

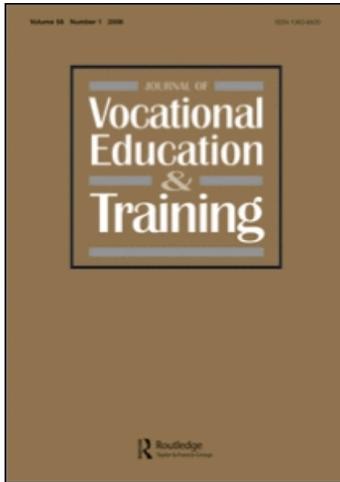
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### Post-secondary learning priorities of workers in an oil sands camp in Northern Alberta

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## Post-secondary learning priorities of workers in an oil sands camp in Northern Alberta

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This paper reports results to date of a three-year project by Athabasca University, intended to determine the education and training needs and interests of employees in a work camp in northern Alberta's oil sands. (Future reports will address results of efforts to provide programming suiting the needs identified, and the uptake, satisfaction, completion rates, further requirements, and impacts on the careers of workers who become students as part of the project.) In initial project investigations, the areas of business, finance, and management (including interprovincial business certification for tradesmen), health and safety, and project management constituted 56% of enquiries by workers; also of interest to workers were courses in trades and engineering. Barriers to enrolment were found to be related both to the demands of the workplace and to the workers' backgrounds and situations, including: long hours (with regular overtime, and often with long commutes to and from the worksite); work pressure (the site was in the final phases of construction); high mobility of employment, resulting in frequent relocations to new work camps; lack of information about the potential relation of training to promotion opportunities within and outside of the present employer; ignorance about open and distance learning in general, and misinformation about technology-based learning delivery in particular; and concerns about costs were among these.

**Keywords:** workplace training; distance training; workplace training priorities; online training; distance education; training in Canadian oil sands camps

### Background

In 2007, Athabasca University (AU) commenced the Learning Communities Project (LCP), in collaboration with Canadian Natural Resources Ltd. (CNQ; <http://www.CNRL.com/>), a Calgary-based oil company with extensive involvement in the Alberta's northern oil sands (see map, Appendix 3). In 2007, CNQ reported 3800 employees, located in 'Western Canada, under the United Kingdom portion of the North Sea, and Offshore West Africa' ([http://www.CNRL.com/careers/employment\\_opportunities.html](http://www.CNRL.com/careers/employment_opportunities.html)). The project was intended to offer a range of on-site adult post-secondary adult programming to CNQ employees working at its oil sands Horizon site, 45 miles north of Fort McMurray, Alberta, Canada. As part of the LCP, a variety of post-secondary education and training opportunities were to be offered by (or brokered through) AU, to work-camp workers and residents of rural, remote, and aboriginal communities, as project resources and local interest dictated (<http://www.athabascau.ca/lc/>). Overall, the project vision was that extending learning opportunities

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to the workplace would bring benefits to all – to workers, CNQ, AU, other participating education and training institutions, as well as to the province of Alberta as a whole (Van Buren 2002).

The project was consistent with AU's mandate and character. As 'Canada's Open University,' AU offers undergraduate and graduate distance courses worldwide, from its home campus in Athabasca, Alberta (<http://www.athabascau.ca/>). As an open university, undergraduate enrolment is available to anyone aged 16 or older, regardless of prior educational attainment. The university is thriving: registrations in 2007 totaled 32,000, double the 2001 total (<http://www.athabascau.ca/aboutAU/>). While the Alberta university system experienced an average 20% growth rate in 2001–2007, Athabasca University's rate of growth was 44%, more than double the next highest rate ('Enrolment by institution,' 2007). (During the same period, the institutes of technology in Edmonton and Calgary, with over 21,600 FLEs between them in 2007, reported a 16% increase, while the province's college system experienced a decline of enrolment of 2% over the same period.)

University-level programming for the project was to include AU's distance offerings (undergraduate and graduate, including the MBA program), as well as the offerings of the Canadian Virtual University (CVA; <http://www.cvu-uvc.ca/english.html>; <http://www.athabascau.ca/collab/partner-search-results.php>). Also, as described below (and in Appendix 1), a range of adult education courses and programs was to be offered, from literacy to university transfer, from any of Alberta's post-secondary institutions (colleges and institutes of technology) wishing and able to participate.

The need for the project was based on some stark facts:

- While Alberta has the highest labour-force participation rate in Canada, it also has the lowest participation rate in post-secondary studies.
- Participation rates are even lower for northern and remote populations, aboriginals, immigrants, and young males (Alberta Advanced Education and Technology 2006).
- Alberta's problems are Canada's problems: the Conference Board of Canada (2007) has recently given the country a grade of 'D' for its efforts at economic and social innovation, including the fostering of a skilled and innovative workforce.

This is the first of a series of papers reporting the results of this project. This paper, reporting on a study of the learning priorities of CNQ workers, will be followed by reports on available learning opportunities and actual enrolment patterns, both in the oil sands work camps and in Alberta's remote and aboriginal communities. The intention of the research is to assess how well course and program offerings align with workers' and residents' interests and work-life constraints, in content and in delivery format, and what potential students say and do about distance post-secondary training, while remaining part of Alberta's demanding workforce. The study addresses a gap in the current literature internationally on work camp-based post-secondary training; as discussed more fully below, our review did not reveal published studies of the provision of educational opportunities in work camps.

### **Project overview**

At the time of this study, CNQ was engaged in a \$10.8 billion construction project at the Horizon site, in the Wood Buffalo region of northern Alberta, building an oil sands extraction and processing plant (<http://working.canada.com/profiles/CNRL/profile.html>). The plant was due to commence production of bitumen from oil sands in the third quarter of 2008. During the peak of the construction phase in 2007, over 7500 construction and

administrative workers were on the Horizon site daily; in the production phase, the company projected the site would employ about 2400 workers (<http://www.CNRL.com/horizon/>).

Project research was intended to answer three questions:

- (1) What interests do workers at the CNRL Horizon site express in post-secondary education and training?
- (2) What attitudes do employees have about learning at a distance, especially using technologies for content access and communications?
- (3) What resources do AU, and the Alberta post-secondary system, possess to address the interests expressed?

This paper addresses question 1; future reports will address findings related to questions 2 and 3.

In the initial stages of project research, the LCP research team (the authors), along with the project manager, investigated the post-secondary training and education interests of CNQ employees by staging information sessions in the Horizon site residence lodges. After the sessions, the researchers followed up with workers who had expressed interest or asked questions. The information sessions consisted of manned displays in the lodges where employees lived on the site. The information sessions were advertised to employees through email announcements, posters, and notices in company newsletters and other publications. CNQ managers and contractors were informed of the project and the sessions by email, and were asked to promote awareness of and encourage attendance by their workers.

At the information sessions, anyone who approached the display table could speak with a representative of the University, and could take away print information, brochures, course catalogues, and the university calendar. (Online sources of information, for example the *Calendar* [<http://www.athabascau.ca/calendar/>], were also advertised.) Follow-up, by email or phone (broadband Internet connections were available in all the workers' rooms), asked whether the information that had been provided was sufficient, whether the worker had further questions, and what (if anything) the worker planned to do with the information provided.

## Literature review

### *Demographic and economic profile of Alberta's population*

Alberta, consisting of over 255,000 square miles, is one of Canada's western provinces. The population in 2006 was 3,306,359 (<http://www.statcan.ca/Daily/English/060328/d060328e.htm>), and is the youngest in Canada: in 2006, the median age of Albertans was 36.0 years (for Canada as a whole it was 39.5 years); Alberta's senior population (65 years and over) is also the lowest in Canada, at 10.6% (the national rate is 13.7%) (Alberta Finance 2007).

The province is also economically unique in Canada: at the end of 2007, Alberta's real GDP growth rate was 3.3% (Canada's was 2.7%); its unemployment rate was 3.4% (Canada's was 6.0%); its annual population growth rate was 1.8% (nationally, it was 1.07%); and Alberta's provincial annual inflation rate was 4.4% (Canada's was 3.1%) (Alberta Finance and Enterprise 2008a).

Alberta's prosperity has accumulated: as of 30 September 2007, the provincial Heritage Savings Trust Fund, consisting of funds accumulated by the Alberta government mainly

from resource revenues, was valued at \$17 billion, of which almost \$1 billion had been deposited in 2007 (Alberta Finance and Enterprise 2008b).

### *Characteristics of Alberta's oil sands workers*

Alberta's oil sands industry is a major employer of trades, technical, and labouring people, many of whom are considered 'mobile' (i.e., non-residents of the region, or even the province, where they work, in some cases commuting from other provinces, or even from outside Canada). A 2007 report of 'mobile workers' in the Regional Municipality of Wood Buffalo, where most of the oil sands development in Alberta is occurring (see map, Appendix 3) (Athabasca Regional Issues Working Group 2007, i–iii) contained the following facts about the region's mobile workers:

- Only 3.5% of those surveyed lived in the Wood Buffalo region (most were indeed 'mobile');
- Approximately 60% of the workers reported they always worked in mobile employment;
- Of the mobile workers surveyed, 75% had no plans ever to live in the region;
- About half of the mobile workers in the region were from Alberta, 56% from the greater Edmonton region;
- Maritimers (residents of the Canadian provinces of Nova Scotia, New Brunswick, and Prince Edward Island) and Newfoundlanders accounted for over half of the out-of-province workers;
- The great majority of mobile workers were male, with a median age of 35 years; the largest group were 45 or older (32% were 50 or older);
- Three-quarters lived in worksite lodges or camps;
- Mobile workers were expected to remain a 'fixture of the industrial landscape' in the Wood Buffalo region for the foreseeable future.

### *The Horizon site, and CNQ employees*

At the time of the study, the Horizon site housed over 6000 workers in three on-site lodges. (Those not residing on-site generally commuted from the local communities of Ft. McKay and Ft. McMurray. Commutes were 15–90 minutes each way, averaging at least one hour.) About 75% of employees (about 95% male) were craft-workers (journeymen or apprentices); the remainder worked in administration, support, security, food services, and healthcare. Turnover averaged about 30% annually.

Some of those working on site were qualified in a trade in other jurisdictions, but sometimes not in Alberta. Many of these workers required English-language training (reading and speaking) to pass proficiency examinations. This situation had proven problematic: lack of qualified tradesmen was the biggest single impediment to the progress of the construction phase of the project. Foreign workers were usually employed for 6–12 months, during which time they could work toward certification by Alberta Apprenticeship and Industry Training (AAIT). With certification, foreign workers were permitted to extend their employment in Alberta. AAIT regulations permitted two attempts at passing certification tests, after which, if unsuccessful, the employee was required to return home due to immigration requirements. Company officials reported that Canadian standards were regarded as high, and foreign workers typically had difficulty meeting them, especially if they had language difficulties ('Horizon site camp visit' 2007).

Videoconference facilities and computers with broadband Internet were available in the Horizon lodges (workers had to provide their own laptop computers or mobile devices to access the Internet in their rooms). The normal working day began at 6:30 a.m. (or p.m., for those on night shift), and normal workdays were 10 hours long, with overtime frequently available, or required.

Workers were on-site for varying lengths of time before rotating out for an off-site break:

- 4–3 (4 days worked, 3 days off)
- 10–4 (10 days worked, 4 days off)
- 20–8 (20 days worked, 8 days off)
- 21–7 (21 days worked, 7 days off)
- 18–3 (18 days worked, 3 days off)

### *Distance education in Alberta*

In keeping with its prosperity, its need for a trained workforce, and its demographics, Alberta has historically focused on providing training and education opportunities for its working residents, including the use of distance technologies (Alberta Learning 2004). Among initiatives to promote flexible learning for adult workers in Alberta are the following:

- The Campus Alberta policy
- SuperNet
- Athabasca University, Canada's 'Open University' (<http://www.athabascau.ca/aboutAU/openuniversity.php>). AU is mandated to lower barriers for Canadians aged 16 or older who wish to commence university-level studies (<http://www.athabascau.ca/aboutAU/>). The University offers various learning assistance and support services, including prior learning assessment and recognition (PLAR; <http://priorlearning.athabascau.ca/index.php>).
- eCampusAlberta provides promotion of the distance education capabilities of Alberta's public training institutions, and facilitates the extension of programming to students.
- Online information about post-secondary programs and careers is available from ALIS. (Alberta Learning Information Service; <http://www.alis.gov.ab.ca/main.asp>)

### *Campus Alberta*

The Campus Alberta policy promotes 'more flexible learning opportunities' for all Albertans. Distance learning is an express focus: 'Learning opportunities will be flexible in design, structure and delivery (e.g., classroom learning, online learning, workplace learning, experiential learning) to remove barriers to participation in learning resulting from geographic location of learners, their other life commitments, and learning styles and abilities' (<http://www.advancededucation.gov.ab.ca/pubstats/CampusPolicy/default.asp?Chapter=Goals>).

### *SuperNet*

In support of the goal of flexible distance learning opportunities, Alberta completed a province-wide broadband network in 2005. *SuperNet* links over 4000 government, health, library, and education facilities, in 429 communities. SuperNet provides high-speed Internet

access to 86% of Alberta's total population (<http://www.advancededucation.gov.ab.ca/news/2005/December/nr-NAITSuperNet.asp>).

### *Athabasca University*

AU's distance education mandate has already been noted. Because part of its *raison d'être* is the reduction of learning barriers (<http://www.athabascau.ca/aboutAU/>), the LCP was seen by the University as an opportunity to address this objective in relation to a large body of potential students: full-time workers in remote locations throughout the province, and potentially throughout Canada. To reduce barriers, AU offers distance education courses in a form that permits *anytime, anywhere* access – quadrant 4, as illustrated in Figure 1.

The types of interaction possible, and the choices available to students in each of the above quadrants, differ as follows:

- *Quadrant 1* – same place, same time: *site-based* interaction; all instruction is synchronous (occurring at the same time) and site-bound (a special place is set aside for the purpose). Example: traditional on-campus face-to-face classroom, seminar, or lecture-based teaching.
- *Quadrant 2* – same place, different time: *school-, institution-, or learning centre-based* interaction, with asynchronous study permitted. Example: use of self-paced correspondence modules in a designated library, learning centre, laboratory, or some other place, where on-site attendance is required, but at a time of the student's choice.
- *Quadrant 3* – same time, different place: *synchronous, but not site-bound*. Example: teleconference- or audiographic-based learning: students can be anywhere, but they have to be available at the specific time the instructional program is offered (and they have to have access to the required delivery media).
- *Quadrant 4* – different place, different time: *virtual and distance learning*, at a site and time of the learner's choosing. In its 'pure' form, distance education falls into this category. Example: materials, learner support, interaction of all types, and administrative tasks and resources (including library and bookstore) are all available at any time, from any location, as chosen by the student.

	SAME TIME	DIFFERENT TIME
<b>SAME PLACE</b>	<b>1</b>	<b>2</b>
<b>DIFFERENT PLACE</b>	<b>3</b>	<b>4</b>

Figure 1. Time and place shifting in distance education.

Note: Diagram attributed to Coldeway by Simonson et al. 2000, 7; a similar typology is also found in Johansen et al. 1991, 17.

*eCampusAlberta*

eCampusAlberta promotes, helps administer, and assists in the development of, online courses by Alberta institutions. eCampusAlberta's website offers connections to 'more than 400 online courses and 30 programs offered by 15 Alberta colleges and technical institutes, including provincially accredited certificates, diplomas, and applied degrees' (<http://www.ecampusalberta.ca/>). Students register directly, through the eCampusAlberta site, with the offering institution ([https://register.ecampusalberta.ca/course\\_search.php](https://register.ecampusalberta.ca/course_search.php)). eCampusAlberta celebrated five years of operations in 2007 (<http://ecampusalberta.ca/index.php?q=node/66>), as the LCP was becoming active.

*ALIS*

Information about the offerings of Alberta post-secondary institutions is available through an online information database called ALIS (Alberta Learning Information Service; <http://www.alis.gov.ab.ca/main.asp>). ALIS provides a source of information on courses and programs, including prerequisites. Access to this data is by e-newsletter, with numerous links to online programs and courses within and outside the province (<http://www.alis.gov.ab.ca/edinfo/Content/RequestAction.asp?format=html&aspAction=GetHomePage&Page=Home>), including job listings, wage information, and access to counselling. Through ALIS, combined with the offerings available from eCampusAlberta, the intention is that potential students may identify and access courses and programs originating from any Alberta post-secondary institution, from their home communities.

*Workplace learning in Canada*

There is a definite need in Canada for a study of workplace learning: Canada has been cited for doing a remarkably poor job of investigating and reporting on the outcomes of its post-secondary education and training programs. In the fall 2007 annual *Education at a Glance* assessment conducted by the Organization for Economic Cooperation and Development (OECD), Canada was unable to provide information on 57 of the 96 indicators under study (almost 60%), the worst performance of any member country (Charbonneau 2008). In the same year, as noted earlier, the Conference Board of Canada (2007) criticised the lack of innovation in Canada's post-secondary programming, compared with the achievements of 16 other industrialised countries.

This study was intended to provide timely data to institutions such as AU about the degree to which its programming and support services are useful in reducing barriers to studies for working Canadian adults. It is to be hoped that it will address some of the problems Canada now faces in providing such information.

Learning in or through the workplace has been a Canadian tradition for well over a century. In 1899, Frontier College (until 1919 known as the Reading Camp Association) began providing literacy and basic education to workers in lumber camps in eastern Canada. Often, the students were immigrants, and the subject-matter included basic literacy skills, as well as instruction in Canadian values, culture, and institutions (Krotz, Martin, and Fernandez 1999; Barker 2000). Frontier College continues its literacy work today ([http://www.frontiercollege.ca/english\\_literacy.html](http://www.frontiercollege.ca/english_literacy.html)).

By the 1930s, radio was used for teaching essential skills to Canadian workers, and people in rural and remote locales. Radio was especially effective because of the physical size of Canada, its small and dispersed population, the general difficulty of travel (especially in winter), the disparity in education opportunity between rural and urban areas, and the

ability of this highly scalable technology to reach vast areas with a minimum of infrastructure (Buck 2006, 76). What began as the Canadian National Railroad (CNR) radio network, bringing education to railroad employees, became the Canadian Broadcasting Corporation (CBC) (*ibid.*, 85).

In Canada, as in the global context, corporations came increasingly to regard workplace learning, via distance methods, as essential to survival: a 2005 study reported that almost 60% of training executives in the organisations surveyed felt that online higher education would increase in the next two to three years (Rivera, Sugre, and Trierweiler 2005). Faris (1994) had earlier found evidence that developed countries saw training as a means of enhancing competitiveness, by improving worker readiness for change. His findings and recommendations on development of effective workplace-related training programs were reflected in Canadian policies and practices (Shale and Gomes 1998; Simpson 2005).

Specific workplace-related training programs are intended to address problems Canadian companies are increasingly experiencing:

- As experienced workers retire, skills shortages are experienced in virtually all industries; youth and new workers must be prepared for restructured careers.
- Canada's economy is increasingly affected by global factors and competition; at the same time, budgets for post-secondary institutions have plateaued, or are shrinking.
- Standards for successful economic competitiveness are increasingly knowledge-based and global; quality assurance and commitment to lifelong learning are now fundamentals in Canada, as they are in all exporting economies.
- Technology use, requiring a skilled and educated workforce and a *learning culture*, is increasingly essential to corporate productivity; companies need to adopt to become or remain competitive (Faris 1994; Cookson 2000).

Canada's competitors have responded to these needs by adopting similar strategies:

- Competency-based, modular training curricula, including basic skills-focused adult education;
- Better portability of credentials nationally and internationally, including prior learning assessment and recognition (PLAR), and recognition of skills no matter how acquired;
- More use of highly flexible continuing and distance education delivery methods (letting workers stay on their jobs, without externally fixed learning schedules);
- Rationalised trades qualifications, including multiskilled training, reformed apprenticeship systems, and more relevant training standards;
- Increased corporate responsibility for worker training and development;
- More frequent training events, and more fluid and easier transitions from training back to employment;
- Training in applied technologies (Faris 1994, 15).

Canada has been viewed by some as possessing some unique advantages in relation to human capital development. Among these, in Simpson's (2005) view, are:

- Officially recognising and doing business in two of the world's great international languages (English and French);
- A multicultural population;

- Social and fiscal policies that produce balanced national budgets;
- A federal system that allows for experimentation and innovation.

Canada faces some systemic problems, beyond the mere gathering and reporting of essential data on programs, that require creative solutions, even experimentation. Ferris observed in his study that training reform in Canada was at that time ‘incremental and uneven’ (Faris 1994), a judgment that no one has yet seen fit to reverse. A significant failing of the Canadian educational system, in Simpson’s (2005) more recent view, is the fact that one-quarter of Canadian youth do not complete high school, in an economy in which three-quarters of new jobs require some form of higher education. There is also the suggestion from Simpson that some government rhetoric about the importance of education and training is not matched in practice, as seen in the fact that several other OECD countries (e.g., Sweden, Finland, the United States) budget more for adult education and training than Canada does.

To compete, Canada must consider unconventional training delivery methods, as suggested by these findings of the Rivera, Sugre, and Trierweiler (2005) from a recent survey of large Canadian corporations:

- While about 10% of employees are engaged in training in some kind at any one time, somewhat less than 10% of funds are currently spent on distance training programs.
- More than half of the respondents were neutral toward, and 20% were at least ‘somewhat’ dissatisfied with, their current online training programs.
- Just over half of the respondents thought an online credential was less valuable than one earned in a more traditional environment.
- Employee retention, and increasing employees’ mission-critical skills, were two out of the top four reasons for engaging in online employee training (this was a major reason for CNQ’s participation in the LCP project).
- The option these respondents were most hopeful of seeing over the next two to three years was availability of a wider array of industry and professional offerings in distant format.

### **Workplace learning globally**

Other countries currently fare better on some of the above criteria, but there are reports everywhere of efficiency problems and lack of flexible workplace learning models. Latchem, Jung, Aoki, and Ozkul (2008), for example, praise Korea and Japan for some of their creative approaches, especially to infrastructure and utilisation issues, but criticise these countries’ pedagogical standards, and the negative impact of their educational systems on students’ creativity and intellectual curiosity.

Historically, work camp education programs (combining work with learning) have existed globally, and flourish still, although these have tended to target identifiable groups such as youth, inmates, demobilised military, and ethnic and religious minorities. More importantly, the educational offerings have tended to be very narrow, often ideological rather than educational, and of secondary importance to the moral, religious, cultural/linguistic, or character-shaping intentions of the projects (McClusky 1944; Back Bay Mission 2008; Sunflower Mission 2008; Vereinigung Junger Freiwilliger 2008). We did not find examples of projects intended to offer, in working camps, education from literacy to liberal arts, and training from functional language skills to trades and technologies, in our search of the present literature. We are not aware of such comprehensive programming designed for workers of all ages, offered around work duties, in the work camp environment.

No country, it appears, presently completely addresses the predictable problems of education and training for adults working in camps, especially mobile workers in robust economies such as Alberta's, where contract work assignments (i.e., the worker is not an employee) may be a short as one day, or as long as several years. Overall, researchers, educators, and policy experts appear to agree that, despite its importance, and despite some promising historical precedents, workplace-related training is not efficiently addressed in most countries. Where successful programs are found, however, they often incorporate innovative delivery and support systems (including technologies). This is the message for Canada, and a fundamental impetus for the LCP project.

### **Research design**

The main question addressed in this study was: What interests do workers at the CNQ Horizon site express in post-secondary education and training, when the programs are offered at a distance (in the work camps themselves)? As the study proceeded, information about the constraints under which workers laboured, affecting their ability to successfully become students, also became clear, as described below. (This is the central topic of a planned future report.)

In terms of the existing literature, the study applied the observation that distance learning communities are often technology-oriented, but that research on the capabilities and preferences of individuals in communities such as work camps to programming using technology is lacking altogether (Gibson 2003, 153). Given that these criticisms seemed particularly relevant to Canada at this time, as well as addressing a global lack of information on these questions, the project and the study were regarded as particularly timely.

### **Methodology**

The study was based upon analysis of enquiries received, either in person or by telephone or email, from CNQ employees, after promotional events staged on the Horizon site by project personnel, or in response to posters, brochures, calendars, or other print or online materials made available in worksite residences (lodges).

After information was requested by a worker, researchers made at least two attempts to contact the worker to determine whether the information was received and was satisfactory, whether there were more questions, and, ultimately, whether the enquirer intended to register in a program as a result. At this writing, the longest-term follow-up subject had received information through the project about five months previously; many potential students had received their information much more recently. (See Appendix 2 regarding follow-up details.)

Information session events and locations on the Horizon site, and the approximate numbers of enquiries received from workers as a result, are shown in Table 1.

### **Findings**

#### ***Areas of worker learning interest***

Appendix 1 shows in detail the frequency with which workers asked for information about specific programs and courses. As noted above, these data were obtained either in face-to-face discussions, or through follow-up email or telephone exchanges between project or research staff and the employee. Table 2 summarises the major areas of interest (shown in

Table 1. Sites of information sessions, and numbers of inquiries, at Horizon site information sessions.

Site/source	Date	Enquiries
McKay River Lodge	26 Sep 2007	58
Chelsea Lodge	2 Oct 2007	24
Calumet Lodge	3 Oct 2007	24
Beaver River Lodge	7 Oct 2007	17
Joslyn Creek Lodge	21 Nov 2007	23
McKay River Lodge	12 Feb 2008	33
<b>Total</b>		<b>179</b>

detail in Appendix 1), and serves to answer the research question posed for this part of the study: ‘What interests do workers at the CNQ Horizon site express in post-secondary education and training?’

Some observations about the above question, based on the details presented in Appendix 1 and in Table 1:

- Overall, over 70% of enquiries were in the areas of Business, Finance and Management, or Trades and Engineering.
- Within Business, Finance and Management, half of enquiries concerned:
  - MBA (33%);
  - Project management (16%).
- A further 25% of interests were in:
  - Business administration (10%), Accounting (9%), and HR (6%).
- Within Trades and Engineering, 60% of interests concerned:
  - Blue Seal (‘Achievement in Business Competencies Program’ for certified tradesmen) (33%);
  - Health & Safety (11%);
  - Red Seal (Interprovincial recognition of certification in, presently, 49 trades) (8%);

Table 2. Interests expressed by employees and contractors at Horizon site.

Interest area	#	%
Business, Finance and Management	67	36.2%
Trades and Engineering	63	34.1
Computer Operations	10	5.4
English as a Second Language	9	4.9
Languages	7	3.8
Social & Education	6	3.2
Academic Upgrading	6	3.2
Personal Interests for Speaker Series	6	3.2
Law/Legal Studies	4	2.2
Arts and Humanities	3	1.6
Healthcare	2	1.1
Prior Learning Assessment and Recognition	2	1.1
<b>TOTAL</b>	<b>185</b>	

- Association of Professional Engineers, Geologists, and Geophysicists of Alberta (APEGGA) courses or certification (8%).
- Of the remaining total enquiries:
  - Ten (5.4%) were in the area of computer operations, including Microsoft Office programs (n = 7);
  - Nine (4.9%) were for English as a Second Language (ESL) instruction, including ESL for Red Seal (n = 2);
  - Six (3.2%) were for academic upgrading, or grade 12 equivalency.

Those who enquired at the information session, or emailed or telephoned the project office with questions, were provided with answers, or links to information. Within a month of enquiry, researchers followed these up by email or telephone, to determine whether the information had been sufficient, and whether the worker had enrolled (or planned to enroll) in a course or program.

As shown in Appendix 2, workers were usually content with the information provided, and some were complimentary (15 February 2008, [service received was] ‘second to none’; 27 February 2008, ‘answers have provided ... valuable information. Keep up the good work’). Occasionally, the follow-up contact resulted in further discussion, and additional questions.

On the basis of these responses from potential students, the project management team concluded that on-site information sessions should continue. The research team concluded that such follow-up was both a useful data gathering method, and a valuable vehicle for continuing the process or informing and advising potential students.

### ***Worker characteristics and intentions***

The critical question, whether workers enrolled in programs as a result of the promotions and available information, is not yet answerable. As of this writing, there have been only a handful of enrolments that are unquestionably attributable to the project. (The problem of tracking enrolments, when sharing of information is constrained by ‘protection of privacy’ policies and regulations, is considerable, and continues to be addressed as the project proceeds.)

Given what is well known about how adults make decisions about commencing formal learning projects, the rich literature on the importance of the ‘fit’ between program content, learning demands, and learner motivation, and especially in view of the fact that potential enrollees are already fully employed, the project has taken the view that registration, the formal decision to embark on a learning project, is more a process than an event (Houle 1961; Boshier 1971; Knowles 1980; Cross 1981). One implication of this is the decision by the project not to conclude that because enrolments are not immediate they will never come, or that because workers do not instantly down tools to take courses, they never will.

The demographic characteristics of the workers who constitute the work-camp population are suggestive, in attempting to assess what types of training or education programs will be appealing. As noted earlier, workers are older (one-third are aged 50 or older), predominantly male, and highly mobile. Evidence is abundant that this population is resistant to training, especially when they are able to secure regular employment (Canadian Council on Learning 2007). The same evidence suggests that younger and white-collar (administrative) workers are 2.5 times more likely than their older, blue-collar colleagues to engage in training. The key finding in this previous research is that attitudinal, situational, and academic barriers, along with institutional ones, are most likely to affect engagement in

training. It is, of course, the latter category of institutional barriers that this study intends to impact.

The best that can be said at this time is that the longitudinal nature of the project will permit better determination, over time, of its impact on actual course and program registrations. At this time, follow-up information with workers indicates that the information provided is always appreciated and usually adequate; sometimes, additional questions are raised when the worker is contacted, suggesting they are processing the information received and not simply filing it; but that the pressures and stresses of fulltime-plus-overtime employment often are cited as preventing commencement of an educational or training program.

## Discussion

The study provides important information about the learning interests of oil sands workers, and some insight into the conditions of their work and personal lives that constrain their learning. Both have a bearing on programming success.

Learning interests of the workers studied were related to various present and future career plans. Immediate employment advancement goals were reflected in interest in Blue Seal and Red Seal accreditation, and business- and trades-related training. The Blue- and Red Seal programs recognise business and trades credentials from other jurisdictions, thereby improving workers' employability and promotability in their present positions. Business and trades training serves a similar function for those already employed in these areas, and comprise a path to career advancement for those working without credentials (clerks, labourers).

Master of Business Administration (MBA) training and engineering (APEGGA) certification offer both advancement and career change opportunities for those who already have entry-level business or technology training, and related work experience. AU defines its Executive MBA as 'designed for the experienced manager and professional' (<http://www.athabasca.ca/calendar/grad/business.html>). Admission requires 'a first degree from an accredited university, and ... at least three years of acceptable managerial experience ... ; OR an acceptable professional designation ... and ... at least five years of acceptable managerial experience; OR [successful completion of] the Graduate Diploma in Management awarded by Athabasca University' ([http://www.athabasca.ca/calendar/grad/business\\_01\\_02.html](http://www.athabasca.ca/calendar/grad/business_01_02.html)).

APEGGA has regulated the profession of engineering by Alberta provincial statute since 1920 (<http://www.apegga.org/>). The role of APEGGA includes registering of Professional Engineers (by award of the P.Eng. designation), based on supervised work experience and the passing of licensing examinations. APEGGA reports a sharp recent increase in the number of applications for certification, especially in Alberta ('The vibrant Alberta economy, with record amounts of capital expenditure, is creating very high demands for professional services'). Approximately 20% of APEGGA's present members are foreign trained, and applications from this source are increasing (<http://www.apegga.org/Public/about.html>).

In northern Alberta, academic upgrading, including elementary and advanced language training, is generally offered by institutions such as Keyano College (Ft. McMurray), Northern Lakes College (Slave Lake), Portage College (Lac La Biche), and Grande Prairie Regional College. Upgrading courses and programs address what Human Resources and Skills Development Canada calls *essential* skills, 'the fundamental skills that make it possible to learn all others. They are enabling skills that help people participate fully in the workplace and in the community' ([http://www.hrsdc.gc.ca/en/hip/hrp/essential\\_skills/essential\\_skills\\_index.shtml](http://www.hrsdc.gc.ca/en/hip/hrp/essential_skills/essential_skills_index.shtml)). Entry-level employment, or employment-related training, are the objectives of

upgrading; the mission of Norquest College, Edmonton, for example, states: 'NorQuest College builds foundations for success in further education and in the workplace'.

Workers who sense that their essential academic skills are marginal could choose upgrading, as a way of securing a place in ever more educationally demanding workplaces. CNQ officially requires high school completion for all permanent employees, perhaps a motivation for the respondents who named 'high school achievement' as the 'upgrading' objective. In job postings on the company's website, ten 'Carpenter/Scaffolder (Journeyman)' positions were posted in late 2007, each requiring 'Education level: College – 2 year' (<http://careershtml.CNRL.com/en/js/viewjob.php?submit=Search&searchPage=&jobID=1369>). 'Construction Craft Labourer' and 'Shovel Operator' positions, appearing at the same time, both called for 'High school' (<http://careershtml.CNRL.com/en/js/viewjob.php?submit=Search&searchPage=&jobID=1382>; <http://careers.CNRL.com/en/js/viewjob.php?jobID=2312>). This requirement was reflected in the very small number of enquiries received in the project that could be called 'academic upgrading,' or enhancement of essential skills. (On the other hand, the interest in basic and conversational English could include individuals concerned about their literacy skills.)

A small number of the interests expressed by Horizon site workers (hotel and resort management, flying training, airport management, stock brokering, retirement planning) suggested fundamental career changes. Others (martial arts, languages such as French, Spanish, Italian, and woodworking) had an apparent leisure-time focus. These were the exception, however; the focus of three-quarters of the interests was clearly in career-related training, a finding consistent with other research reporting that about 70% of all education and training courses taken by adults are job-related (Canadian Council on Learning 2007).

As eloquent as content-area interests were, the obvious constraints of the life and work circumstances of the workers also vividly illustrated the problems they have in accessing even flexibly offered training. As potential students, workers face numerous barriers arising from their shift-work schedules and mobile lifestyles, including fundamental restrictions on their time, energy, and availability. While this topic will be explored more formally in a future paper, it is already clear that programming for these workers must be highly accessible and flexible, *and* supported by appropriate interactive technologies. The programming with the potential to suit a majority of these workers is quadrant 4 – anytime, anyplace, as shown in Figure 1 – with appropriate technological supports, including low technologies like print, postal mail, and telephone; all other delivery formats and tools are likely to raise immediate problems for potential participants. This lesson is not new, and should not be surprising (Willis 1992).

Another finding of the study concerned information and advisory services for potential students. In the email follow-ups, a number of respondents asked further or new questions, as a result of thinking further about the information they had originally received. The need to advise students on various aspects of adult learning is familiar to AU; potential students may obtain advice from the University through various online or face-to-face channels (<http://www.athabasca.ca/advising/>). It is clear from the feedback received in the follow-up that advisory services are particularly important to workers, as they undertake the complex process of weighing their learning options against their present, and changing, responsibilities and opportunities.

## Conclusion

Canada has not done well recently in obtaining data on the performance of its post-secondary training institutions and programs. This study was intended to gather information about the

learning needs, preferences, and constraints of workers in a rapidly expanding resource extraction industry in one Canadian province. The findings identify the learning interests, and some of the stringent constraints, faced by Canada's oil sands workers, barriers not unlike those workers in any vibrant economy might face as they considered education or training.

While the results seem conclusive about interests, the importance of advisory services, and the constraints faced, some caveats must be recognised. First, while it may be that 'attitude is incipient action' (Burke 1966), the expressions of interest reported had not, as discussed above, resulted in significant numbers of course enrolments by workers. The possible reasons for this, based on comments of workers, supervisors, and CNQ managers, were various, including lack of information about the project and AU; fatigue from long work shifts and hours, due to the pressure to complete construction on time; perceived lack of personal time; lack of interest in (and misunderstandings about) distance education as a learning format; lack of familiarity with or access to learning technologies; direct and indirect costs; and failure to link studies and credentials to career objectives (Fahy and Steel 2008a, 2008b).

The above notwithstanding, the results also clearly indicate that certain subject-matter areas are of high potential interest to the workers studied, and, to the degree they are representative, to workers throughout Canada, and globally, in similar career, personal, and educational circumstances. Further research is needed to confirm the generalisability of these findings to other regions and populations, but the assumption can in the meantime be made that the results obtained here apply elsewhere, in economies where work is increasingly technically demanding, training is ever more expensive, but where there is also an agency like AU offering 'open' enrolment, a range of programming options, appropriate delivery technologies, and support.

Finally, the challenge to AU and to other institutions wishing to offer programs to workers is to find both content and delivery formats that take into consideration the interests and needs of workers, and recognise the constraints they face. It is clearly not sufficient to identify appropriate content alone; if this were so, offerings available now through existing delivery agencies would be fully subscribed. To the degree they are not, the reason is probably at least partly related to the correspondence between the features of the training system and the constraints under which the potential students live their lives.

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**Appendix 1. Programs and course offerings of interest to CNQ employees**

All learning interests expressed by email, telephone, and launches and information booths as of 29 February 2008

<b>Business, Finance and Management</b>	<b>#</b>	<b>%</b>
Project management	11	
MBA	22	
Human resources	4	
Accounting	6	
Office administration	2	
Business administration	7	
Purchasing management	3	
Economics	1	
Bachelor of management	1	
Event management	1	
Airport management	1	
Risk management	1	
Emergency management	1	
Business writing	4	
DBA	1	
Hotel and resort management	1	
<b>Total</b>	<b>67</b>	<b>36.20%</b>
<b>Trades and Engineering</b>		
Health and safety	7	
Red Seal	5	
Blue Seal	21	
APEGGA prep	5	
Electrical engineering	2	
Mechanical engineering	2	
Chemical engineering	1	
Engineering technologist	1	
Welding	1	
Scaffolding	1	
Heat, frost and insulation	1	
Autocad	1	
Pipe drafting	1	
Pipefitting	4	
Heavy equipment operation	2	
Mechanics	1	
Pre-apprenticeship (electrical)	1	
Electrical apprenticeship	3	
Sheet metal apprenticeship	1	
Power engineering	1	
Waste and water treatment	1	
<b>Total</b>	<b>63</b>	<b>34.1</b>

**Appendix 1. (Continued).**

<b>Business, Finance and Management</b>	<b>#</b>	<b>%</b>
Law/Legal studies	4	
<b>Total</b>	<b>4</b>	<b>2.2</b>
ESL		
ESL training	6	
TESOL	1	
ESL for Red Seal	2	
<b>Total</b>	<b>9</b>	<b>4.9</b>
Languages		
Spanish	4	
French	2	
Italian	1	
<b>Total</b>	<b>7</b>	<b>3.8</b>
Arts and Humanities		
Interior design	1	
Graphic design	1	
History	1	
<b>Total</b>	<b>3</b>	<b>1.6</b>
Computer		
Microsoft Office programs	7	
Computer science	3	
<b>Total</b>	<b>10</b>	<b>5.4</b>
Healthcare		
Nursing	1	
First aid	1	
<b>Total</b>	<b>2</b>	<b>1.1</b>
Social and Education		
Teacher's aide	1	
Train the trainer	1	
Social work	3	
Sociology	1	
<b>Total</b>	<b>6</b>	<b>3.2</b>
PLAR	2	
<b>Total</b>	<b>2</b>	<b>1.1</b>
Upgrading		
High school achievement	4	
Maths grade 12	1	
Physics grade 12	1	
<b>Total</b>	<b>6</b>	<b>3.2</b>

**Appendix 1.** (Continued).

<b>Business, Finance and Management</b>	<b>#</b>	<b>%</b>
Personal interests for Speaker Series		
Flying lessons	1	
Retirement seminar	1	
Martial arts	1	
Nutrition seminar	1	
Stockbrokering	1	
Woodworking	1	
<b>Total</b>	<b>6</b>	<b>3.2</b>
<b>Total Learning Interest Inquiries</b>	<b>185</b>	

**Appendix 2. Results of follow-up of**

The following summarises enquiries received and responded to by LCP project or research staff. Only inquiries that resulted in resolution are shown (those that resulted in information received and acknowledged by the potential student, or produced a decision by the worker to register, either immediately or within a specific time frame). Questions asked face-to-face unless indicated otherwise.

Date	Enquiry	Resolution
25 Sept 2007	Email: Currently cost estimator. Wants to complete undergraduate degree in Mechanical Engineering; can this be done online from Athabasca University, or, if not, advice?	(17 Dec) His questions were answered and he is thinking about enrolling in a course, but hasn't done so yet.
25 Sept 2007	Wants to enrol in Human Resources and Labour Relations. Cannot attend Sept 26 session – when is the next session?	(19 Dec) Has registered in Admin 233 (AU course).
25 Sept 2007	Wants to know if AU offers PMAC [Purchasing Management Association of Canada] program or courses.	(17 Dec) She received good information; did not indicate how or whether she intends to act on the information. Asked to be contacted again in future.
26 Sept 2007	What are options for an accounting program? How long is the course? Fees? Are courses from previous degree in Business Administration, taken outside Canada, transferable?	(17 Dec) She received information requested, and is likely to enrol in a course, but is still concerned about finding the time to take a course.
26 Sept 2007	(Enquiry on behalf of his wife) Administration Assistant, or Accounting Certificate? Who offers ESL part-time in Ft. McMurray?	(17 Dec) Received information needed from Keyano College; wife intends to enrol in the Spring.
26 Sept 2007	Interior Design?	(7 Dec) Responded that all questions had been well answered.
26 Sept 2007	Microsoft Office Suite?	(17 Dec) Had not received information; researcher re-sent information about CMIS 245 and link to page describing course. Sent him link to Keyano College's Safety Certificate program, and to BCIT (offers program by distance).
26 Sept 2007	Safety Certification?	(17 Dec) Replied to follow-up that question had been fully answered, and thinking about enrolling in a course. Another question: Can credits from City University (Washington) be transferred to AU? AU Advising replied that University currently accepts transfer credit, at the undergraduate level, from City University. If transfer is to AU Executive MBA program, must contact CIM.
28 Sept 2007	Can't make AU MBA Feb. 15 intake – when is next enrolment? Can he take an extra MBA course or follow through with additional courses?	(18 Dec) Replied that questions have been satisfactorily answered.
19 Oct 2007	Email: Emergency Management courses?	

**Appendix 2. (Continued).**

Date	Enquiry	Resolution
1 Nov 2007	E-mail: Introductory Spanish starting in January 2008? (Considering Span 200.)	(18 Dec) Replied his question had been satisfactorily addressed. Indicated that he is not yet sure whether he will register.
27 Nov 2007	Email: How to register in AU basic English courses ENGL 155, ENGL 189, ENGL 255?	(7 Dec) Responded that all questions had been well answered, no more questions at this time.
17 Jan 2008	Email: How to enrol at Athabasca University?	(27 Feb) Further telephone discussion revealed worker wanted to prepare to become a lawyer. AU advising replied (28 Feb) that AU does not offer a law degree; suggested (1) contact schools that do offer a law degree, (2) enquire about admission requirements, (3) consider AU to complete law school admission requirements.
5 Feb 2008	Email: Chemical engineering?	(4 Mar) Replied that questions were completely answered, and definitely plans to enrol, or has enrolled, in a course. (Researcher requested details about course enrolment or plans to enrol.)
13 Feb 2008	Email: Wants Legal Studies 331; need to submit transcript? Course start dates?	(4 Mar) Replied all questions answered, and thinking about enrolling in a course or program, but hasn't done so yet.
15 Feb 2008	Telephone: Blue Seal?	(4 Mar) Replied questions fully answered; while not planning to enrol in Blue Seal now, service he received was 'second to none'.
26 Feb 2008	Email: Opportunities for engineers for Master's in Business or Project Management? Recent graduate, Mining Engineering, Dalhousie University; interested in continuing online studies while working, rather than staying at school and being unemployed for years.	(4 Mar) Replied all questions answered, not yet sure what he will do.
27 Feb 2008	Email and telephone: On behalf of friend: How to meet Canadian requirements for nursing? (Friend is an RN in the Philippines, working as a Family Care-giver in Fort McMurray).	(4 Mar) Replied that his questions were completely answered. Not sure of friend's plans, but commented, 'I appreciate much about your prompt response. Your answers have provide us with valuable information. Keep up the good work.'
20 Feb 2008	Enquired about distance learning opportunities to obtain a certificate in accounting or law.	(5 Mar) Responded (5 Mar) asking 3 more questions regarding fees, textbooks, and the transferability of credits from McGill.
25 Oct 2007	Email: Microsoft Office courses? Maths upgrading (to finish 3rd class steam ticket)?	(7 Dec) Replied information received. Also wanted information about courses related to gas plant operations. AU does not offer these courses, but researcher provided him with link to Northern Lakes College, which offers such courses via distance education.

**Appendix 3. Map of Canada, showing location of Alberta's oil sands (Wood Buffalo Region)**

Source: Natural Resources Canada ([http://atlas.nrcan.gc.ca/site/english/aboutus/important\\_notices.html](http://atlas.nrcan.gc.ca/site/english/aboutus/important_notices.html)). Used with permission.

