AN INVESTIGATION OF PROFESSIONAL DEVELOPMENT OF THE APPRENTICESHIP AND TRADES PROFESSORIATE IN TWO ONTARIO COLLEGES

By

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
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Abstract

This thesis is an exploratory investigation of how apprenticeship instructors in two of Ontario's colleges perceive and have experienced professional development over the duration of their careers and the role their employer-colleges, played in that professional development. As the primary agents for skills and knowledge transfer, the instructors of apprenticeship training provide a key role in preparing competent, skilled-trade workers for a complex and changing work environment.

This research is relevant at this time because of the many changes to the Colleges of Applied Arts and Technology since their inception in the mid-nineteen-sixties. The original mission of the colleges, to deliver occupation preparation programs has evolved to a much-expanded mandate to include degree granting. Other changes include a much more diverse student population with diverse needs, backgrounds and values. Have the apprenticeship instructors received the requisite training and development to deal with changes in technology, student needs, teaching and learning strategies and the evolving complexities of the college environment?

This study contributes to the literature of professional development in the apprenticeship professoriate by examining the perceptions, attitudes and behaviours concerning professional development. The findings reveal that there are issues of physical location, discourse and methods of instruction, unique to apprenticeship training, which have a profound impact on the
Data were attained from a series of in-depth interviews, which revealed that the apprenticeship instructors are a dedicated and motivated group of educators who are committed to providing the highest quality of education to their students. However, the professional development offered or supported by the college-employers attracts very little, if any, participation by the apprenticeship professoriate. The findings indicate that changes to facilitate the active participation in professional development, creating a more inclusive environment between the apprenticeship instructors and other faculty members and restructuring the professional development programs to include review and evaluation of every faculty member's needs would create a more comprehensive and continuing enhancement of instructors' capabilities and student learning outcomes.
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Chapter One

Introduction

The purpose of this study is to conduct an exploratory descriptive examination of the professional development of the faculty, who are engaged in the delivery of apprenticeship and trades courses in Ontario Colleges of Applied Arts and Technology and the Institutes of Technology and Advanced Learning.

In a speech to the Ontario Legislature in 1965, William G. Davis, the Minister of Education, announced the creation of Colleges of Applied Arts and Technology (CAATs). These new institutions would provide a post-secondary education path beyond grade twelve that would operate in parallel to the existing Ontario Universities. The newly established Ontario colleges would be an alternative to the degree-stream university programs, and would provide a different type of training that universities are not designed to offer. These programs would be occupation-oriented and designed to meet the needs of the local community. Specific areas of study cited in this seminal announcement included a broad offering of applied arts at the technician and technologist level, business, health care and trade skills including pre-apprenticeship and apprenticeship training.

While a great deal of research and preparation had been invested in the new CAAT sector, the Davis speech recognized that there had not been "an opportunity to investigate thoroughly the source of supply and form of training required for the members of the staff of these new colleges" (Davis, 1965, p.11). It was the assumption at that time, that faculty would be drawn from experienced workers in industry as well as some experienced secondary school teachers moving to new college opportunities. While this inaugural speech spent a great deal of time detailing the role of the new colleges, very little consideration was given to how instructors with industry experience in their trades would obtain the skills they would need to teach
effectively. It was expected that these new teachers would be effective "From experience gained elsewhere, and within our own province in the case of institutes of technology and vocational centres" (Davis, 1965, p.11).

It was noted by Watson (1971) that in 1967/68 the Ontario CAATs employed 1832 teachers, of which a total of 838 had been recruited from education institutions. "In other words, 45.7% had been teaching something somewhere the year before and 54.3% had been recruited from business or professional practice" (Watson, 1971, p.321).

An issue, that received little attention when the Ontario college systems was established was the need for skilled trades people to develop a completely new skill set to be effective as classroom teachers. In later studies, (Mealya 1989; James, 1997; Wilson 2010) it was identified that career changers, specifically people who had achieved content expertise in a specific area had a number of issues that were particularly challenging to overcome when they move into a teaching role:

Two studies undertaken in Australia focussed on male trade teachers, and suggested that there was a tendency for these students to retain a strong identity with their previous careers, and that this negatively impacted on their learning in teacher education. For example, Mealya (1989) found that the students in his study were very resistant to what they saw as a challenge to their identity as tradespeople, and unhappy about being “relegated to the role of novice” (p. 190).

James (1997) argued that career changers with a strong occupational identity tended to resist new ideas, and to challenge concepts about teaching and learning presented in their courses. She found that such
negativity adversely affected group interaction, relationships with lecturers and
supervising teachers, and lead to poor opinions of teacher education.

In the United States, Koeppen and Griffith (2003) found that career
change students often resisted the need to learn more in order to
become effective teachers, as they believed their extensive content
knowledge was sufficient. However, Koeppen and Griffith found that
while many career changers had technical competencies (for example,
computer literacy) they did not necessarily have the pedagogical skills
required to teach such content knowledge to students. They also found
that many career changers ‘defaulted’ to the beliefs about learning and
teaching that were predominant in their own school experiences and
therefore felt more comfortable using traditional teacher-dominated
pedagogies rather than embracing more current theoretical perspectives.
This is reflective of the claims made by Zeichner and Gore (1990) that many
teachers are considerably influenced by the relationships they had with
teachers during their own school days, and were likely to replicate these
in their own teaching. (Williams, 2010, p. 639)

This study explored how apprenticeship and trades instructors in the Ontario CAATs
perceive and have experienced professional development over the duration of their careers. The
study also explored the professional development goals, processes and outcomes of the
institutions where the faculty deliver apprenticeship and trade courses.

The focus of this study was to examine how qualified trades people were prepared to
move from trade type work to classroom instruction, what challenges they encountered in the
transition and how they have attempted to remain effective in the delivery of trades training in an era that has seen many changes. Changes that they have encountered may include the technology of the trade work, the methods of training used in the classrooms and the characteristics of the students they teach.

The Problem

The CAATs, established in the late sixties, had the mandate to provide comprehensive occupation-based training at the two-year and three year diploma levels that would allow graduates to enter the workforce in skilled and semi-skilled roles. Additionally the CAATs would become the major source for apprenticeship training. For the classroom portion of the skilled trades training, apprentices would attend three or four sessions scheduled at intervals over the eight to nine thousand hours of work experience required to attain provincial certification in their particular trade. The sessions were typically eight to ten weeks and varied according to the regulations governing a specific trade. The instructors who would teach the trade and apprenticeship type courses were individuals who were licensed in their trade, having met Province of Ontario standards for a particular trade and had demonstrated acceptable relevant work experience (Price-Waterhouse, 1993). The colleges had to provide some basic training in instructional techniques for the new teachers and then they could deliver the programs based on personal and work-life experiences. The students entering these trade-apprenticeship programs were typically recent grade ten or grade twelve graduates, depending on the province of Ontario requirements to attain specific trade certification, predominately male and most had received their secondary school instruction in English.

Today the Ontario colleges have grown and evolved from vocational-based training institutions to 24 large and very diverse learning centres. In 2000, the Government approved
legislation that would allow colleges to offer degrees in applied studies (Postsecondary Education Choice and Excellence Act, 2000), subject to ministerial approval on the recommendation of the new Postsecondary Education Quality Assessment Board (PEQAB).

Even greater flexibility was obtained under the new charter legislation, the Ontario Colleges of Applied Arts and Technology Act, 2002 that allowed colleges to collaborate with industry to develop new diverse curricula and enhance private funding opportunities:

Times have changed since the founding of the Colleges of Applied Arts and Technology by then Education Minister William Davis. The workplaces that colleges are seeking to serve demand immediacy, virtualization and integration, qualities not found in traditional *academe*. The average age of college students is 26. Only 40% of college applicants apply directly from secondary school; 40% apply from the home or workplace; and 20% apply from other postsecondary institutions, either college or university.

Funding has also changed significantly during the past decade: per student, grants have decreased from over $5,000 to under $3,000. Tuition has increased by 109% during this time, creating barriers to access and significant student debt. In an increasingly competitive market, colleges have worked extraordinarily well to identify new sources of revenue and to maintain productive business alliances.

(Association of Colleges of Applied Arts and Technology of Ontario 1999, p.4)
The student body has changed dramatically as well, reflecting the increased diversity of the population of Ontario. When the colleges opened, the students were 70% male but only 44% of the students are male today, (Rae 2005). The participants in programs may be significantly older, supporting families and English may not be their first language. More recently, the Rae review, which focused on people entering the programs offered at Ontario's colleges during the past decade, found that the current students might have significantly different attitudes, abilities and expectations than the students at the time of the CAAT's seminal years (Rae 2005).

Additionally, the cultural diversity is increasing in the Ontario population for which the colleges provide education. The 2006 census indicates that 28.3% of Ontario's population are immigrants (Statistics Canada, 2006), the highest in Ontario's history, drawing people from diverse cultures including South Asia, China and the Caribbean and students arriving with very different cultural backgrounds may have different issues and needs that will have to be addressed in the classroom.

The CAATs are still mandated to provide vocational type training (Rae 2005), but the students participating in the programs and the environment in which the curricula are delivered have changed a great deal. I found no scholarly writing that focused on the instructors who teach the apprenticeship and trade courses regarding continuous professional development that will enable them to cope effectively in this changed student population and evolving environment.

Technology, work methods, materials and regulations that apply to trade work are constantly reviewed and revised to provide improved products, services and safety. The instructors, who no longer work in industry where they would have been exposed to learning and application of new technology and methods, must use alternative means to learn and master new knowledge and skills resulting from these changes and then be prepared to integrate them into
the curriculum. Without incorporation of these technological advances into the curriculum of the programs offered, students will graduate unprepared for the type of work and situations they will be confronted with when they enter industry.

The technology used to deliver the classroom instruction has undergone substantial changes over the last several decades, moving from acetate slides on an overhead projector and print based materials to computer generated and projected graphics, animation and computer simulation. Additionally, in an attempt to reach more students in the most cost effective manner, on-line learning or e-learning is being explored by a number of colleges, including the institutions featured in this study (Bates, 2010). If these materials, technologies and methods are not incorporated effectively into the classroom delivery or the new e-learning format, the students will miss opportunities to achieve the best learning outcomes possible.

Moreover, have the instructors acquired the professional and interpersonal skills to deliver programs to the much-changed student and learning environment? Curriculum, learning styles, and multiple intelligences (Kolb, 1984; Pratt, 2002; Wilson, 2004; Pashler et.al., 2009) are just some of the areas where new ideas have emerged and been incorporated to teaching and learning. Given these changes, it is logical to ask whether instructors have developed and maintained the necessary skills, knowledge and attitudes to teach in a student-centre manner that will engage the students, assist the students in mastering the curriculum and encourage them to participate fully through completion of the program. Van Ast nicely summarized how teaching in the community colleges of the past decades had changed and captured the shift in community college paradigm that the instructors would have to manage:
Table 1- Paradigm Shift

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Old Paradigm</th>
<th>New Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transferred from the faculty</td>
<td>Jointly constructed by students and faculty.</td>
</tr>
<tr>
<td>Students</td>
<td>Passive vessel to be filled.</td>
<td>Active constructor, discoverer by faculty's knowledge transformer of own knowledge</td>
</tr>
<tr>
<td>Faculty purpose</td>
<td>Classify and sort students.</td>
<td>Develop student competencies and talents.</td>
</tr>
<tr>
<td>Relationships</td>
<td>Interpersonal relationships</td>
<td>Personal transactions among student and between students and faculty</td>
</tr>
<tr>
<td>Context</td>
<td>Competitive, individualistic</td>
<td>Collaborative learning in classroom and collaborative teams.</td>
</tr>
<tr>
<td>Assumptions</td>
<td>Anyone can teach</td>
<td>Teaching is complex and requires considerable training.</td>
</tr>
</tbody>
</table>

(Van Ast, 1999)

This table demonstrates a change in thinking with regard to education that has evolved over the last few decades. Previously, a teacher-centred approach was used to transfer knowledge to students who were presumed to be prepared to receive knowledge at a given level of complexity as determined by a one-size-fits-all standard—age or grade level. The more recent thinking under the new paradigm, which is a student-centered approach, shows a more active and participative role for the student and a more integrative-facilitator role for the teacher. These concepts are discussed more thoroughly in Chapter Two, under the review of Adult Education. It should be noted that the last row in the table is of the great relevance to this study.

In the discussion of teaching and learning in Chapter Two, it will be evident that teaching is a very complex profession that needs considerable and on-going development to remain effective in achieving optimum student learning outcomes.

The research questions for this study were:

1. How do the instructors of apprenticeship and trades programs understand and assess their own professional development?
2. What types of professional development do the instructors of apprenticeship and trades programs feel they need in order to remain effective in a much changed institution and student population?

3. What institutional policies, programs and structures are in place to provide and evaluate the professional development the instructors feel they need to remain effective in skills and knowledge transfer and positive learning outcomes?

The first question is to determine if the informants value professional development and what strategies they used to plan and participate in professional development activities. The second question looks at what specific types of professional development informants feel they need to remain effective teachers because of changing student characteristics and approaches to education. Finally, question three is used to determine what is provided by the colleges to develop teachers continuously in the three domains of learning viz- psychomotor skills, cognitive skills and the affective domain that includes attitudes. These are discussed in Chapter Two, under the heading of Learning Styles.

I developed interview questions to allow the informants wide latitude in describing their experience with professional development. By using very broad and open-ended questions, I was able to explore the informants’ experience by encouraging them to speak about what they perceived as important with respect to professional development. The questions were used as prompts to talk about areas of professional development rather than seek specific information by using highly structured question. The questions were designed to explore the processes the informant used to think and plan their development throughout their career, followed by a discussion of what development activities they had participated in and finally, the role had the institutions had in the instructors' professional development.
Rationale

For centuries, trade skills were passed traditionally from father to son. Today, apprenticeships have changed immensely in response to the increasing complexity of the skills that are needed in the trades today, the changing environment of skills transfer from master to apprentice to an institutional administered system and the changing needs and personal backgrounds of the student-apprentices themselves. The continually evolving role of the colleges in the Ontario system further influences apprenticeship training. While the CAATs are now engaging in applied research (New Charter, 2002) and five colleges have the special "differentiated" status of being able to offer up to 15% of their curricula at the degree level and are given the title of Institutes of Technology and Advanced Learning (ITAL), the importance of the colleges in providing trade-skills education remains essential as stated in the Rae Report:

Recognize apprenticeship as a postsecondary destination,

and treat the apprenticeship programming delivered

by colleges as a core business. Assign to colleges the
government’s role in administration and outreach to employers

(for those apprenticeship programs in which colleges deliver

in-school training). Union training centres will continue
to play their vital role. (Rae, 2005, p. 48)

With the continuing emergence of a knowledge-based economy, the need for post-secondary credentials including college, university and apprenticeship training is increasing. Presently in Canada and the United States, it is estimated that 60% of the workforce has these required post-secondary credentials and by 2031, the increasing knowledge-based work will
require that 77% of the workforce will need training and education beyond secondary school level. (Miner, 2010)

With many factors affecting projections of workforce demand and workforce supply in Ontario, including aging and the pending retirement of the baby-boomer cohort, immigration of skilled workers and fluctuating world economies, the increased level of knowledge-base work and the need to produce skilled workers cannot be ignored. In a Miner's (2010, p.8) report, the growing need for training workers beyond the secondary school level to provide skilled workers essential to Ontario's economy is emphasized:

Here at home the Ontario Ministry of Education (2005)

concluded that 81% of the new jobs created in the province between 1996 and 2001 required management training, apprenticeship training, or a college or university diploma or degree. (Minor 2008, p. 10)

More recently, the Construction Safety council warns of a looming shortage of skilled trades workers in Ontario:

The council has predicted the province will need an additional 120,000 skilled trades people over the next nine years to meet the demand created by a growing number of mining and infrastructure projects and fill the void left by retiring baby boomers.

The 120,000 figure includes 43,000 new skilled trade workers to meet the needs of new projects and an additional 77,000 to replace workers who are expected to retire. (Construction Centre Council, 2012 n.p.)
The need for more trades workers and perhaps better ways of attracting, training and retraining skilled trade workers has been recognized by the Ontario government:

In 2009, legislation was passed to establish the Ontario College of Trades, a regulatory college that will modernize the province's apprenticeship and skilled trades system. The College will encourage more people to work in the trades and help the system better serve employers, skilled tradespeople, apprentices and consumers.

(Ministry of Training Colleges and Universities, 2009)

In Ontario, the college system is the primary source for skills transfer in this vital trade and apprenticeship type work and the agent of that transfer is the classroom instructor. If these trades instructors do not continuously develop and maintain their skills to provide the optimum instruction and support to the students we will have under-prepared workers who cannot perform to the production and safety standards required to be global leaders of industry. The need for this investment of continuous training is emphasized in a recent report from the Organization for Economic Co-operation and development (OECD, 2012) which identifies Canada as a country of low productivity and recommends investment to improve quality and access to post-secondary education to maintain the supply of highly skilled workers.

Researcher's Perspective

I personally completed an indentured apprenticeship in the 1970's with the classroom sessions provided partially through a CAAT program and the balance through my employer's in-house training facilities. I later became a trainer and then a training manager for twenty-two years at my employer’s training and development centre. With this exposure to apprenticeship training from the three different perspectives of student, instructor and manager, I came to
realize the value of investment in preparing and maintaining instructors to meet the complex and evolving needs of the students. Knowing the applicable trade skills is an essential part of the instructor's role, but just as important is knowledge of the curriculum, communication, learning styles and teaching methodology. I believe it is essential to ascertain if apprenticeship-trade instructors are being professionally developed and maintained to make a vital contribution to the needs of individuals, employers and the economy of the future as a whole.

The Research

The objective of this study was to conduct an exploratory investigation of professional development of instructors who teach trade-apprenticeship courses in the Ontario college system. What are the perceptions and opinions of the faculty and the administrators of institutions regarding accountability for professional development, and what is included or should be included in a professional development program? Administration of the program, the perception of program effectiveness and evaluation of the programs were additional areas of exploration.

The research process included the collection and analysis of data, gathered through interviews with faculty members and representatives of the institutions in which they teach, to identify themes and topics that  may a) assist in prediction and explanation of behaviours with regard to professional development, b) be usable in a practical application of designing, developing and delivering professional development programs and c) provide the groundwork for future research in specific areas of policy focusing on professional development.

Because the data generated are the opinions and perceptions of the informants, this is a qualitative study that required careful analysis of the information and personal views expressed by the informants. Themes and descriptions emerging from the analysis are reported and will be
of interest to institutions with similar programs and potentially provide the foundation for additional and more in-depth research.

Interviews were conducted with instructors at two Ontario colleges where a variety of traditional skilled trade apprenticeship courses are delivered. Open-ended questions explored what initial training they received to facilitate their career transition from performing trade work to classroom instruction, in what professional development they had participated and what support they received through professional development to ensure positive student learning outcomes in an environment that has changed over the past ten to fifteen years of their teaching career. Faculty participants were selected from two different institutions, one College of Applied Arts and Technology and one Institute of Technology and Advanced Learning (ITAL), to provide a cross-section sample of the two different types of colleges in Ontario. Triangulation of this study includes interviews with college administration representatives from each institution, to explore their institution's philosophy and policies of professional development and the structures in place to support professional development of faculty. The college representatives were also asked whether there has been special consideration for different groups within the faculty. Finally, a review and analysis of the institutions' documents relating to professional development programming identified actual program architecture, availability and faculty participation in professional development programs.

Scope and Limitations of the Study

The sample size of the study was small using a total of eight instructor informants from two different colleges; the rational for this sample is discussed fully in Chapter Three-Methodology and Procedures. Additionally, a representative from each college was interviewed to provide at their institution's perspective. The small sample allowed interviews to be loosely
structured and explore areas rather than answer discrete questions, which may have limited the exploratory nature of the study. In addition, I carefully reviewed and analyzed information on the professional development activities provided by these colleges through a detailed review of relevant documents and web-based information.

The two institutions selected for this case study included one CAAT and one ITAL with both institutions having comprehensive apprenticeship programs. One college was in Toronto and the other college in southern Ontario. Both colleges have comprehensive areas of study other than apprenticeship programs and both colleges have multiple campuses. Eight faculty teaching electrical and mechanical based apprenticeship programs were selected for this study, as they represent two distinct areas of trade work, which would draw informants from a variety of different industries and types of work. While the sample size is small, all other Ontario colleges will have similarities in that they are governed by common legislation, will have similar funding models and their apprenticeship programs must satisfy the same Trades and Apprenticeship Qualifications Act (1990), Apprenticeship Certification Act (1990) and Ministry of Training Colleges and University criteria. For this reason, findings of this study will be of strong interest to other institutions who offer similar programs. The findings of this study cannot be generalized to other programs or institutions; they will however, provide important information for other Ontario colleges and provide a step towards addressing a gap in the literature related to the issues of professional development for faculty teaching in these programs.

Having done considerable hands-on work of both mechanical and electrical nature, I developed a life-long interest in this type of work and enjoy both doing this type of work and associating with people of similar interests. Limiting the sample size to eight instructors
afforded the time necessary for in-depth interviews allowing the informants to relate any perceptions, beliefs and experiences that provided rich data for analysis.

Finally, I have very strong interest in personal development and life-long learning. I had to remain vigilant to ensure my beliefs and preconceptions did not influence the informants or influence the information and insights they offered. With the participants’ consent, the data collected were audio recorded and transcribed verbatim. A standardized script for each interview and a review my own notes in a self-reflection log ensured as much as possible the analysis of the data was not biased by my personal background and beliefs.

**Organization of the Thesis**

The literature relating to professional development, its definition, content and administration, as it relates to educational institutions, is reviewed in Chapter Two. It includes an outline of apprenticeship training, a review of definitions and models of professional development, theories of adult education, concepts of teaching and learning and evaluation. The methodology, including research methods, samples of informant contact letters and procedures for data collection and analysis are presented in Chapter Three. Chapter Four presents the findings from all data sources and interpretation in relation to the research questions that drive this study, comments on emerging themes and references to theoretical perspectives identified in the literature. Chapter Five analyses the findings of Chapter Four with reference to the literature reviewed in Chapter Two and finally Chapter Six offers conclusions and opportunities for further research.
Chapter Two

Review of Relevant Literature

This chapter begins with a brief discussion of what constitutes a skilled trade followed by a review of documents governing apprenticeship training. While this discussion is not intended to provide a detailed description or analysis of skilled trades work or the curriculum for the training of apprentices, it will set the context for this study. This chapter continues with a review of the literature of professional development with a special focus on educational institutions. This review identifies the various definitions of professional development, discusses what professional development models have been employed and the foci of these various models. At the conclusion of this first section of this chapter, I offer my own definition of professional development synthesized from the literature reviewed.

In the next section of this chapter there is an examination of evaluation and the role it plays in any professional development plan and a discussion of the theoretical framework of adult education. Evaluation and adult education will be two of the significant lenses that are used in the review and analysis of the data collected in this study. Following this brief review of research on evaluation, there is a discussion on selected concepts and findings from the literature on teaching and learning in higher education. Finally, the chapter concludes with a discussion of groupthink, and how this phenomenon can affect decisions within groups of individuals.

Skilled Trades

A trade is defined as “an occupation for which a provincial or territorial apprenticeship program is available... A skilled trade, in turn, is a type of occupation that typically includes complex activities and requires skills and account knowledge of the subject... To be
designated as a trade, an occupation is formally recognized through provincial or territorial legislation as appropriate for apprenticeship training and certification. (Lefebvre, Simonova, Liang, 2012, p.7)

Skilled trade workers are vital in our economy to build and maintain infrastructures, provide services and products in the construction, manufacturing, motive power and services sector. The skilled trades in these industries include plumbers, electricians, carpenters metal fabricators, heating-ventilation and air conditioning mechanics, automotive and heavy equipment mechanics, and steam fitters. "It was estimated that 1.8 million Canadians worked in skilled trades in 2011", "this represents 9.7% of the Canadian workforce" (Newswire, 2012 n.p.). In a 2007 report developed by the Conference Board of Canada, it was estimated that Ontario faces a labour shortage of more than 360,000 skilled employees by 2025 (The Conference Board of Canada, 2007, p.9). For the purpose of this study, skilled trade is any trade where certification is required in order to work in that type of work, skilled workers are those employed in work where training is required but certification is not mandatory. A complete list of compulsory and voluntary certification is presented in Appendix F. In 2009 the Ontario Government stated in a news bulletin, "Ontario needs to train more skilled workers, and to ensure they are prepared to compete and win in tomorrow's economy" (Ontario needs more skilled workers , 2009 n.p.). In order to meet this need for more skilled workers, the Ontario government created the Ontario College of Trades and Apprenticeship Act, 2009. This act was designed to revise and modernize the law related to apprenticeship training and trades qualifications and to establish the Ontario College of Trades. What revise and modernize the law means has not yet been established, however, responsibilities of this new governing body include "To establish apprenticeship programs and other training programs for trades including training standards, curriculum
standards and examination" (Ontario College of Trades and Apprenticeship Act, 2009, Object: 11 (7)). At the time of this study, the new College of Trades is still studying the current system of developing skilled trades workers in Ontario. One issue that has been a target for complaints by many industries is Ontario's current ratio of journey person-apprentices requirement, which varies from trade to trade. A sample of the ratios is provided by the Canadian Federation of Business.

Table 2- Journeyperson to Apprentice Ratio (Ontario)

<table>
<thead>
<tr>
<th>Designated Trade</th>
<th>Apprentices</th>
<th>Journeypersons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Mason</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>General Carpenter</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Construction Millwright</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Electrician</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Construction Boilermaker</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Sheet metal Worker</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Roofer</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Brick &amp; Stone Mason</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Plumber</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Steamfitter</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Glazier &amp; Metal Mechanic</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Ironworker</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

(Petkov, 2008)

The new College of Trades has promised a review of this issue, with industry asking for a 1:1 ratio as adopted British Columbia and Newfoundland-Labrador (Ontario College of Trades Offering Ratio Reviews, 2012). This 1:1 ratio will allow employers to hire and train more apprentices, which will increase the skilled labour supply required by industries.

**Apprenticeship Training**

While this study is focused on the professional development of instructors who teach in the apprenticeship programs and not apprenticeship training per se, a review of apprenticeship training will provide insights to the complexity of these educational processes. Apprenticeship training combines on-the-job instruction from accomplished performers and classroom/lab
instruction from a provider approved by the MTCU. The on-the-job training provides about 90% of the apprenticeship training; the remaining 10% of the training is an "in-school" component of the apprenticeship, which contains both theoretical and practical elements, is provided by an approved training delivery agent. Whitaker notes that "In 2007/08, the in-school training component of the apprenticeship training programs (in Ontario) was provided through a network of 66 training delivery agents (24 community colleges and 42 private institutional, union or employer-sponsored training centres)" (Whitaker 2009, p.13). College Ontario (2011) reported that in 2009-2010 there were 47,551 new starts in apprenticeship in Ontario, (p.23) and "the colleges delivered 90% of the apprenticeship "in school" training in 2009-10" (p.2).

The standards of training including number of hours of instruction, work experience, topics of instruction and outcomes are guided by three different bodies. The first consideration is the Ontario Qualifications Framework (OQF), developed by the Ministry of Training, Colleges, and Universities (MTCU).

The OQF describes the main purposes and features of each (postsecondary) credential; it outlines the knowledge and skills expected of holders each type of qualification; and it shows the relationship and differences between qualifications. Each qualification can be seen as a reference point along a continuum. The OQF describes the main purposes and features of each credential; it outlines the knowledge and skills expected of holders each type of qualification; and it shows the relationship and differences between qualifications. Each qualification can be seen as a reference point along a continuum. (Ministry of Training Colleges and Universities, n.d.)
The requirements from the OQF for apprenticeship training are presented in the table below:

Table-3 Ontario Qualification Framework for Apprenticeship

<table>
<thead>
<tr>
<th>Communication Skills</th>
<th>The ability to communicate accurately and reliably, the work or performance required including the analysis, the techniques utilized and the end result</th>
</tr>
</thead>
</table>
| Application of Knowledge | The ability to:  
  a) Analyze and evaluate situations to determine and execute a course of action;  
  b) Apply skills and knowledge across a variety of contexts with some complexity in the extent and choice of options available |
| Professional Capacity | The ability to demonstrate:  
  a) A range of complex or non-routine activities involving individual responsibility or autonomy;  
  b) Technical advice and leadership in resolution of specific problems;  
  c) Personal responsibility and autonomy to initiate and perform technical operations;  
  d) Working with others including performance and evaluation of tasks  
  e) Discretion and judgment;  
  f) Ability to manage their own professional development. |
| Awareness or Limits of Knowledge | An understanding of the limits of their own knowledge and skill level and an appreciation of the methods and techniques that they are not qualified to employ. |

(Ontario Qualifications Framework n.d.)

The Apprenticeship and Certification Act (1998) sets the standards for apprenticeship training by requiring all training programs to obtain approval from the director of Ministry of Education. Specifically,

1. To approve apprenticeship programs for trades, other occupations and skill sets, including curricula, training standards, examinations and the persons and institutions that will provide training.

2. To approve other forms of training for trades, other
occupations and skill sets.

(The Apprenticeship and Certification Act, 1998 2- (1) (2)).

Finally the Trades Qualification and Apprenticeship Act (1990), has regulations attached for twenty-three different trades. Several trades, such as electrician and plumber, have schedules in these regulations that mandate up to 24 areas/topics that are to be included in the classroom training and eighteen areas of on-the-job work experience that must completed to qualify for certification in a particular trade. There have been minor revisions to the schedules over the last two decades to incorporate some new technological advances, but the basic requirements have not changed much.

Each province or territory in Canada has jurisdiction over training standards and certification for apprenticeship trades. To allow mobility of trades workers, the Canadian Council of Directors of Apprenticeship (CDDA) developed a table, the Ellis Chart, which lists the details of all the provinces’ / territories’ apprenticeship programs and allows comparisons to be made. Upon completion of apprenticeships, individuals may challenge examinations allowing them to be certified with an interprovincial seal—the Red Seal Program (Canadian Council of Directors of Apprenticeship n.d.), attached to their provincial certification. The Red Seal certification allows the trades person to work in their trade anywhere in Canada.

The new Ontario College of Trades, discussed in the previous section, is reviewing apprenticeship programs and may change curriculum and standards of apprenticeship. At the time of this study, the Ontario College of Trades has not made changes to apprenticeship programs.
Professional Development

To identify, locate and evaluate literature on professional development relevant to college instructors, a computerized search of databases using key words *Professional Development, Faculty Development and Teaching Improvement* was conducted. While I found there was a dearth of literature regarding professional development in Ontario's CAATs and ITALs and Canadian colleges in general, there was an enormous volume of reports of specific studies of professional development programs in the field of education, specifically focusing on colleges in the United States of America. It seems professional development efforts for educators across educational institutions is a common practice but there are considerable differences in how professional development is defined, what should be included in a professional development program and how successful professional development programs are in benefitting the faculty, improving student outcomes and meeting the needs of the institutions. To construct a theoretical framework of professional development a clear definition of the practice must be established. The key words used for this review, Professional Development, Faculty Development and Teaching Improvement, are used interchangeably in much of the literature. For clarity, I will use professional development to represent all of these terms in this study.

Definition of Professional Development

This section examines the literature that has attempted to provide a definition of professional development. The literature was examined to determine where the locus of responsibility has been placed, the period for delivery and participation in professional development and the desired outcomes of professional development in an academic institution. The section concludes with a definition of professional development that I synthesized from the body of literature considered in this review.
An elementary definition of professional development offered by Caffey was "the purposeful attempt of institutions to provide for the continual improvement and growth of the faculty" (Caffey, 1979, p.311). This starting definition locates professional development as a responsibility of the institutions to do something to improve faculty performance but is somewhat vague. The inclusion of "purposeful" in Caffey's definition implies that there should be a formal and structured plan for the provision of professional development and the provision of "continual improvement" would indicate it is an ongoing process throughout the duration of a career. Additionally, Caffey's definition locates all the responsibility for professional development with the institution.

Arguing that faculty members were not simply passive recipients, Noon (1984, p.5) defined professional development as a “collective and individual commitment to maintain the distinctive competence that the profession represents”. This definition now includes the responsibility of the individuals to be active participants in their own professional development but again it is a nebulous description rather than a definition. Terminology that includes "distinctive competence" and what a "profession represents" would require extensive clarification to make this definition fit any practical application.

Another attempt to conceptualize this term captures the growth of the instructor as a person and defines professional development as "enhancing the talents, expanding the interests, improving the competence, and otherwise facilitating the professional and personal growth of faculty members, particularly in their roles as instructors" (Gaff, 1975, p.14). Gaff indicates that professional development should focus primarily upon the role of teaching but allows for growth in all aspects of a personal and professional career. Unfortunately, it is limited without any
indication of the "continuous" aspect of professional development captured in Caffey's definition.

Browell provides a more comprehensive definition: "constant updating of professional knowledge through-out an individual's work life requiring self-direction, self-management and responsiveness to the development opportunities offered by work experience" (Browell, 2000, p. 58). This locates all the accountability on the individual rather than the institution. Specifically, it includes the notion that professional development is continuous throughout the career and responsive to emerging environmental factors. Still the term "professional knowledge" is not described or defined and this presents a lack of clarity in the definition.

Because colleges are primarily teaching institutions, differentiating them from research-oriented universities, it is evident that a primary goal for professional development for college instructors is improved teaching skills. If teaching is to be effective, "it must cause learning" (Cohen & Brawer, 1977, p. 58). The specific teaching skills include subject matter expertise (Gaff 1975; Centra, 1976; Caffey, 1979), acquisition of educational theory applied to adult learners (Farruhia, 1996), and innovative instructional methods, understanding the environment and characteristics of the students and appropriate learning strategies (Nwagwu, 1998).

Drawing on the ideas presented by the various authors in this literature review, I have synthesized a definition of professional development: Professional development of college instructors is the continuous efforts of the individual and the institution to enhance the capabilities and performance of the teacher toward optimum student learning outcomes, personal growth and satisfaction and meeting institutional goals. This definition captures the shared responsibility of the individual and the institution to ensure professional development occurs and that it is an on-going requirement. Further, this definition includes the elements of improving
classroom delivery, curriculum development and interaction with the students under the rubric of 
student outcomes and finally recognizes the needs of the individual to grow as a person as well 
as meeting organizational needs.

Models of Professional Development

Some institutions or educational systems focus almost exclusively on classroom delivery 
skills and cite specific elements of a program focus as their model of faculty development. One 
model (Hubball, Collins & Pratt, 2005), employs the technique of reflective teaching practices. 
The authors argue that the individual's thoughtful consideration and questioning of what is done 
with regard to teaching, what is or is not successful and the underlying premises and rationale of 
their teaching will have a positive effect on the improvement of teaching (Hubball, Colins & 
Pratt, 2005). It should be noted that these authors do not state that reflective practice is 
professional development per se, but rather it will have a positive effect on professional 
development efforts.

While teaching is a primary goal, other authors argue for a more comprehensive or 
"holistic framework of professional development" (Cardo, 2005, p. 292). Cardo suggests in his 
holistic model that there are four dimensions of professional development including, curriculum 
development, school development, management development and personal development. 
Curriculum development is traditionally the major focus of professional development in 
education and focuses on improving teaching and learning. School development refers to a 
coordinated school-wide or system-wide effort to initiating and sustaining a change in the 
management of schools. Personal development includes social, political and cultural skills 
development at the individual level that will improve communication and problem solving in 
day-to-day interactions with people. Finally, management development focuses on the skills
required by those in management positions within the schools. Typically, these skills would include working through others to accomplish goals, effective delegation and distribution of leadership. These four dimensions are very broad in nature and may be interpreted or applied very differently by various individuals or institutions.

Two models emerge in the literature from Gaff (1975), and Berquist and Philips (1979) that focus on essentially the same three elements: the individual doing the classroom delivery and evaluation of the students, the curriculum that translates the course outline and goals into activities and the structure of the institution that facilitates the environment where the instruction is delivered.

The first model’s terminology includes: faculty development, instructional development, and organizational development (Gaff, 1975), where faculty development refers to knowledge, skills and teaching techniques, instructional development focuses on curricula, and organizational development is concerned with administration issues. Gaff argues that while all are important components, the primary focus is teaching and may be the singular focus of a professional development program without reference to the other elements of the model. The key assumption of this model is the instructor is in place to teach in the classroom and other elements of personal growth and satisfaction or institutional goals are of lesser consideration. While this model may provide classroom delivery capabilities, this narrow focus of professional development may, in the long term lead to psychological stagnation and "a diminished interest in finding ways to improve teaching and learning" (Murray, 2002, p.51). Additionally, by limiting the professional development to teaching skills enhancement, the institutions are not preparing instructors to be the next generation of curriculum developers, administrators and supervisors within the educational system.
The second model focuses on the elements "personal development, instructional development, and organizational development" (Berquist & Philips, 1979, p.6) which includes essentially the same components as Gaff’s model; however these authors argue that all three elements must be included in a mature professional development program. The personal development element of this model could include enhancing an individual's classroom teaching capabilities but it also allows for the possibility of individuals participating in professional development that would provide personal satisfaction and sustained interest in their teaching career. The instructional development component of the Berquist and Philips model captures the importance of a classroom instructor’s need to understand and participate in the revisions, expansion and development of the curricula. Instructors participating in curriculum development would be able to contribute valuable insights from their day-to-day interaction with the students by obtaining the students' perspectives of the program of study. Moreover, by ensuring organizational development is a part of the continuous professional development program the changing requirements of the students and the institution can be addressed.

Other models of professional development programs discussed in the literature are amorphous in the sense that there is a list of activities including attending seminars, sabbatical leave, workshops, tuition reimbursement (Murray 2002) without any indication of the activities' goals, content or outcomes for those participating in the activity. Cohen and Brawer’s assessment of professional development included a nebulous description in terms of "turning the faculty's attention to undergraduate instruction, relating tips on teaching and techniques for student assessment along with attempting to change basic attitudes toward the profession" (Cohen & Brawer, 1977, p. 67). "Turning the faculty's attention", "relating tips” and "change
attitudes" does little to inform us as to what is being done in the professional development program or what outcomes are expected from the effort.

Discussion of Professional Development

Despite the apparent proliferation of professional development opportunities which include, institution specific programs, seminars, workshops, on-line learning, tuition support, sabbatical leaves, resource centres and peer mentoring, there is little agreement on what works or does not work. Approaches to professional development have been described as "somewhat vague and elusive" (Caffey, 1979, p.312) "scattergun" (Dennison & Gallagher, 1986, p.232), "un-focussed" (Jones & Geis, 1995, p. 55) and "a smorgasbord" (Murray, 1995, p.559).

A number of authors have also commented on the lack of effective outcomes of professional development saying "that despite devoting considerable resources to professional development, for the most part, faculty development has failed to inspire lasting pedagogical changes among the faculty" (Murray, 2002, p. 50). In addition, (Maxwell and Kazlauskas, 1992) noted perceptions of college teachers that may affect the outcome of professional development efforts by various institutions:

Fewer community college teachers believe they need significant further development of their own teaching methods. In a questionnaire survey of 296 community college teachers, Blackburn and colleagues (1980) found that 92% of these faculty members considered their teaching to be above average, however, only 74% considered the teaching of their department colleagues to be above average. Furthermore, 85% of these community college faculty members viewed themselves as greatly valuing teaching
but only 45% saw their fellow teachers placing "great" importance on teaching.

(Maxwell & Kazlauskas, 1992, p. 352)

Other researchers found, "there is little evidence that the programs are being used as a major instrument for institutional change and improvement that is linked to the accomplishment of college goals and the establishment of accountability" (Richardson & Moore, 1987, p.29).

Most of the literature reviewed is based on studies conducted in the American college systems. It has not been confirmed if the same activities and results are occurring in Ontario's colleges.

One study that helps illuminate why some programs are not meeting perceived needs found incongruity between what the faculty wanted and would willingly participate in, and what was perceived as available to them through their institutions (Caffey, 1979). The fulltime faculty at eight junior community colleges in Texas were asked to rank 14 items and goals of a professional development program as to each item's desirability and indicate if those items were perceived as being available to them. Surveys were mailed to the three hundred instructors and two hundred eleven completed surveys were returned. The results were compiled and it was found that in the school system being studied, the professional development program goals, including faculty understanding of institution mission, harmonious relationships between departments, and strong faculty teams, were rated ninth, tenth and eleventh on a fourteen-item scale where one was "most important" and fourteen "least important". The second part of the survey asked the participants to rank activities of the professional development program of their system as to their desirability and availability. While student evaluation of teachers was ranked as number one in availability, it was ranked by the faculty as ninth out of twenty items as desirable. Another particular activity, "Observation and critique of teaching by colleagues" was
ranked as eleventh out of twenty for availability but was the least desirable and ranked the lowest of the twenty items by the faculty respondents. In this particular study faculty indicated that they wanted a back to basics focus on classroom delivery skills. "Personal development, performance evaluation, increased group interaction and overall institutional concerns as integral parts of faculty development process have not gained a high degree of favour with the faculty" in this study, according to Caffey (1979, p. 321). Caffey concluded, "This pattern provides further evidence of a marked difference in orientation toward faculty development between faculty members and those who are designing programs for them"(Caffey, 1979, p.15).

Literature published circa 2000 and onward begins to present a different tone, perhaps because publication of professional needs and interests from groups of professionals other than teachers, including pharmacists, nurses and dentists, who require ongoing professional development to maintain certification, may have influenced the thoughts concerning professional education. Instead of focusing on content of classroom issues reports of these more recent program studies included conditions and activities that may influence teacher's behaviours and performance and had a strong focus on developing and maintaining collegial support groups, peer networking, collaborative learning communities and reflective practices (Hubball et al.2005; Smith et al. 2001; Stevenson et al. 2005). These programs included individual goal setting, time management, institutional requirements for promotion, tenure, and creating the right conditions for learning. This approach to professional development focused on process, which left the content available for customizing to individual needs, was commented on by participants with a very positive tone. This newer approach to programs, which focuses on adults and their needs, is discussed later in the review of adult education.
Evaluation of Professional Development

Like the variety of definitions for professional development, the models or individual programs offered by an institution and the way in which these programs are evaluated vary greatly. There is no evidence of any form of consistent evaluation of these professional development programs or their results, (Dennison & Gallagher1986; Richardson & Moore 1987; Maxwell & Kazlauskas 1992). Some programs use post hoc-surveys of the participants or their supervising administrators' satisfaction (Miller & Ratcliff, 1986). Others suggest that an indicator of successful professional development would be student achievement. For this indicator it is argued that not only quantifiable elements such as marks, grades or scores on standardized tests be used, but also qualitative elements such as attitude, attendance and drop-out statistics (Guskey, 2003).

Kirkpatrick (1998) argues that four distinct levels must be used to examine programs, with each level becoming progressively more complex and time consuming. The four evaluation levels -Reaction, Learning, Behaviour and Results- are to be conducted at different time intervals after the training and each evaluation renders different and valuable information about the impact of the training.

Level 1, Reaction, is synonymous with the ubiquitous "smile sheets" that are requested from participants at the end of a seminar, workshop or lecture. These data can indicate how relevant the participants thought the program was, if the participants were confused by the training, if participants perceived that information was missing and how well the participants felt they were engaged in the program. However, "the primary purpose of level 1 evaluation is to measure customer satisfaction" (Kirkpatrick, 1998, p.88).
Evaluation of the Learning, Level 2, must include some activity such as an examination or demonstration of the skill that is evaluated by a facilitator or peer group member. The time to complete this phase is either immediately at the end of a program or shortly after returning to faculty duties. In many cases, adult learners do not like or tolerate being evaluated. Additionally it takes significant amounts of time and expense to have competent evaluators observe every course participant in order to ensure competence in the new skills and knowledge.

Level 3 is the evaluation of whether the professional development activity affected a change in the Behaviour of the individual who attended the training. In a period of three to six months after the professional development activity participants are evaluated to determine if they have chosen to use the new skills and techniques in their day-to-day teaching and other institutional activities.

Finally, a Level 4 results evaluation would be done to determine if the professional development had the impact it was intended to have. These outcomes could be student performance, harmonious relationships, integration of new technology or any other program intent. This evaluation may have to take place after the professional development activity at an interval that will allow the results to be achieved. This time interval would have to be determined individually for each activity as the magnitude and complexity of change expected, resulting from the professional development activity, may vary.

With a well-structured evaluation program such as that offered by Kirkpatrick, which would undoubtedly yield significant insights into the effectiveness of an institution’s professional development efforts, the question that arises is simply why is this type of evaluation not being carried out to ensure program effectiveness? Dennison and Gallagher, in their critical analysis of Canada's Community Colleges (Dennison & Gallagher 1986), argue that evaluation
of instructor's performance is limited to the objective of reappointment and retention or dismissal of teaching personnel and continue with:

There has been considerable opposition in Canada even to this most crude form of evaluation. For a variety of reasons, including opposition to judgements by management personnel, unions have generally opposed or blunted any serious efforts to evaluate performance. They have also commonly opposed colleague and student assessments of teaching performance - the former on the grounds that good union members do not judge their brothers and sisters, the latter on the grounds that students do not have the competence or detachment to make sound judgements. Kemmerer and Baldridge make the point that these stances are characteristic of higher education in North America and they fly in the face of the cherished principles of academia: the judgement of merit based upon peer evaluation. (Dennison & Gallagher, 1986, p. 230)

Other authors’ comments on the lack of effective evaluation include the tendency of instructors to rate their own teaching higher than their colleagues do, and the lack of a clear mission statement with articulated outcomes and impacts. Furthermore, the fact that participation in professional development is not mandatory in many institutions or systems makes evaluation more challenging (Maxwell & Kazlauskas, 1992; Jones & Geis, 1995, Rae, 2005). With only sporadic participation in some sort of professional development activity, it cannot be ascertained if the activity has been successful in having a positive effect on student
outcomes. As Kirkpatrick explains, "the dictum that something beats nothing can apply when you evaluate change in behaviour," but then goes on to say that conclusions formulated from small samples "may or may not be true" and finally points out "obviously the best approach is to measure the behaviour change in all trainees" (Kirkpatrick, 1998, p. 55).

In Ontario the current collective agreement (2009 - 2012) between the academic faculty represented by Ontario Public Service Union (OSEU) and the College Employer Council has provision for faculty professional development, "The college shall allow each teacher at least ten working days of professional development in each academic year"(Academic Employees Collective Agreement, 2009, 11.01H1), but is silent on requirements to make the professional development compulsory. Why professional development for academic faculty is not compulsory would require investigation beyond the scope of this study, I would opine however that any such efforts to expand compulsory professional development would have to be negotiated with the union representing the instructors.

Theoretical Framework of Adult Learning

When an institution or a system of institutions are going to participate in professional development activities, whether focusing on simply improving teaching or more complex and holistic approaches that include personal development and institutional goals, it must be recognized that the instructors are now the learners. These instructors are adult learners who in turn are teaching adults in the CAAT system, and therefore a review of adult learning theory will inform us as to the considerations to be included in professional development programs.

Malcolm Knowles identified a series of teaching activities that create superior learning conditions for adult learning. From his extensive analysis, Knowles, (1970 & 1984), notes a
number of adult learning principles that can provide guidance and insight to educators who are facilitating the learning of adults:

1. Adults need to know why they need to learn something in order to be receptive of the learning.
2. Adults have a self-concept of being responsible for their own lives...they develop a deep psychological need to be seen and treated by others as being capable of self direction.
3. Adults come into an educational activity with both a greater volume and a different quality of experience than youth.
4. Adults become ready to learn those things they need to know or...to cope effectively with their real life situations.
5. In contrast to children's and youth's subject centred orientation to learning (at least in school), adults are life centred (or task centred or problem centred) in their orientation to learning.
6. While adults are responsive to some extrinsic motivators (better jobs, promotions, salary increases, and the like), the more potent motivators are intrinsic motivators the desire of increased self-esteem, quality of life, responsibility, job satisfaction, and the like. (Knowles, 1989, p.83-84)

In more recent writings Knowles and his colleagues further elaborate on the role of the adult learner's motivation to learn:

While adult learners may respond to external motivators, internal priorities are more important. Incentives such as increased job satisfaction, self-esteem and quality of life are important in giving
adults a reason to learn. If any of these can be related as a part of technology-based instruction, adults will respond more positively. Activities that build student’s self esteem, or sense of accomplishment through, for example, the completion of goals or modules that can be checked off in a sequence, may help motivate completion of a longer lesson. In addition, student's input into the development of lessons or in the prioritization of topics covered can help student take ownership of the learning process. (Knowles, Holton & Swanson, 1998, p. 59)

Here Knowles suggests that taking the principles of adult education into account in the design and delivery of training will motivate the student toward greater successes in the programs.

Another discussion of adult learning principles provides a narrative that could serve as a guideline for reviewing or evaluating programs that provide instruction to adults. Adults must want to learn and will most effectively do so when they have a strong motivation to learn a new skill or acquire new knowledge. Adult learning is much more effective when the new skill or knowledge is of an immediate practical benefit and adults need to use the new skills immediately so that they can see their relevance, adult learning focuses on problems and trying to find solutions as opposed to sequential learning commonly used with grade school children. Adults have substantial and varied life experience that will affect the adult learner and that experience could have a positive or negative effect on learning, adult learning
occurs best in informal situations where they can determine what they need to know, preferring guidance with options being presented rather than instructions and rules. (Canadian Literacy and Learning Network, 2010)

While some researchers alluded to elements of adult learning theory such as motivation for participation through provision of adequate time, recognition and rewards (Jones & Geis 1995; Murray 2002; Guskey 2003) or informal learning (Stevenson et. al.2005) there was only one report reviewed that had "acquisition of educational theory applied to adult learners" (Farruhia, 1996, p.31) as a characteristic or attribute of their professional development model.

Perhaps one of the most salient points of adult learning is described in Paulo Freire's (1970) tome Pedagogy of the Oppressed. Freire refers to traditional teaching as a banking model where "students are an empty vessel to be filled with knowledge" and then argues that the adult learner has to be treated as a co-creator of knowledge. Other authors have focused on the process of adult learning rather than discrete content saying:

The teacher is a facilitator of students' learning, not an authoritative dispenser of information. The learning transaction necessitates affective as well as cognitive involvement; consequently, learning has an impact not just on the behaviour but also on the attitudes and personality of the learner. To the effect this involvement, instructional techniques that are experiential, nonthreatening and collaborative work best. (Merriam & Brockett, 1997, p. 41)

It is interesting to note that when professional development programs from the period of 1970-2000 were discussed earlier in this chapter, the programs focused on content delivered by an expert. The programs received low approval ratings by the participants and resistance to
continued participation in the programs were identified (Caffey, 1979). When the more recent programs, from 2000 to present, were reviewed, it was identified that the focus was on process and methodology as opposed to content. Techniques used in these more recent programs included peer networking, collaborative learning and reflective practice, which is more in keeping with the framework of adult education presented here. The professional development efforts that employed these techniques were received well and reported in a much more positive light by participants (Smith, et. al. 2001; Stevenson, et al. 2005; Hubball, et al. 2005).

The principles of andragogy have received positive support from a number of authors (Freire 1970; Knowles 1970, 1984; Knowles, Holton & Swanson 1998; Merriam & Brockett 1997), however another author identify a shortcoming in this adult learning theory. Pratt (1993) acknowledges the contribution that andragogy has made to adult education, but states:

Its (andragogy) contribution to our understanding of adult learning is not as grand in substance as it is in scale. The widespread and uncritical adoption of a particular view of adults as learners should not be the only measure by which we assess andragogy's contribution...

Further, while andragogy may have contributed to our understanding of adults as learners, it has done little to expand or clarify our understanding of the process of learning. We cannot say, with confidence, that andragogy has been tested and found to be, as so many hoped, either the basis for a theory of adult learning or a unifying concept for adult education (Pratt, 1993, p.21)
Tracy (2010) argues that andragogy was developed on assumptions rather than empirical data and suggests that andragogy is an ideal not readily applicable to every situation in the real world. He concludes by saying:

The truth is andragogy represents an ideal. Wouldn't it be wonderful if all adult learners were self-directed and ready to learn? Wouldn't it be heart-warming if they were motivated by the joy of learning, rather than by power, prestige and the mighty dollar? (Tracy, 2010, p. 23)

Andragogy provides many elements to provide guidance when designing, developing and delivering learning for adults but it may not be the only consideration. Pratt & Nesbit, (2000) suggests "there can be no teaching without learning" they caution that, "what one learns, one can do... is fraught with problems" (p.119). Their position is clarified with:

Practicing the skill and paraphrasing within a two-day workshop on communications skills is not the same as learning to listen to someone under the pressure of an argument; practicing soccer drills is not the same as playing in an important game and learning to do math problems from a text book is not the same as figuring out what groceries to buy with a limited amount of money. (Pratt, 1998, p.44)

The authors describe these considerations as a part of a sociocultural discourse approach to adult learning and suggest it is receiving new interest in learning in the workplace and non-formal education settings.

Another salient point with regard to adult learning is a phenomenon that is described in a model usually attributed to Noel Burch of Gordon International Training (GTI). A visual representation of this model is provided in Table 4.
Table 4 Gordon Training Institute Model (GTI)

<table>
<thead>
<tr>
<th></th>
<th>Incompetence</th>
<th>Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conscious</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Conscious - Incompetence</td>
<td>Though the individual does not understand or know how to do something, he/she does recognize the deficit, as well as the value of addressing the deficit</td>
<td>3. Conscious-Competence</td>
</tr>
<tr>
<td><strong>Unconscious</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Unconscious - Incompetence</td>
<td>The individual does not understand or know how to do something and does not necessarily recognize the deficit</td>
<td>4. Unconscious-Competence</td>
</tr>
</tbody>
</table>

(Burch- Gordon Training International, n.d.)

Milton (2008) reviewed the GTI Model - Table 4, saying that some educators assume their adult learners are at stage two and then design and deliver training to move the adult learner from stage two to stage three. This author cautions that in a number of cases the "Learners are unconscious of their own incompetence. They don't know what they don't know. They don't necessarily recognize the need to learn and they certainly don't know what will be involved in that learning" (Milton, 2008, p. 8). If programs are designed with the assumption that making a course available will meet the needs of the participants they may be ignoring the principles of adult education described by Knowles or the model described by Freire, where the participant's involvement in deciding what and how things are to be learned are crucial to success. Without the consideration that the participants are at stage one, unconscious incompetence, and sufficient efforts invested to move the adult learner to stage two through discussion, mentoring, evaluation, training or a host of other techniques available, the efforts to further enhance the adults’ skills may be lost to indifference or rejection of the training efforts.
Adult learning theory is used as one of the lenses to examine the data for emerging themes. Specifically, are the instructors motivated to participate in professional development and if so, what is the source of motivation? Does the individual instructor have the flexibility to choose what type of development events in which to participate and what types of development are perceived as most relevant to them as individuals? In addition, are the instructors involved in the design of the professional development programs or is that the role of a supervisor or administrator?

Human Capital Theory

Becker (1970) describes the three elements of production in an economic model as land, labour and capital. He further explains that labour is increasingly treated as capital—human capital. This capital, in addition to wages and salaries, is the investment in humans including education and on-the-job training. In more recent writing Becker (1993) described human capital as the investment in education and training to increase employees' knowledge, expertise and skills and stated, "Education and training are the most important investments in human capital" (Becker, 1993, p.17). The Organization for Economic Development and Cooperation (OECD, 1998) defined human capital as "The knowledge, skills, competencies and attributes embodied in individuals that are related to economic activities" (OECD, 1998, p. 9). While human capital theory is most readily applied to economics, the OECD qualifies their position:

The promotion of skills of enquiry and problem solving,

and the motivation and ability to learn and re-learn are relevant to them all, regardless of in which domain they are applied. While human capital implies a focus on the economic sphere, the differences
between policies and practices to increase such capital and those directed to other ends can be minor. (OECD, 1998, p. 10).

With this clarification, that human capital theory could be applied to a non-economic model, it may provide a lens to examine professional development programs.

In a more recent writing Baron (2011) adds another dimension to the definition of human capital saying "Human Capital is the knowledge, skills and experience of individuals and also their willingness to share these attributes with the organization to create value (p.31). Baron goes on to caution that the most useful and difficult aspect of managing human capital is evaluation of the human capital's contribution to the organization's value. In the context of this study, the investment in human capital is the professional development time and expense to the colleges and the evaluation would have to be determined in student learning outcomes or personal growth and satisfaction of the people participating in the professional development activities. Baron continues describing the evaluation of human capital requires a foundation of robust data and an evaluation framework to analyze and explain the data in order to determine if the desired outcomes were achieved.

**Teaching and Learning**

When the CAATs were first established in the late sixties, the Council of Regents was appointed to coordinate and advise the Minister of Education on matters pertaining to the colleges (Watson, 1971). Early on the Council decided "That the colleges would not insist on pre-employment teacher training", but the Council further stipulated "That all staff who had no formal teacher qualifications would be required to attend a training orientation session in the August prior to their first term" (Watson, 1971, p.322). A series of interviews conducted in 1970 (Watson, 1971) revealed that the various training - orientation courses that had emerged included
seminars, lectures, and discussions of classroom situations. The respondents agreed that "their pre-service training was inadequate, the programs varied from college to college and that they ought to be extended and improved" (Watson, 1971, p.324). One college at that time had a philosophical statement regarding teaching methods, which included *inter alia*:

1. The teacher's function must be to organize rather than dictate the learning activity...
2. Technical resources must include the latest mechanical and electronic devices such as video tapes, filmstrips, overhead projectors etc.
3. There must be a mix of individual learning... with group learning...
4. Wherever manual skills need to be developed, appropriate lab facilities must be provided.
5. Field work or alternate in-college and on-the-job experience (work-study programs) must be encouraged in as many areas as possible.

(Watson, 1971, p.389)

It appears that at the inception of the CAAT system there was a consensus that teaching was important and it was realized that the teaching skills of instructors with no previous teaching experience had to be developed, but efforts varied between colleges, policy statements spoke in very general terms and teachers reported being under prepared for their teaching roles. The statement quoted above focused on things the teacher of the institution must do or provide without mention of students or learning.

The profession of teaching in postsecondary institutions has changed since the establishment of the CAATs and by the 1980's the focus of teacher-centred activities, sometimes described as "sage on the stage", began to shift. Chickering and Gamson (1987) published their
research in a Bulletin entitled *Seven Principles for Good Practice in Undergraduate Education*. The seven specific things for teachers to do were offered to help improve teacher effectiveness included:

1) Encourage contact between the student and faculty.
2) Develop reciprocity and cooperation among students.
3) Encourage active listening.
4) Give prompt feedback.
5) Emphasize time on task.
6) Communicates high expectations.
7) Respect diverse talents and different ways of knowing.

(Chickering and Gamson, 1987, n.p.)

In comparison to the generalities for teachers and institution in philosophical statement quoted above, Chickering and Gamson cited very specific things for teachers to with their students.

Barr & Tagg (1995) note a fundamental change that occurred in post-secondary education almost two decades ago. They described the colleges moving from "an institution that exists to provide instruction", to, "an institution that exists to provide learning" (Barr & Tagg 1995, p.13). Guskin (1994) defined the changing role of faculty in colleges from the current model where, "Faculty talk and most students listen" (Guskin, 1994, p. 18), to a more challenging role where faculty will be required to "integrate the new world of simulation and interactive technologies with their own unique role as mentors, coaches, facilitators and teachers of students" (p. 23). Guskin's approach to teaching provides a holistic account of the teacher's role.
The way teachers teach and the way students learn has been given much attention over the years. One focus of presenting instruction focuses on learning styles including auditory, visual and textual. Describing learning style one author (Pashler, McDaniel, Bjork, and Rohrer, 2009) states

"Learning styles” refers to the concept that individuals differ in regard to what mode of instruction or study is most effective for them. Proponents of learning-style assessment contend that optimal instruction requires diagnosing individuals' learning style and tailoring instruction accordingly. Assessments of learning style typically ask people to evaluate what sort of information presentation they prefer (e.g., words versus pictures versus speech).

(p.5)

Pashler et al. report that the learning style view has acquired great influence in the education field; however, the theory of learning styles does not go unchallenged. Riener and Willingham (2010) support some of the ideas of learning style theory but caution, given that we have no evidence, learning styles do not exist. [...] whether we call it talent; ability, or intelligence, people vary in their capacity to learn different areas of content. [...] when one has the opportunity in a smaller class to collect information about students and more specifically to tailor a lesson to that particular group of students, it is a waste of time to assess learning styles rather than, for instance, background knowledge. (Riener & Willingham, 2010, p.32)
Other attempts to discover how people learn include Bloom's Taxonomy (Bloom et. al. 1956) which suggested that there was more than one type of learning. Specifically Bloom identified a cognitive domain, which focused on knowledge and comprehension, a psychomotor domain focused on coordinating and utilizing motor skills, and an affective domain, which has a focus on attitudes and emotions. Bloom suggested by creating a series of sub categories for each domain and then organizing these sub-categories from simplest to most complex an architecture for learning activities would be created and the learner would master the simplest level before moving on to the next.

**Experiential Learning**

Another approach to understanding learning was the work of Kolb (1984) who suggested that learning could best be accomplished by taking the individuals through a learning process—experiential learning. Kolb combined this process into a model that depicted the experiential cycle as well as identifying the preferences for how different people learn and developed the learning style model. The model begins with the *Concrete Experience* where the learner does, sees or hears some new information or skill. The learner then uses *Reflective Observation* of the experience to understand and recognize the effects the experience created. The third step is to use *Abstract Conceptualization* to understand general principles and see the connections between actions and outcomes and finally in *Active Experimentation* apply the new knowledge or skill. This model differs significantly from traditional rote learning—memorization or task-mastery learning—where an individual observes a demonstration and then practices the skill until the required level of proficiency is attained. The Kolb model teaches the learning process as well as the content. The learning processes that occur through reflective observation and abstract conceptualization are focused on creating new knowledge for the individual in addition to the
content of the lesson. Kolb’s process develops individuals as learners and provides them with skill development in rational thinking and problem solving that is transferable to all areas of their lives.

Figure-1 Kolb’s Learning Styles

(Mcleod, 2010)

There have been criticisms of the Kolb Learning Style Instrument (LSI): an instrument Kolb created that would allow educators to determine the learning style of their students in order to construct appropriate learning activities. The LSI was criticised for using ipsative (forced choice) questions because it offered no information between relative or absolute learners.
(Cornwell & Manfredo 1994). Another study, Brew (2002) found the LSI to be gender biased and the model itself was criticised for its design flaws:

Kolb’s model contains many flaws. It fails to meet the tests of graphic sufficiency and simplification, does not differentiate plausibly and consistently between concrete/active/primary and abstract/passive/secondary learning processes, fails to differentiate appropriately between learning activities and learning typologies, the bi-polar dimensions are flawed, certain viable learning constructs are not recognized, and others’ learning constructs are not taken into account. These sufficiency, simplification, logic, categorization and definitional problems render the model less holistic than it claims to be, and make related theory and the LSI liable to criticism.

(Bergsteiner; Avery & Neumann, 2010, p. 46)

It is important to note that these criticisms are focused on the LSI and not the Kolb learning style model. Application of Kolb's model has found success in many areas of higher learning including business (Sharp, 1997), adult education (Wittmer & Johnson, 2000), healthcare (Hauer, Straub& Wolf, 2005) and technical education (Threeton & Walton, 2009).

With widespread application of the experiential learning concepts finding success in a number of different types of educational fields, it would seem logical that Kolb's model would see successful application in apprenticeship training to promote self-examination and problem solving in addition to skills mastery. Specifically, Kolb's model would find application in teaching apprentices trouble shooting— diagnosing a problem and developing a solution. By
learning to reflect on a problem and considering what may be the solution, abstract conceptualization, rather than being told the correct answer or following an established series activities, the apprentice will have learned a new way of thinking that could enrich their skills.

**Changing Role of Teacher**

Teaching is a profession that requires specialized knowledge that is independent of the subject being taught. As well, the institutions and the methods of instruction have changed considerably over the last fifty years, requiring teachers to learn and develop continuously over their careers to ensure they are effective in facilitating learning.

Perhaps one of the biggest challenges teachers face is the changing student population. When scholars consider the generations, they generally reference four groups: Matures (born prior to 1946), Baby Boomers (1946-1964), Generation X (1965-1980), and Millennial generation (1981-1994). (Wendover 2012). While these classifications are arbitrary, they are useful for this discussion in that the average applicant in CAATs today is 23 years of age (Colleges of Ontario. p.12), which places them in the millennial grouping. Wilson (2004) did a study of Millennial students and suggests "every generation of students brings its own history, strengths and challenges to campus; general group characteristics do not describe accurately or well any individual student" (Wilson 2004, p. 69). Wilson's study describes millennial students who have "achieved academic success with relatively little effort may have unrealistic expectations about what is necessary to be academically successful in college, high achieving students may become demoralized by earning a B or C in college" (Cited in, Sax, 2003).

"Teachers would have to be prepared to help students improve their study and time management skills"(Wilson, 2004, P.65), in addition to the subject of instruction.
Another changing characteristic of the CAAT student population is the growth in the number of international students which has increased from 3,707 in 2001 to 14,576 in 2010 (Ontario Colleges, 2011, p.8). These students bring with them their language, culture and customs as well as being differently prepared than the graduates of the Ontario secondary school system. The college instructor may find a need to develop new skills, knowledge and attributes to provide the most effective instruction in their subject area in order to address the learning need of a diverse classroom of learners.

Finally, Pratt (2002) discusses the apprenticeship view of teaching and suggests adopting an apprenticeship perspective of instruction,

> Whether in classrooms or at worksites, the instructor is responsible for revealing the inner workings of skilled performance. This is part of the transition apprenticeship teachers must make when moving from doing the work to teaching about do it. Performing is different from teaching about performing. Teachers must find ways to translate the habituated movement and artistry of performance into language and demonstrations that are accessible and meaningful to learners.

(Pratt 2002, p.9)

There have been countless approaches to teaching and learning in the last century with a small number of issues discussed in this section. It was not the intent to provide a comprehensive review of teaching and learning but to set the context of teaching for this study. The literature reveals that teaching is an extremely complex profession that must adapt to the changes in perspectives from teaching centred to learning centred, different learning styles,
changing cultures, values, and prior knowledge of international students and different pre-college preparation of student entering colleges.

**Groupthink**

In any group of people who interact closely, the values and behaviours of individuals may be influenced by group dynamics. Janis (1972) was investigating the role that inter-group relations played in making decisions regarding foreign policy and military operations. It was noted by Janis that the individuals of the cohesive groups were intelligent, committed and loyal people who managed to make decisions that led to disaster, such as the American military invasion of Cuba—The Bay of Pigs fiasco.

Janis (1972) hypothesized that a phenomenon, which he called groupthink, could occur in groups that would explain these bad decisions.

Groupthink, as a quick and easy way to refer to the mode of thinking that group members engage in when that are dominated by concurrence-seeking tendency, when their strivings for unanimity override their motivation to appraise the consequences of their actions.

(p.9)

To demonstrate how easily groupthink phenomenon can establish itself in just about any group of people, Janis (1972) offered this account of a group of smokers who met at a clinic to discuss quitting smoking:

At the second meeting of one group of smokers, consisting of twelve middle-class American men and women, two of the most dominant members took the position that heavy smoking was an almost incurable addiction. The majority of the others soon agreed that no one could
be expected to cut down drastically. One heavy smoker, a middle-aged business executive, took issue with this consensus, arguing that by using willpower, he had stopped smoking since joining the group and that everyone else could do the same. His declaration was followed by a heated discussion, which continued out into the hall after the formal meeting had adjourned. Most of the others ganged up against the man who was deviating from the group consensus. Then, at the beginning of the next meeting, the deviant announced that he had made an important decision. "When I joined," he said, "I agreed to follow the two main rules required by the clinic—to make a conscientious effort to stop smoking and attend every meeting. But I have learned from experience in this group that you can follow only one of the rules; you can't follow both. And so, I have decided that I will continue to attend every meeting but I have gone back to smoking two packs a day and I will not make any effort to stop smoking again until after the meeting." Whereupon, the other members beamed at him and applauded enthusiastically, welcoming him back to the fold.

(p.8)

Janis (1972) stated further that "The prime condition repeatedly encountered in case studies of fiascos, is group cohesiveness" (p.197), and "The more amiability and esprit de corps among members of an in-group..., the greater is the danger that independent critical thought will be replaced by groupthink." (p.198). It is not implied that all cohesive groups are subject to
groupthink and other factors such as leadership and insulation of the group from outside influence will likely influence group dynamics.

While Janis's work focused on military policy decisions, his smoking cessation example makes it abundantly clear groupthink can occur in other types of groups and situations. Schütz & Bloch (2006), identified groups of managers in a corporation exhibiting groupthink, Klein & Stern (2009), described groupthink in academia, and Caldwell & Dolvin (2012), identified groupthink behaviours in student investors.

Summary of Literature Review

This chapter began with a discussion of skilled trades and apprenticeship to provide a context for this study. The next section of this chapter reviewed the literature focused on professional development including the definition of professional development, different approaches to conducting professional development and considerations of what should be included in professional development activities. The chapter continued with an examination of different theories and models of other key concepts, including adult learning theory, learning styles, evaluation and teaching, that will be used to understand and explain the findings of this study in Chapter 5-Analysis.
Chapter Three

Methods

This chapter presents the research questions followed by a detail description of how data to address those questions were obtained. I describe the type of study that was conducted, the methods used to identify and recruit informants and provide the actual questions and prompts used in the interviews (Appendix C). I provide a discussion of the ethics involved with this study, a review of the validity considerations of the study and an overview of the data analysis process.

Research Questions

1. How do the instructors of apprenticeship and trades programs understand and assess their own professional development?

2. What types of professional development do the instructors of apprenticeship and trades programs feel they need in order to remain effective in a much changed institution and student population?

3. What institutional policies, programs and structures are in place to provide and evaluate the professional development the instructors feel they need to remain effective in skills and knowledge transfer and positive learning outcomes?

Research Design

A common practice evident in the literature reviewed for this study is an evaluation of a particular professional development activity taking place in an institution or education system (Caffey 1979; Miller & Ratcliff 1986; Richardson & Moore 1987; Murray 1999, 2000, 2002; Wallin & Smith 2005). Surveys and questionnaires commonly used Likert or ordinal scales to determine what participants liked and disliked or found useful in a particular professional
development activity in which they had participated. In these studies, the authors used these empirical data to discuss professional development and perhaps draw some conclusions. Any theories emerging in this methodology are generated from logical deduction from *a priori* assumptions, specifically what should be in the program. This approach is somewhat limiting because the data are generated from an activity that was limited in its focus. There is no consideration of what should have been added to the activity or program to make it truly effective in meeting the professional development needs of the participants. Additionally, issues may emerge in the study that could add value to the understanding of the subject and those issues may not be captured if the design of the study has a limited focus.

As this study is a first attempt to learn about the professional development of the faculty teaching trade apprenticeships courses in Ontario colleges, and not an evaluation of a particular professional development event, the methodology used will be an exploratory descriptive case study as described by Robson (1993). This methodology allows the researcher to collect data and then "make inferences about relationships between variables after an enquiry which their study was not designed to test formally - or which they had not expected prior to the enquiry" (Robson, 1993, p.318).

While Robson describes case studies that can focus on a single individual, a community, organizations and institutions or studies of event roles and relationships, this study will employ a total of eight individual case studies with informants being drawn from two different institutions. A detailed account of a small group of individuals with some factors in common will be used to explore possible causes, determinants, processes and experiences contributing to the outcomes of professional development of faculty teaching trade apprenticeship courses in CAATs and ITALs.
Participant Selection

"Qualitative researchers usually work with small samples of people nested in their context and studied in-depth" (Miles & Huberman, 1994, p.27). Additionally (Miles & Huberman, 1994) caution researchers to set boundaries for a study within their time and means. Because this was an exploratory investigation, I chose in-depth interviews with each informant where I could allow as much time as required to get an accurate insight to their perceptions and experiences regarding professional development. Limiting the number of informants to eight would provide sufficient opportunities to gain the information required for this study while staying within my time and means resources.

I chose a "purposefully selected" (Creswell, 2009) sample that would best help me understand the problems and research questions in this study. The informants were drawn equally from mechanical and electrical trades at two different institutions to provide "Multi-case sampling which adds confidence to the findings" (Miles & Huberman, 1994, p. 29). The criteria for informants in this study is a minimum of ten years full-time teaching experience in delivering trade apprenticeship courses in mechanical or electrical trades at a CAAT or ITAL. While the difference between the CAAT and the ITAL, discussed in Chapter one, was not part of the research questions, each type of institution was included in the study to see if there was any significant differences between the two types of college. Selecting the individuals with ten years of experience ensured the instructors had adequate time to complete the transition from trade worker to instructor and participate in professional development at their institution. Additionally, the ten-year period allowed them to identify any significant changes in the student population they encountered. The interview questions (Appendix C), explored their trade background including why they chose trade-type work, how they received their trades training,
and what type of trade work they experienced including industrial, commercial or service environments. Additional questions sought to understand the instructor's motivation to move from trade work to teaching and their experiences and perceptions of professional development throughout their teaching careers.

A college representative was asked to distribute invitations (Appendix A) on my behalf, at their respective institutions, to instructors who met the criteria. A total of ten invitations, with self-addressed, postage pre-paid envelopes for return of informed consent, were given to each college. Four informed consents were returned to me from each college and all of those agreeing to participate in the study were included in the interviews. A similar process was used to recruit a college representative where four invitations were left at each college and one informed consent was returned from each college. One college representative declined to have the interview audio recorded and requested to review the questions prior to the interview. After complying with the informant's request to review the questions two weeks prior the interview the college representative offered to sign the consent to have the interview audio recorded.

**Ethical Issues**

Once approved by my faculty supervisor and committee the proposal was submitted to the Office of Research Ethics at the University of Toronto, using the Ethics Review Protocol Submission Form for Supervised and Sponsored Researchers. When the Ethics Review Board concluded that this proposal meets all required standards, I received permission to commence the data collection phase of the study.

The two institutions asked to participate in this study indicated their consent by signing and returning to me an administrative consent form (Appendix A). Both institutions received a University of Toronto ethics review protocol reference, and in addition they required their own
ethics review and approval of the proposed study. Individual submissions were made to the Ethics Research Board of each college, to ensure full and transparent compliance of the institutions requirements were met before any data collection began. Each college reviewed and approved of the study proposal as it was submitted.

All participants receiving my invitation agreed to participate by signing an informed consent (Appendix B or B1). The informed consent described the volunteer condition of their participation, the time commitment their participation would require and a commitment that their identity or the institution at which they worked would not be revealed at any time during the study or in the publication of any findings. While ethic approval was not sought for activities beyond data collection through interviews and document review, I received tacit approval from instructor - informants, by specific invitation, to observe their classroom delivery and instructor interaction with the students.

The data, including field notes and audio recording, were stored in a locked drawer in my home office with access limited to my thesis supervisor and me. At the conclusion of the study, the data will be destroyed by erasing all digital recordings and shredding any paper on which data was recorded.

Design

This qualitative study involved in-depth, open-ended interviews with eight instructors who deliver apprenticeship and trade skill courses. The questions (Appendix C) also had a number of prompts that were not intended to elicit a specific answer but simply guide the informant in thinking about his experiences with professional development.
Site Selection

All of the Ontario colleges are similar in that they are governed by the same legislation, and their governance models are prescribed and are funded under a similar model. The apprenticeship programs are also very similar, as they must meet the standards prescribed under the: Ministry of Training Colleges and Universities - Ontario Qualification Framework, the Qualifications Apprenticeship Certification Act (1998) and its associated regulations and the regulations under the Trades Qualifications Act(1990). The criteria I used to select the institutions for this study are that one was a College of Applied Arts and Technology (CAAT) and the other an Institute of Technology and Advanced Learning (ITAL), both of which offer mechanical and electrical apprenticeship programs, to ensure the broadest sample of informants within the study's design. Additionally, the institutions had to have active apprenticeship programs with enough instructors to meet the informant criteria. Both colleges were large colleges that had been established for over forty years; they both have multiple campuses and offer courses in a wide variety of programs of study. One college was located in the GTA and the other in southern Ontario outside the GTA.

Triangulation of the Study

Triangulation is "The use of evidence from different sources, of different methods of collecting data and different investigators, where feasible" (Robson 1995, p. 404). "Triangulation made possible by multiple data collection methods provides stronger substantiation of constructs and hypothesis"(Huberman & Miles 2002, p. 14).

To triangulate this study I used interviews from faculty members, interviews from college representatives and a document review, which was limited to the website, dedicated to professional development, at each institution. Minutes of meetings or other documents
pertaining to professional development were not made available to me by the college representatives. Some additional information was obtained through other internet websites that were not affiliated with either institution.

Data Collection

The consenting informants were interviewed individually in an audio-recorded session in a location where they felt most comfortable and when they were available. Before the interview questions began, I confirmed permission to audio record the interview, introduced the format the interview followed and clarified the opportunity for the informants to withdraw from the interview at anytime. If any participant had declined to be audio recorded, I was prepared to use handwritten notes. All participants gave written permission to be audio-recorded.

Additionally all information regarding the interview participant was kept in the strictest of confidence and neither the participant nor the institution is identified in any reporting of the findings. The questions required an interview lasting 1-2 hours and followed a format (Appendix C) including an introduction, a request for some demographic information and then open-ended questions where the informants related their experiences with professional development at their institutions. The format contained some prompts that assisted the informant to relate to their professional development experiences.

Pilot Test of the Instrument

"Content validity is established by showing that the test items are a sample of a universe in which the investigator is interested" (Cronach & Meehl, 1955, p.28). Additionally, face validity is concerned how a measure or procedure appear and Robson (1995) describes face validity "what seems reasonable" (p.68).
The questions designed for the interviews of this study (Appendix C) were used in a pilot interview to ascertain content and face validity. An individual who was an instructor of apprentices for eleven years, but not a member of the target population participated in this pilot test. After an analysis of the information acquired using the questions and feedback from the individual providing information during this pilot interview, the questions and associated prompts were revised to ensure optimum content and face validity. None of the data acquired in this pilot interview is included in the analysis for the purpose of this study.

**Researcher's Perspective**

Because this type of investigation requires interpersonal interaction, I remained cognisant of my own trades and technical training background so that it did not knowingly distort the data collected. As Hutchinson (1988) directs, the researcher must keep a journal to identify if their own preconceptions, values and beliefs are influencing the analysis of the data gathered. I kept a journal and engaged in regular self-reflection to ensure as much as humanly possible I prompted for and recorded the informant's views without prejudice.

The audio-recorded interviews were transcribed by me using Dragon Naturally Speaking Preferred version 10-speech recognition software. The written transcripts were reviewed along with personal notes and comments made during the interview. Audio recordings were replayed if I required clarification of a comment or specific words and phrases. Because I maintained the audio recordings throughout the study, I did not feel it was necessary to send the transcripts to the informants for review and validation.

Additionally, an interview was conducted with the administration representative at each institution regarding the philosophy, policy and structure of the professional development
program at their location. The interview followed a structured format as detailed in Appendix D and required about sixty to ninety minutes to complete.

Finally, any documents and web sites relating to professional development at each institution were reviewed to inform the study as to the scope, availability and participation in professional development at each location. The college’s representatives were asked to provide or indicate where any relevant documents may be obtained. College representatives provided a web site that was dedicated to professional development information at their college. No additional documents, or minutes of meetings were available.

Data Analysis

"Data analysis is the process of systematically searching and arranging the interview transcripts, field notes and other materials accumulated to increase your own understanding of them and enable you to present what you have discovered to others" (Bogdan & Biklen, 1982, p. 145). To begin the analysis I transcribed the recorded interviews and coded the information. The initial step of coding is arranging the data where different ideas and thoughts can be grouped. "Codes are tags for assigning units of meaning to the descriptive or inferential compiled during a study." (Miles & Huberman, 1984, p.56). Bogdan and Biklen (1982) suggest a coding system that will allow bits of similar information to be grouped. A title for each type of information is established and then a description of what will be included under that title must be provided. Finally, a three-letter code for each grouping of information is produced to identify the information grouping. Several times during the process, the codes were revised or expanded as new information and categories emerged from the data. Using the resultant coding scheme (Table 5), the data were organized and examined in order to present a narrative analysis.
Table 5 Data Coding used in Analyzing Instructor Interviews

<table>
<thead>
<tr>
<th>Title</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biographical Data</td>
<td>BIO</td>
<td>First language, Level of education, how they selected trade work, technical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>training / apprenticeship details</td>
</tr>
<tr>
<td>Beliefs</td>
<td>BLF</td>
<td>Beliefs regarding education, trade work and teaching</td>
</tr>
<tr>
<td>Attitudes</td>
<td>ATD</td>
<td>Expressed feelings toward professional development, the students, coworkers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and the institutions</td>
</tr>
<tr>
<td>Activities</td>
<td>ACT</td>
<td>What PD activities were available, in what activities they chose to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participate (types and reasons)</td>
</tr>
<tr>
<td>Behaviours</td>
<td>BHV</td>
<td>What classroom / student /personal behaviours have changed as a result of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>professional development activities</td>
</tr>
<tr>
<td>Interactions</td>
<td>INT</td>
<td>Professor-institution interactions / dispositions/</td>
</tr>
</tbody>
</table>

The data analysis followed a format described by Creswell (2005):

Figure -2 Analysis Format

(Creswell, 2005, p.185)
The data were collected from interviews with the instructors, the institution representatives, the notes from the document review and field notes. All audio recordings and handwritten notes were transcribed into word files.

The notes were reviewed and along with the audio recordings remained available to me for the duration of the study in order to listen to the actual informants speaking during their interview, if necessary. All audio recordings and transcriptions were kept secure in my home office accessible only to my faculty supervisor and me.

The data were coded and the analysis generated.

Validity of Analysis

"Validity has long been a key issue in debates over legitimacy of qualitative research" (Maxwell, 1992, p. 279) and the validity of this study requires examination.

Validity, specifically external validity "asks the question of generalizability: to what populations, settings, treatment variables and measurement variables can the effect be generalized" (Campbell & Stanley, 1963, p. 179). Because this study is not intended to be generalized to other populations, I assumed the position of some researchers who suggest that validity is a concept from the positivist's domain of quantitative research and as such is not the goal. (Guba & Lincoln 1989).

I used literature to inform me of other types of validity for consideration to ensure the quality of this study. Maxwell (1992) uses the term descriptive validity, which refers to the factual accuracy of the informants accounts. This type of validity requires capturing the correct statements or words provided by the informants and guarding against any omission on the part of the research. In this study, descriptive validity was facilitated by audio recording the interviews. The audio recordings evidence me seeking clarification of terminology used by the informants as
well as prompting to expand a thought or comment, to ensure accurate meanings and clarification.

The second type of analysis validity guiding this study is interpretive validity of the informants and their accounts. Does the analysis and report of the informants' accounts accurately reflect actualities of their experiences and views and beliefs regarding professional development? In the analysis, care was used to group, code, and re-code different ideas and concepts offered by the informants to ensure a valid interpretation of the data. I am not suggesting that the interpretation present in this study is the only valid interpretation possible, a notion described by Putnam (1990) as a "God's eye view", and I acknowledge another researcher could reach different conclusions with the same data. Rather this study is an accurate account of what was described, recorded and interpreted without undue prejudices or distractions.

The notes were reviewed and along with the audio recordings, remain available to me for the duration of the study in order to listen to the actual informants speaking during their interview, if necessary. All audio recordings and transcriptions were kept secure in my home office accessible only to my faculty supervisor and me.

The data were coded and the analysis generated.

Summary of Methods and Procedures

Based on the review of the literature of the previous chapter, three research questions were developed and presented at the beginning of this chapter. The questions were designed to explore how participating instructors perceived their own professional development, what the individual instructors felt they needed from professional development to remain effective in their role, and what their institutions had put in place to provide professional development. Additionally, a college representative from each institution was recruited to provide their
perspective of professional development and I requested documents and websites relating to professional development at their sites.

The recruitment and selection of sites and participants for the study was described and rationale for the selection criteria was provided. Ethical considerations were discussed in detail and the procedure for volunteering to participate in the study, providing informed consent, maintaining anonymity of participants, the institutions and security of data were described.

Finally, a discussion of exploratory descriptive case study methodology provided the rationale for the design of this study.
Chapter Four

Results

In this chapter, the analysis of the data obtained from the eight instructor interviews, two college representative interviews and a review of college policies on professional development websites are presented. The chapter begins with a narrative summary of the instructor interviews. Presenting the data in this aggregate format, rather than individual interview summaries, has been done to protect the anonymity of the informants and their institutions.

Included in the interview summary are the interviews with the college representatives speaking about professional development at their institutions. The comments and insights of these representatives are used to confirm and contrast comments made by the instructor-informants.

Following the narrative summary is an in-depth examination of the beliefs and attitudes held by the instructors regarding their trades, teaching and professional development and their attitudes toward their students, institutions and professional development. Also included in the analysis is a discussion of the types of professional activities that were available to them and which activities they chose to pursue.

The Informants’ Background

While the characteristics of the instructor - informants identified differences in age and years of teaching there were a number of similarities in the biographical data, such as how they entered trade work, the nature of the apprenticeship they served and how they came to enter teaching. The age of the instructors ranged from late thirties to sixty-six years old. Some had entered teaching several years after their apprenticeship while others had worked in industry for many years before the transition to teaching. Their teaching experience ranged from ten years to
over thirty years in the classroom. Despite the wide range in age and experience in teaching, there was a remarkable consistency in the response to questions throughout the interviews.

Table 6- Years Teaching

<table>
<thead>
<tr>
<th>Years</th>
<th>0-10 Years</th>
<th>11-20 Years</th>
<th>21-30 Years</th>
<th>&gt;30 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

English was the first language of seven of the informants and while a foreign language, Italian, was the first language in the home of one informant, all informants received their elementary and secondary education in English. Similarities in their lack of interest in formal education while in secondary school were evidenced by statements including "(I) had no interest in academia that focused on languages which included French and Latin"; "(I) didn't do well in the academic stream", and "most people thought I was headed for a career in the custodial arts". One informant stated, "I always did well in school, I just didn't go". And though graduation from grade ten was sufficient to enter a trade in Ontario at the time the informants attended school, four informants completed grade twelve, one completed grade thirteen, two completed a two-year college technical program and one completed an undergraduate degree in engineering. The formal education of the instructor informants is presented in Table 7 below.

Table 7 - Formal Education of Instructors’ Prior to Apprenticeship

<table>
<thead>
<tr>
<th>Grade 12</th>
<th>Grade 13</th>
<th>2-Year Technical Diploma</th>
<th>Undergraduate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The reason for entering trade work varied from a decisive "I grew up working on cars and I always knew what I was going to do", to a much more passive career choice described as "the
trade chose me, I just kind of fell into it". For five informants, trade work was the default choice, as they did not want to follow an academic route, preferring a more hands-on career described as "more relevant and respected for capabilities".

Each of the instructors interviewed served a formal apprenticeship of eight to nine thousand hours. Three instructors completed three, ten-week sessions at a CAAT, two instructors who had completed a two-year technical diploma and the one instructor with an undergraduate degree received credit for the first in-school session and completed the intermediate and senior sessions in a CAAT and two instructors served their apprenticeship programs in large corporations that had their own apprenticeship training schools. The apprenticeships included electrical, instrumentation, motive power disciplines and plumbing and the trades people employed included residential, commercial and industrial work site. Some of the apprenticeships were with small firms that included one or two family members while others involved large complex industrial locations employing hundred of trades people. The employment type of the instructor-informants is present in Table 8.

Table 8- Size of Firms Where Instructors Apprenticed

<table>
<thead>
<tr>
<th>Small Firms (&lt;10 employees)</th>
<th>Large Firms (&gt; 100 employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

Transition to Teaching

All of the instructors expressed great satisfaction in their chosen trade work citing reasons such as, "I loved working with my hands", "there was always something new to learn" to "my employer invested time and money in me and I'm the kinda [sic] guy to see that if someone gave something to me they were going to get back more from me in return". It was
clear that all of the informants chose teaching not to withdraw from their chosen trade but to 
expand their trade capabilities by teaching others.

The transition to teaching took one of two routes, which was dependant on the 
characteristics of their employment. The three trades-people working in the larger industrial 
settings had the opportunities to develop or deliver in-house training on a part-time or occasional 
basis. These in-house trainers enjoyed the recognition of being selected by their employers for 
their demonstrated capabilities, as well as being able to share their knowledge and experiences 
with their peer trades-people.

The second route, that five instructors took, was seeking out or pursuing part-time 
teaching opportunities at night school at a local college. Three instructors reported that their own 
trade school instructors approached them and offered opportunities while five others 
independently approached the colleges seeking opportunities.

Independent of the route taken into part-time teaching the instructors cited positive 
experiences from their own training and work experience including "pride in their trade", 
"admiration and respect of their own instructors" while they were apprentices, and a desire to 
"give back" the knowledge and guidance they received while apprentices.

**Full-Time Teaching**

The move to full-time teaching elicited a variety of emotional comments from the 
instructors that varied from the very positive "I love learning", and "I have a genuine like of 
(working with) people" to an apprehensive perspective "I was offered three jobs before I finally 
accepted. I had three children to support and there was not a lot of security for instructors in 
those days", through to simply resigning to an alternative, "I loved my job, the learning and the 
travel but by now I had a family and I had to take a pay cut to stay in one place with a day job."
It was interesting to note that once the instructors moved to full-time teaching they remained with the same college, with only one exception, for the duration of their teaching career. There was some movement within the college, by two instructors, to teaching some non-apprenticeship by courses, but there was no evidence of any great movement from one college to another.

**First Day as a Teacher**

Prior to teaching full-time, all of the instructors had received some initial teacher training provided by the college. This training was the first three or four days of an average of seven days of mandatory teacher development they would receive in the first three years of their employment. The instructors reported that this initial training "showed us a few of the basics"; "they put us in with all the other teachers... it wasn't very relevant"; "it was okay but didn't really help".

Without exception, the instructors described their technical background and trade work experience as their greatest asset that first day when they stood in front of the class. They all had positive experiences from their own apprenticeship school sessions, and assumed they would use their own teachers as models of how to deliver the apprenticeship curriculum they felt they knew so well. Yet, the instructors reported encountering issues they had on that first day that included "being accepted as a teacher when I was the same age or younger than some of the participants"; "to develop as a public speaker, I was scared shitless [sic]"; "lack of confidence in my teaching ability", and "have allies or a network where I could ask very basic questions in a safe environment". When asked if these sorts of issues were included in their initial teacher training, one reported, "No", while a second interviewee stated, "they showed us how to use a projector
we would never use in our class". A third instructor noted, "they talked about Bloom's Taxonomy but that didn't help much".

The Students

When asked to describe the students in their first classes the comments from the informants were homogenous in nature. The instructors described students as predominately-Caucasian males ranging in age from eighteen to fifty-five years of age. If English was not their first language they had attained sufficient fluency in written and spoken English and most students were adequately prepared to handle the academic portion of the program with a focus on mathematics.

Further, the instructors indicated that most students were "chomping at the bit", to get into the shops and labs; "to get to the hands on portion of the curriculum," and, "to show us what they knew and what they could do". That first year of teaching included students who were far more inclined to participate in the applied component of the curriculum than in the classroom theory and academic portion of the program. One informant captured this disposition succinctly describing the students as "just like me and my group of apprentices".

Challenges of the First Years

The biggest challenges of the first year most often cited by the informants was not having lesson plans "that worked". Each intake session of apprentices was an average of ten weeks in duration but class sizes, time and space availability and the varying capability of the students presented challenges in "timing and pacing"; "staying on topic"; "covering all required elements of the curriculum" and "teaching some elements of a course that were not my best focus". There were also comments on being required to teach many more hours as compared to the instructors in "post-secondary" areas of the college, having to repair their own equipment and working
within very tight budgets. These comments did not seem to have a negative connotation they simply provided me with an environmental scan of the way things were, when they began their teaching career.

**Professional Development**

To initiate the exploration of professional development the instructor-informants were asked, "How do you think about your own professional development?" This question was intentionally crafted to be very open-ended in nature and promote a dialogue that would allow the informants to talk about what they considered professional development. In Chapter Two, the review of relevant literature, there was a discussion about the definition of professional development which concluded with a definition synthesized from the literature reviewed: "Professional development of college instructors is the continuous efforts of the individual and their institution, to enhance the capabilities and performance toward optimum student outcomes, personal growth and satisfaction and meeting institutional goals". I used this definition as a touchstone when listening to the informants and encouraged them to expand their thinking and comment on any aspect of what they thought professional development meant to them personally.

When I began to explore the instructors' perspective of their own personal development, it became clear that none of the informants had a master plan for their career path and they had few long-term goals. Descriptions of professional development formed a continuum from a laissez faire approach "a plan, no, I just take things as they come" to a highly structured, incremental approach described as:

I knew I needed more technical education to stay ahead of the curve

if I was going to succeed and stay employed. I quit my job and took
a two year (technical) program on my own time and nickel just so I could be better, more competent at my teaching job. When I went back to teaching, I found that brush with my own formal education awakened or renewed a love of learning and started pursuing a formal academic education that led to advanced degrees.

With some prompting the informants were able to articulate, perhaps for the first time, their thoughts about professional development. Their reflections categorized different elements of professional development and provided examples of how the instructors valued professional development. The conversation I had prompted some basic responses such as "the technical part was well thought out and planned while the academic part just flowed from my love of learning". As the informants continued, the responses became more reflective, "it never really ends and goes in all directions, a structured academic course, a pro-dev writing course, learning from the students every day—it's all professional development". One informant shared some very personal thoughts and offered a more philosophical and holistic comment, "teaching is an important part of my job but I also have a focus on physical, spiritual and community (environmental) activities".

When describing the types of professional activities that have been available to the informants over their careers with the college, the tone of the interviews changed in most instances from eliciting very positive response to more neutral or negative responses. All respondents mentioned the initial teacher training and qualified it with comments that added a negative connotation: "it was mandatory"; "it wasn't much"; "there were a couple of days at the beginning, but really very little". Other comments focused on professional development at the colleges included "I was never encouraged to improve my teaching skills"; "there is none, if you
are going to get anywhere you're on your own"; "you basically have to find something yourself"; "we get X number of days a year and most people don't do anything". Several informants realized they were presenting a negative view of professional development by stating "I know I'm throwing bricks here", and "I know I sound negative, but it is not all bad", and yet they continued with their initial views of their professional development experience categorizing it as "irrelevant"; "not applicable" and" boring".

The informants described the professional development activities at their college in which they had participated in quite negative terms, for example one informant noted that, "they throw out computer training and some little seminars but that does not motivate me", a second noted "I don't have the time or motivation to hear someone drone on about something that is completely irrelevant", while a third stated, "they brought in speakers sometimes, but it really wasn't much".

Respondents were much more positive when describing professional development activities that were directly related to maintaining their technical knowledge of the trade, "I've done technical upgrading that I initiated and paid for myself"; " I keep a list of all the changes in technology and try to find something to keep me up to speed, here is my list for this year, so far", and "I have joined a number of committees that look at apprenticeships across the province". There were a number of comments that echoed a need for any professional development to be practical and relevant to what they were doing in their classes, labs and workshops.

**The Changing Students**

After describing their thoughts concerning professional development and what activities they had experienced, we explored the changes they had encountered in their teaching career due to the changing student population. My question was: How are the students today different from
the students you were teaching when you began your teaching career? I received very simple responses from most of the informants indicated by the replies such as "no change"; "pretty much the same" and "I guess they are not much different". It was only when I prompted them with specific areas that I received more expanded responses. Similar to the response when I asked the informants as to how they thought about their professional development, the responses to how had the students changed, indicated very little, if any, prior thought had been given to the changing profile of the students, or the challenges that these changes may present.

With prompting, the students today, compared to when the informants started their teaching career, were described as younger, included more females, more culturally diverse, and some struggle with communication in English. A rudimentary evaluation of these students included: "their work ethic is poor"; "they lack respect for instructors and the work"; they struggle with basic math"; and "they have a sense of entitlement". One instructor appeared very frustrated when thinking about his response in this segment of the interview and summed up his feelings by saying, "Twenty years ago we had to practically wrestle with the students to keep them out of the shops, so we could cover the theory, now we have to pry them out of their seats like they are afraid to get their hands dirty". Another informant referred to today's students as the "Google generation" and, in an exasperated tone explained that" they haven't learned to think through a problem and solve it, if they can't punch it into Google and get an immediate answer they just give up". Still another instructor offered, "we're just getting underprepared, lazy students that are inclined to cheat".

One informant did offer an observation that was contrary to this almost completely negative assessment of today's students saying, "Every generation always thinks the younger
generation is a lot worse than their own cohort, but really this generation is no better or worse than the last”.

Dealing with the Changing Characteristics of Student Population

The prompt to the informants in this area was simply; "Did your professional development prepare you to deal with any challenges presented by the current students?" Five of the responses began with the word "No" and then further explained: "HR sends stuff out but it is always at a time when I can't attend"; "we have steps to manage a problem student but zero development or training", and "the managers are business people who have no idea of what we are trying to do in our class". Other sentiments expressed included "I think you just learn it on your own, I think you learn it in the trenches", and "professional development is not encouraged here, you have to take the initiative yourself if you want anything". Professional development that focused on issues of dealing with students and classroom situations were viewed in a negative light by the informants. The informants cited problems with accessibility, not being encouraged or supported to attend this type of professional development or simply that it was not needed.

What Professional Development is Needed

When asked for their thoughts about what professional develop is needed for instructors of apprenticeship programs, six informants chose to emphasize a specific type of development while two described what characteristics the professional develop opportunities should include. Overwhelmingly the primary choice for professional development was technical training which would be specific, for example one respondent noted, "I want to learn CAD (Computer Assisted Drafting)", while others provided a broader response such as: "I need to stay current with the trade"; "I have to keep up with changes in technology", and "something suitable for a tactile
rather than academic group”. Aside from technology some respondents focused on different aspects of professional development; one stated, "if I were in charge I would insist every instructor complete a B.Ed. in adult education", while a second one noted "how to develop empathy, we bend over backwards to help these people and they just don't seem to want to pick up the ball and run", and a third respondent indicated "management skills, our bosses are managers, not educators. If we could deal with them better we might be better off”. As the discussion of professional development progressed, in each of the interviews, the informants began to expand their answers with less prompting. I suspect the informants were anticipating that very short answers would be followed-up with prompts for further information and there was a noticeable willingness to share unsolicited personal thoughts and experiences. While these responses became more thoughtful, there was little indication that this subject matter had received prior thought and discussion and there was no evidence of any of the informants pursuing any non-technical professional development, even in areas they indicated they could identify problems.

Both institutions have professional development web sites that provide some information about the initial teacher development program but there was little else available. The web sites listed a number of short programs lasting one-two hours and some daylong workshops. In addition, a variety of on-line offerings could be accessed. All programs offered were focused on some aspect of teaching and learning. Both institutions offered opportunities for financial assistance for seeking professional development opportunities external to their institutions. Specifically, tuition assistance of up to one thousand dollars a year for individuals wanting to pursue formal education such as undergraduate and master degree level. The collective agreement between the colleges and the faculty contains specific language governing the detail
pertaining to professional development financial assistance including the provision for ten paid days per year for professional development activities. (Academic Employees Collective Agreement (2009 - 2012, Article 20)

When inquiry was made as to the documentation of professional development programs and initiative was requested, one institution representative said there were informal meetings where personal notes rather than minutes were kept, and the other institution said minutes of meetings, where professional development was a focus of discussion, were kept but they are not posted or available. Representatives at both colleges did not provide a written policy or procedure regarding professional development. One college representative did say that, "sometimes there is a college wide initiative developed by the administration and then that becomes the focus for professional development that year". On the website of one institution, I did find a policy on professional development, which did not provide a lot of detail on how the programs would operate. I could not find the policy of the second institution, perhaps because the website restricted access to some of the site's locations.

The lack of detailed information prevented the researcher from conducting the sort of detailed review of documents that had originally been intended.

Summary of Instructor Interviews

The interviews revealed that all of the instructors had a passion for their trade and for teaching apprentices. There were some negative comments about the students, but many positive comments such as: "we come in early and stay late, anything we can do to get these guys through (the program)", and "some of these guys are shocked when they get a fail on their first assignment. It may be the first time anyone told them their work was just not good enough. But we'll bend over backwards for them and once we get them started in the right direction they'll be
okay”. These statements demonstrate a true commitment on the personal level to affect positive student learning outcomes. The instructors expressed a need and a desire for professional development while at the same time stating that the professional development programming offered by their colleges was; "inaccessible"; "irrelevant and boring" or simply not what was wanted or needed.

The College Representative Interviews

The interviews with the two representatives provided insight into the institutions' perspective of professional development for the faculty members. While the perspectives of the two different college representatives are very similar in some aspects, there are some differences. Because the programs at both colleges, one being a CAAT and the other an ITAL are very similar, being members of the CAAT system and governed by the same legislation, I do not believe any differences emerge from the data because of the college type. The differences may be attributable to the fact that one representative was a manager in an administrative role, while the other was an associate dean to whom instructors reported. To protect the anonymity of the informants and the institutions the answers are compared only on a subject basis rather than "the CAAT representative reported ABC while the ITAL representative noted XYZ" format.

The Institution's Philosophy of Professional Development

Each informant was asked about a guiding philosophy for professional development and offered an unofficial description stating, "Professional development is important, it's encouraged and in some cases mandatory", and "We believe we can develop the educators if they come in with the right (technical) skill set". As previously stated, I was able to access the policy for professional development on the website of one institution, but I did not have access to review the document at the second institution. A description of the mandatory teacher development
program provided by the college representative informants revealed that both colleges had programs that included classroom management, technology used in the delivery including computers and projectors, and platform techniques used in session delivery. The programs at both colleges included instruction and development prior to entering the classroom, with ongoing training for up to two years. This is discussed more fully under the heading: The Professional Development Programs.

After the initial mandatory teacher development programs, a significant difference between the two programs was noted. In answer to my question “who is responsible for professional development at this college?” one institution representative replied that it was "Ultimately Human Resources" while the second institution responded "Ultimately it is the faculty member". As noted earlier the college representatives who volunteered to participate in the study carried out very different roles in the college and their responses may have been influenced by these roles.

How Professional Development Programs Operate

Another area of discussion was the actual mechanics of the professional development program. One informant chose to answer my question "How does this professional development work?" by referring to the initial teacher education program stating "it’s mandatory" and the associate dean contacts me or I contact them, "with both groups involved it gets done". The second college representative informant, who was a line manager, focused on a broader reference to professional development, saying "The applications (to participate in a program or obtain professional development funding) usually start with me, and I encourage them to research their ideas and bring them to me and then I can advise them on how to fill out the required forms and how to get started".
An inquiry as to initiatives on the part of the institution to promote professional development on the individual level revealed a dichotomous approach. One institution reported, "They (faculty members) are supposed to be reviewed every four months" when they are on probation. At this institution the college representative did not know if ongoing or if annual discussions were conducted with the professors regarding their professional development. It was opined that, "this type of discussion could be informal" and "I don't know if the feedback (collected from the student review at the end of each teaching session) is discussed with the professor". It was further offered that "The formal review we had years ago, with funding cuts, dropped off the table", and "But no, there is no evaluation".

A different approach to promoting professional development was reported by the second institution's representative: "according to the union/management handbook we are supposed to have formal evaluations every so often". The college representative continued:

I put in the paper work but in reality I walk around and pop in on classes, I join in on discussions at the lunch table and have conversations with people in the hallway. Years ago I got a guest speaker in on a topic they expressed interest in exploring and they liked it. They took ownership and now they organize things on their own, like the electrical guys have organized a day to have a speaker come in and bring them up to speed on changes in the (electrical) code.

Goals of Professional Development

The college representatives stated the goals for their respective institutions in terms of student outcomes, specifically "it's ultimately for the students" and "helping students become better learners". They differed, however, as one institution representative focused on enhancing
teacher performance while the other institution representative spoke of discussions with individuals pursuing advanced academic degrees, taking "personal interest courses" and technical upgrading. As for meeting those goals, one college representative described sitting through some professional development activities to observe participant reaction, sitting-in on department meetings where these activities were discussed and keeping personal notes, but no formal evaluation or report was developed. The other institution representative stated that reaching any goals was on an individual basis, "We take student feedback from the attendees and hopefully we got it right and guessed what they wanted".

The Professional Development Programs

Both institutions had a mandatory teacher development program following appointment to full time teaching positions. Instructors were very vague, perhaps due to the lapse time of their participation in the program, but any responses to this initial experience were neutral to negative in tone. Today, both colleges have very structured initial teaching development programs that may require up to two years to complete. These initial programs include theoretical components such as learning styles, lesson planning and outcomes and evaluation methods, the in-class skills of classroom management, feedback and communication skills and other topics such as human rights, ethics, copyright and professional issues. One college has a mentor program for new teachers where an accomplished teacher is assigned to assist, guide and support first year teachers. Similarly, both institutions have web sites where faculty can seek out resources for their own individual needs. One institution has set-up, or has in development, a variety of e-learning opportunities such as "Teaching for Success" and "Understanding Rubrics" that individuals can simply log on and complete. The other institution has a long list of topics,
including Bloom's Taxonomy, Learning Styles, and Copyright, and a self-help window for a quick review of the topics.

Both colleges have professional development groups that are located on the main campuses away from where the apprenticeship groups deliver their programs. In both institutions these groups provide on-going workshops, which are typically short lectures or demonstrations requiring two or three hours. Topics for these short professional development opportunities are chosen by survey findings, departmental requests or directed by administration because of a perceived need. One notable feature was that one institution belonged to an association of several Ontario colleges who collaborate on presenting a series of three-day conferences at alternating sites. Faculty have to apply and be selected in order to attend these sessions. A committee whose members are drawn from the participating institutions decides topics of the workshops at these conferences. Individuals who present the workshops are subject matter experts external to the colleges or may be faculty members from one of the associated colleges who have developed expertise in a particular subject area. This association of colleges decides, on a year-by year basis, what the focus of professional development will be for the current year and offer learning opportunities such as: personal learning environments, learning outcomes, lesson plans and reflective practice.

Finally, both colleges provide tuition assistance for courses or activities that will enhance teaching abilities. Individuals can apply to access these funds and receive approval based on how well the activity will contribute to what they are doing in their classrooms at present. It was pointed out, by the college representatives interviewed, that both institutions encourage instructors to complete a diploma in adult education, which not only enriches the instructor's skills and knowledge as an adult educator, but also may provide the "points" necessary to move
an individual instructor "up" on the pay scale that is negotiated between the college and the
union representing the instructors.

The teaching and learning websites at both colleges indicate a great deal of development
in e-learning is underway. Both college representatives indicate there is a mass movement
toward e-learning for the college students, and the instructors will need to master the new format
and techniques in order to be able to transfer their courses to the new medium. Two instructors
made unsolicited comments regarding e-learning. The first instructor commented "that it is
coming, like it or not so we'll just have to learn it (e-learning techniques)", while the second
instructor felt being forced to put his lessons on line would violate his copyright of the material.

Consistency of Professional Development for Faculty

The prompt to evoke discussion at this point of the interviews was simply the question "Is
professional development the same for all faculty members at this institution?" One institution
responded by focusing on an individual saying "Yes and no, it is supposed to be, we have a new
person in charge of the professional development who is very active with lots of
communication". The same interviewee indicated: "Our current manager is very dynamic who
looks at global lists to see where we need to go as an institution, but not lose sight that we are
individuals who need personal attention and access to better resources".

The second institution representative gave a more institutional response with a special
focus on apprenticeship professors, beginning with "The professional development schedule does
not mesh well with the apprenticeship instructors" and "I don't know if it is being done very
well". The institutional representative opined,"(maybe the answer is) one-on-one training,
maybe more on-line or e-learning is the answer".
When asked about participation rates of other faculties one institution representative replied, "I know the post-secondary groups send a lot more people, but then again they are a much larger group. The second college representative responded "yes, definitely, the health care groups". When this was pursued as to why this group had such a high rate of participation the response was, "I don't know", "they have to travel a good distance from their campus but they always come and they come in groups".

Summary of Interviews with College Representatives

At both institutions there did not seem to be a lucid philosophical foundation for the professional development programs but the representatives interviewed communicated a clear and comprehensive understanding of the programs and how those programs worked.

The goals at one of the institutions were focused almost exclusively on teaching skills, while the other institution representative spoke of a broader approach which included academic upgrading and personal interests in professional development. At the same time, they both spoke of improved student learning outcomes as the overarching purpose of the institutions professional development program. I reiterate that the two college representatives held very different positions in the colleges and this may have influenced the insights they provided regarding professional development.

Researcher’s Observations

I spent a considerable period of time in each college during the data collection process. In addition to the data collected from the interviews, I sat in during a lecture and workshop when invited by one instructor and spent significant time in the facilities between interviews. During these activities, I made observations and entries in my journal that helped me to understand better the institutions and the instructors who taught in these colleges.
Some of my observations on visits to the colleges during the interviews identified characteristics that seemed to impact on the informant's information throughout the study.

Firstly, the physical arrangement at both institutions had the apprenticeship program facilities physically isolated from the other program facilities at the colleges. The apprenticeship programs were either in buildings that allowed students to participate in their apprenticeship programs without ever interacting with the general school population, or on entirely different campuses, separated from the main college by significant distances. While there may be a valid rationale for having this physical arrangement, as the apprenticeship programs require specific shops and specialized equipment, the demarcation was palpable at both sites.

The second observation was the discourse that appeared in every instructor and college representative interview. Without exception, every informant, including instructors and college representatives, demarcated between apprenticeship and post-secondary. This seems to conflict with recommendations presented in the Rae report to the Premier of Ontario and the Minister of Training, Colleges and Universities (MTCU):

5. Apprenticeship

Recognize apprenticeship as a postsecondary destination and treat the apprenticeship programming by colleges as a core business. Assign to colleges the government's role in administration and outreach to employers (for those apprenticeship programs in which colleges deliver in school training). (Rae, 2005, p. 48)

Further, the Ontario government web page for the Ministry of Training, Colleges and Universities, (http://www.tcu.gov.on.ca/eng/postsecondary), lists the details of the value and structure of apprenticeships along with contact information and some specifications of the
colleges that provided apprenticeship education. It would seem that apprenticeship is clearly included in the notion of a postsecondary education destination from the MTCU perspective but it exists as a separate entity, both physically and in the discourse of the informants, within the colleges examined in this study. I believe this to be a significant observation as it is a recurrent theme in the beliefs and attitudes of the apprenticeship instructors. Specifically, that apprenticeship is a different entity with different needs than other postsecondary entities and that the colleges do not recognize or address these needs.

On a very positive note was the observation of the pride and joy the instructors had for their role as teachers, their trade knowledge and capability, and the opportunity to emulate what they perceived when they were themselves apprentices. At both locations, prior to any data collection, several instructors I was to interview provided me with an unsolicited tour of the shops, classrooms and offices used by the faculty of the apprenticeship programs. Comments regarding the quality of student projects displayed included "My guys did these" and "You can see student pride and quality improvements from basic through intermediate to senior sessions". My observations revealed positive personal interaction between the apprentice-students and the instructors in a most amicable environment.

Upon invitation, I sat through a classroom session and a "hands-on" lab and could see that the interaction of instructor-apprentice was on a very personal and individual level. When this observation was shared with the instructor, he replied, "It's a lot of extra work, they are all different, but they all have to get it in the end". These observations of comments and disposition toward the students were consistent across many of the interviews.
Instructor's Beliefs

For this section of the analysis, I examined responses to questions and volunteered statements of the sorts of things that the instructors held as true regarding trade work, education and teaching. By reviewing the transcripts repeatedly and identifying words or statements indicating a high level of trust or confidence in people or things, I assigned the code BLF, as described in the methodology section.

Trade Work

All eight informants shared a common belief that their greatest asset in being an apprenticeship instructor was their technical and trade education and experience. The informants had described their trade experience as their greatest asset when they first started teaching and three informants stated it was what "got me through the first days of teaching". They had enjoyed trade work and felt it was "better respected and rewarded (than a college diploma)". Several instructors reported they had pointed out to their students how well trades people were paid and assured them with the shortage of skilled trades in Canada they would have "great job security" and could work "anywhere they wanted to in Canada". The informants felt confident that, with their experience, to become a teacher they would simply emulate the instructors they had encountered in their own apprenticeship. Many of the informants spoke of what a satisfying and secure career their trade had provided for them and how pleased they were to be able to pass along their skills, knowledge and positive experiences to the next generation of trades people. For several informants, trade work was a tradition in that they had fathers, uncles or close family members who were trades people and in some cases provided the initial apprenticeship training for the informants. As one informant summarized trade work, "There is a proper way to do things, so you learn that way and then do it, because it is the proper way to do it". The same
informant gave a simple example saying "Even though I know NMD 90 (common house wire) is going to be closed in behind the wall I still make sure it's straight and clipped"; "I don't want someone tearing down the wall fifty years seeing a crappy job, even if he has no idea who did it (the work)".

The shops and labs, which had been built or organized by the instructors, were arranged to reproduce actual workplace scenarios. These real-world applications included a structure with stud walls exactly like a new home under construction, where apprentices would pull cable and wire in lights, switches and receptacles. In another lab the apprentices fabricated thermocouples, (a temperature measuring device) and then inserted them into a simulated process to measure temperatures—a typical industrial application. Tools, equipment and materials were well organized, labelled and prepared. When I noted this, the instructor replied, "Of course, we are all tradesmen [sic] here". When I was invited and consequently observed a workshop session in progress, I noted that the last thing each apprentice did at the conclusion of the lab session was clean up the work area, put away all the tools and return the toolbox to the storage rack without being given direction to do so by the instructor. When I mentioned this casually to the instructor he replied, "That's the way I learned my trade thirty years ago and that's the way these guys are learning it (the trade)". The instructor continued saying that they have to remind the students in the basic group but by the time they are intermediates, good work habits have already been established.

Education

There was a strongly shared belief that education was highly valued and important. It was noted "These guys are learning everyday on the job; coming here (to the college sessions) is
just one aspect of their education" and "this (the college curriculum)" is important stuff they will use now and in their future".

Several instructors offered their personal philosophy regarding education with comments including "Teaching is an opportunity to pursue my own love of learning" "Education is a key element in building citizens of a society" and "I will take every chance to learn something new and pass it on to my students". Several instructors commented on trades training vis-à-vis academic education saying, "I was never interested in school, but once I got into my apprenticeship, I found that I loved learning".

**Teaching**

I infer, from the instructors, that they believed that teaching was their preferred career course over other options. Many of the instructors mentioned sacrifices associated with pursuing a career in teaching trades including: "losing money"; "having their salary cut in half"; losing the security provided "with a solid industrial employer", and having "to work at it (part-time teaching) for three years before I got a full time job". This belief was further evidenced with the instructors staying with the teaching profession for long periods, up to thirty years in one instance, and in all but one case remaining with the same college.

While all instructors had participated in the mandatory initial teacher education programs provided by their institutions, they believed that it did not appropriately prepare them to be in the class on that first day of teaching. Possibly coloured by the time lapse between starting out as a teacher, ten-to-thirty years ago, the instructors felt that the initial teacher training had done little to prepare them for the classroom. Specifically, one informant was unprepared for what was described as "a political hostile environment" and lacking any sort of network to ask questions and learn in "a safe environment". This informant went on to explain that when he started
teaching it was a technical course in the "post-secondary" section of the college. He was the only trades person among a group of technologists and engineers delivering the courses and he felt there were deliberate attempts to make him feel stupid. He stated, "I learned quickly not to ask questions but to go away and figure it out for myself. I wasn't stupid, it was all just new to me and I didn't know". Another instructor cited being assigned to teach in an area that was not reflective of his background and as a result had to spend every night "on the books" getting ready for the next day. Others recounted needs ranging from needing "public speaking instruction" "dealing with anxiety" and "lack of support and guidance". The emerging belief was that the initial teacher education program was not effective in preparing them for the classroom. The sessions were described as "generic", "irrelevant" and not reflective of the "personal needs" of the instructor. While this rather negative belief was common at both colleges, there was some variance in the responses. Some informants responded that they obtained "something they could use (out of the training)" others thought it was a "waste of time". Again, it is worth noting that significant amounts of time have passed between participation in the program and responses given in this study. The beliefs may have been influenced by the passage of time and other factors that will be discussed in chapter five of this thesis — Analysis.

The generic nature of the initial teacher program was confirmed by the college representatives interviewed. There was no mention of review, coaching or support specifically directed at the teachers at the onset of their teaching career and while there were cursory comments of a semi-annual review of new teachers there was no official records available to inform me as to the content or outcomes of those reviews. In fact, in a number of cases it was noted, "Yea, we were supposed to have something" or "No, there was no evaluation or feedback".
Aside from the belief the initial teacher training was; "not very effective"; "not relevant" and "wasn't much", was the belief that many of the same characteristics hold true for the colleges' professional development program. They believed that most of the programs were "irrelevant", "boring", and not motivating. The instructors explained that what was demonstrated or discussed for use in an academic setting was simply not doable in the situations where the apprenticeship instructors conducted their courses. "We can't discuss and compromise what we are going to do, this is a trade. We identify a problem and go out and fix it."; "what works in French or English won't work in a shop"; "we need stuff for tactile learners, not academics". Despite the rather negative comments, some informants did have some more positive experiences with the college's professional development. One informant mentioned attending "speed reading" and a writing workshop that he found "useful". Another instructor reported he did an on-line course in adult education and while he did not think the information was applicable to his teaching role he was obviously very pleased and had attained "points" that moved him into a higher pay bracket.

The beliefs regarding trade work and education were for the most part very positive. The instructors regarded their trade work as important, valued, respected and interesting. This was consistent across all the interviews and involved four different trades that included: electrical, instrumentation, motive power, and plumbing. Most instructors discussed a positive belief in the importance and value of education for both themselves and their students. The instructors recognized education occurred not just in their classroom sessions but every day on the job. As one instructor recounted:

Learning everyday was what I really liked best. When I think back,

I think of the old guys (the experienced trades persons) at the lunch
A situation or a question about a situation would come up and there would be discussions, arguments maybe even a fistfight. Someone would remember something from way back, how they did it last time, a drawing on a scrap piece of paper was made and by the end of coffee we had the answer. I learned so much at that lunch table, what we had there was golden.

There was a strong sense that these positive and fond memories of education and trade work were drawn in part from the camaraderie of people from similar backgrounds and engaged in similar types of work. There was pride in their work and accomplishments from entry-level apprentice to college professor and it likely contributed to evoking these positive beliefs. While this belief began to develop when the instructors were apprentices themselves, it seems to continue to the present day. Personal observations of the instructors interacting among themselves, consulting each other on matters pertaining to their work and even referring to each other in the interviews indicated the camaraderie is still very strong at present. Several informants stated, "You should interview instructor x, he'll give you a clear picture about that" and in another case they spoke about several instructors working together on "side projects" that indicated they were functioning as a team and enjoying the work.

The beliefs regarding professional development, specifically the initial teacher program, were not nearly as positive in nature. Factors affecting the development of these negative beliefs included the generic nature of the professional development program and the participation in the programs with people of many different backgrounds that may have not shared, or had a chance to learn and develop, an appreciation for different values and philosophies.
A further contribution to the negative beliefs regarding the teacher development program may have been that participation in the sessions was mandatory. Comments including "We had to go", it was mandatory", and it "Was part of the employment contract", suggest that the negative beliefs had begun to form before any of the sessions had commenced. While some instructors reported participating in professional development where they had identified a personal need, there was very little response about attending workshops that related to teaching. One informant went as far as to say, "I have never been encouraged to improve my teaching".

Instructor's Attitudes

In this section the attitudes, defined as the expressed feelings toward the students, professional development, and their institution's role in professional development will be discussed. While reviewing the interview transcripts any words, comments or observable actions that I interpreted as indicating a certain disposition toward a person or thing was coded as ATD for attitude and formed the bases for the following discussion.

Students

The determination of the Instructor's attitudes toward the students provided a significant challenge, as there seem to be conflicting emotions at play.

When asked to describe the students in their class years ago, when they were starting their teacher careers, instructors' responses indicated very positive tones. Consistently from all informants the students were described as 'bright'; "eager", "anxious to show us and their classmates what they could do". Further descriptions included observations that "in those days you could get an apprenticeship with grade ten but they had no problem with the trade math they encountered" and " they took their apprenticeships seriously"; "this was their career choice, and they had to make (a success of) it". The instructors described students they taught during the
early days of their teaching career as having a zeal for the hands-on component of the work. One instructor commented, "It didn't matter if we were bending conduit, they were anxious to get in there and do it, we couldn't keep them out of the shop." Another instructor observed, "In those days the students loved dirt, the more grease on their hands and face, the more tired their muscles at the end of a days' work, the happier they seemed to be."

The same instructors used language to describe their current students that could only be construed as negative including the adjectives "lazy", "underprepared", "distracted", "and noncommittal" and having "a sense of entitlement". One instructor described the current students as the "Google Generation" - constantly texting, doing email or speaking to others during class. The same instructor further lamented, "When they encounter a problem they Google it for an answer, they have forgotten or never developed the ability to think through a problem". Another instructor commented that, "They are more concerned with their rights and what you are going to do for them rather in what can the instructor do to help them learn." Further, the instructor commented there is "No respect for the instructor and what that instructor knows. In my day instructors were like gods to us".

One college representative made unsolicited comments about the instructors' negative attitude saying, "We always think our generation was better and the younger generation lacks the attributes we envisioned we had when we were young". One of the more senior instructors offered that maybe the negativity was in the growing generation gap between the students and the instructors suggesting "the students are about the same age or even younger than when we started twenty years ago but now we are twenty years older and that gives us a different perspective".
Jeremiads abounded about today's students in general vis-à-vis the students of ten-to-thirty years ago, with comments regarding today's students seeming to be of a pejorative nature. However, there was an inconsistency between the instructor's responses when asked to describe differences between the students of ten-to-thirty years ago and the tone they used when speaking of today's students. When describing recent classes of students, positive adjectives were used saying "a bright group", "hard working" and "competitive". The instructors gave me tours of their shops and classes and invited me to observe their classroom sessions. Their disposition toward the students was helpful and attentive, and they constantly reinforced the efforts of the students. If their negative perception of the students was genuine, it was indeed very well suppressed when they were teaching and interacting with the students.

One explanation for the inconsistencies between the instructor's description and my observations of their behaviour is found in a phenomenon describe by psychologist Irving Janis. Janis used the term Groupthink to describe, "Defective judgement that arises in cohesive groups of decision maker - the concurrency-seeking tendency" (Janis 1973). All of the instructors, when speaking as a representative of their peers, were negative to varying degrees, perhaps because this was the line of thought established and maintained at one point by the cohesive group that the apprenticeship instructors embodied being engaged in similar work and isolated physically from the rest of the institution. The phenomenon of groupthink is more fully discussed in the next chapter.

Regardless of the explanation for the inconsistency between characteristics attributed to today's students and the observed disposition and interaction of the instructors and their students, the espoused attitudes of the instructors identified in the interviews did not appear to have any negative impact on student outcomes in the classroom and shop settings. During class and work
shop sessions I observed the instructors being attentive and respectful of the student as indicated by the instructors repeating issues for clarity, making eye contact when speaking to students, providing students with individual assistance when required or asked for by the students and using very positive reinforcement language such "excellent", "nice job" and "have a look at student x's project, he's got a really good idea". Similarly, when describing the instructors’ interactions with the students the instructors used very positive phrasing, "We'll get them through, I'll come early and stay late if that is what it takes", and “We'll just keep working till they pick up the ball and run, then they'll be okay”.

Professional Development

When discussing the instructors' beliefs about professional development they used terms and phrases such as "it was mandatory", "it was generic" and it "wasn't much". When examining their expressed feelings regarding professional development, their comments revealed a much stronger attitude. To promote discussion focused on professional development I asked the questions, "What types of professional development have been available to you over the duration of your career?", and "In what types of professional behaviour activities have you participated?"

In response to the first prompt interviewee comments included: "Whatever covers the college's ass in case something happens"; "They throw out computer training and some little seminars but that does not motivate me"; "They brought in speakers sometimes but it wasn't much", and "I don't have the time or motivation to hear someone drone on about something that's completely irrelevant". Further, the prevailing thought of the informants was "there is not too much (Professional development opportunities)"; "I was never encouraged to improve my teaching" and "there is no follow-up; the managers haven't been trained to evaluate teachers."
The negative response to this prompt may result from groupthink, at least partially. The groupthink phenomenon seems to have established a prevailing line of thought evidenced by the homogeneity of responses across the informant population. When speaking of their individual activities it was very evident that the informants had a great interest in personal professional development. All the informants mentioned pursuing or wanting to pursue the technical aspect of their work. Four informants had participated in committees on their own time, contributing to development and revision of trade and apprenticeship requirements. The informants specified courses they had taken to remain current with the changes in technology that affected their trade. In addition, two of the informants specified technical training that would allow them to expand the type of courses they delivered. Three informants reported that they had received some financial assistance for these endeavours while two other instructors had been told what they wanted to pursue did not qualify for tuition subsidy and finally, two informants stated that they didn't even try to obtain funding, they just paid for it themselves. Seven of the eight had sought out development opportunities outside of college. Two reported doing so on their own time and at their own expense, indicating a very positive disposition toward professional development. But still they responded in a negative fashion when commenting about professional development, such as workshops, lectures and e-learning opportunities that their institution provided.

Another factor that had a negative impact on the instructors' attitudes toward professional development was the scheduling and accessibility to professional development offered at the colleges. As one college representative explained, most activities are scheduled when the colleges' normal delivery schedule slowed in the summer months allowing faculty the opportunity to participate in the programs. The apprenticeship programs, with their continuous
intake, follow a different schedule and the apprenticeship instructors are committed to delivery
activities when the bulk of the professional development programs are available. Again, because
of an idiosyncrasy of the apprenticeship program design, the apprenticeship instructors were
isolated and disadvantaged in the area of professional development opportunities.

When exploring the professional development in which they had participated the
instructors responded, almost unanimously, that they had taken some sort of technical upgrading
and quickly qualified their response with comments: "You're on your own", "You have to find
something yourself", and "I did it on my own time and paid for it myself". A number of
participants spoke about working on government or trade committees, and seemed to enjoy fully,
these types of personal activities.

The instructors wanted professional development but it had to be relevant to what they
were doing in their classrooms or to their personal interests. Having the other types of
professional development offered by the college including "Blackboard", "e-learning", "guest
speakers" evoke a negative attitude resulting in very limited or non-participation. As one
informant termed a course, "academic learning theory crap", explaining that Bloom's Taxonomy
and rubrics was something that he had no interest in and he could not see how it would be useful
in his work as an apprenticeship instructor.

Repeatedly the instructors commented that they like to participate in technical training
but reject development related to teaching skills, which were offered by the colleges. It appears
that the apprenticeship instructors saw themselves as a completely different group and did not
need or want the professional development in which faculty outside of the apprenticeship
participated.
Behaviours

This area of questioning explored whether participating in any of the professional development activities had changed the behaviour of instructors in the classroom or their job activities. Most of the informants began their response with the word "No". Prompting a little further for reasons for this decisive negative response led to comments that included: "I think you just learn it on your own"; "HR sends out stuff but nobody goes"; "I think you learn it in the trenches. Having someone come and talk to you is really not effective" and, "Professional development is not encouraged here".

The instructors were asked to describe the challenges presented by the students of today compared the students of ten-to-thirty years ago. The responses included a poor work ethic, lack of respect for the instructors and the trade work, issues around cultural diversity, which manifested itself as sexual harassment, and special learning needs. The informants responded that they had not received training and development concerning how to deal with any of these issues and in fact, their behaviours in the classroom had changed only minimally.

Probing deeper, I asked them to describe a problem that they had encountered and how they dealt with that particular situation. Problems identified by the informants included challenges of students with different learning styles, emotional problems of students from home, work and life situations, problematic behaviours including disruptive student behaviours in the classroom, and sexual harassment. After listening to their methods of dealing with these problems that included "ignoring the problem", "pushing them through", "isolating the individual until they settled down" and "turning the problem over to my manager and/or security". I then asked if they thought they could do a better job or be more effective in the classroom if they had
some training for these situations and for the most part people agreed they could use some help in those areas. I checked both colleges' teaching and learning websites and found both sites provided courses and workshops that would address some of the problem areas that the instructors had mentioned, but not one instructor informed me that they had sought out a learning opportunity at their college to help them enhance their skills, knowledge and attitudes in dealing with issues arising from students.

Using the informants' own information and situation to identify a need for development, where they clearly had not identified or reported a need, is significant in that it may indicate that there is a great need for professional development that is not being realized or acted upon. The phenomenon is described in a model usually attributed to Noel Burch of Gordon Training International, as was discussed in Chapter Three. This model would locate the instructors informing this study at stage one, where they simply did not know that they did not know how to deal with situations in their classroom effectively. The instructors were able to describe issues that their students' presented, but did not identify that they and their students could benefit from skills development, perhaps due to lack of review, evaluation and feedback from their managers.

This notion of unconscious incompetence was reinforced when I witnessed a group of instructors dealing with a student who had issues in classes with several different instructors. The student had been exhibiting behaviour problems in a number of classes for the first thirty percent of the ten-week session. None of the instructors had attempted to address or even document the problems until a failing grade was posted, evoking emotional outbursts and threats of legal action by the student. Had the instructors received training and development for handling this type of situation that involved widely accepted human resources practices, the behaviour would have been addressed far sooner and been supported with documentation of
behaviours and incidences. A more proactive approach would have resulted in the student, instructors and the institution being spared a far more costly and time-consuming resolution.

When I inquired of the instructor informant I was interviewing at time about the need for professional development to deal with these types of situations he replied: "No, I offered to come in early and stay late to bring the guy up to speed", and "We'll get him through if he just helps himself a little". Even when professional development was suggested as a possible strategy to develop skills in dealing with this type of situation it was clear that stage one of "Unconscious - incompetence" was producing an instructor response, perhaps formulated twenty - thirty years ago, that may be ineffective and damaging to effecting positive outcomes in today's environment.

The previous statement made by the instructors that "you learn it in the trenches"; "you pick it up as you go" may indicate that in some cases the instructors only learn skills, knowledge and attitudes from situations they happen to encounter and there was no indication of what they learned was producing the best possible learning outcome for the student.

Summary of Interview Findings

The instructors of apprenticeship classes at the colleges vary in age, length of service and educational background, yet there was a remarkable similarity of education and subsequent work in their chosen trade. All instructors chose to move into teaching apprentices with the idea of growing within their trade and "giving something back" to a profession they thought of, and held, in the highest regard.

In teaching, they all felt their trade skills and knowledge were their best assets while lack of teaching skills seemed to be what concerned them most at the beginning of their teaching career. There was a feeling that the short exposure to teaching, through the college's teacher development program, did little to prepare them for their teaching careers. Even after
considerable teaching experience, most instructors are convinced they just "pick up the things they need as they go", or "figure it out" on a day-to-day basis.

There was a palatable negativity when instructors were asked to speak, as a spokesperson for the instructors, regarding the present students vis-à-vis students of ten-to-thirty years ago, the disposition of the college toward the instructors, the professional development opportunities and other aspects of their career. Two contributing factors, groupthink and isolation from the mainstream of college activities, both physically and in discourse, adopted by virtually everyone interviewed, may have been a major influence on this disposition. At the same time there seem to be a genuine amicability between the students and instructors.

The same negative stance was evidenced when instructors were asked to describe their present day students. Adjectives in these descriptions included "lazy", "underprepared", "uncommitted", and "lifeless". However, direct observation of the instructors interacting with the students showed a deep interest and commitment on the part of the instructor to evoke optimum outcomes. While groupthink may have been instrumental in developing the negative comments, one instructor opined that it might simply be a generational gap that is developing as the instructors get older.

Finally, comments on professional development at the institutions were almost completely negative saying that the college's professional development was irrelevant, boring, and inaccessible and not what the instructors wanted. All instructors wanted technical upgrading but felt they were entirely on their own to pursue. What was available through the college catered to the schedule of those on the main campus who operated on a different schedule than those in the apprenticeship program. Additionally, the content of what was offered was
described as "undoable" in the tactile type of instruction used in apprenticeship curriculum delivery.

A most interesting observation occurred when I had a casual conversation with instructors regarding day-to-day challenges involving interactions with their students. There was ample evidence that difficult interactions were delayed, avoided or passed off to other individuals rather than dealt with in a timely and professional manner. Further prompting the informants revealed they had never been trained to deal with these types of situations, and after a short reflection the instructors agreed some development in these areas would be helpful and to the advantage of the student, themselves and their institution. It would appear that these instructors simply did not know what they did not know, or as noted in the literature unconscious incompetence. This state of unconscious incompetence was contributed to by an absence of feedback, performance review or any sort of evaluation of the instructor's performance beyond student evaluation at the end of the session. Despite a huge expenditure by the colleges on professional development focused on teacher development, which was viewed as irrelevant and inaccessible, and tuition assistance, which was largely ignored, there was no evidence to determine that professional development was producing any positive influence on student learning outcomes.
Chapter Five

Analysis

This chapter discusses the professional development of college professors who deliver the apprenticeship curriculum in the two Ontario colleges participating in this study. It should be noted that a college instructor's job is to teach, and yet all the instructors in this case study had very little previous experience in teaching. None had formal training and development beyond a very brief instructional period provided by the initial teacher training program at the start of their careers. It seems little has changed since the establishment of the colleges when Watson (1971) reported 54.3% of the instructors had no previous development in teaching. Secondly, the volume of students has increased dramatically over the last several decades that these instructors have been teaching. Additionally the characteristics and demographics of the students have changed over the years. The number of international students attending Ontario’s colleges increased by 48% between 2009 - 2011, (Ontario Colleges 2011). These changes bring many new issues such as different student values, cultures, languages, levels of academic preparations for college level work and attitudes. These two elements affecting instructors—little instruction on how to teach and changing student population, indicate that a comprehensive and on-going professional development program may be necessary to ensure the instructors are enable to contribute to best possible student learning outcomes.

This discussion uses the information from the literature review of this study, presented in Chapter Two, the data collected through interviews with members of the professoriate of apprenticeship programs at the two colleges participating in the study as well as representatives at the colleges where the study was conducted including analysis of any documentation that was
available. The discussion will build on the data analysis presented in Chapter Four to develop conclusions in response to the three research question presented in Chapter One.

This study was developed to provide an exploratory description of the professional development as perceived by the professoriate, at two different colleges, involved with delivering the apprenticeship curriculum. Specifically I wanted to answer three research questions:

1. How do the instructors of apprenticeship and trades programs understand and assess their own professional development?

2. What types of professional development do the instructors of apprenticeship and trades programs feel they need to remain effective in a much changed institution and student population?

3. What institutional policies, programs and structures are in place to provide and evaluate the professional development the instructors feel they need to remain effective in skills transfer and positive student learning outcomes?

The salient perspectives for examining the data and formulating conclusions are provided by the literature on professional development that I reviewed, specifically in an academic setting, the principles and application of adult education and the role of evaluation in the development, application and ultimate outcomes. Each of these three foci is discussed in detail in the literature review in Chapter Two.

Before offering conclusions concerning each of the research questions based on the perspectives described above, I think it is important to review some findings that emerged during this study. Elements not explored by the research questions emerged during the interviews that
significantly affected the attitudes, behaviours and beliefs of the informant instructors' professional development

**Groupthink**

The first finding of this study is that the professoriate at both institutions are experiencing, to some degree, groupthink. The phenomenon described by Janis (1972) explains that a cohesive group can develop a concurrence-seeking tendency that leads to faulty decision making. Janis described cohesiveness as:

Members have positive valuation of the group and their motivation to continue to belong to it. When group cohesiveness is high, all the members express solidarity, mutual liking, and positive feelings about attending, meeting and carrying out routine tasks of the group.

(Janis, 1972, p.4)

I observed that the groups of instructors at both institutions appear to have developed cohesive groups, as described by Janis. Every one of the instructors commented they were very proud of their work and their students, and they demonstrated pride in their facilities by offering tours and demonstrating some equipment and models they had helped build and now use in their teaching. They spoke often about how the apprenticeship instructors were a group different from the rest of the college by being "tactile learners". I infer they had positive feelings about attending, meeting and carrying out routine tasks of the group from the fact that all the instructors confirmed to me that once they started full time teaching the apprenticeship groups they stayed with the position, at the same college, for periods that ranged from ten to over thirty years. It is noted in the literature (Mealyea, 1989; James, 1997; Pratt, 2002; Koeppen & Griffith 2003; Williams, 2010) that apprenticeship instructors are different from other college instructors.
It is suggested that they continue to identify with their initial occupational groups rather than the professoriate, object to being relegated from accomplished trades people to beginner level teachers and that the nature of their instruction is highly tactile in nature.

The cohesiveness may have been strengthened by virtue of being physically isolated from the main body of the college. In both institutions, the majority of apprenticeship programs are delivered at campuses separated from the bulk of the student body by significant distances. Where sections of the apprenticeship program are on the main campus, they are housed in separate buildings; there are limited opportunities for interaction with the other "post-secondary" students or professors. Additionally, the cohesiveness of the apprenticeship instructor's cadre is strengthened by the unique type of instruction used for apprenticeship curriculum delivery. The apprenticeship courses use a very tactile approach where students spend considerable time in "hands-on" work using the tools and materials they experience on the worksites of their employment as opposed to the more academic, classroom approach of the "postsecondary" students.

The isolation of the apprenticeship group from other instructors and students at the college is exacerbated by scheduling of course delivery that is different from the main body of the college which impacts on the ability of apprenticeship instructors to participate in college sponsored seminars and workshops. The apprenticeship intake schedule has the instructors of these programs fully engaged in program delivery in May-June of the year. That same period is when the "postsecondary" portion of the college begins summer breaks for the students, freeing the instructors to participate in professional development activities provided by the colleges. Two instructors commented that the professional development is run at times when they were scheduled to be teaching and one college representative commented, "(the professional
development schedule) is a problem for the apprenticeship instructors". Because the majority of college instructors are involved with the postsecondary programs, the professional development programs at the colleges are scheduled for delivery when professors in those programs are available, at the expense of the apprenticeship professoriate's participation.

This isolation has even permeated the discourse of the college where instructors, students and college representatives all recognize the difference and use the terms apprenticeship group to demark the difference between the apprenticeship section and the rest of the "postsecondary" section. While there were no disparaging remarks made by any of the instructors interviewed in this study regarding this isolation and demarcation, I do believe this isolation and cohesiveness led to a type of groupthink. The groupthink phenomenon is demonstrated by homogeneity of the answers regarding the college's role in providing professional development opportunities, and a negative disposition toward the usefulness of those offerings was palpable. I do caution that this is an exploratory descriptive study, and as I have previously acknowledged, I do not suggest my findings are a "God's eye view", in that another researcher could reach different conclusions using the same data. Additionally the sample size of eight instructors and two institutions is a small sample to formulate conclusions based on something that emerged only during the data collection. Apprenticeship instruction differs from other college instruction and I suggest that the groupthink phenomena could be a hypothesis for further research. When interview questions shifted toward exploring areas that reflected on the their individual and personal career, trade work and teaching, rather than the college and its professional development programs, there was a much greater diversity of answers and they exhibited a more positive tone.

The separation and isolation of the apprenticeship group physically, the scheduling conflicts that affected the ability to participate in established professional development
programs, and the prevailing discourse were likely resultant of very practical decisions to provide adequate specialized facilities required by the apprenticeship curriculum. However, this isolation, along with the special type of program delivery, facilitated the creation of a cohesive group, evidenced by the development of a unanimous negative disposition toward the colleges' professional development programs and the instructor's participation in those programs. The decision not to participate in the college's professional development programs is not necessarily the best decision for the instructors, the student or the college and it may be the result of a concurrency-seeking tendency, a characteristic consistent with groupthink phenomena. This concurrency-seeking tendency is simply assuming the same disposition and values toward issues as others members of a group to promote solidarity and mutual liking, which can lead to less than optimum decisions.

Efforts must be made, by the institutions and their departments who hold responsibility for professional development, as well as the individuals managing the groups of instructors, to reduce or eliminate the isolation of the apprenticeship groups and develop a more inclusive approach toward professional development. First, in an effort to develop a more inclusive environment for all faculty, the discourse that includes the dichotomy of postsecondary and apprenticeship terminology needs to be eliminated. This would require deliberate efforts by the college administrators, section managers and hopefully, eventually by the faculty and students. The terms apprenticeship and post secondary must be replaced by a more inclusive and common language between the two groups. Seeing the faculty as one all-inclusive group may be the starting point toward removing barriers to participation in professional development activities offered by the college. Being included as members of the college faculty in the discourse, instead of being referred to as the apprenticeship group, may reduce the tendency of the
apprenticeship instructors to identify with their traditional occupational group as suggested by Mealyea (1989), and James, (1997) and instead see themselves as teachers first and technical experts second. This shift may make them more accepting of professional development for their primary occupation—teaching.

Scheduling of professional development activities for one group at the expense of access for the other group must be reduced or eliminated. This would no doubt cause inconvenience and increased cost for the institutions but it would eliminate one barrier—access, cited by all of the instructor informants, to participation in professional development activities. I have no doubt some of the access problems will be solved with increasing use of e-learning, which can be accessed anytime from anywhere there is a computer. However, it is more difficult to peer network and learn collaboratively, two of the more successful types of adult learning (Smith et al. 2001; Stevenson et al. 2005; Hubball et al.2005), without face-to-face interaction.

A final suggestion would be to facilitate faculty interaction between those delivering the apprenticeship curriculum and the faculty delivering other programs at the colleges. This could include rotations to sections in the college outside of apprenticeship instruction, plenary activities for all college staff that facilitated interaction and even social activities where a concerted effort is made by all involved parties to break down the barriers between the two groups.

These thoughts are offered only as a starting point in resolving the isolation of the apprenticeship instructor group, but by being included more closely with the college as a whole, some of the tendency to be affected by groupthink will be minimized and the negativity toward college professional development programs may begin to dissipate. Additionally, interaction among all faculty would facilitate the apprenticeship instructors engagement in informal learning
about situations that would help them deal with issues they encountered in their teaching, a principle of andragogy, (Knowles, 1970, 1984) as well as generate a kind of collaborative learning opportunity, which is a hallmark of adult education (Merriam & Brockett, 1997).

**Unconscious-Incompetence**

The second finding of this study, which was discovered by observation, was that the majority of the informants were at Stage-one of the 4-stage Gordon International Training Mode (GI) model, discussed in Chapter Two, Table-3, with regard to non-technical professional development. This Stage-one phase describes people who do not know what they do not know to the detriment of their performance in a specific area of their career. As described by Milton (2008), "They don't necessarily recognize the need to learn and they certainly don't know what will be involved in that learning" (p. 8). Specifically, the informants, when prompted, could identify changes in the student population that presented new challenges, such as sexual harassment among the students as more females enter non-traditional trades work, lack of commitment to the work, lack of respect for instructors, and disruptive behaviour by some students which led to human rights issues. None of the instructors had participated in any training for these types of issues even when the training was available through the established college programs. Further discussion revealed that the instructors agreed they could “probably” use some training in these areas, but there was no evidence they had sought any learning activities for these types of situations presented by a changing student body. This situation suggests that they simply did not know there were ways of dealing with problem situations that could minimize disruptions, help motivate students and avoid potentially costly human rights complaints. Being unconsciously-incompetent in their teaching role has a significant impact on the informants’ attitude and participation in professional development and this impact is
discussed in greater detail when the conclusions for the individual research questions of this study are discussed. Another line of thought in this area is reported by Koeppen & Griffith (2003) is that career changers, in this case from skilled trade worker to instructor, often feel that their extensive content knowledge was sufficient and they do not consider further instruction in teaching is required.

** Conscious-Incompetence **

Many of the instructors exhibited evidence of having progressed to Stage-two of the GTI model when it came to technical upgrading of their skills within their trade functions. At Stage-two of the model, individuals are aware that there are deficiencies in their technical skills and knowledge and this awareness will prompt individuals to acquire the necessary information and abilities to ameliorate the situation. Again needing to acquire new skills, knowledge or attributes is a key adult learning principle identified by Knowles (1970, 1984). These instructors identified or anticipated changes in technology, methods and regulations governing their trade and sought opportunities to enhance their skills and knowledge related to trade work. This demonstrated a commitment to continuous learning and a willingness to seek out activities, not provided by the college, on their own time and expense. However, when there were opportunities to develop skills or knowledge related to their teaching role that were provided by the college, there appeared to be no awareness of the need and very little interest in these teaching enhancement courses, evidenced by the informant's lack of participation in teaching focused professional development. When there were non-technical issues it appears the instructors reverted to stage one of the GTI model.
Non-teaching professional development

The paradox of the informant's disposition toward professional development was further deepened when, in the interviews, it was evident that many of the informants were involved in their own self-directed professional development activities, which focused on trades work and personal interest without realizing these activities were contributing to their own continuous growth and personal satisfaction. Specific involvement was mentioned in community activities, participation in the administration of their church, conservation projects, physical fitness and private businesses not associated with their trade or teaching duties were identified. While none of the interview questions or the associated prompts were designed to explore these non-career types of professional development, seven of the eight interviewees demonstrated an eagerness to talk about, sometimes in detail, what activities they pursued outside of their trade/teaching activities. This group of informants demonstrated an enthusiasm for participating in a very broad range of activities and for taking the opportunity to learn and grow as individuals in a multiplicity of directions other than teaching. Revisiting the definition of professional development synthesized in Chapter Two, "Professional development of college instructors is the continuous efforts of the individual and their institution to enhance the capabilities and performance toward optimum student outcomes, personal growth and satisfaction and meeting institutional goals." It would suggest that these non-teaching related activities are indeed a form of professional development. I conclude from these findings that this group of informants had a sincere interest in professional development and lifelong learning and were willing, and indeed very receptive, to expend the personal energies and time needed grow as individuals.

The question now posed is why a group of intelligent, accomplished people, who have demonstrated an eagerness for continuous development and learning, appear to be complacent or
even unwilling to participate in the professional development programs provided by their institutions. This theme will recur as each of the research questions are discussed individually.

**Research Question 1**

How do the instructors of apprenticeship and trades programs understand and assess their own professional development?

There seemed to be very little understanding of the meaning of professional development by most of the informants of this study. All informants responded to the questions in a way that indicated that they were very anxious to learn about developments in their trade with a strong focus on the technical aspect. However, there was little evidence of thought or planning, beyond the very short term, which guided their selection of trade work, how to transform from trade worker to instructor, or how to grow into different aspects of their chosen career in teaching.

In the apprenticeship training that all the instructors completed, the apprentice was very active in learning both theoretical and tactile skills of the trade but had very little involvement in the planning or execution of that learning. Work done by the apprentice was typically inspected and approved by the trades person and the apprentice was provided with evaluation and feedback. Apprentices were informed at the onset of their apprenticeship that they would typically have formal classroom sessions at different periods throughout their apprenticeship and the employer made arrangements to release them from their employment duties to attend these sessions as prescribed by the Ontario apprenticeship programs. If new materials, devices or technology became a part of their trade it was introduced either by the apprentice's employer or incorporated by the college providing the apprenticeship training.
When the apprentices progressed to fully certified trade status en route to becoming instructors, they continued to learn about the technical aspect of their trade through experience or employer efforts. Only one of the eight informants was advised or encouraged by their employer to "branch out". In this one case, the future instructor participated in professional development that focused on human resources.

Throughout their technical trades training, the instructors' program of learning was planned and provided to them by their employers and school. There were no course-selection options, and the schooling was a "one-size-fits-all" approach. The apprentices who later became the instructors informing this study never learned to think about their professional development beyond the trade skills perspective.

When the informants decided to pursue teaching they all started in part-time or temporary teaching assignments with their employers or through teaching night school at a local college. In these cases, there were one or two days of instructional techniques provided by the employer or college in which all the informants participated. Additionally, six of the eight informants realized that some areas in which they were required to teach were not their "best areas of expertise" and they invested a great deal of their own time to learn the curriculum material to present the next class. Some took additional technical courses offered by colleges while others made extensive individual efforts, "studying well into the night," just to be ready for the next day. This approach was exactly what they had learned during their trades training. Individuals encountered a technical problem, sought out the information they needed and carried on teaching. At no time was consideration given to developing as teachers or other aspects of their career beyond an immediate problem. This type of situation was identified in the literature as an occurrence of "Not knowing what they did not know (about teaching)" (Milton 2008.p.8) or
"unconscious incompetence" (GTI Model Table 3). In their development as trades people, they focused on technical aspects almost exclusively and when they encountered a technical problem, they recognized the problem and sought additional information. This approach to learning is consistent with some assumptions of adult learning (Knowles 1984) that were discussed in Table Two in Chapter Two, the learner is self-directed, is ready to learn because acquisition of new skills and knowledge will solve a problem that is encountered, and the learning will be task or goal centred.

The traditional trades training of the instructor-informants was mapped out and administrated by their employers who provided on-the-job training, as it had traditionally been done for apprentices. The colleges that provided the classroom training based the curriculum on guidelines provided by the Ontario bodies governing apprenticeship training. At no time did an apprentice decide what he needed or wanted to learn. Evaluations the informants received as apprentices were based on technical performance and so when they became trades people, and later teachers, they used this same model to identify and address technical challenges as they arose on the job or in the class. Unfortunately, this skill in identifying needs for new skills and knowledge did not appear to transfer into non-technical areas.

I hypothesize that the instructors had never been exposed to Experiential Learning cycle (Kolb, 1984) as discussed in Chapter Two. Because apprenticeship learning focuses on mastery of skills, the instructor's learning may have been limited to the concrete experience, such as watching a demonstration of how to bend conduit, and then moving to the active experimentation stage of trying to bend conduit themselves. While this two step process may have produced mastery of bending conduit, with the absences of Kolb's other two stages, reflective observation and abstract conceptualization, the apprentices did not develop in thinking and assessing their
own learning. Without the benefit of formal instruction in understanding and assessing their own learning in their apprenticeship training or through on-going evaluation as teachers these informants had minimal awareness of the benefits to themselves, their careers and their students that a well planned and executed professional development program could provide. This perspective may have been further strengthened by a tendency for people who change careers to default “to the beliefs about learning and teaching that were predominant in their own school experiences and therefore felt more comfortable using traditional teacher-dominated pedagogies rather than embracing more current theoretical perspectives” (Koeppen & Griffith 2003).

**Research Question 2**

What types of professional development do the instructors of apprenticeship and trades programs feel they need to remain effective in a much changed institution and student population?

This question was investigated by initiating discussions with the informants regarding the professional development programs they had participated in, what professional development was available and what influenced their decisions regarding participation. It is most remarkable that demands made by the student population and the changes brought about by changes in the workplace seemed to have no effect on the instructors’ decisions regarding their selection or participation in professional development. In the interviews, the instructors' descriptions of students in present day were very similar to the way they described students at the beginning of their teaching career and it was only with prompting that they identified changes. As discussions continued, it became clear that none of the instructors had identified that changing characteristics of the student body, and the challenges that resulted from those changes, presented a need for them to acquire new skills and knowledge to enhance their effectiveness as teachers.
Firstly, all of the instructors indicated a keen interest in continuous personal development from a technical perspective. For some seeking this professional development, the motivation was to expand the number and types of courses they could teach, while for others it was to "keep up with" changes in technology and continue teaching the courses that had brought them to the college between ten and thirty years ago. In addition, some instructors just enjoyed being a part of committees or groups that developed guidelines, materials and curricula for the trade in which they were involved. I believe that the instructors felt that being a part of these committees and groups was recognition for their trade abilities and this recognition brought them personal satisfaction. This was the same sort of satisfaction three of the instructors reported when their employers asked them to do some part-time and occasional teaching when they were still "on the tools" (Performing trade work).

In order to discuss the changing characteristics of students, the informants were asked to describe the students they encountered when they entered teaching ten to thirty years ago and then later in the interview they were asked to describe the students of today. When they described today's students they articulated encountering problems with some students' attitude of entitlement, lack of focus or commitment to the school work and the trade work itself, academically under-prepared students, lack of respect for the instructors and even incidences of sexual harassment that have occurred more frequently with increased participation of females in non-traditional occupation training. The solution for dealing with these emerging challenges was a smorgasbord of strategies that seemed to get them through the situations in a particular instance. These strategies included everything from ignoring the problem, letting students sort it out themselves, referring problems to management or spending their own time before or after class helping students with remedial work. There were no indicators available to determine the
success of these approaches, but from my personal observations of several situations, I saw inordinate amounts of instructor time being consumed in dealing with problem situations but no evidence of resolution of the problems. In one specific situation that involved a human rights issue, I asked if just putting more effort into that student would resolve the situation; the instructor responded by saying, "probably not, we'll try but he's the type that just won't come back." When asked, specifically, if they had received any training or development to cope effectively with some of these new challenges emerging from the current students in their program there was a unanimous “No”, from the group of informants. When asked if they thought they could use some help to deal with some of these issue the responses were; "Maybe", "I guess so" and "Sure, if it was the right kind of training". It became apparent that, with a bit of prompting, the instructors could identify issues that could be handled with new or better skills and knowledge, and because they identified the problems themselves, they were becoming more receptive to seeking new skills and knowledge to deal with the situations. Again, two of the adult learning principles—adults will decide what and when they are going to learn to solve a real world problem (Knowles 1970, 1984), had become evident.

It was interesting to note that when I observed a "lab" session, a student asked a question and rather than give that student the correct answer, the instructor led the student through the process of Kolb's model so that the student resolved the situation himself. Here was evidence that experiential learning could find application in teaching apprentices and perhaps some instructors already used the techniques. However, professional development in experiential learning would allow it to be employed by all instructors, instead of a chance application of the technique by one instructor.
Continuing to probe, I found that there were courses at both institutions that might have helped the informants with their classroom performance, such as teaching for success or learning styles. The colleges did provide some access to these courses, as well as the opportunity to request special courses for their section from the college's professional development group; still, it just was not happening. It appeared that the instructors did not know they did not know about newer and effective ways of dealing with these problems and so relied on what they had learned ten to thirty years ago to deal with current problems. When I actually was invited to observe an ad hoc meeting between several instructors to deal with a problem student that was threatening to use human rights action in hope of exonerating himself for poor classroom performance, the instructors just offered to work harder on the material with the student. I asked this instructor if he could use some training on identifying performance problems early, developing a strategy to deal with the student, or whether documenting the classroom incidences of poor student performance might help the situation from reaching a human rights complaint stage. The answer was simply "No, if he wants to make it we'll help him".

I asked a different instructor, who had cited an incidence of sexual harassment, if there was any training available to help them deal with this sort of occurrence in their classes. He indicated no, there was a list of steps to follow, "but, we never received any instruction of how to deal with the student".

Again, the courses offered by the college that would help the instructors in these areas seem to be avoided, were not known to exist, or out and out rejected by the informants. The groupthink of the apprenticeship instructors may have been instrumental as well. I speculate that the groupthink phenomenon generated a notion among apprenticeship instructors that "none of the other instructors participate in these course and so neither will I". It is also possible that
these instructors still were still in Stage 1, unconscious-incompetence stage of the GTI model presented in the literature review (Chapter 2, Table-3). The instructors reported that they did not receive any formal performance review or evaluation from their managers where their effectiveness in the classroom performance or personal growth could be discussed.

The instructors received little evaluation and feedback once they had passed their probationary period, seven to twenty seven years earlier in their careers. Without a regular review of the changes in their classrooms and the student population, legislation and methods or tools to deal with these changes and the effectiveness of instructor's performance, there was little opportunity to provide guidance and encouragement to set goals to achieve competence in these different areas of their careers. At both institutions there was some sort of evaluation of teaching performance that was supposed to happen, or did happen at one time and was dropped. The college representatives were unsure if the student evaluations completed by the students after every session were ever reviewed with the instructors or if any action arose out of these evaluations.

**Research Question 3**

What institutional policies, programs and structures are in place to provide and evaluate the professional development the instructors feel they need to remain effective in skills and knowledge transfer and positive student learning outcomes?

Both institutions that participated in this study had significant professional development programs in place for their teaching faculty. The similarity of the professional development initiatives associated with these institutions included having an initial teacher development program that was several days of workshop and instruction for each of the first three years of employment for instructors after they were appointed to full time positions. The informants
participating in this study completed this initial teacher training ten to twenty-nine years ago, and they judged this initial effort to develop them as teachers with tepid comments including; "it was something", "it wasn't much", and editorialized their comments that it was "more focused on those who would teach in the post-secondary sector of the college" and "a lot didn't really apply to the type of teaching we do". Again, two of the instructors differentiated between apprenticeship instructors and the instructors who teach in other areas of the colleges. These comments about teacher development programs as well as earlier comments such as "they (apprentices) are tactile learners" demonstrate another incidence of instructors not knowing what they do not know. The instructors focused on what Bloom (1956), described as learning in the cognitive domain and the psychomotor domain, while ignoring the affective domain, even though they did include it in their teaching. Specific examples of attitudes toward work, which is included in the affective domain, were the instructors insistence the work be done neatly, even if no one would see it (the NMD wiring clipped up and then hidden by a wall), and the labs being kept clean and tools and equipment being returned to proper storage after conclusion of a lab or shop session. The instructors rejected the teacher development as irrelevant when evidence suggests it is very relevant to the very things they do in their classrooms and shops.

A review of the websites of the two colleges during this study reveal very structured and comprehensive programs that may have greatly improved on initial teacher development since the time of the informants' participation.

During this initial probationary teacher-development period of three years there was supposed to be an evaluation and review by the person managing their section, but not one of the informants offered any comments about this type of review or whether or not it actually took place in a formal manner. The most salient comment offered when I investigated the role the
institutions play in providing professional development was, "No one has ever encouraged me to improve my teaching". Ironically, this statement came from the informant who reported participating in the most extensive program of professional development that included technical development and completion of degrees at the undergraduate and graduate levels. That one individual believed strongly in continuous professional development throughout his career; he demonstrated that commitment by achieving high technical and academic standing and yet thought little of the college's role in contributing to professional development.

In addition to the initial teacher development program, both institutions have groups of people in place whose responsibility is professional development efforts. When interviewed, the college representatives in speaking about these groups had a very clear idea of what the groups did, how they operated and what they could provide, but could not articulate an official philosophy or policy. Each institution had extensive resources and information but again I could not find evidence of an overarching statement regarding faculty professional development. The responsibility differed between the two sites with one representative stating that professional development was ultimately the accountability of the individual, while the second institution placed the locus of accountability for professional development with human resources. Again, this was a perspective offered by the college representatives without available documentation to confirm their position. The college representatives' statements may have been an accurate representation of the institution's position or an educated perspective based on the ways professional development is conducted at their respective institutions.

These professional development departments maintain web sites that offer e-learning opportunities and quick reference pages on a number of teaching related topics, and list events such as workshops, seminars or guest lecturers and speakers that the colleges sponsor. The
instructor informants reported they had chosen not to participate, or participated very little in these activities, citing irrelevance of content, topics that were not applicable to apprenticeship instruction, inaccessibility due to scheduling conflicts, and simply that these activities were not of the technical nature that apprenticeship instructors needed and wanted.

Despite little to no participation in the extensive programming offered by the colleges along with different levels of tuition support, the instructor informants felt that, to varying degrees, they were not receiving the types of professional develop they needed and wanted. I have suggested that this almost unanimous position of the instructor informants is influenced by groupthink phenomenon fostered by the camaraderie of the apprenticeship instructors being occupied by the unique subject matter and techniques of apprenticeship training compared with more academically orientated courses and the physical isolation from the much larger "post-secondary" body of instructors and students at the college.

Evaluation of the instructors seem to rely almost totally on the student feedback sheets that students are asked to complete at the end of each session. The sheets are collected upon completion and left with the manager or associate dean of the appropriate section. What was done with these sheets is unclear. The college representative at one institution could not confirm if the contents of the student evaluations are reviewed and discussed with the instructors. The second institution representative spoke only of doing his own observations and interaction with the instructors but there were no formal processes or reports available to review. There was little discussion from the instructors regarding these student evaluations and the student evaluations were dismissed by three instructors saying; "The managers get them", "The managers never come and talk to us about what we are doing in the classroom", and "No one has ever talked to me about teaching".
When there were workshops, seminars or guest speakers available, the faculty participating were asked to fill in an evaluation sheet. The college representative at one institution assumed that they were "looked at" while the other institution's representative said they were reviewed by a committee and it hopefully confirmed, "That we guessed right" in selecting an appropriate topic and medium of delivery for the subject matter. This appears to have been the only formal mechanism for evaluating professional development activities at these two colleges.

The college representatives could not provide numbers or percentages of apprenticeship instructors attending these types of programs as compared to other post secondary groups. However based on the comments offered in the interviews there was very little attendance by this informant group.

Discussion and Recommendations

The definition of professional development synthesised from the literature reviewed in Chapter 2 was "Professional development of college instructors is the continuous efforts of the individual and their institution, to enhance the capabilities and performance toward optimum student outcomes, personal growth and satisfaction and meeting institutional goals", suggests that professional development is ongoing, a shared responsibility and must have defined outcomes.

The way instructors think about and assess their own personal development is critical to developing and following a continuous program of professional development throughout their career. Because these informant groups evidence little or no long-term plan in developing their careers, they may be missing a plethora of opportunities to grow and enrich their careers. Having had success "falling into trade work", "seizing an opportunity to move into teaching" and
using the methodology of waiting till a technical challenge urged them to "learn the program to deliver it the next day" they saw little or no need to change their approach to progressing through their careers.

The colleges have an opportunity, perhaps beginning with the initial teacher education program, to create an atmosphere where career growth is important and where opportunities are available to help with this growth. Having additional courses, workshops, and tuition assistance available does not appear to be enough to promote participation in the programs. The instructors must be able to move to stage 2 of the GTI learning model which is characterized by conscious-incompetence, overcome the negative disposition toward non-technical professional development, perhaps inculcated and maintained by the groupthink phenomenon, and then receive guidance as to which direction to move, facilitated by some form of evaluation or mentorship.

As suggested by Kirkpatrick (1984), the evaluation of professional development, beyond an opinion offered at the end of a course, workshop or other experience, is necessary to see if any gains toward attaining institutional goals enhance student learning outcomes or personal growth or career satisfaction is being attained. Based on Kirkpatrick's model of evaluation discussed in Chapter-Two, professional development activities would require a level three— transfer, or level four—impact evaluation to ascertain attainment of expected gains. The timeline suggested by Kirkpatrick for Level 3 and Level 4 evaluation would vary and would require a sufficient amount of time after the professional activity to allow changes to occur and be measured. As Baron (2011) suggests data are required to measure outcomes but just as important is a robust assessment and evaluation framework. Targets, goals and student learning outcomes must be clearly articulated before designing or selecting professional development activities. Then
program outcomes must be evaluated to measure progress toward these optimum performances after the professional development efforts are conducted. The measure could still be based on an opinion of the participants but it will be focused on a very specific aspect of the professional development activity. The participants, their managers and the institution's representative will all have to be involved in the process of deciding what development is necessary, why it is necessary, what the development is expected to help the individual accomplish and how the measurement of that accomplishment will take place.

This approach, based on the principles of andragogy, (Freire 1970; Knowles 1970, 1984; Knowles, Holton & Swanson 1998; Merriam & Brockett1997), will formulate a detailed process and may enhance how the participants think about and assess their own professional development, involve them in the process and increase the likelihood of participation and success in professional development activities.

Additionally, a focus on the four elements of the experiential learning model, in the instructor's professional development, will develop the instructors as learners themselves, beyond technical content. This same experiential learning model could then be incorporated into the apprenticeship teaching to enhance the student learning outcomes.

As to the kind of professional development the apprenticeship instructors feel they need to be successful needs to be examined and a more comprehensive approach developed to expand their thinking beyond remaining current with changes with technology and upgrading technical skills accordingly. While the instructors were able to identify changes in the student population from when they entered teaching and present day students, as well as some of the problems these changes presented, little had been done to acquire the skill, knowledge or tools to help them perform better in the critical area of managing students. If a new piece of equipment or
technique in the technical aspect of their work were introduced, they seemed more than anxious to invest efforts, including their own time and money, to learn how to best deal with the changes and then pass that on to their students. Changes in the demographics and characteristics of students and the challenges these changes presented did not receive the same consideration.

When questioned about some challenges they had identified, such as dealing with problem and disruptive students, sexual harassment issues or academically underprepared students, they reported choosing to use avoidance techniques or simply offering to do more of the same type of work with students using their own personal time and energies. This is consistent of the findings of a study of career changers, (Koeppen and Griffith, 2003) who found that many career changers ‘defaulted’ to the beliefs about learning and teaching that were predominant in their own school experiences.

When pressed during the interviews, some instructors admitted, "Yeah, maybe I could use some help with that" but at the same time they had not availed themselves to any of the opportunities provided by the college.

Again, through evaluation, mentoring and guidance by their managers, professional development departments, or whatever resources could be utilized, the way the instructors think about and assess their own professional development could be expanded to a more holistic perception of professional development including optimum student outcomes, personal growth and meeting institutional goals.

Finally, it is recognized that the colleges have extended a great deal of effort and are spending large sums of money on professional development for improving student-learning outcomes through teaching enhancement. However, participation by the informant group of this study indicates a negative disposition toward college sponsored professional activities and a lack
of participation in programs at the colleges. While the colleges offer a wide variety of courses, lectures and seminars that touch a very broad scope of the teacher and their careers, their efforts were described repeatedly: "irrelevant"; "inapplicable", and "boring". The informant group of the study was not receptive to the content, with one instructor referring to a lecture on learning theory as "academic crap" as well rejecting of the delivery format saying, "We are teaching tactile learners, we don't want to learn about giving lectures". The informant's comments suggest that they are not aware of the full scope of teaching and while the main emphasis of their teaching is on "tactile learning", the psychomotor domain, the two other domains described by Bloom, the cognitive and affective domains, are very much present. The cognitive domain is the primary focus in teaching the theory portion of the curriculum while the affective domain is focused on developing the apprentice's attitude toward work quality, organization and work methods in all areas of instruction. While the teaching in these three domains is occurring, the instructors are primarily focused on mastery of a skill and the learning in the affective and cognitive domains may not be given the focus required to provide the optimum student learning outcomes.

Additionally, if the instructors were facilitated, through professional development, to use the experiential learning cycle to examine their own teaching, the reflective observation and generalization of the concrete experiences they provided in their classrooms and shops would provide a richer learning experience for themselves and their students.

The colleges have an opportunity to achieve better returns on their investments in professional development opportunities if they incorporate more of the adult learning principles into their professional development approach. Actively pursuing and engaging the apprenticeship instructors in deciding what sorts of activities would best enhance the goals,
targets and outcome of professional development they have set for themselves would make professional development relevant by focusing on what the instructors perceive they need and want. Adults want to learn what is important and relevant to them and decide when and how the learning will take place (Knowles 1970, 1984). By involving the instructors in deciding what they are going to learn and why they need to learn specific skills, knowledge or attributes they may become more receptive to professional development focused on teaching instead of just technical development. Additionally, the inclusion of experiential learning cycles in their own professional development would help the instructors develop as learners beyond the content of professional development and that learning would be transferable to the apprentice students when the instructors returned to their classroom.

Because of the considerable length of service of the informants of this study there may be a perception that all professional development is still in a teacher dominated -content driven format which many of the instructors reported disliking and was actually a motivator for choosing trade work, as was discussed in Chapter-Four. With changes in professional development approaches from older style pedagogy to newer approaches that include collegial support groups, peer networking, collaborative learning communities and reflective practices (Smith et. al. 2001; Stevenson et al. 2005; Hubball et al.2005) professional development focused on teaching may be more palatable to the instructors. If the instructors were involved in the decisions for the methodology of professional development, they may be more likely to participate. Rather than a lecture on classroom management, the activity might include forming a facilitated peer-learning group to talk about the problems they face and how they collectively might come up with shared solutions and ideas that would enhance the outcomes of these professional development activities. This process of having instructors involved with deciding
what they are going to learn, making it relevant and useful to them, utilizing methodologies that would build on their considerable experience and using a collaborative approach to learn in like-minded groups may improve the likelihood of participation and success of professional development efforts.

The goals of this discussion were not set out to design and implement a new and better professional development programs. This discussion was to provide a review of the data gathered during the study and the analysis of these data and the conclusion I have drawn from that analysis. Many of the conclusions and statements are based on the interpretation of the thoughts and ideas expressed by the informants, as well as my own observation during the data collection phase of this study, and as such there may be other equally valid conclusions.

Limitations of Findings

While the in-depth interviews conducted for this study provided some rich data for this analysis, there were limitations on this study. As identified previously, the sample size was small, consisting of two colleges and eight informants. The sample size was selected to provide sufficient data within the time and resources available for this study. The second limitation is best described as a gender bias situation simply because all instructor-informants were male. In ten visits to the colleges, I saw no female instructors and only one female student. Females represent 19% of total registered apprentice, however, most females work in food and service trades and are "significantly under-represented in most trades" (Colleges Ontario, 2011, p.23). The third limitation to be noted was the different roles the college representative informants had at their colleges. One college representative was a manager in an administration role while the second college representative was an associate dean to whom instructors reported. These three
limitations, sample size, gender bias and college representative from two distinctly different roles at the colleges may have influenced the data and subsequent analysis.

**Summary of Analysis**

In summary, I conclude that the professional development of the apprenticeship instructor professoriate would be enhanced if the instructors were provided with the structure, guidance and tools to enhance their thinking and assessment of their own personal growth and development. Further, the resources assigned for professional development of the faculty could be better utilized if there was a clearly articulated philosophy statement and specific goals, targets and other outcomes specified that would ultimately enhance the student's learning. Processes would have to be established to co-evaluate, by the individual and the college, the instructor's needs to move toward attaining personal and institutional goals as well as the methodology used to meet these needs. Finally, a valid and robust process should be established to measure and communicate the outcome of professional activities to ensure movement toward the most favourable student learning outcomes.

In the final chapter to follow, I will briefly summarize this study, offer some ideas for areas of future research and pose some possible future research questions.
Chapter Six
Summary and Recommendations

Apprenticeship training is an important component of postsecondary education in the province of Ontario, and professors play a vital role delivering this important curriculum within the Ontario college system. The objective of this study was to explore the professional development experiences of professors working in these programs. An additional rationale for choosing to pursue this study was my personal interest in apprenticeship training, having completed an indenture apprenticeship over three decades ago. I was curious to see what apprenticeship instructors had done to remain current with changes in technology, the student population and the role of the colleges as they evolved from their initial role of occupation oriented type training in health care, applied arts and apprenticeship training to include applied degree programs across a spectrum from criminal justice to interior design.

This study was an investigation of how apprenticeship instructors perceived and experienced professional development over the duration of their careers and the role their employer colleges played in that professional development. The objective of this chapter is to review the key elements of the thesis, including the key concepts from the literature and the research design, before providing an overview of findings and suggestions for further research.

Findings

The first finding is that a paradox exists in the comments of instructor-informants interviewed in this study. Specifically, all of the instructors appear to be committed to their careers and enthusiastically seek continuous professional development, often at their own time and expense, in any area of technical knowledge. Conversely, the same instructors all hold a neutral to very negative disposition toward the professional development programs offered by
their colleges. Because of the apparent isolation of the apprenticeship instructors, physically in remote campuses or buildings, in discourse where the apprenticeship programs are demarcated from the post secondary groups and through scheduling idiosyncrasies, these apprenticeship instructors have formed a cadre that suggests the phenomenon of groupthink may be affecting decisions toward professional development. The homogeneity of answers and negative comments towards their college-provided professional development programs furthers the argument that groupthink and its associated faulty decision-making characteristics may be influencing decisions.

Suggestions to reduce the influence of groupthink included eliminating the discourse that promoted separation of apprenticeship and post secondary groups at the colleges, changing the scheduling practices where current methods convenience the majority of the faculty but do so at the expense of accessibility for the apprenticeship group, and establishing plenary activities at the college that will facilitate interaction of all faculty members.

The second finding was the lack of readiness of the apprenticeship instructors to acquire new skills and knowledge in areas other than technical development. The GIT model was used to explicate this lack of readiness describing stage-one of the model that suggests individuals who do not know that they do not know in that they do not recognize the deficit of their skills and knowledge or the value of addressing that need. It was recognized that these instructor-informants received little evaluation or feedback on their classroom performance and there was no evidence of formal performance evaluation of an ongoing nature. In the interviews, the instructors were able, when prompted, to identify situations in dealing with students where they did not have the requisite skills to deal with the challenges presented, and further, several informants agreed that training in this area would be helpful. Suggestions to eliminate this
inability to recognize non-technical skill deficits and engage in professional development to ameliorate the situations include regular performance evaluation and facilitated peer discussion to identify problems and seek solutions. An additional suggestion is to make professional development planning a part of the initial teacher education program, which is mandatory for all faculty.

A third finding is while there are substantive professional development groups at both colleges and both colleges have a wide variety of professional development activities, including e-learning, there does not seem to be an individual in the role of ensuring instructors are getting what they need. I cannot suggest to whom this oversight role would fall but could suggest it could be a line manager or someone in the human resources section. The individual appointed to this role would have to have a solid understanding of teaching and learning theory as well as how professional development is designed, delivered and evaluated. The oversight individual would have to know what each instructor needed or perhaps establish a mandatory set of courses for instructors who started teaching 15-25 years ago. I believe the most important core courses are now included in both colleges' initial teacher training. However, there are a number of teachers in the college system who started teaching when it was still a very much teacher-centered approach to teaching and Kolb's model of experiential learning had not been developed. I understand that there may be resistance from individuals or their collective bargaining bodies and it may be difficult to change an individual's teaching style. However if the institutions develop the will to initiate a course of action to have individuals participate in professional development to improve teaching and learning the dividends will be evident in improved student learning outcomes.
Finally, there was a review of each of the three research questions including answers formulated from the data, the literature reviewed and the theory of adult education.

The first question, "How do the instructors of apprenticeship and trades programs understand and assess their own professional development?" is answered with a contradiction in that all eight instructors were committed to learning, enjoy learning and seek out professional development opportunities often at their own time and expense as long they experience a challenge or a need for new skills and knowledge in their work or personal life. The need to learn to resolve a situation is one of the adult learning principles articulated by Knowles. Concurrently, the instructors all held a disposition toward the college-provided professional development programs that range from neutral to very negative and resulted in very little participation in these programs.

The second question focused on what types of professional development the instructors feel they require to remain effective in a changing environment. Here, unanimously the instructors focused on technical knowledge specific to their trade. In this instance, the principles of adult education at work were evident. The learning they chose was to address a problem or situation they had identified. The instructors decided when and how they would acquire new skills and knowledge to address the problem and sought out a format for acquiring the new skills and knowledge that appealed to them as individuals. Concurrently, the programs offered by the college professional development groups were viewed with a neutral to negative disposition and this resulted in little to non-participation in these programs. I believe that this disposition was influenced by two distinct elements, the first being groupthink, the concurrence-seek tendency of the group that led to faulty decision making. The second element being unconscious-incompetence where not knowing what they did not know about dealing with newly emerging
problems with the changing student population meant that they saw no reason to explore new and more effective ways of dealing with students.

The final research question was what programs have the colleges put in place to provide and evaluate professional development. There is strong evidence that the colleges have invested significant resources to provide professional development for the faculty. Departments to manage professional development have been established, at both colleges, that develop and maintain websites to direct people to resources and provide on-line instruction. Additionally both colleges provide lectures, workshops and seminars on an on-going basis as well as supplying the initial mandatory teacher development program. There are opportunities provided for tuition assistance to individuals and leaves, from normal teaching duties, to return to industry that can be approved if the activity is directly related to their teaching ability or student outcomes.

Unfortunately, there was no evidence of evaluation of the outcome of professional development activities beyond a level-one reaction sheet of those who had participated in a given activity. Moreover, as one college representative reported, those evaluation sheets tell us "if we guessed right" in deciding what programs to offer and how well those programs were received.

Informants interviewed in this study reported that they have not been receiving any sort of formal evaluation or feedback on their performance nor do they receive any guidance on professional development, other than emails that are broadcast to all faculty.

**Suggestions for Professional Development**

The institutions must develop and communicate a clear philosophy of professional development for the faculty at their institutions. This philosophy must contain a definition of professional development articulating the roles and responsibilities of everyone involved, clear
goals and outcomes of professional activities and a statement of how these activities will be measured to ensure that the stated goals are being met. Activities must be designed, developed and delivered in a manner that embraces adult learning principles, including identifying what need the professional activity will address, how it will enhance the instructor's performance and capabilities, and what student outcomes will be affected. Further the instructors must be consulted as to how the learning activity will be presented and when it will be made available to facilitate access. By investing in professional development of instructors, using the principles of andragogy (Knowles, 1974) there will be better return in the form of improved human capital (Becker, 1970). Additionally, allowing the instructors to participate in the choice of content and methodology of professional development may increase their willingness to participate in professional development and utilize the skills, knowledge and attitudes developed through that professional development in their teaching. To increase human capital, Baron (2011) identified that it is not enough to enhance the skills knowledge and attitudes of individuals. The individuals must be willing to share their enhanced contribution to the goals of the employer—student learning outcomes.

The institutions need to develop and administer a formal evaluation program for every instructor where the emphasis is focused on continuous development of the individual. A section manager or administrator would have to review the instructor's performance, observe course delivery and examine any situations where the instructor had to deal with situations such as disruptive behaviour, human rights, sexual harassment and other instances discussed in this study. The individual instructor and the associated manager could then enter into a discussion as to where there were opportunities to enhance performance and which professional development activities would best address the situation. This performance enhancement process could meet
with resistance by the individuals and their representative bodies, and the institutions may suggest resources are not available to conduct such an effort. Despite these arguments, I have inferred from this study that instructors want and need professional development. The colleges are providing resources for professional development but there is little evidence of participation in the programs by the informant groups of this study. I suggest that this approach to professional development, with emphasis on adult learning principles and evaluation, be examined by the colleges and a dialogue established with all parties to see how to move in this direction.

**Opportunities for Future Research**

This exploratory descriptive study is a seminal work in the professional development of the trades professoriate in two Ontario colleges. To formulate conclusions that could be generalized to broader populations would require a much larger sample, including a number of sites, and informants would have to be used to investigate further the findings of this study. Specifically if the groupthink phenomenon and unconscious-incompetence— the situation of informants not knowing what they do not know, are characteristics present in other apprenticeship faculty and institutions.

Another question that requires research is the participation rates of various faculty groups in different types of professional development. Target questions could identify reasons why individuals chose to participate in given types of professional development programs or why they declined participation. Research questions could include: Are the answers from one group, institution or faculty type similar and are these similarities statistically significant?; Are the responses and comments to questions positive or negative in tone and do some types of professional development evoke very positive responses while others seem neutral or negative
toward professional development? and, what are the reasons for some groups having higher participation rates in professional development activities?

Recurring patterns and themes emerging from such a survey of a very large sample could lead to conclusions that could be generalized to the entire college population and lead to valuable insights in the design and administration, and ultimately, outcomes, of college professional development programs.

A second area that provides a very broad spectrum for investigation is the results of professional development, looking beyond participant's evaluation of a particular program. From the obvious resources that are invested in professional development at these institutions and indeed, across many professions, it is reasonable to infer that professional development is regarded as being very important. The question that emerges is, "Is professional development resulting in positive student outcomes?" Is the effectiveness of professional development being measured and if so, which student outcomes can be attributed to a successful professional development program?

To use the human capital model (Becker 1970) to examine professional development the change or outcomes would have to be clearly articulated, the professional development activities would have to be selected in order to achieve the change or outcome and an evaluation framework designed and used to measure those changes. Baron (2011) suggests robust data and equally robust evaluation framework are essential to measure the outcomes of professional development efforts. Metrics would have to be designed to express what changes, if any, were to occur after a professional activity took place. Time lines for the changes to occur would have to be established before delivering professional development activities and some sort of
triangulation strategy devised to ensure changes observed were not the result of some entity other than the professional development program involved.

A third area of investigation would be the examination of the teaching and learning skills that may be unique to apprenticeship training. While many of the informants of this study referred to tactile work and tactile learning or "hands-on" approach, no mention or reference was made to the higher order requirements detailed in the Ontario Qualification Framework for apprentices (Table 3, p.20). How these skills and knowledge are being transferred to the apprentices needs to be investigated and which techniques for these skills and knowledge transfer requires examination and evaluation to ensure the optimal student learning outcomes.

Finally, it would be valuable to see if an effective evaluation/feedback model on faculty performance is in place at any college in Ontario and what attributes of that model make it successful.

It is hoped this study and its findings form the basis for further research focused on the professional development of the college professoriate and the continuing improvement of student outcomes in the Ontario college system.
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Appendix A

Administration Consent

I am a PhD student in the Higher Education Group, OISE / University of Toronto. I am asking your institution to participate in a study to explore the initial preparation and continuing professional development for instructors of traditional trades and apprenticeship programs in the Colleges of Applied Arts and Technology (CAATs) and Institutes of Technology and Advanced Learning (ITALs). I have received the approval of the University of Toronto Research Ethics Board (Protocol # xxxx) and your College’s Ethic Research Board requires your consent to conduct this study at your institution.

I am asking you to distribute an invitation (Appendix B) to full-time instructors of apprenticeship trade courses, in mechanical and electrical trades who have at least ten years of teaching experience to participate voluntarily in my study. I will contact up to four of the instructors who return the invitation agreeing to participate in the study requesting their informed consent agreeing to participate in an audio-taped interview with me anticipated to take 1 to 2 hours and will be followed up with a telephone conversation one-two weeks after the interview. The purpose of the interview is to help me to understand their background that prepared them for their teaching position, the initial preparation for the transition from trades and technical to a member of the professoriate and what professional development activities they may have participated in over the duration of their career. I want to learn how this professional development has addressed their needs and identify opportunities to augment or change professional development opportunities for the professoriate of Ontario’s colleges.

Additionally, any participant may withdraw or decline to respond to any of the questions at any time without explanation or penalty, simply be indicating their choice to withdraw to me in person, by telephone or email. Data collected from a participant who chooses to withdraw will be destroyed and will not be included in the study findings.
To triangulate my study, I am requesting that you distribute an invitation (Appendix B-1) to administrative individuals who can inform me of the institution's perspectives of professional development of your faculty. I will contact one of the administration representatives who return the invitation agreeing to participate in the study requesting their informed consent agreeing to participate in an audio-recorded interview with me. This interview would require thirty to sixty minutes and will be completely confidential for the person interviewed and the institution.

Finally, I am requesting that you provide any documents, publications, or websites that would help me understand professional development initiatives and opportunities at your institution.

Thank you for considering this request and I look forward to exploring the professional development for faculty at your institution in the near future.

Administrative Consent

______________________
Administrator’s signature

_____________________
Date

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You are invited to participate in a study to explore the initial preparation and continuing professional development for instructors of traditional trades and apprenticeship programs in two Ontario colleges. I am a Ph.D. student conducting this study at the University of Toronto under the supervision Glen Jones Ph.D., professor of Higher Education in the Department of Theory and Policy Studies in Education at the Ontario Institute for Studies in Education.

This study will examine the experiences and perceptions of how professional development activities have prepared instructors of apprenticeship programs to maintain their effectiveness in dealing with changing demands of the college teaching position. Your participation may provide insights into your own professional development as well as lay the groundwork to assist Ontario colleges' examination and enhancement of their professional development programs.

Your institution was selected as being representative of a College of Applied Arts and Technology or an Institute of Technology and Advanced learning that has had apprenticeship programs actively in place for more than ten years.

The participants will have ten years of experience in teaching apprenticeship courses in Ontario with no other additional criteria required. The participants will not be judged or evaluated on their responses and will in no way be exposed to any harm.

Your participation, which is voluntary, will require a one-to-two hour interview that will be audio-recorded with your permission. The interview will take place outside of your working hours and away from your work site. You may withdraw from the study at any time or decline to answer any questions. No value judgments will be place on your responses or decision to decline questions or withdraw. I will contact you one-two weeks after the interview to provide an opportunity to add additional comments or ask any questions regarding the interview or the study.
All data collected will be maintained in confidence with only me and my faculty supervisor having access to recordings, notes and transcripts. Materials will be maintained in a locked drawer in my home office to which only I have access. Persons and institutions will be assigned pseudonyms and codes, to maintain anonymity, in any publication or presentation of the study findings. A summary of the findings will be an aggregate of all participants at both institutions so that not individual or institution may be identified. The complete study will be published in my doctoral thesis and will be available in the UT/OISE library.

This study has been approved by the Research Ethics Board of the University of Toronto (Protocol 26355) and the Institution REB (xxx).

If you have any questions related to your rights as a participant in this study or if you have any complaints or concerns about how you have been treated as a research participant, please contact the Office of Research Ethics, ethic.review@utoronto.ca or 416-946-3273.

Sincerely

Kevin Hayes

YOUR PARTICIPATION IN THIS STUDY IS GREATLY APPRECIATED
PLEASE COMPLETE THIS FORM AND RETURN USING THE POSTAGE PRE-PAID ENVELOPE PROVIDED.

AN INVESTIGATION OF PROFESSIONAL DEVELOPMENT OF THE APPRENTICESHIP AND TRADES PROFESSORIATE IN TWO ONTARIO COLLEGES

Name: __________________________________________________________

Please Print

I agree to participate in this study. I understand that participation is voluntary, my name and comments will remain confidential and I am free to withdraw from the study or decline to answer any questions without judgment or penalty.

________________________________________
Signature

I agree to have my interview audio-recorded and transcribed. The recording and its transcription will be held secure in a locked drawer in my home office with access limited to my faculty supervisor and me. The data will be destroyed at the conclusion of the study.

________________________________________
Signature

How may I contact you to arrange the interview?

Phone: ( ) ________________________________

Email ________________________________

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(Please keep a copy of this consent for your files)
AN INVESTIGATION OF PROFESSIONAL DEVELOPMENT OF THE APPRENTICESHIP AND TRADES PROFESSORIATE IN TWO ONTARIO COLLEGES

You are invited to participate in a study to explore the initial preparation and continuing professional development for instructors of traditional trades and apprenticeship programs in two Ontario colleges.

I am a Ph.D. student conducting this study at the University of Toronto under the supervision Glen Jones Ph.D., professor of Higher Education in the Department of Theory and Policy Studies in Education at the Ontario Institute for Studies in Education.

This study will examine the experiences and perceptions of how professional development activities have prepared instructors of apprenticeship programs to maintain their effectiveness in dealing with changing demands of the college teaching position. Your participation may provide insights into your own professional development as well as lay the groundwork to assist Ontario colleges’ examination and enhancement of their professional development programs.

Your institution was selected as being representative of a College of Applied Arts and Technology or an Institute of Technology and Advanced learning that has had apprenticeship programs actively in place for more than ten years.

Through an interview with you, requiring sixty-ninety minutes, I want to learn about your institution's philosophy and policies regarding professional development. I would like to learn about the goals and processes in place and any methods of evaluation of professional development outcomes at your college. Additionally, I will ask you to provide or direct me to any documents or information relevant to professional development at your institution. Your participation is voluntary and will be audio-recorded with your permission. You may withdraw from the study at any time or decline to answer any...
questions. No value judgments will be placed on your responses or decision to decline questions or withdraw. I will contact you one-two weeks after the interview to provide an opportunity to add additional comments or ask any questions regarding the interview or the study.

All data collected will be maintained in confidence with only me and my faculty supervisor having access to recordings, notes and transcripts. Materials will be maintained in a locked drawer in my home office to which only I have access. Persons and institutions will be assigned pseudonyms and codes, to maintain anonymity, in any publication or presentation of the study findings. A summary of the findings provided to your institution’s professional development department will be an aggregate of all participants at both institutions so that individual or institution may be identified.

The complete study will be published in my doctoral thesis and will be available in the UT/OISE library.

If you have any questions related to your rights as a participant in this study or if you have any complaints or concerns about how you have been treated as a research participant, please contact the Office of Research Ethics, ethic.review@utoronto.ca or 416-946-3273.

Sincerely;

Kevin Hayes

YOUR PARTICIPATION IN THIS STUDY IS GREATLY APPRECIATED

<table>
<thead>
<tr>
<th>Office of Research Ethics</th>
<th>McMurrich Building, 2nd floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Toronto</td>
<td>12 Queen’s Park Crescent West</td>
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<tr>
<td></td>
<td>Toronto, ON M5S 1S8</td>
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<tr>
<td></td>
<td>Tel: 416-946-3273</td>
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<td><a href="http://www.research.utoronto.ca/for-researchers-administrators/ethics/">http://www.research.utoronto.ca/for-researchers-administrators/ethics/</a></td>
</tr>
</tbody>
</table>

Participating Institution | Contact Information
PLEASE COMPLETE THIS FORM AND RETURN USING THE POSTAGE PRE-PAID ENVELOPE PROVIDED.

AN INVESTIGATION OF PROFESSIONAL DEVELOPMENT OF THE APPRENTICESHIP AND TRADES PROFESSORIATE IN TWO ONTARIO COLLEGES

Name: __________________________________________

Please Print

I agree to participate in this study. I understand that participation is voluntary, my name and comments will remain confidential and I am free to withdraw from the study or decline to answer any questions without judgment or penalty.

__________________________________
Signature

I agree to have my interview audio-recorded and transcribed. The recording and its transcription will be held secure in a locked drawer in my home office with access limited to my faculty supervisor and me. The data will be destroyed at the conclusion of the study.

__________________________________
Signature

How may I contact you to arrange the interview?

Phone; ( ) ________________________________

Email ________________________________

Investigator : Kevin Hayes
Ph.D. student - Higher Education Group
OISE/ University of Toronto
252 Bloor St. West
Toronto, ON
M5S 1V6
kevin.j.hayes@rogers.com
Office 905 671 0403
Cell 416 523 4393

Faculty Supervisor: Glen Jones Ph.D.
Professor of Higher Education
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Toronto, ON
M5S 1V6
416-978-8292
gjones@oise.utoronto.ca

(Please keep a copy of this consent for your files)
Appendix Ba-Telephone Script for Interview Arrangement

AN INVESTIGATION OF PROFESSIONAL DEVELOPMENT OF THE APPRENTICESHIP AND TRADES PROFESSORIATE IN TWO ONTARIO COLLEGES

Hello ___________________my name is Kevin Hayes, a Ph.D. student at the University of Toronto and (Participant's name)
I have received your response to participate in my study regarding professional development in two Ontario colleges.
I am calling to confirm that your participation is voluntary; you may decline to answer any questions or withdraw from the study at any time without penalty or judgment of any kind.
All of your information is completely confidential and pseudonyms and codes will be used to protect your identity in any publication or presentation of this research
I am hoping you will enjoy this process and look forward to meeting with you in person.
These interviews are to be conducted outside of normal working hours and away from your worksite to preserve confidentiality and minimize inconvenience to yourself.
If it is convenient at this time, could we set a time, date and place for this interview? If you are not prepared to establish a time and place when would it be most convenient to contact you again to follow-up on this important study?

Thank you for your continuing participation and I look forward to meeting you
Appendix C
Instructor Interview Framework

Introduction: Review the purpose of the study.
Describe the interview process:
- reminder: agree to be audio-taped
- two contacts 1-2 weeks apart, 1-2 hours and follow-up phone
- questions focused on your education and professional development activities
- participation is voluntary and you may withdraw at any time or decline to answer any questions without explanation or penalty
- information will be used to complete my thesis for my PhD
- confidentiality and nonidentifiability will be maintained at all time
- you will have an opportunity to clarify any points or add information in a follow-up telephone call one-two weeks from now.

Name:

First language:

Level of education upon entry to the Trade /technical training

Highest level of academic training completed

Type of trade or technical training (i.e.) apprenticeship, where

Your experience

Tell me how you got here
- why and how you chose trade work
- a bit about the type of apprenticeship you completed
- your work experience
- how you came to be a trades instructor

1. Tell me how well you felt prepared to enter the class initially?
   What do you feel was your:
   - greatest strength
   - greatest need
2. What did the participants "look like" in that first class?
   May need to prompt for:
   - gender
   - age
   - first language
   - previous work experience
   - attitude toward the academic work as reflected by:
   - timeliness and completion of work
   - quality of work
   - attendance
   - completion of the program

3. Tell me about the challenges you remember most when thinking of the early years of teaching.

4. How do you think about your own personal development?

5. What types of professional development activities have been available to you over the duration of your career?

6. Tell me about the types of professional development you have participated in over the years.

7. How did you come to participate in those particular types of activities?

8. Now after x years of teaching experience have the course participants changed; and if so, how?

9. If # 8 indicates there has been a change: Did your professional development prepare you for these changes?

10. What types of professional development do you feel would be most beneficial in the future? Do you get what you need?
Appendix D
College Representative Interview Framework

Introduction: Review the purpose of the study.
- the data collected will be used to complete a thesis for my PhD
- I want to understand how college instructors, specifically those involved with trade and apprenticeship programs use professional development to keep current with a much changed environment and student body from a decade ago
- all data from the interviews will be kept completely confidential and anyone interviewed or the institutions involved will not be identifiable in any reporting of the findings

1. What sort of formal philosophy or policy is in place that guides professional development at this institution?

2. Who is responsible for professional development at this institution?
- is there one program for all faculties
- is P.D. the responsibility of individual, supervisor or institution or is it shared
- is there a formal policy or philosophy statement regarding professional development for the faculty

3. How does professional development happen for the faculty at this institution?
- how do faculty find out about opportunities
- is it mandatory or optional
- is P.D. a part of a formal performance evaluation

4. What are the goals of professional development at this institution?
- improve teaching
- individual growth
- review and improve curriculum
- any institutional goals

5. What sort of changes in student demographics has occurred over the last decade?
- what challenges have the instructors had to deal with because of these changes
- are professional development opportunities provided to assist in meeting these challenges

5. Are professional development opportunities the same for all faculty members?
- do any groups i.e. apprenticeship/trade instructors receive any special consideration
6. Are there mechanisms being used to evaluate the P.D. program at this institution?
   - *reaction sheets at the end of an event*
   - surveys
   - *individual performance evaluation reports*
   - *peer review*

7. What documents or web sites could you provide to me or advise me how to access that might help me understand professional development at this institution?

8. Are there any other comments you would like to make about professional development at this institution?
Appendix E

Interpreting the Meaning of Themes / Descriptions

Interrelating Themes / Descriptions

Themes

Descriptions

Coding the Data

Read Through all the Data

Organizing and Preparing the Data

Raw Data
Interviews, Field Notes, Document Review

Validating the Accuracy of The Information

Creswell 2005
Appendix F

Trade Certification

You must be certified to work in these trades:

- Auto Body & Collision Damage Repairer Br. 1
- Auto Body Repairer Br. 2
- Alignment & Brakes Technician
- Automotive Electronic Accessory Technician
- Automotive Service Technician
- Electrician: Construction & Maintenance
- Electrician: Domestic & Rural
- Fuel & Electrical Systems Technician
- Hairstylist
- Hoisting Engineer: Mobile Crane Operator, Br. 1
- Hoisting Engineer: Mobile Crane Operator, Br. 2
- Hoisting Engineer: Tower Crane Operator, Br. 3
- Motorcycle Technician
- Plumber
- Refrigeration & Air Conditioning Systems Mechanic
- Residential Air Conditioning Systems Mechanic
- Residential (low-rise) Sheet Metal Installer
- Sheet Metal Worker
- Steamfitter
- Transmission Technician
- Truck & Coach Technician
- Truck Trailer Service Technician

Certification in these trades is voluntary:

A

- Aboriginal Child Development Practitioner
- Agriculture – Dairy Herdsperson
- Agricultural Equipment Technician
- Agriculture – Fruit Grower
- Agriculture – Swine Herdsperson
- Appliance Service Technician
- Arborist
- Architectural Glass and Metal Technician
- Automotive Glass Technician
• Automotive Painter

B

• Baker
• Baker-Patisserie
• Bearings Mechanic
• Blacksmith
• Brick & Stone Mason

C

• Cabinetmaker
• Cement (Concrete) Finisher
• Cement Mason
• Chef
• Child & Youth Worker
• Child Development Practitioner
• Composite Structures Technician
• Computer Numeric Control Programmer
• Concrete Pump Operator
• Construction Craft Worker
• Construction Boilermaker
• Construction Millwright
• Cook – Assistant Br. 1
• Cook Br. 2

D

• Developmental Services Worker
• Die Designer
• Draftsperson – Mechanical
• Draftsperson – Plastic Mould Design
• Draftsperson – Tool & Die Design
• Drywall, Acoustic & Lathing Applicator
• Drywall Finisher and Plasterer
E

- Educational Assistant
- Electric Motor System Technician
- Electrical Control (Machine) Builder
- Entertainment Industry Power Technician
- Electrician – Street Railway Electrician Linesperson
- Electrician (Signal Maintenance) (TTC)
- Electronic Service Technician
- Elevating Devices Mechanic
- Exterior Insulated Finishing Systems Mechanic

F

- Facilities Mechanic
- Facilities Technician
- Fitter – Assembler (Motor Assembly)
- Fitter Welder
- Floor Covering Installer

G

- Gem setter/Goldsmith
- General Carpenter
- General Machinist

H

- Hardware, Lumber and Building Materials Retailer
- Hazardous Materials Worker
- Heat & Frost Insulator
- Heavy Duty Equipment Technician
- Heavy Equipment Operator: Dozer
- Heavy Equipment Operator: Excavator
- Heavy Equipment Operator: Tractor Loader Backhoe
- Horse Groom
- Horse Harness Maker
- Horticultural Technician
• Hydraulic/Pneumatic Mechanic

I

• Industrial Electrician
• Industrial Mechanic Millwright
• Information Technology Hardware Technician
• Information Technology – Contact Centre-Technical Support Agent
• Information Technology Network Technician
• Information Technology – Contact Centre – Inside Sales Agent
• Information Technology – Contact Centre – Customer Care Agent
• Instrumentation and Control Technician
• Ironworker-Generalist Br 1
• Ironworker-Structural and Ornamental Br 2

L

• Light Rail Overhead Contact System Linesperson
• Locksmith

M

• Machine Tool Builder & Integrator
• Marine Engine Technician
• Metal Fabricator (Fitter)
• Micro Electronics Manufacturer
• Motive Power Machinist
• Mould Designer
• Mould or Die Finisher
• Mould Maker

N

• Native Clothing & Crafts Artisan
• Native Residential Construction Worker
• Network Cabling Specialist
O

- Optics Technician (Lens and Prism Maker)

P

- Packaging Machine Mechanic
- Painter and Decorator Br 1 Commercial & Residential
- Painter and Decorator Br 2 Industrial P & D
- Parts Technician
- Pattern Maker
- Pool & Hot Tub/Spa Service Technician
- Pool/Hot Tub & Spa Installer
- Powered Lift Truck Technician
- Powerline Technician
- Precast Concrete Erector
- Precast Concrete Finisher
- Precision Metal Fabricator
- Pressure Systems Welder
- Process Operator: Food Manufacturing
- Process Operator-Power
- Process Operator: Refinery, Chemical & Liquid Processes
- Pump Systems Installer

R

- Railway Car Technician
- Recreation Vehicle Technician
- Refractory Mason
- Reinforcing Rod worker Br 3
- Relay and Instrumentation Technician
- Restoration Mason
- Retail Meat Cutter
- Roll Grinder/Turner
- Roofer

S
- Saddlery
- Saw Filer/Fitter
- Ski Lift Mechanic
- Small Engine Technician
- Special Events Coordinator
- Sprinkler & Fire Protection Installer
- Surface Blaster
- Surface Mount Assembler

T

- Terrazzo, Tile & Marble Setter
- Thin Film Technician
- Tire Wheel and Rim Mechanic
- Tool & Cutter Grinder
- Tool & Die Maker
- Tool & Gauge Inspector
- Tool/Tooling Maker
- Tractor Trailer Commercial Driver
- Turf Equipment Technician

U

- Utility Arborist

W

- Water Well Driller
- Welder
- Wooden Boat Rebuilder/Repairer