour education's particular methods and goals, especially those not related to academic demands. The labour movement needs at least some people who come out of the movement to earn a PhD and pay attention to the boundary discussions between unions and universities. This was a major motive for my work towards a PhD.

None of this is to say that *all* credentialized labour education needs to be tied to university-based education. The case study conducted for this dissertation showed that a non-university credential such as the International Computer Driver's License can be as motivating as a university degree in online courses precisely because it is seen as tied to the workplace. It may possibly be even more immediately motivating because it can be earned after a few months work instead of years of study.

An avenue which should be explored in online labour education is the development of an educational environment which includes a blend of educational opportunities. For example, an online international labour university could be established to provide short courses tied to workplace issues and skills and longer courses leading to a degree. Ideally this would be accomplished within the context of a labour-controlled international university. But that may be too ambitious given labour's lack of resources and its current focus on protecting itself from forces interested in its demise. The

alternative within reach is to build an online collaborative learning labour organization – perhaps an Internet Labour College – with ties to accredited organizations such as universities and the credentializing agency of the International Computer Driver's License. For these ideas to come closer to being implemented more research into the issues related to online labour education is needed.

5.7. Further Research

This dissertation, the first to study the use of online collaborative learning for the staff of unions in developing countries, has provided evidence that the labour movement can effectively use the medium for labour education. As the first dissertation to address the issue it provides answers and raises questions.

It answers the over arching question: How is it possible to practice effective labour education via computer communications? The answer is: through the use of collaborative learning aimed at the production of useful knowledge artefacts.

The case study performed for the dissertation provided evidence that learning can take place in online labour education courses; that participants in such courses have a high perception of learning and that courses conducted according to collaborative learning principles can promote a high sense of collaboration and community amongst participants. While there may be need to further confirm the findings of this dissertation with courses conducted with participants from other cultures (especially Asian cultures which were not involved in the case study) and languages (the course was conducted solely in English) it should be accepted that effective online labour education is possible. The next step should not be more research into the possibility, but implementation of the findings of this dissertation. More online international labour education courses should

be conducted with the use of collaborative learning techniques and knowledge-building. This would not only provide more educational opportunities for union staff and members, but also generate a large collection of data which could be used for further research.

As for the questions raised by the dissertation that need to be addressed, they can be grouped into two categories: system design and pedagogy.

There is a need to further explore how computer conferencing systems can be used to aid the discourse of a collaborative learning activity. How can the computer system provide support for idea generating, idea organizing and intellectual convergence in online courses and, more specifically, how can it do so in labour education courses? The first part of this question was formulated by Harasim in 1990 and is still relevant. The second part flows out of the work of this dissertation: How can we design a computer conferencing system to support labour education?

The pedagogical questions concerning collaborative learning and labour education echo many of the questions being addressed by the wider collaborative learning research community. The role of any online labour educator interested in expanding the use of OCL in the labour movement should be to attend to the lessons being learned in that wider community. Specific research within the labour movement, possibly by labour studies centres, might concentrate on questions such as: What is the role of the labour educator in online labour education courses? What sort of organization could be created to promote online labour education? What sort of useful knowledge-building artefacts could promote linkages between online collaborative learning and the workplace?

By addressing these kinds of questions researchers could make contributions to both online labour education and online collaborative learning, and in the process, help improve the conditions of the world's working people.

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APPENDICES

APPENDIX A.

PARTICIPANT COUNTRIES

Country	Number of participants
Antigua	1
Bahamas	1
Barbados	1
Belize	1
Bermuda	1
Eritrea	1
Ghana	1
Grenada	1
Guyana	1
Jamaica	1
Kenya	1
Mauritius	3
Montserrat	1
Nigeria	1
Palestine	1
Sierra Leone	1
South Africa	1
St. Kitts	1
St. Vincent	1
Suriname	1
Tanzania	2
Trinidad	4
Uganda	2
Zambia	3

APPENDIX B.

PARTICIPANT ORGANIZATIONS

- Antigua and Barbuda Workers' Union
- AVVS de Moederbond (Suriname)
- Barbados Workers' Union
- Bermuda Industrial Union
- Central Organization of Trade Unions (Kenya)
- Ghana Trade Union Congress
- Guyana Trades Union Congress
- ILO Trinidad and Tobago
- ILO South Africa
- Jamaica Confederation of Trade Unions
- Mauritius Trade Union Congress
- Montserrat Workers' Union
- National Organization of Trade Unions (Uganda)
- National Confederation of Eritrean Workers
- National Trade Union Congress of Belize
- Palestine General Federation of Trade Unions
- Sierra Leone Labour Congress
- St. Kitts-Nevis Trades & Labour Union
- Trade Union Congress of Tanzania
- Zambia Congress of Trade Unions
- Nigerian Labour Congress
- National Congress of Trade Unions (Bahamas)
- National Trades Union Confederation (Mauritius)
- National Trade Union Centre of Trinidad and Tobago
- National Workers' Movement (St. Vincent and the Grenadines)
- National Union of Government and Federated Workers (Trinidad and Tobago)

APPENDIX C.

QUESTIONNAIRE:
PARTICIPANT INFORMATION TECHNOLOGY USE

Do you have access to a personal computer at the office?
- no: 0
- yes, just for me: 24
- yes, but shared: 8
- yes, but limited access: 1

If you use a computer at the office is it connected to the Internet?
- no: 3
- yes, by phone: 20
- yes, via LAN: 10

Do you have a personal computer at home?
- yes: 16
- no: 17

Do you have Internet access at home?
- yes: 10
- no: 23

Do you use email?
- sometimes: 2
- often: 9
- everyday: 22

Do you have your own email address?
- yes: 31
- no: 2

Do you use email for union business?
- no: 2
- sometimes: 9
- often: 12
- daily: 11

Do you use email for private correspondence?
- no: 2
- sometimes: 9
- often: 12
- daily: 10

Do you use the Internet?
- sometimes: 1
- often: 9
- every day: 23

Skill Levels

How long have you been using a computer?
0-1 years: 1 1- 3 years: 2
3-5 years: 7 more than 5 years: 23

How would you evaluate the level of your computer skills?
beginner: 3 intermediate: 25 expert: 5

Can you install new software?
yes, easily: 19
yes, but with difficulty: 12
no: 2

How would you evaluate your Internet skills?
just starting: 1
beginner: 3
intermediate: 24
expert: 5

How would you evaluate your email skills?
just starting: 1
beginner: 3
intermediate: 20
expert: 9

Can you teach people how to use email?
yes: 30
no: 3

Can you teach others how computers work?
yes: 31
no: 2

Would it be possible for staff members of your organization to participate in educational courses conducted via the Internet?
yes: 33
no: 0

Does your organization have a staff training programme?
yes: 8
no: 25

If it does have a staff training programme, does this programme include training for information technology?
yes: 6
no: 2

APPENDIX D.

THE CLASSROOM COMMUNITY SCALE

Potential responses are: Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree

C	01	I feel that participants in this course care about each other
L	02	I feel that I am encouraged to ask questions
C	03	I feel connected to others in this course
L	04	I feel that it is hard to get help when I have a question
C	05	I do not feel a spirit of community
L	06	I feel that I receive timely feedback
C	07	I feel that this course is like a family
L	08	I feel uneasy exposing gaps in my understanding
C	09	I feel isolated in this course
L	10	I feel reluctant to speak openly
C	11	I trust others in this course
L	12	I feel that this course results in only modest learning
C	13	I feel that I can rely on others in this course
L	14	I feel that other students do not help me learn
C	15	I feel that members of this course depend on me
L	16	I feel that I am given ample opportunities to learn
C	17	I feel uncertain about others in this course
L	18	I feel that my educational needs are not being met
C	19	I feel confident that others will support me
L	20	I feel that this course does not promote a desire to learn

Note. Statements marked with C are the Connectedness subscale.
Statements marked with L are the Learning subscale.
The sense of community is calculated using all the statements.
(Rovai, 2002b)

APPENDIX E.

COURSE MODULES

Course Module 1

Title:	The International Computer Drivers License
Date:	January 24, 2005 to February 14, 2005
Course type:	Document production
Active participants:	33
Number of messages in main conference:	257
Average number of messages read:	95%
Number of messages in group leaders' conference:	60
Objective:	Negotiate course objectives and introduce ICDL

This module was aimed at negotiating the objectives of the course with the participants. Two choices were provided: 1) that the course be conducted as a general course on information technology and 2) that it be conducted as a preparatory course for the examinations set by the credentializing agency of the International Computer Driver's License. The participants indicated that they wanted to work towards the ICDL certificate.

Once the participants decided on the objective of the course they were asked to choose two people in the group, one to act as a conference discussion moderator and one to act as a reporter. This led to some discussion and eventually the choice of two participants. A parallel conference was established for the group leaders and the instructor to discuss the activity in the main conference. The practice of electing two group leaders and providing them with a private conference was continued in all the modules.

The instructor then set a task for the module: the creation of a common document that would serve as an application to the ICDL credentializing agency.

The discussion leader began to solicit ideas through discussion in the main conference and the reporter created a draft document. The draft was presented to the group for discussion and, with some amendments, adopted by the participants.

At the end of MODULE #1 participants decided that all subsequent modules be conducted with three weeks of discussion and group work and one week in which the discussion leader and reporter would prepare a report of the activity in the module. This also provided a 1-week space between modules. This conference was chosen as one of the three to be analyzed more closely with the theory of online collaborative learning.

Course Module 2

Title:	Information Technology Concepts
Date:	February 21 to March 4, 2005
Course type:	Active collaborative reading
Active participants:	33
Number of messages in main conference:	131
Average number of messages read:	89%
Number of messages in group leaders' conference:	37
Objective:	Introduce basic computer hardware concepts

The ICDL credentializing agency dictates a set of skills which participants are expected to have in order to pass the examination for a particular module. The required skills for this module included:

- Understand the general concepts of hardware and software and how these are related to the field of information technology.
- Understand and be able to distinguish between the different types of computer systems.
- Know the main parts of a personal computer system.
- Know the factors that impact a computer's performance.

The collaborative task set by the instructor for this module was for the participants to read the course material and prepare a list of questions and answers concerning the topic. The task question was: "What are the fifteen most important questions unionists in developing countries have about computer hardware?" Each participant was expected to contribute a unique question to the list and then the group would decide which were the 15 most important. In this way the participants were encouraged to read the material with potential questions in mind and then participate in a discussion concerning which 15 of all the submitted questions were the most important for unionists in developing countries.

Course Module 3

Title:	Computer software
Date:	March 21 to April 10, 2005
Course type:	Active collaborative reading
Active participants:	32
Number of messages in main conference:	78
Average number of messages read:	87%
Number of messages in group leaders' conference:	13
Objective:	Introduce basic computer software concepts

The skills participants were expected to have at the end of this module included:

- Distinguish between application and systems software.
- Understand the reasons for software versions.

- Understand the functions of an operating system.
- Be aware of the different operating systems.
- Be aware of common software applications and their uses.
- Understand the term graphical user interface (GUI).
- Understand how computer software systems are developed.

The same active collaborative reading strategy as employed in the previous module was used in this module. This was one of the modules used by the coders for practice before they coded the three conferences that were chosen for more detailed analysis.

Course Module 4

Title:	Computer networks
Date:	April 18 to May 9, 2005
Course type:	Active collaborative reading
Active participants:	30
Number of messages in main conference:	53
Average number of messages read:	89%
Number of messages in group leaders' conference:	17
Objective:	Computer networks

The skills expected of the participants after this module included:

- Understand the terms local area network and wide area network.
- Understand the term client-server.
- Know the reasons for using a network.
- Understand the term intranet.
- Understand the term extranet.
- Understand the concept of the Internet and its uses.
- Understand the use of the telephone network in computing.
- Understand the terms analogue, digital, modem and transfer rate.

As in the previous two modules an active collaborative learning strategy was used in this module.

Course Module 5

Title:	IT use in society
Date:	May 16 to June 5, 2005
Course type:	Active collaborative reading
Active participants:	32
Number of messages in main conference:	47
Average number of messages read:	89%
Number of messages in group leaders' conference:	9
Objective:	Describe uses of information technology in society

The skills expected of the participants after this module included:

- Identify situations where a computer system may be appropriately used.
- Recognize some of the uses of computer applications in business, government, hospitals and healthcare, and education.
- Understand the term teleworking.
- Understand the term electronic mail.
- Understand the term e-commerce.
- Be aware of the advantages and disadvantages of purchasing goods and services online.

As in the previous three modules an active collaborative learning strategy was used in this module.

Course Module 6

Title:	The Internet
Date:	June 13 to July 3, 2005
Course type:	Technical workshop
Active participants:	30
Number of messages in main conference:	25
Average number of messages read:	58%
Number of messages in group leaders' conference:	14
Objective:	Training in web browser

The skills expected of the participants after this module included:

- Understand the term web browser.
- Know how to install a web browser.
- Understand the basic operations of a web browser.
- Understand the concept of a web search engine.

This was the first technical workshop of the course. Participants discussed how to install and use an open source web browser called Firefox. The browser was then used to operate a web search engine.

Course Module 7

Title:	Electronic mail
Date:	July 11 to August 1, 2005
Course type:	Technical workshop
Active participants:	30
Number of messages in main conference:	189
Average number of messages read:	63%
Number of messages in group leaders' conference:	21
Objective:	Train in use of email client program

The skill set expected of the participants after this module included:

- Understand how email works.
- Recognize the structure of an email address.
- Know the major types of email services.
- Understand how email clients work.
- Understand the terms SMTP, POP, IMAP and MIME.
- Understand the advantages of using an open source, free, email client.
- Install and use Thunderbird.

This technical workshop proved the most difficult for some participants. Most had not used an email client (preferring to use an web-based program such as Microsoft Hotmail). As well, office firewalls proved to be a difficulty for some.

Course Module 8

Title:	Creation of websites
Date:	August 8 to August 29, 2005
Course type:	Technical workshop
Active participants:	30
Number of messages in main conference:	230
Average number of messages read:	88%
Number of messages in group leaders' conference:	34
Objective:	Train in use of website creation programs

This subject is not part of the ICDL syllabus. It was added at the request of the participants. The open source programs Nvu, Firefox and Filezilla were used to create websites.

Course Module 9

Title:	Key issues in the use of online collaborative learning for the staff of unions in developing countries
Date:	September 6, 2005 to October3, 2005
Course type:	Document producing
Active participants:	30
Number of messages in main conference:	71
Average number of messages read:	86%
Number of messages in group leaders' conference:	27
Objective:	Produce a document on Key issues in the use of online collaborative learning for the staff of unions in developing countries.