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What Works in Forest Worker Training Programs?

by

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What works in forest-worker training programs?
Examining effectiveness in curriculum development and delivery[*]

Introduction

The forestry industry is one of the major industrial sectors in British Columbia and makes a significant contribution to the economic base and community structure of the province. Despite this, the industry does not appear to possess a well-developed system or culture of continuous learning and upgrading of its workers' skills and knowledge. This study examined specific instances of forestry-related workplace education programs – specifically those identified as being somehow successful or noteworthy – in order to develop an understanding of the specific conditions within which workplace education for forest workers takes place, and the factors which contribute to program effectiveness. The study found several factors characterised effective workplace educational programs: pedagogical orientation, technology, and relevancy. It also suggested that two further contextual considerations – the necessity of adequate and sustained funding and active support by advisory committees – are particularly important to a program's success.

Rationale

The project sought to investigate the spectrum of forest worker training programs throughout British Columbia and identify those regarded as exemplars of effective practice. It examined three of these exemplars in depth and highlighted their unique characteristics and achievements. The analysis shed light on the factors involved, specifically at ground level, in implementing workplace education initiatives within the complex and uncertain landscape of British Columbia's forestry industry. The insights drawn from everyday experiences at each of the programs provided a basis for examining some of the issues and challenges involved in providing effective workplace education within a specific industry. Further, the project identified some of the key characteristics of effectiveness in program development and delivery.

Project history

The project began on September 1, 1997 and consisted of two main phases. Phase I (September 1, 1997 - August 31, 1998) was a telephone survey of each the locals of B.C.'s three forestry unions – Communication, Energy, and Paperworkers of Canada (CEP), Pulp and Paper Workers of Canada (PPWC), and the International Woodworkers of American (IWA-Canada). This survey and subsequent conversations with union officials and members at many locals identified a number of workplace education programs offering a broad range of workplace education approaches and administrative arrangements. Phase II of the project (April 1998 - November 1999) involved in-depth case studies of three forest worker training programs, chosen on the basis of locality, type of program offered, and administrative structure. The three sites – the Forest Training

Centre in Smithers, the TDI Learning Centre in Mackenzie, and the Value Added Skills Centre in Abbotsford – became the central focus of the report.

Status of knowledge and existing literature

The forestry industry is one of the major industrial sectors in British Columbia and makes a significant contribution to the economic base and community structure of the province. Despite this, the industry does not appear to possess a well-developed system or culture of continuous learning and upgrading of its workers' skills and knowledge (Price Waterhouse, 1994). It is not clear exactly how forest workers receive training to improve their basic educational skills or fulfill more general educational needs. In addition, apart from the purely anecdotal, knowledge about the effectiveness of various forest worker training programs prior to this project was limited. Apart from Stewart and Sloan (1996), little published research concerns curriculum development or delivery in forest worker training programs.

Considerable theoretical and practical literature exists regarding workplace learning in general (e.g., Carnevale, Gainer & Meltzer, 1989; Forester, Payne & Ward, 1995; Imel, 1995; Spikes, 1995; Taylor, 1997) and the design and evaluation of curricula for the type of workplace education programs (e.g. Folinsbee & Jurmo, 1994; Jurmo, 1994). This literature suggests that the number of adults engaged in workplace-based education has been steadily increasing. For example, Carnevale and Carnevale (1994) indicate that formal training in the U.S.A. increased by 44 percent between 1983 and 1991. Linked to this increase has been a perceptual shift in the role and function of workplace education and training. Workplace education is now seen by business as key to its strategy of achieving its economic objectives, and it can play a pivotal role in transforming traditional employer/employee relationships and business practices (Spikes, 1995).

These studies also indicate several distinct and emerging trends. First, the literature related to workplace literacy program development continues to expand. Although some publications focus on the entire program development process, specific aspects of workplace program design and development are also described in the literature. For example, two areas that have received recent attention are evaluation (Jurmo, 1993, 1994) and assessment (Askov, 1993; Dyer, 1993). These studies indicate that evaluation and assessment in workplace education programs must acknowledge the interests of different groups of stakeholders and meet the unique needs of learners, unions, management, and literacy providers.

Second, there is a movement toward a more participatory or collaborative approach to workplace education in general. Taylor (1997) in particular examines the possibilities for developing partnerships between business, labour, governments, and educational institutions and reveals a mosaic of current participatory approaches to the conceptualisation, design, conduct, and evaluation of workplace education programs. The importance of involving workers in the design and development of programs is demonstrated by Perin (1994), while Jurmo (1994) and Waugh (1992) discuss collaborative program development approaches involving a multiplicity of stakeholders.

Third, a research base on workplace education is emerging. As the disparity between the actual educational levels of the workforce and those considered necessary for continued employment and well-being continues to widen, the opportunity for publicly-funded research is also growing. For example, the Social Science and Humanities Research Council of Canada has recently partnered with Canada's National Literacy Secretariat to develop a research initiative "Valuing Literacy In Canada" designed to encourage the examination of adult and workplace literacy issues from broad multi-disciplinary perspectives. A flavour of the range such studies can examine can be gained from examples of recently completed research. These have variously investigated such aspects of workplace education as education in a high performance workplace (Hart-Landsberg & Reder, 1993), the relationship between socialisation and retention (Vann & Hinton, 1994), a meta-analysis of military workplace literacy programs (Sticht, 1995), and workplace education in small and medium-sized firms (Hollenbeck 1993).

From a review of these and other studies, Forester, Payne, & Ward (1995) identify two different developments in the field of workplace education and training. On the one hand, there is "enhanced industrial training," using open learning methods, relating training needs to appraisal results, using techniques, such as monitoring and placements, and relying on traditional training courses and the sponsorship of students on publicly-provided traditional adult education courses. On the other hand, an increasing number of employers are emphasising employee rights, employee choice, guidance, and broader-based educational courses. Though employers following the first approach retain maximum management control over training, training conducted by those in the second group are often (though not always) jointly negotiated between union and management and offer employees the right to chose from a broader range of learning options.

Three further crucial points need to be made in the context of this study. First, job-related training has not been part of the general experience of the world of work of many workers, particularly those with low skills. Second, as working methods are changing rapidly in the forest industry, training in new skills (and the educational skills of literacy, numeracy, and information technology that underpin them) is essential for many workers to minimise the risk of redundancy and long term unemployment. Third, to date there has been little research or assessment conducted on the provision of workplace training within the forest sector, and there is consequently little information available to assess whether the critical needs of forest workers are being met within the framework of training provided.

Innovative aspects

Existing approaches to studying specific workplace education programs tend to focus on features of their design or on their supposed efficacy, rather than on what takes place within them. The underlying assumption is that training simply "works", either if all the stages of the program have been extensively planned, or if those who take part indicate their subsequent satisfaction. However, as Baldwin and Ford (1988) show, there is growing concern over how much "transfer" takes place, both during and following training programs. They suggest that future research should incorporate the complex interactions between such factors as program design, trainees, principles of learning, and

work environment, rather than focus exclusively on each independently. Additionally, experience in other sectors (e.g., Newfoundland & Labrador Round Table on the Environment and the Economy, 1995) has shown that training investments do not always achieve the desired results.

In addition, there has been little published research on, or assessments of, the provision of workplace training within the forest sector. As such, there is a dearth of information available to assess whether the needs of forest workers or the forest industry are being met within the existing framework of training provision. Both Yin (1984) and Denzin and Lincoln (1994) have argued that case study research provides detailed and contextually specific data, which can serve as a valuable tool to guide program design and resource allocation. Hence, by employing a case study research methodology, this project addressed a crucial gap in the literature and expanded the knowledge base about the character and achievements of sectoral-based workplace training activities.

Research objectives & expected outcomes

The objective of this project was to examine specific instances of forestry-related workplace education programs – especially those identified as being somehow successful or noteworthy – in order to develop a grounded perspective on the specific conditions within which workplace education for forest workers takes place and the factors that contribute to program effectiveness.

The results contribute significantly to answering FRBC's priorities regarding forest worker training effectiveness by providing an in-depth analysis of the characteristics of effectiveness of exemplary workplace training programs. For all partners and end-users, the project findings can provide an essential framework to support decision-making and program planning for future workplace training activities. End-users will be able to make informed decisions about the kinds of training programs they implement and the curriculum design and delivery approaches most likely to achieve effective results.

Additionally, the project results can assist forest sector unions in their ongoing efforts to support and implement workplace training initiatives for their membership. Correspondingly, forest industry companies can also benefit by having a more detailed picture of which forest worker training programs are characterised as being most effective. In addition, FRBC will gain an important information profile on industry-specific trends and characteristics that might support ongoing program development and implementation. As well, workplace education curriculum developers and training providers will be able to use the results to shape their future programming. Finally, one central aim of collaborative research is to involve participants and stakeholders in various stages of the research process itself. As the case study stage of this project was designed from a collaborative perspective, it provided an opportunity for forest workers involved in workplace training programs to gain additional research skills, knowledge, and experience.

Relationship to FRBC's priorities

The project was directly compatible with the FRBC strategic investment and research priorities. FRBC has invested heavily in the development and implementation of a broad range of training programs for forest workers to upgrade and expand their skills and knowledge. *"What Works in Forest Worker Training Programs?"* offers a perspective on the effectiveness of investment into training programs for forestry workers by providing a detailed analysis of exemplary training programs. This information is vital in ensuring that future training initiatives will meet appropriate workforce needs and are provided in the most efficient, effective and responsible manner possible.

Methods

Site of research activities

The project considered forest worker training programs in all areas of the province. The case study aspect of the project was conducted in three main sites: the Forest Training Centre based at the North West Community College Campus in Smithers, the TDI Learning Centre in Mackenzie, and the Value-Added Skills Centre in Abbotsford.

Research methods

The research was developed as a two-stage process. The first stage involved compiling an inventory of workplace training programs and their chief characteristics: content area, occupational orientation of participants, training providers, training setting, stage of implementation, and criteria for evaluating effectiveness. There were two principal data sources for this stage: first, documents and other information describing training investments made by FRBC, forest sector unions, forest companies, and other stakeholders. Second, a mail-out survey followed by telephone contact with each of the (11) IWA, (13) PPWC, and (44) CEP union locals located in British Columbia to elicit descriptions and evaluations of workplace training programs they have supported or implemented over the past two years. A number of open-ended questions were included in the survey, which aimed at identifying exemplars of effectiveness to be followed as potential case study sites during the second stage of the project. Each telephone interview lasted between ten minutes and one hour. Interviews followed no set protocol although they were guided by the following questions: (a) How are education and training provided at the local level? (b) In general, what kinds of programs are available to members? (c) Do any of these programs stand out as being particularly successful or special?

In the original research plan, the two stages of this project were designed to be distinct, where the stage one survey results would serve as the basis for the second stage. For a number of reasons, this plan was subsequently altered. Instead of reporting the results of the survey separately and in advance of the case studies, the amended plan came to incorporate the survey results into the final project report, prepared when the case studies had been completed. Although the stages of the project were not as distinct as originally

planned, the survey, nevertheless, provided a basis for decisions about which training programs might be further examined as case studies.

The second stage of the project used a qualitative research design. It aimed to make sense of situations without imposing pre-existing expectations, and to permit the exploration of perspectives and understandings of particular individuals and circumstances. This holistic approach is highly context sensitive; rather than seeking to impose external conditions, it takes its direction from the conditions which are most natural to the specific sites. The three dimensions of the second stage consisted of site selection and ongoing refinement of the research plan, case study fieldwork, and data management, analysis, and research dissemination.

Although each of the programs chosen as a case study site was oriented towards providing work-related education for workers in the forest industry, the programs were diverse in terms of their educational orientation, intended participants, delivery methods, costs, and the structure of governance. Case study sites were not chosen on the basis of representativeness; each site had particular and unique characteristics that provided insight on the overall provision of forest worker training.

Using the results from Stage 1, three training programs were identified as case-study sites. The researchers conducted in-depth studies of these programs involving repeated visits to each site. Three main kinds of data collection were employed: open-ended interviews, observation, and written documents. The interviews involved asking open-ended questions, listening to responses, and asking follow-up questions drawn from the responses. The purpose of these open-ended interviews was to gain interviewees' perspectives on a number of aspects of everyday events and activities at the case study site, in a manner that did not feel artificial or unnatural to the individuals involved, who by and large had no prior experience of being interviewed. Questions and answers covered a wide range of issues and concerns, sometimes going off on tangents not directly related to the research project, in the interest of keeping the tone comfortable and natural; the drawback of this style of conversational interview is that it can sometimes require a good deal of time and patience to obtain systematic information. Observational data identified characteristics of the field site as accurately and carefully as possible. Many features of observational data are often overlooked as taken-for-granted parts of the background scenery; however, it is important to pay attention to the background in order to get a better understanding of the context in which everyday activities occur. Also, it is important in case study fieldwork to obtain firsthand experience of a site and to pay attention to such things as first impressions and other ways of experiencing the general look and atmosphere at a site. Finally, most individual interviews were tape recorded and transcribed, and observations were documented in written fieldnotes for later analysis.

Data

In the survey stage of the project, a number points of specific issues were identified. Three topics stood out as being noteworthy: (a) the relationship between management and union in the governance of education and training programs, (b) the wide range and diversity of education and training program available to forest workers, and (c) the significant impact

of regional and historical context on influencing the arrangements for education and training. In addition, conversations with union members at the many locals around the province unearthed a number of workplace education centres offering various kinds of workplace education strategies. Some of these were company specific, some were in partnership with local education providers, and some were focused on specific skills outcomes. The three sites, which were the focus of the case study phase of the project, were chosen in part because they were indicative of such variations.

Observation was an important means of collecting data at each of the three case study sites. At each site, location and physical layout were valuable sources of information about the centre's daily activities and routines. At the Forest Training Centre, the new look of the building and its location adjacent to other buildings on the local college campus gave an indication of the Centre's recent construction and its close relationship with the college. At the TDI Learning Centre, the building's location close to mill operations but separate from other company buildings showed the Learning Centre's affiliation with the company but relative independence from other company activities. The outstanding physical characteristics at the Value-Added Skills Centre were the fully equipped workshop space, and the predominance of wood products in the building's furniture and finishing. Both of these visibly reinforced the Centre's role in training for the wood manufacturing industry. These and many other factors are an indication of the importance of paying attention to the physical environment of the case study site.

Although written documents were not a primary source of research data, they helped to develop a picture of everyday life at each site, and contributed some key insights about values and priorities at each site. For instance, at the TDI Learning Centre, the importance of giving students certificates on completion of some the Centre's courses was a useful clue regarding the emphasis placed on recognising and valuing student achievement. Also the wide availability of regular newsletters and flyers announcing Learning Centre activities was an indication of the importance of maintaining visibility and an open flow of information to workers at the mill and their families. At the Value-Added Skills Centre, having the curriculum course materials structured as "living documents", which were constantly being updated and revised in the Centre's on-site desktop publishing section, was a valuable reflection of the importance of keeping information up-to-date, responsive to student and instructor input, and relevant to the needs of industry.

Data analysis

Once fieldwork had been completed, the next stage of case study research was to review and analyse the data, examining them for patterns and themes and writing an account of the research findings. Typically, however, case study research does not unfold according to discrete linear stages. There was no fixed point at which data collection ends, and no set parameters for what constitutes enough data. A common although necessarily intuitive signpost for concluding fieldwork is saturation, when the researcher frequently gets the sense that "I have heard this before." Similarly, there was no fixed point at which the analysis began. Frequently, in the course of data collection thoughts and ideas about analysis and interpretation had already begun, so that data collection and analysis were interwoven and overlapped rather than taking place successively.

The primary activities involved in making sense of the data were reviewing and organising the whole body of data according to meaningful categories which, as stated above, are influenced by the initial interests prompting the research. The mechanics of data review and organisation were approached in a number of different ways, and the two researchers came up with their own distinctive schemes. However, the basic steps were straightforward. Reviewing the data involved successive re-readings of the fieldnotes, interview transcripts and written documents. This was necessary in order for the researchers to refresh their memories about the contents of the data, to detect common themes that may not have been noticed before, and to correct false impressions that may have arisen during the fieldwork process, which may turn out to be unsubstantiated by the data. Organising the data involved making orderly and systematic notation of the different themes that emerged during the review process.

The themes and patterns that emerged during the process of analysis depended upon the framing questions and interests, which prompted the case study in the first place. The volume of data accumulated during fieldwork was extensive and could be read in a number of different ways. Even though fieldwork is not strictly guided by formal hypotheses, there were guiding, open-ended questions which influenced the fieldwork process. These provided the central framework for examining the body of data.

Three Sites

Each of the three case study sites discussed in this report is unique. Partly, their differences are a reflection of the regions where they are located. Partly, too, they are reflections of the particular people, goals, and contexts, which shaped their development. In the following section, each site is introduced in turn, beginning with a general description of centre and its program focus, followed by a discussion of the features of each site which make them particularly distinctive.

Forest Training Centre, Smithers

The Forest Training Centre is located in Smithers, in the heart of BC's Skeena Bulkey District. The forestry industry has been a strong part of the profile of this region, although it has never been the mainstay of its industrial base, which is diversified among agriculture, forestry, and more recently tourism. The case study of this site was carried out between March and July 1998. It consisted of seven visits to the site, observing classes and interviewing staff and students in the program. We also took the opportunity to interview several others closely associated with the program – members of its advisory committee, college personnel, as well as others with experience of, and an interest in, forest worker training.

The Training Centre is based at the North West Community College campus in central Smithers, on the edge of the parking lot across from the main campus building. It opened in January 1998, as a joint initiative supported by North West College, Human Resource Development Canada, Forest Renewal BC, and the BC Ministry of Skills, Training and

Labour. Local forestry employers and the forestry industry in general were interested in developing "foundational skills" courses for their employees and looked to their contacts at the local college to help them develop such a provision. Each sponsoring organisation provided startup funding for construction of a purposely-designed building and support for administrative and teaching staff. Open from 8 a.m. to 9 p.m. most weekdays (to accommodate different work schedules), the Centre also contains a resource library and two classrooms specifically set up for computer instruction, equipped with 24 computers, a scanner and a couple of laser printers.

When it first opened, the courses run by the Centre fell into 3 distinct categories: computer skills training, academic upgrading, and career exploration. Within each category were a structured variety of courses that covered such topics as different word processing and data management computer programs, using the Internet, writing skills, GED preparation, personal development workshops, and group research projects. In general, these courses were free to students. Thanks to initial funding from FRBC, the instructional fees for all forestry workers employed locally are met from the Centre's budget. Non-forestry workers pay a small instructional fee, although this also entitles them to use the Centre at any other time.

During the period of the case study, the Centre employed five staff, all on part-time contracts, although most have a variety of other part-time work either within the college or with local businesses. All the instructors have previous experience in teaching in adult education settings. In addition, many have previous direct forest industry experience, similar to that of their students. Everyone associated with the program stressed that such previous experience was crucial, particularly because it indicated a commitment to "student centred" rather than "subject centred" learning. "What's most important," said one instructor, "is having respect and appreciation for the students. You can know all you want about Math or English, but if you don't have some understanding of where the students are you'll never do anything.... You need to be able to relate what students are learning with their own work experience."

The staff work together as a team, an approach deliberately adopted from the very beginning of the program. For example, it is not uncommon to find one instructor casually "dropping in" to another's course to check on a particular student – an approach that the students appear to welcome. The staff shares a group office and holds weekly staff meetings, timed so that everyone can attend. Apart from ensuring that everyone is aware of developments, this process also allows for more flexibility in program development. Although each instructor is basically responsible for the individual courses they teach, they bring their initial plans to the group for modification and mutual agreement.

Students for the courses come from the immediate area – most identify themselves as forest-workers (although not everybody is currently in work). As might be expected, the majority of students are male, most in their middle to late 30s. Some students also encourage their spouses and other family members to enroll in courses or to use the Centre's resources – an approach encouraged by the staff. As one staff member put it, "if students can see their wives and girlfriends also using the Centre then they are more likely to see its added benefit for themselves."

Courses are offered in a flexible format that seems designed to both accommodate the needs of students and ensure that the Centre is available for use as much as possible during its opening hours. For example, each course is offered at several different days and times each week. This format is designed to accommodate those students who work shifts or who have other commitments not to miss too many sessions. Each of the courses runs in 7-week modules. Designed to fit easily into the normal college semester of 14-15 weeks, the length of each course is also a reflection of the program's concern to meet students' needs. Temporary work in the area is seasonal and hence a 7-week course allows students to better plan their education around their pattern of work in a way that more traditional semester-length college courses could do not.

The courses on offer are, in general, similar to those available at other college and adult education centres throughout the province. The "academic" courses are designed to accommodate a range of learning abilities, yet all strive to help students prepare for, and take, their GED or equivalent high school completion examinations. What distinguishes the program from many of its counterparts, however, are the other two areas of the course curriculum: computer skills and personal development. These will be discussed in more detail in the section below.

What's unique about the Forest Training Centre

One thing that marks this program as unique is its location on a community college campus, while at the same time maintaining a distinct status as an entity not entirely folded under the college's wing. Although ultimately answerable to the college, the college's name does not appear as a part of the Centre's official name over the front door. The college logo appears along with the logos of other supporting agencies on a plaque beside the door.

A related aspect of the Centre's uniqueness is that it operates with an advisory committee comprised of representatives from local government, local forestry industry companies and unions, college management and the program staff. The Director credits much of the early success of the program to the work of this committee. "They were so influential in setting the whole thing up. . . they really felt it was going to make long-range improvements to their workforce." It is clear that many of the committee members have a deep commitment to the type of education that the program provides, often volunteering their own time to ensuring the program started well. Several have themselves taken courses in the program and often act as recruiters for the program amongst their own colleagues as well as their employees.

Another defining feature of the program is the deliberate use of computers in nearly all of the courses. Several courses concentrate specifically on explaining the function of and purpose of various commonly-used computer programs. In addition, most of the other courses also rely upon the computer at some stage, partly as a way of reinforcing key literacy, computer, and research skills, but also in the deliberate attempt to make the program more attractive to both existing and prospective students. "Computers are the key," said one instructor. "Students really appreciate learning about what, for them, is a

new technology [and] one that they identify as necessary for work in the future." "We've also found that it gets [students] in the door." said another. "They've heard that we've got some machines here that they can maybe use for their own stuff. So they come in and then stay to see what else we do." The computers are certainly readily accessible; students are allowed to come into the Centre at any time and use them for any course-related work. For many staff, this facility provides evidence of the Centre's role as a valuable community resource. "If we didn't have the computers we wouldn't be half so successful at attracting people in to the college. I mean, that's what we're here for isn't it?"

The focus on personal development courses is also a novel approach, particularly in an area where such ideas have yet to gain much purchase. As one instructor put it:

> "People in Smithers have been reluctant to accept that the forest industry is downsising. They've been used to good times and a fairly affluent lifestyle and are resistant to change. So, we needed to work with them to acknowledge what change was, how it affected them, and why they were having such a difficult time with it. That way, they can be ready to deal with it."

For the staff, the focus on personal development means less a concentration on individual personality attributes but more building a support team of people who can help each other with learning and the changing circumstances in a way that they are often used to at work. For students, this is crucial. As one put it, "Although we come here to take courses, our learning really doesn't stop when we go out the door . . . I'm able to get in touch with all of these guys if I have a problem . . . whatever time of day it is." The teaching staff is also heavily invested personally in this guidance capacity and sees their role less as "instructors" and more as "mentors" or "coaches".

A good initiative cut short

Even in its infancy, the Forest Training Centre provided evidence of a remarkably effective educational approach to forest worker training. The close links with industry and the organisational stability and technical infrastructure provided by the College was thought to ensure that the initial problems often experienced by new educational centres would be minimised. For staff, advisory committee and students alike, the program was thought to serve a vital educational function for forestry-workers in the Smithers area. However, due to a shortfall in the program's anticipated funding, it did not restart in September 1998 as expected. Staff have either been allocated to other work at the college or not re-engaged.

TDI Learning Centre, Mackenzie

The TDI Learning Centre is located in Mackenzie, B.C., in the Omineca-Peace region of the province. Mackenzie is a small community with very strong connections with the forestry industry. The townsite was founded in the mid-60s as a part of a boom in northern development associated with the completion of the Bennett Dam. Mackenzie has three large sawmills, and the economy is dependent on the primary sector of the forestry industry. The case study of this site was carried out between September and November of

1998. It consisted of four week-long visits to the site. A survey was distributed and observations, informal interviews, lunch-time focus groups, and classroom participation were done at the Learning Centre and several worksite lunchrooms. We also talked with members of the Learning Centre advisory committee, and others in the community with an interest in the Learning Centre and other aspects of workplace education for workers in the forestry industry.

Unlike the Forest Training Centre in Smithers, which is affiliated with the community college, the TDI Learning Centre is affiliated with an individual sawmill company, Slocan Forest Products, one of BC's largest forestry concerns. The Learning Centre was established to provide education and training opportunities for mill employees and their spouses. It is housed in a small building at the edge of the parking lot, which was built especially as a designated educational facility for the company. It contains a classroom, a tutorial room, and a computer lab with 12 computers set up for computer instruction. It is open from 8 a.m. until 8 p.m. most weekdays, and a key is available at Slocan's Protection office for anybody wishing to access the Learning Centre after hours.

The TDI Learning Centre was created out of a 1994 collective agreement between the company management (currently Slocan but at the time Fletcher Challenge and then TimberWest) and the union (PPWC Local 18). The agreement stipulated that the company would establish the Training and Development Initiative to "provide employees with a structured system to upgrade their education and skills" (Fletcher Challenge Canada and PPWC Local 18, 1994, p. 106) by building an on-site learning centre. The TDI Learning Centre was opened in December 1996, in response to this decision.

Programs at the Learning Centre fall into four categories, covering a number of foundational and general skills: GED upgrading, computer instruction, reading improvement, and professional tickets and workshops. These courses are free to both hourly and salaried employees, and (except the reading improvement program) are also available to spouses if space is available. Participation takes place during the student's own off-work time. Program scheduling is flexible to accommodate variations in shift schedule. In addition to these programs, the Learning Centre also offers hourly and salaried employees tuition support for off-site programs, one-on-one tutoring, and educational and career counseling.

The Learning Centre employs one full-time Director, a part-time instructor for the computer lab, and three part-time tutors for the reading improvement program. The Director has a teaching certificate, a graduate degree in psychology and community studies, and several years of previous experience in the field of adult education. Her role includes program planning and development, ongoing liaison with the Advisory Committee, and classroom teaching and one-on-one tutoring for the GED program. The part-time staff members come from different backgrounds, with varying degrees of prior teaching experience, but all are dedicated to working with adult learners. One of the reading tutors is a recent graduate of the Learning Centre's GED program herself, and two of the staff members are spouses of mill workers. This contributes to a sense that the Learning Centre is friendly territory, where the atmosphere is relaxed, welcoming, and, as one participant commented, "easy to come to because it's not like school."

Students for the Learning Centre's courses include salaried and hourly employees from different sectors of the mill operation. Most of the participants are men, and are from the hourly (union) sector of the workforce. The core programs (GED, Read Right, and many of the computer courses) are particularly geared to the needs of workers, who did not complete high school in the past and have been away from formal education for some time. About one quarter of the participants in these programs are spouses, who are mostly women. For the GED and computer programs, face-to-face classroom participation is a key element. Though the computer classes are usually short-term events involving one or two sessions, the GED classes extend over a 12 week period, and involve once-a-week 1.5 hour sessions. However, in both cases, the classroom environment is an important feature in providing a supportive group environment. As one GED graduate commented:

> "It's good because you have somebody to work with and you know you're not the only one struggling through this. There's other people right at the same level, going through the same stuff as you are and it makes you feel a lot more comfortable that way…. If you're in a class and you're going 'am I the only person in the world that's having to go through this?' you can see that there's lots of other people struggling as much as you are or catching on as fast as you are and you feel much more comfortable."

The tuition fund and on-site workshops draw a more diversified representation of the workforce. The tuition fund has supported a range of outside courses, including such topics as Math 12, Calculus 12, technical communication, hydrology, transportation of dangerous goods, and accounting. The possibilities are determined by what people want to do, how much it costs, and whether the area of interest falls within the funding guidelines. Some of these programs have involved independent study, and some have involved participation in an off-site course. The Learning Centre Director and Advisory Committee, who have some discretion about what areas of study fall within the guidelines, review tuition fund applications.

There are two sources of money in the tuition fund. The first, available to hourly employees only, is the TDI fund. This amounts to $500 per person per year to support programs geared to either occupational or academic improvement. The second, available to both hourly and salaried employees, is the Joint Union Management Program (JUMP) fund which amounts to $800 per person per year, and supports programs geared to occupational development specifically relevant to the forest industry.

The on-site workshops offer a variety of topics, including first aid, balancing your investment portfolio, career assessment, introductory Spanish, report writing, planning for retirement, coaching/helping on-the-job trainees. The Employee and Family Assistance Program (EFAP) put on other workshops offered at the Learning Centre. These courses are in areas such as stress management, dealing with substance abuse, understanding anger, and being solution focused. Although the EFAP has a part-time coordinator who is independent of the Learning Centre, many of its programs use the Learning Centre as a convenient and accessible facility.

There are many features of the TDI Learning Centre that make it a unique and distinctive workplace education initiative. One of its unique is its on-site location. In contrast to the Forest Training Centre in Smithers, which is located at the local North West Community College campus, the Learning Centre is located in a designated building at the mill site. That means that for many participants, their identity as a worker isn't separated from their identity as a learner, which can sometimes be a source of comfort and safety. As one past participant put it, "I could come here like this and learn with my work clothes on. You walk in here and you always see work buddies. It's a place that you know." Others talked about being intimidated by the idea of attending classes in a college setting, referring to the local campus of the College of New Caledonia. As one student commented:

> "It's more comfortable here than at the College. I don't know what it is about the College, I really don't. My perception would be that it is formal, more like school. See, I was always put off with school; I hated school as a kid. I hated any kind of schooling. It was like jail. But here [at TDI] it's different--you don't dread coming to class."

Another stated, "I would not have gone to the College to take my GED. If that was the only choice, I would have gone the rest of my life with a Grade 10 education."

Similar to the Forest Training Centre, another aspect of the Learning Centre's uniqueness is the involvement of an Advisory Committee in the planning and decision-making. Whereas the Forest Training Centre's Advisory Committee is made up of local government, forestry industry, union, educational, and community representatives, the TDI Learning Centre's Advisory Committee involves joint representation from the company and the union (PPWC). The TDI Committee, as it is called, was created by the 1994 collective agreement and therefore pre-dates the Learning Centre itself. One of the most important features of the Learning Centre is that, through the Committee, both union and management have an equal say in its programs and operations. This has contributed to a changed labour relations environment. According to one Committee member, "there's not so much head butting now and there's more willingness from both sides to listen and report."

In contrast with the Forest Training Centre, which places an emphasis on using computers in all of its courses, the role of computers at the TDI Learning Centre is more limited and specialised. As at the Smithers centre, computers are still seen to be an important drawing card, and the computer lab and computer courses are very popular. However, computers are intentionally *not* used in the GED and reading programs. According to the Director:

> "For GED, those computer programs just don't seem to be worth it to me. The classroom offers a kind of structure and social interaction that I think is far more important to creating a learning environment where people keep coming back. They get the group support, they get to ask questions, and there's the incentive of having to show up. I don't know what a computer

program would be able to offer that's any better. With computer programs, you'd still need to have classes or some kind of face-to-face involvement anyway, so why bother with the programs?"

Similarly, there is no role for computers in the reading program, which is based on one-on-one interaction between student and tutor, with an emphasis on reading aloud. A number of students choose to go on to take computer courses once their reading ability and confidence improve, but there is no necessary tie-in between computers and the reading program itself.

Another distinctive feature of the TDI Learning Centre is its focus on the development of learning readiness over job-specific work-related training. Members of the Committee talked about placing emphasis on *"learning how to learn"* and *"getting back to a learning mode"* as an essential top priority. "When we first started out as a committee one of the first things we agreed was that we were going to focus on the learning aspect initially....At first people had to feel comfortable with going back to school." The benefits of the Learning Centre include outcomes that are both good for individuals and good for the company. Individual benefits are increased self-confidence and motivation, overcoming fear and a negative self-image, opening up new life possibilities, and improved knowledge and confidence in many basic skills areas such as reading, writing, mathematics, communication, and reasoning. The benefits for the company are greater worker involvement, improved morale, and a less conflictual labour relations climate. To date, there has been no particular interest on the part of management (or the union) to measure the Learning Centre's return on investment. As one member of senior management stated:

> "We've never done any cold analysis of how people can read faster or understand their job descriptions better. I don't know, we've never tried. We just said it's got to be good because it's successful and the attendance is kept up and the courses are varied and people keep saying good things. That's been good enough."

A time of transition

At the time of the case study, the TDI Learning Centre had been in operation for almost two years. It was well-known and considered a success throughout the company. Virtually everybody knew about it, and had positive things to say. Some people talked about it as "the best thing that's happened around here" or "the best thing they've ever done." One person called it "a great program and opportunity for all employees." Another person said, "...the program has been very, very successful. The Learning Centre has surpassed expectations and done phenomenally." This person went on to say about the Learning Centre programs that "this is life changing stuff for people, it really is. It can really change people around and in that respect the Learning Centre has done a really good thing." It wasn't only people who had participated in Learning Centre programs who had positive things to say. A typical comment among non-participants was "I haven't made it over there yet, but I've been thinking about it. And those guys that have been there, they seem to get a lot from it. Seems like it's been doing a pretty good job to me."

Despite these consistently favourable comments about the Learning Centre's accomplishments to date, there was some uncertainty about its direction in the future. The original mandate spelled out in the 1994 collective agreement listed four program areas: basic education, general skills, industry skills, and maintenance. By design, the Learning Centre had focused its attention on the first two only. The goal, although it was never spelled out in detail how and when this would happen, was that there would be an eventual shift to more industry and work-related skills once the basic and general skills of the workforce were brought up to speed. With the ongoing depletion of the original fund, and the period of the collective agreement coming to an end within the upcoming year, the Learning Centre was entering a time of transition.

The next step ahead for the Learning Centre revolves around reviewing its central goals, objectives and program emphases with an eye to increased attention to industry and job-related training. However, there are a number of cautions and considerations to keep in mind. In particular, one of the factors of the Learning Centre's success has been its ability to establish an atmosphere where people come out of choice rather than because they have to or because it is required of them. Any changes the Learning Centre undertakes will have to be approached in a way that continues to put individual learners' interests centrally into the picture.

The Value-Added Skills Centre, Abbotsford

The Value-Added Skills Centre is located in Abbotsford, in an industrial area in the heart of the Fraser Valley. The case study of this site was carried out over a three week period during April, 1999. It consisted of 8 visits to the site, observing and participating in classes, conducting interviews, and conversing with staff and students in the program. We also spoke with members of the BC Wood Education and Training Committee and others with an interest in the value-added sector of the forest industry.

The traditional forest industry in British Columbia has emphasised logging, pulp and paper, and sawmilling operations, often on a large scale, as at the Slocan Forest Products site in Mackenzie, where the TDI Learning Centre is located. The value-added sector of the industry involves the manufacturer of more specialised wood products. It hasn't had much of a presence in B.C. in the past, but many analysts see it as the hope for the industry in the future, now that there are more restrictions on the timber supply and the traditional market base is shifting. Most of the value-added companies in the province are small, entrepreneurial, and concentrated in the Pacific, Thompson-Okanagan and Kootenay-Boundary regions.

The Value-Added Skills Centre opened its doors in October 1996 as part of a broader movement to restructure the forestry industry and develop the presence and skill base of the value-added sector. The Skills Centre offers an array of training opportunities for people wanting to upgrade their skills in various aspects of wood machining. From the beginning, in the words of the Centre's Manager, it was "conceived by industry, for industry" under the auspices of the B.C. Wood Specialties Group, with the financial backing of Forest Renewal B.C. Thus, the profile of the Skills Centre is quite different from the other two Centres discussed in this report. Unlike the Forest Training Program

and the TDI Learning Centre, which place considerable emphasis on personal development as a foundation for enhanced employment opportunities, The Value-Added Skills Centre is much more targeted towards providing workers with a specialised skill set to support industry and economic growth.

The Skills Centre is housed in a neighbourhood of light industry, in a building that looks like an old warehouse. In addition to offices and classrooms, the Centre has a large workshop facility with equipment available by donation or on permanent loan from supplying companies to support hands-on activities, which are a large component of the training.

The Skills Centre offers courses that have been identified by employers as those most urgently required. Training concentrates on processes between the dry-kiln stage and the final finishing. The curriculum for each course is a "living document" prepared by the instructor but constantly being revised and updated for each course in response to ongoing review by the instructors, feedback from students, and changes in the industry. Classes are delivered in 5 training modules: Basic Wood Manufacturing Skills, Gluing Technology, Profiling Technology, Sawing Technology, and Surfacing Technology. Each module consists of from two to five individual week-long courses, with a total of 19 courses in all. The *Master Wood Machinist Certificate* is awarded upon successful completion of all five modules, though completion of any two earns the *Wood Machinist Certificate*.

According to the Manager, who had a hand in developing the instructional philosophy, The Skills Centre has an adult student focus and is "geared for the adult learner to relax and get on with the job of learning." Classes run from 8 a.m. to 4 p.m. to model a typical working day. Each curriculum follows a competency-based format. The course content is divided into a series of learning tasks, with an accompanying self-test for each task. Students complete a written exam at the end of each course and must achieve a total mark of 80 percent to pass. Most classes involve an average of 20 percent of the time in the classroom and 80 percent hands-on training in the workshop. Class size is restricted to less than 10, to ensure maximum interaction with the instructor and appropriate access to equipment during the hands-on portion of the course.

In addition to the full-time Manager, there are four additional administrative/support staff members, four full-time instructors, and five contract instructors. The instructors are experts in their respective fields. Some have completed or are currently enrolled in the Provincial Instructor Diploma Program to continue to develop their instructional skills. According to the 1998 Activities Report, "the Centre purchases nine months of the instructor's time; for the remaining three months the Centre promotes the instructors in consulting with industry. This allows the instructors to maintain their relevance to industry and to promote the Centre around the province. The instructors also have a key role in the development of the curriculum" (VASC, p. 4).

Students at the Skills Centre come from around the province. In 1998 there were 279 individual students registered at the Centre, which brings the total to 762 registered students since the Centre opened. The Pacific region provides the highest number of students, followed by the Kootenay-Boundary and Thompson-Okanagan regions. Most of

the students are sponsored by their employers to take the courses, and the employers cover all tuition costs. The Centre has a student access fund that covers the travel and accommodation costs for those who have to come from outside the Lower Mainland. Most of the students are men, ranging in ages from their early 20s to late 50s. Students particularly appreciate the hands-on format of the modules. According to one student: "It's really practical, you can see what you're learning right away. You need to get the theory, but you have to be able to get out there and do it to really learn it". Another commented, "this place is great, the courses are really designed for people to learn by doing and bring it to the workplace right away. I already know some ways I can tell [the employer] how to do things better, when I get back."

What's unique about the Value-Added Skills Centre

Like the other two sites we examined in this study, the Value-Added Skills Centre has a number of features that make it unique and distinctive. Some of these it shares with the other Centres and some are particular to it. One feature it has in common with the other two Centres is the key role of an advisory committee in contributing to the program's goals and activities. The advisory committee in the case of the Skills Centre is the B.C. Wood Training and Education Committee, consisting of members from a number of the different value-added companies in the province. According to one of the staff members:

> "It has been really essential to keep in touch with industry and to have their
> input about what's going on out there, and what they need to see from us.
> It's not like the old arrangement with the colleges that there was hardly any
> contact with industry, but here industry is right on top of things. They can
> see the direction we need to be going and can give us some guidelines
> about what's worthwhile to do, and what might just be a waste of time.
> The industry has to be responsive to markets, and we have to be responsive
> to industry. It makes all the difference."

Another characteristic that the Skills Centre has in common with the other two Centres is the emphasis placed on creating an environment that is welcoming to adult learners. As at the Forest Training Centre and the TDI Learning Centre, the general assumption about the students at the Skills Centre is that they are adults who may have been away from formal learning for some time and may have had negative experiences in formal learning environments. Unlike the other two Centres, the Skills Centre does not offer personal development or foundational skills programs, it acknowledges the students' earlier life experience in different ways. First, staff members take care to create a friendly, relaxed and comfortable environment. As one staff member commented:

> "We want the students to feel like this is their home away from home. It's a small
> enough place that we can remember people's names, and we like to help out
> making them feel welcome and comfortable because for some of them, they might
> be a bit anxious about going back to school or being in the city, especially if
> they're from one of the smaller towns."

Second, the instructors are often willing to adjust the program material to make it more accessible to students who they think might be having a bit of trouble. In the words of one instructor:

> "With some of the guys, you can tell that they're not used to doing much reading, and it's a bit harder for them to keep up. They might not say so, but you can see it in the kinds of questions they ask you and so on. But the important thing around here is that they know the stuff and can do it. It doesn't matter how they learn it. So I might spend more time with someone, getting them to tell me the answers or show me, instead of having to write it down. That's the main thing that matters: Can they show me how?"

One feature of the Skills Centre which makes it stand out is the emphasis on wood products in the physical environment. All the classrooms have wooden tables and chairs, some of them especially designed and built to be at a height where students can alternate between sitting and standing. As the Manager put it, "some of these guys will be used to standing at a machine, so they're not used to sitting down at a table. And also it keeps them closer to the height of the instructor, so it's not like they feel like they're kids again, sitting down in the school desk while the instructor stands up." The emphasis on wood contributes to the comfortable atmosphere at the Skills Centre, and it also contributes to the learning environment. Said one instructor, "the wooden tables often come in really handy if you want to demonstrate a particular aspect of the wood or results of different gluing processes. They look good, and they're also a handy teaching tool."

Another feature of the Skills Centre that makes it particularly accessible to students is the student access fund, which contributes to covering the travel and living costs of students having to leave home to take a course. As one staff member commented:

> "I think the student access fund has been a real drawing card. It makes the costs more bearable for the student and for the company, and it sends a message that we're doing our best to take care of the everyday needs people have when they're taking a course. It's not just about teaching them the skills, it's about looking after those other things too. People have to be in a place where they're not worried about that, so they can pay attention to the learning."

One final attribute of the Skills Centre, which differs from the other two Centres, is that the course modules are not just offered on-site. Sometimes the modules are offered in different areas of the province. In some cases the instructor may make a special arrangement with a company to give a course for employees about how to operate a particular machine. Sometimes the modules are offered to employees of a number of different companies in the region.

Whither the flagship?

Since it opened in 1996, the Value-Added Skills Centre has had a high profile in the forest industry. It has been something of a flagship in FRBCs efforts to restructure the forestry

industry towards increasing the value-added sector. It has by far exceeded the anticipated volume of student enrolment and has frequently played host to groups of industry and government representatives interested in seeing the Centre in action. However, like the TDI Learning Centre, the Skills Centre is facing a time of transition. As with TDI, the period of initial funding is coming to a close and the ongoing operating costs are substantial. The Skills Centre is having to experiment with other ways of financing its activities. One recent change is the students and/or companies are now expected to pay tuition for the courses, where these were originally provided without any tuition costs attached, which was attractive to independent and company-sponsored students alike. Charging a tuition fee has resulted in an initial decline in enrolments, although these are gradually increasing now that people have started to get used to the idea. Another idea that has been suggested is that the workshop space be rented out for use by local value-added businesses. The machinery is large, expensive, and is often not in use. A joint use arrangement would optimise the value of having the machinery available. However, the logistics of this sort of arrangement are complicated and would have to be done in a manner that would not compromise safety or interfere with the educational orientation of the Centre.

Discussion

Objectives achieved

The objectives achieved and the deliverables produced in "*What Works in Forest Worker Training Programs?"* are numerous. By employing a multiphase, qualitative, and participatory research approach, the project achieved its main objective, namely to examine specific instances of forestry-related workplace education programs – especially those identified as being somehow successful or noteworthy – in order to develop a grounded perspective on the specific conditions within which workplace education for forest workers takes place, and the factors which contribute to program effectiveness. By closely examining three exemplary training sites in different areas of the province, this project has identified the significant factors that contribute to program effectiveness. Further, it has provided a research model that can be used by unions, corporations, government, or curriculum developers interested in further exploration in this area.

Advancing knowledge

Because little published research on the practices of forest worker training existed, this project should be considered as a significant step forward in understanding the exigencies of forest worker training. This project addresses a crucial gap in the literature and contributes to an expanded knowledge base about the character and achievements of sectoral-based workplace training activities.

Conclusions

Given the nature of the research, it is more useful to think in terms of "themes generated", which can be employed profitably by all parties involved in forest worker training. The qualitative nature of this research endeavour does not suggest a series of concrete recommendations, which can implemented in linear input/output fashion. Rather, what has been achieved is a model, actually a series of models, which can be used as exemplars to help guide further research and new program implementation. The themes generated spring directly from the experience of the researchers and the participants in a holistic and organic way. In the end, this will provide a wide variety of stakeholders in the many processes of worker training program development, implementation, participation, and quality control to work from living, breathing models. With this in mind, the following are the major themes generated: *Curriculum Development*, *Delivery*, *Supporting Context*, *and Learning, Skills and Training*.

Curriculum development

Curriculum development is a general term that covers a number of aspects of educational practice. In the broadest sense, curriculum development refers to course content, planning, and pedagogical orientation. These were implemented at the three sites in a variety of ways, although some consistent commonalties balanced the differences. In terms of course content, both the Forest Training Centre in Smithers and the TDI Learning Centre in Mackenzie were the most alike, in their common dedication to addressing core foundational learning needs. Both had computer labs, which were available on a drop-in basis, and offered a variety of computer courses and levels. Both offered upgrading in the form of GED preparation courses, and both were seriously attentive to considerations of personal and career development. The TDI Learning Centre had a broader mandate than the Forest Training Centre to provide a wider range of job-related workshops in such areas as First Aid and Job Coaching Skills, but at both locations, instructors often spoke of the primary outcome of learning more in terms of self-esteem and confidence than skills mastery or work performance. The Value-Added Skills Centre in Abbotsford was different in this respect. As the name implies, this site had a much more specifically targeted focus, and the curriculum was carefully designed to achieve a detailed set of technical competencies. Matters of esteem and confidence were taken into account as important factors in the students' openness to learning, but more than at the other two sites they were viewed as a means to an end rather than as an end in itself.

This same pattern of contrast was also reflected in the approach to curriculum planning evident at the different sites. Curriculum planning at the Value-Added Skills Centre began with the development of a skills profile using a DACUM chart, which was then translated into a number of course modules (Value Added Skills Centre, 1997). Each course had a bound curriculum manual organised by competencies and learning tasks, which was continuously updated in response to student and industry feedback. At the Forest Training Centre and TDI Learning Centre, curriculum planning followed a less formal process. Courses were offered in response to anticipated student need or interest, and there was less need for such focused attention to specific content areas. Curriculum planning at the Abbotsford site could be characterised as being primarily industry driven, whereas at the

Smithers and Mackenzie sites it was more driven by student interest, or by "whatever gets them in the door." In other words, in Abbotsford curriculum planning was much more directed towards specifically targeted outcomes, whereas in Smithers and Mackenzie it was more directed towards a more global notion of personal growth and development, where the precise identification of outcomes was less of a priority.

In terms of pedagogical orientation all three sites can by characterised by a common concern for student welfare and success. All three sites would probably identify their pedagogical orientation as "learner-centred," although this primarily took the form of trying to shape curriculum to such matters as motivation and learning style, rather than power-sharing that would involve students more collaboratively in shaping the curriculum themselves. There are three features in particular which all three sites demonstrate consistently in their orientation towards paying attention to learner needs.

The first of these features is *attention to the adult learner*. Instructors and course planners at all three sites were very aware that the students who came to their programs were mature adults who had lives, responsibilities, and interests beyond the classroom. The second common feature, and a further reflection of the sites' concern with attention to the adult learner, was *relevancy*. Instructors and course planners at all three sites were very attentive to the concern that course material be as relevant as possible to students' lives and interests. The third common feature is *certification* or, in more common parlance, what people at the different sites referred to as "getting a ticket." At all three sites, there was a common perception that one important motivating factor for students was the prospect of obtaining some form of formal certification for their studies.

Delivery

Delivery refers to modes of instruction, classroom practices, and other elements of student-teacher interaction. Concerns regarding attention to adult learning and relevancy in particular are echoed in the approaches to program delivery. Within the broader theme of "delivery", there are three subthemes that warrant mention, face-to-face and hands-on training, structured classes, and computer technology.

All three programs emphasised the importance of face to face and hands-on learning. Although opportunities for computer-based instruction were readily available, instructors at all the sites stressed the importance of classroom interaction for ensuring relevancy and personal guidance. Learners, too, appreciated the social nature of the learning environment, commenting on the value of collegial interaction as an important source of support. The "hands-on" approach primarily emphasised that students had ready and easy access to appropriate and contemporary computer technology. Most of the curriculum modules were designed on the basis of 20 percent classroom work and 80 percent hands-on.

Another important dimension of interactive delivery was the provision for "structured classes." In other words, it was not just the social and practical aspects of classroom and hands-on work that mattered, but also the establishment of a sense of progress and continuity. Classes were structured differently at the three sites, but the need to locate

instruction within a structured framework was central. For instance, at the Value-Added Skills Centre, the course modules were one week long, with classes running from 8 a.m. until 4 p.m., Monday to Friday. This was primarily to accommodate students who were sponsored by their companies to attend the Centre and could not be away from their workplace for extended periods. It was also geared to replicating the hours of a typical working day.

Finally, the issue of "computers and technology", was a significant feature at each site. Especially in the case of the Skills Centre, it sometimes appeared that technological interests were driving the agenda. However, at all three sites, technological issues were not allowed to obscure interaction between students and course leaders. While in some important ways technology may have served to attract forest workers to the three sites, matters of Delivery did not focus on the technologies themselves but on the human dimension of teaching and learning.

Supporting Context

In addition to the more specifically pedagogical concerns of interest at each site, there were other factors which had a significant bearing on the program's effectiveness and were part of the larger picture of the results they were trying to achieve. Effectiveness was viewed in terms of the centre's relationship with the broader context in which it was located. While the supporting context varied from site to site, there were two key factors that played a major role at each location: committee representation and financial support.

The first influential factor at each site was committee representation. Each locale had a steering or advisory committee, which played a significant role in decision-making and setting the educational agenda. The composition of the committee varied, but in each case the committee was credited as a major factor in supporting and steering the centre's activities. For instance, at the TDI Learning Centre, the committee consisted of an equal number of members from the company's management and union. The formation of the committee, in fact, pre-dated the formation of the Learning Centre, as part of a 1994 collective agreement. From the beginning, the joint nature of the committee was a significant factor in setting the Learning Centre's mandate and tone. As a result, the Learning Centre was accessible to both hourly (union) and salaried workers, and all decisions about the Centre's program offerings were approved jointly by the committee. Many of the TDI Learning Centre's supporters, from both the management and union side, have stated that this joint involvement has been one of the key factors in both the Learning Centre's success and in improving the labour relations climate at the mill. According to one committee member, "it's one of the essential things that started to change the workforce and the way management and union work together…. It helped management work with the union and find out that we could both trust each other; it was a two-way street." In addition to the educational programs available, the Learning Centre also provided a neutral meeting ground, where workers from different parts of the mill, workers and management, and the mill workforce and spouses could all meet as equals.

Another important contextual at the three sites was financial support. Despite the obvious successes of each of the sites examined in this study, financial support is clearly one of the

most difficult issues for each site. Although it may be notable that only one of the three sites has had to close its doors in the face of the industry's and the province's current economic hardships, the closure of that site was a loss to the community. Moreover, the other two sites still face difficult financial struggles. If the evidence of this study is an indication of wider trends in providing workplace education programs for the forestry industry in the province, this is one of the largest obstacle to be faced. If even the most successful programs must operate in the face of financial uncertainty and imminent closure, meaningful planning for the future will be an ongoing challenge.

Learning, skills, & training

The final theme concerns the different title of each program: the TDI *Learning* Centre, the Forest *Training* Centre, and the Value-Added *Skills* Centre. As each program chose a different term with which to identify itself, each term represents a different perspective on the range of options available to a workplace education enterprise. While it is beyond the scope of this report to present a detailed etymology of the meanings associated with each of these terms, this range of lexical choices indicates how diverse the scope of workplace education can be. Each choice conveys a different shade of meaning which can be explored as a way of considering the contrasts and commonalties among the three sites.

Given the clear focus on technical competencies at the Value-Added Skills Centre, the choice of the word "skills" in the title seems highly appropriate, although the focus on skills did not exclude attention other factors such as students' learning style and readiness to learn. Similarly, the focus on individual development at the TDI Learning Centre also makes the choice of "learning" appropriate. In fact, this was an intentional choice in order to emphasise that the Learning Centre was not intended to be a management tool that would focus on company needs at the expense of individual ones. In this case, the word "training" carried a negative connotation, in that it was thought to be more allied with company concerns, in a way that might incur potential hostility or resistance. Although the choice of name did not come up in conversation at the Forest Training Centre, it would appear that in this setting such concerns were not a factor. Perhaps that can be attributed to the fact that the Training Centre was not allied with a single company and that labour relations considerations did not figure in the same way. Despite the name, however, the Forest Training Centre was in many ways even *more* focused on education for individual development than the TDI Learning Centre. Although "training" was part of the title, encouraging an attitude among students of "learning to learn" was a central part of the Forest Training Centre's mandate.

Extension to end-users

Draft copies of the report have been used as the basis for workshops and meetings with the three programs profiled in the study and regional representatives of the forestry unions concerned. The researchers have also disseminated the general findings of the study to a variety of groups and individuals more broadly interested in workplace education and are preparing papers for scholarly conferences and journals. In addition, the researchers have prepared a manual to guide others in the conduct of case study evaluation of training program effectiveness (see Appendix). In this way, the research will provide detailed

information for use in the development of workplace training principles and practices that best serve forest workers and the forest industry. Finally, a copy of this report has been placed on the website of SFU's Centre for Labour Studies (http://www.sfu.ca/labour). A more extensive report which includes details of the survey, longer profiles of each case-study site, and a more thorough discussion of the findings is also available from the principal investigator.

Expected impact

The research has generated some "considerations" that speak to three main audiences: funders and policy developers, unions, and workplace education practitioners. Considerations, unlike "conclusions" or "findings", do not prescribe a specific course of action, but point out issues that must be addressed by stakeholders for forest worker training ultimately to be as successful as possible.

For those involved in either the development of, or support for, education and training in the industry, a number of considerations are essential to understanding forest worker training. These can be classified into three subgroups: context or culture, pedagogy, and funding. The first refers to the recognition that each centre achieved a measure of success, because it developed in response to a particular set of circumstances. None of the sites were generic models but, rather, unique expressions of a particular time, place, group of people, and need. Thus, in viewing them as good practice exemplars, one important lesson to be drawn is that this quality of responsiveness is what constitutes "good practice," rather than the particular forms of response that resulted, which cannot be replicated. Further related to the context of forest worker training, it is sometimes difficult to remember that when the conversation changes at the policy level – as is the case with the one about education in the forestry industry – these changes are extremely difficult to translate into practice. The consideration to keep in mind in this case is that the authentic conditions of the workforce must be acknowledged, in order to understand realistically what any one program can accomplish at any one time.

A second consideration is a recognition of the essential pedagogical concerns involved in any workplace education endeavour. In order for training to be effective, it necessarily has to acknowledge both the students' identities and capacities as learners and their inclusion in the training benefits – knowing, for instance, that the goal of training was in their own bests interests as well as the company's. For this reason, "learning" was stressed as a necessary condition for "training" to be meaningful and effective; there was a general recognition that education is not a mechanistic process. Additionally, new technologies were part of the pedagogical conversation. Each of the study sites placed a certain emphasis on technology. However, it was evident at all three sites that it was important to keep technology in perspective. No matter how "high tech" the equipment, it was the human side of the teaching-learning exchange that was always the most essential concern. This is important to keep in mind in making decisions about funding and policy initiatives. Sometimes particular technological innovations can become the "flavour of the month", with the result that resources and attention are drained by capital expenditures at the expense of more essential concerns regarding how teachers teach, and how students learn.

A third consideration for funders and policy developers is one that is perhaps the most simple to assert, yet the most difficult to achieve effectively. Each of these centres operates under conditions of financial instability, and one of the most significant common challenges to their effectiveness is the lack on ongoing committed financial support. What appears to be called for is a clearer articulation of long-term goals, coupled with a more careful provision for the steps involved – and the prospective funding available – to be able to achieve them. In order for the forestry industry to seriously implement effective workplace education programs, a more concerted effort must be made from the outset to ensure funding continuity within a broader implementation framework.

For forestry unions, one significant consideration is the importance of union involvement in matters pertaining to the education and training of the workforce in the industry. This was mostly strongly evident at the TDI Learning Centre, where the Centre had been created as the result of collective agreement bargaining. The union's ongoing involvement in the decision-making at the Centre was considered by both management and union as a key factor in its success. It is important for unions to continue to be involved in as many ways as they can be, with the ongoing implementation of educational programs for the labour force in the forestry industry. In fact, developing a distinct union perspective on training would be generally beneficial for those inside and outside the industry. Such a perspective could easily be based on labour's approach to workplace education in general (see, for example, Dassinger, 1997; Jackson, 1992; Martin, 1998).

In essence, these authors argue that a narrow conception of workplace education as skills or employability training is not in workers' best interests. Instead, workplace education programs should, ideally, broadly examine the more social and political purposes of training and promote critical thought and democratic participation (Nesbit, 1999). For example, workplace education could be reconceptualised as a social practice rather than a set of discrete or generic skills or as individual possessions or capacities. As knowledge is located in settings of situated practice, it follows that it should also be acquired, as far as possible, in such authentic settings. Second, unions and other groups dedicated to social change could be encouraged to participate more in the planning and delivery of workplace education programs. Their involvement would benefit both union members and educators to develop broader collective responses to the threats of economic globalisation, unfair employment practices, the redesign of work, and other structural inequalities. The active involvement of labour organisations might also facilitate the development of class consciousness and an education that enhances workers' critical understandings of their past, present, and future. Finally, workplace education could be centered around workers' interests as citizens as much as any concern for economic productivity. For best practice, what workers learn should depend on what they choose to know.

One consideration for workplace educators is the possibility of establishing a stronger sense of networking and communication among those working in similar workplace settings. Although practitioners did not work in isolation and were well connected with other educational providers in the local area (such as private trainers and the college system), there was not a strong sense of self-identification among workplace education practitioners as an occupational group, either within forestry or with other industrial sectors. The establishment of some form of increased interaction might be a means

whereby practitioners could dialogue with others working in similar programs and centres and contribute to an increased sense of alliance among practitioners around the province, and beyond. Furthermore, this could enhance workplace educators' understandings of a range of approaches. The three sites examined in this project are typical of the tendency in many workplace education programs to take an individualistic approach to workplace learning as a tool for personal, organisational, and economic development. Although such an approach can achieve positive effects, it provides a narrow framework for understanding the potential role of education in broader organisational cultures and changes. Providing educational opportunities which draw critical attention to the changing nature of work and the culture of workplaces and would involve participants collaboratively in the education process would be a valuable addition to existing workplace education opportunities.

Finally, while this study has explored the breadth of training practices, it can present an overly optimistic approach towards workplace education. For example, workplace education programs in general often seem to ignore the social, cultural, economic, and political climates in which they operate. The idea that more and more education is the solution to the current range of economic and social ills is clearly questionable. However, although such education cannot ever substitute for an industrial strategy, it can be part of one. To do so effectively requires several changes in current approaches, especially as too many workplace educators seem underinformed about the directions in which work is headed.

This research project has clarified the extent to which approaches to workplace education within the forestry industry, as in other sectors, is dominated by economic concerns. Education and training initiatives are for the most part discussed as strategies to improve the economic base of the industry rather than the knowledge base of those employed within it. Or, put another way, the knowledge base is relevant only insofar as it contributes to the strength of the industry. While this perspective is understandable and worthy of consideration, as educators we find it alarming to find the voices of so few other educators in a conversation that primarily centres on issues of pedagogical concern.

As the findings from all three study sites indicate, those on the front lines of workplace education are clearly not working as economists or industry experts, but, rather, as adult education teachers and learners engaged in a process intended not just to satisfy industry but to improve the lives and life chance of working people. Even though economic issues are at stake, the everyday issues of teaching and learning are an integral part of implementing effective workplace education programs. The purpose of this project was to look beyond the rhetoric that sometimes surrounds workplace education and training to see what is happening and get a sense of what is possible, at ground level. Only through examining actual practices and the contexts in which they are located can the economic possibilities be realistically put in perspective. Thus, more opportunities for ground level research that includes the voices of workplace education practitioners and participants would greatly contribute to balancing the conversation.

Summary and Conclusion

The programs at the Forest Training Centre in Smithers, the TDI Learning Centre in Mackenzie, and the Value Added Skills Centre in Abbotsford all typify how workplace education is affected by major changes occurring in British Columbia's forestry industry. The three programs are located in different regions of the province and offer diverse educational opportunities for a wide range of workers in the industry. They have developed in response to the growing demand for education and training, which will help the forestry industry and its workforce adapt to changing industry conditions. "*What Works in Forest Worker Training Programs?*" presents an understanding about how these programs currently function and how they and new programs may better function in the future.

By employing an organic and participative research model – one which takes as its starting point the perceptions, beliefs, and ideas of the people "on the ground", in this case forest workers themselves – we believe that we have produced a report that gives an accurate "sense" of forest worker training programs in the dying days of the twentieth century. More importantly, by conducting research in this participatory and qualitative manner, we have generated a number of themes, which can be used profitably by all individuals and institutions who have a stake in forest worker training: workers, unions, corporations, curriculum developers, and government.

Out of the many pages of field notes, hours of telephone interviews, and face-to-face conversations, we generated four general themes, and many more sub-themes, which speak to the present state and future of forest worker training programs: curriculum development; delivery; supporting context; and learning, skills, and training. Though all complex in their own right, these themes allow us to speak about forest worker training in ways we were heretofore unable. For instance, we have learned that it is important to have a certain kind of pedagogical orientation toward forest workers. These people are adults and function best in a situation where they are treated accordingly, rather than the more traditional teacher/student relationship. Further, and related to pedagogical orientation, is the notion that these training programs needed to have a pragmatic core, transparent to workers. Unlike public school students who effectively have no choice, adult students do not tolerate any educational activity whose purpose is hidden. Forest workers expect their education to be directly relevant to their work and their lives, and for there to be some tangible recognition and reward provided at the end.

Finally, in our opinion, two specific factors are particularly crucial to the future success of forest worker training programs: the presence of a strong and supportive advisory committee and the necessity of adequate and sustained funding. Those programs that could rely on a broadly based advisory committee with representation from all stakeholder groups were both more resilient and more flexible. Further, if that representation included a union presence, then the program was assured strong support within the industry and could draw upon the wealth of educational resources and perspectives, which unions have long cultivated.

Financial considerations also fundamentally affect the viability of training programs. Training is increasingly seen as a public policy, as well as an educational issue. Hence, the success of workplace education programming is often contingent upon public policy decisions. Here, we must question the viability of basing long term educational planning on short term economic considerations. If the concept of "lifelong learning" is to be more than rhetoric, the somewhat piecemeal approach, based apparently on the economic state of the industry, to program financing to be re-examined. This is particularly important for nonunion and single resource based communities, where economic effects tend to be felt more dramatically.

Although the future of forest-worker training is rife with obstacles, coming to terms with the financial instability of the industry cannot be overemphasised. This uncertainty is exemplified by one of successful program, the Forest Training Centre, being closed as result of insufficient funding in the midst of positive worker and industry support. While it is clearly recognised that the public purse is not bottomless and the constraints on funding for educational programs are widespread, it is unlikely for even the most successful programs to thrive under such provisional and uncertain funding arrangements. The Forest Training Centre would appear to be a particular instance of shortsighted funding measures. To have a program that is popular and clearly responding to its mandate cut short, when it is barely out of the starting gate, risks losing perhaps even more than it has gained, in the sense of disillusionment and disappointment that may result. In order for the forestry industry to seriously implement effective workplace education programs, a more concerted effort must be made from the outset to ensure funding continuity within a broader implementation framework.

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Appendix: Qualitative Case Study Method

1. Introduction

The purpose of this appendix is to describe the case study method used in carrying out this study. However, one of the main characteristics of the case study method is that there is no invariable set of rules for how to proceed. The particular circumstances of each case are influential in determining what is possible. Thus, rather than providing a step-by-step methodological review, this appendix gives an account of the broad considerations involved in conducting case study research, and how these were negotiated while carrying out this research project.

Case Study

Case study research involves the in-depth investigation of a single example or instance of something. A case can be small or large, from a single person to an organisation, a program, a city, or a whole country, depending on what the research is about. Case studies are more interested in specific details than generalisations. They often use several sources of information, such as questionnaires, interviews, group discussions, and firsthand observation of everyday activities. The aim of case study research is to get a concrete and holistic picture of the characteristics and features of the case in question. By focusing on what is unique and particular about a single case, it is possible to gain insights into why things are the way they are and to draw lessons which can be relevant to other contexts.

Case study research has many applications. Case studies of social programs, schools, or educational activities, can be valuable sources of information about the experiences and perspectives of the different people involved and can help provide feedback on how things are going, what things are working well, and areas that may need to be changed or improved. They can give participants an opportunity to share their knowledge and views, and can give program providers an opportunity to reflect on their goals, priorities, past accomplishments, and future directions. The case study method is particularly useful in examining programs that are innovative or are developed in response to unique and dynamic situations, as is currently the case with many workplace education programs in the forestry industry.

Qualitative Research

The case study method is one approach within the broader methodological paradigm known as qualitative research. Qualitative data provide depth and detail in describing the situations, events, people, interactions, and behaviours at the research site. Direct observations and interactions provide the basis for an open-ended narrative without attempting to fit people's experiences into predetermined categories. By contrast, quantitative methods use standardised methods to facilitate the statistical aggregation of data in order to obtain a broad generalisable set of findings. Typically, qualitative methods adopt an inductive rather than deductive approach, allowing interpretive themes to emerge rather than imposing pre-existing hypotheses or expectations at the outset.

In the research project presented in this report, the case study sites had not been determined prior to beginning the research project. They were chosen through interaction with people in the field, without any rigorously itemised selection criteria governing the choice. Programs were selected on the basis of their uniqueness and interest rather than for any strict commensurability from site to site, although care was taken to choose programs in different geographic regions and with representative structures of external support. Also, each case study unfolded differently in response to the different circumstances and personalities at each site. The goal in qualitative research is to blend into the scenery as much as possible, rather than forcing circumstances to conform to an external research agenda.

2. Doing Fieldwork

In qualitative research the term fieldwork refers to the process of gathering detailed descriptions via direct firsthand observation. The case study method depends very heavily on participation and observation of events and everyday activities at the site in question, involving a high degree of direct and informal personal interaction with people in the field. This approach emphasises empathy and openness, rather than the detachment and lack of personal involvement that is usually stressed in quantitative approaches to gathering information. The holistic approach to case study fieldwork also means that it is necessary to pay attention to the social and political context at the site as an important factor influencing everyday events and activities. This requires the researcher to be flexible and responsive to nuances at the site.

Strategies and trade-offs are an unavoidable part of the fieldwork process, necessitated by such common constraints as insufficient time and resources, unexpected political influences or personality traits, and the inevitable limits of human perception. Case study fieldwork is not an exact science, but a practical means of gaining firsthand input about the points of view of people in the field, and developing an exploratory framework for putting those points of view into a broader perspective.

A major challenge in doing case study fieldwork is accepting and adjusting to the particular idiosyncrasies of each site. Site circumstances are a major factor in shaping the role the researcher can play, and this too is an unavoidable part of the process, and another reason why it is important to remain flexible. At the Forest Training Centre, timing was a complicating factor. It was difficult to get to the site at times when most of the students were present. As a result, the study focused primarily on the perceptions of instructors, with less available input from past and present participants. At the TDI Learning Centre, access was a central issue. It was important to ensure that the project had the mutual and non-partisan support of both management and union. It was also important to ensure that the project was directly beneficial to the site itself, for which reason it was framed – unlike the other two sites – as an independently documented program evaluation. Another factor at the TDI Learning Centre was its company affiliation, which meant that fieldwork extended beyond the Learning Centre itself to include interviews with workers who had not been participants in Learning Centre

activities. At the Value-Added Skills Centre, courses ran as one-week modules, so it was necessary to pace fieldwork activities in accordance with this pattern of scheduling.

Another important factor in doing case study fieldwork is ensuring that ethical practices are used. Participants must be informed about the purposes of the research, its confidentiality and the voluntary nature of all research participation. Institutional ethical guidelines must be followed, in this case those spelled out by the Simon Fraser University's ethical review process.

Data Collection

During case study fieldwork there are three main kinds of data collection: open-ended interviews; observation, and written documents.

i) Open-ended interviews

Open-ended interviews involve asking open-ended questions, listening to responses, and asking follow-up questions drawn from the responses. Open-ended interviews have the look and feel of ordinary conversations. However, despite their casual interpersonal style open-ended interviews are different from ordinary conversations, because they are focused on a particular topic and require concentration, mental acuity, and deep listening on the part of the interviewer, which are rare qualities in everyday discourse.

Open-ended interviews were carried out at each of the three case study sites. Times and places of the interviews were dependent on the particular circumstances at each site and were of varying duration, depending once again on the circumstances and conversational style of the interviewee. Interviews followed the natural rhythm of interaction, with no predetermined set of questions guiding the interview. Questions flowed from the immediate context and were responsive to the particular interests and experiences of each interviewee. Instructors and participants were interviewed at each site, as well as others with an interest in workplace education or some other connection with the site. Some of the interviews were tape recorded and transcribed. Other interviews were done without a tape recorder, in which case written notes were taken during the interview and written up in more detail following the interview. In addition to individual interviews, some focus group interviews were also carried out. These, too, were responsive to the particular circumstances and individuals involved and followed no set pattern of questioning.

The purpose of these open-ended interviews was to gain interviewees' perspectives on a number of aspects of everyday events and activities at the case study site, in a manner that did not feel artificial or unnatural to the individuals involved, who by and large had no prior experience of being interviewed. Questions and answers covered a wide range of issues and concerns, sometimes going off on tangents not directly related to the research project, in the interest of keeping the tone comfortable and natural (the drawback of this style of conversational interview being that it can sometimes require a good deal of time and patience to obtain systematic information). Despite the time-consuming nature of some of the interviews, the value of this approach is the comfort level it provides for interviewees. Some interviewees were initially apprehensive about the idea of an interview,

but very quickly relaxed and became comfortable talking when they realised that it was more like a conversation than answering questions on an exam.

ii) Observation

The primary purpose of observational data is simply to describe characteristics of the field site as accurately and carefully as possible. Many features of observational data are often overlooked as taken-for-granted parts of the background scenery; however, it is important to pay attention to the background in order to get a better understanding of the context in which everyday activities occur. Also, it is important in case study fieldwork to obtain firsthand experience of a site and to pay attention to such things as first impressions and other ways of experiencing the general look and atmosphere at a site. In this regard, researchers who are not familiar with the site are at an advantage, since practitioners researching their own site are also a part of the context and do not have the benefit of an outsider's perspective.

Observation was an important means of collecting data at each of the three case study sites. At each site, location and physical layout were valuable sources of information about the centre's daily activities and routines. At the Forest Training Centre, the new look of the building and its location adjacent to other buildings on the local college campus gave an indication of the Centre's recent construction and its close relationship with the college. At the TDI Learning Centre, the building's location close to mill operations but separate from other company buildings showed the Learning Centre's affiliation with the company but relative independence from other company activities. The outstanding physical characteristics at the Value-Added Skills Centre were the fully equipped workshop space and the predominance of wood products in the building's furniture and finishing. Both of these visibly reinforced the Centre's role in training for the wood manufacturing industry. These and many other factors are an indication of the importance of paying attention to the physical environment of the case study site.

The physical setting is just one focus of observation in case study fieldwork. The social setting is another. One primary consideration regarding observation of the social setting concerns the extent to which the observer is also a participant in the activities being observed. At one extreme, the researcher is a full participant in site activities; at the other, the researcher takes more of a spectator's role, observing but not participating in site activities. Neither of these options is preferred over the other. Each has advantages and disadvantages and, of course, the degree of involvement will have a strong influence on the nature and focus of the observational data gathered. In many cases, fieldwork does not adhere strictly to either one of these extremes but takes place somewhere along the continuum between them, depending on the particular characteristics of the researcher and of the site.

Fieldwork at each of the three case study sites in this project included a balance halfway between observation and participation. At each site the researcher's primary identified role was to be a researcher (rather than, say, an instructor or a student), so that full participation was not a possibility. However, the most comfortable way to be present at each of the sites was to participate in site activities to some degree. That entailed sitting in

on classes and taking part in class discussions and activities where appropriate. It also entailed joining students and instructors at coffee or smoke breaks, and informally taking part in the regular flow of conversation and interaction. In some of these cases, the line between what might count as participant-observation and what might count as a conversational interview became blurred. However, in case study research, the important thing is not to adhere strictly to a rigidly defined research protocol, but to find the best way to be at the site naturally and comfortably and to engage in conversations where people are informed and at ease and are willing to express their thoughts and views.

iii) Written Documents

The purpose of fieldwork is to find out as much as possible about what is happening at the research site. Interviews and observation are two primary ways to achieve this. Another important source of information is written documents, and the regular flow of paper that is a central area of activity in most organisational settings. Written documents provide valuable data about routine events and processes, features of the social and political context, and about patterns of behaviour and interaction among the people at the site.

Although written documents were not a primary source of research data at the three case study sites, they helped to develop a picture of everyday life at each site, and contributed some key insights about values and priorities at each site. For instance, at the TDI Learning Centre, the importance of giving students certificate on completion of some the Centre's courses was a useful clue regarding the emphasis placed on recognising and valuing student achievement. Also the wide availability of regular newsletters and flyers announcing Learning Centre activities was an indication of the importance of maintaining visibility and an open flow of information to workers at the mill and their families. At the Value-Added Skills Centre, having the curriculum course materials structured as "living documents", which were constantly being updated and revised in the Centre's on-site desktop publishing section, was a valuable reflection of the importance of keeping information up-to-date, responsive to student and instructor input, and relevant to the needs of industry.

3. Making Sense

Once fieldwork has been completed, the next stage of case study research is to review and analyse the data that have been collected, examining them for patterns and themes and writing an account of the research findings. Typically, however, case study research does not unfold according to discrete linear stages. There is no fixed point at which data collection ends, and no set parameters for what constitutes enough data. A common although necessarily intuitive signpost for concluding fieldwork is saturation, when the researcher frequently gets the sense that "I have heard this before." Similarly, there is no fixed point at which the analysis begins. Frequently, in the course of data collection thoughts and ideas about analysis and interpretation will already have begun, so that data collection and analysis are interwoven and overlapped rather than taking place one after the other.

The themes and patterns that emerge during the process of analysis depend upon the framing questions and interests, which prompted the case study in the first place. The volume of data accumulated during fieldwork is usually extensive and can be read in any number of different ways. Even though fieldwork is not strictly guided by formal hypotheses, there are guiding, open-ended questions which influence the fieldwork process, and these provide the central framework for examining the body of data which has been amassed. In the research project presented in this report, the guiding questions centered on the topics of curriculum and delivery, and on the individual experience of the program participants. By contrast, had our focus been more directly centred on topics relating to specific outcomes, the guiding questions and framework for analysis would have had a very different emphasis.

The primary activities involved in making sense of the data are reviewing and organising the whole body of data according to meaningful categories which, as stated above, are influenced by the initial interests prompting the research. The mechanics of data review and organisation can be approached in a number of different ways, and different researchers typically come up with their own distinctive schemes. However, the basic steps are straightforward. Reviewing the data involves many successive re-readings of the fieldnotes, interview transcripts and written documents collected in the field. This is necessary in order for the researcher to refresh her or his memory about the contents of the data, to detect common themes that may not have been noticed before, and to correct false impressions that may have arisen during the fieldwork process which may turn out to be unsubstantiated by the data. Organising the data involves making orderly and systematic notation of the different themes that emerge during the review process.

Both the review and organisation of fieldwork data are time-consuming processes. In recent years a number of software programs have been developed to facilitate this process (NUDist, Ethnograph, Text-Base Alpha, Atlas, Qual-Pro, among others). These programs have the advantage of greatly reducing the time it takes to efficiently organise and categorise large volumes of data. However, they do not eliminate the necessity of reviewing the data or determining the conceptual categories according to which the data are to be organised. They also have the drawback of potentially shaping the analysis to conform to the characteristics of the software program rather than to the characteristics of the site under study. As a result, the approach to categorisation adopted in this project followed the old-fashioned practice of making duplicate hard copies of the data, and cutting and pasting segments of data onto cards sorted by colour into different category groupings.

One characteristic of case study research is that there is no set number of cases carried out within the framework of a single research project. Many research projects using a case study method involve the study of a single site. Other projects involve multiple cases, combining individual case studies with the consideration of common and contrasting patterns across a number of different sites. Regardless of the number of sites included in the project, however, the analysis stage consistently involves preparing a detailed narrative of each site. Therefore in projects with multiple sites such as the one reported here, data for each site are organised on a site by site basis, prior to contrasting the themes which emerged from the individual analysis of each site. The process is akin to carrying out a

series of small free-standing research projects which are then considered collectively, rather than amassing and organising a single common body of data.

4. Reporting and Using Results

In the same way that the data collection and analysis stages of case study research are not distinctly separate, there is also considerable overlap between the analysis and reporting stages of research. Writing up the research is an important part of carrying out the analysis, and working with the data in a way that highlights the key elements that emerged from the analysis.

A central feature of case study research is the presentation of the case narrative, which provides a readable, descriptive profile of the case study site. The goal of the narrative is to give sufficient information to enable readers to have a general understanding of the everyday activities and important characteristics of the site. The narrative is typically a synthesis of description and interpretation. It is presented in a descriptive manner but is the result of considerable analytical decision-making regarding which information is the most important and the most relevant to include as characteristic or significant. The narrative should provide a sufficient degree of detail, but the details are highly selective and focused in order to avoid triviality and excessive description to no interpretive purpose.

One important consideration when writing up case study research reports is that the volume of data is far more extensive than what can actually be included in the final report. Fieldnotes and interview transcripts often yield a vast number of relevant, interesting comments that would make good material for citation. It is tempting to incorporate large segments of the data into the final report. However, for the sake of economy and clarity, it is important to be selective and only use quotations that will serve to highlight the principal research findings.

Another important feature of writing up case study research is that it is important to keep the case narrative and the research findings in perspective with the methodology, and in context with the larger setting within which the site is located. Because of the time-specific and in-depth focus of case study research, there are limits to the extent to which conclusions can be generalised. The goal of such research is not to present generaliseable findings, therefore it is important in writing up the research not to overstate the scope of the results. The results of case study research must necessarily be exploratory and speculative and it is important to make this clear in how findings are presented in the final report.

Using Results

The final report of case study research must be prepared in a way that ensures its accessibility and relevance to the project stakeholders. It is important to keep in mind who the intended audience is and to focus the final report accordingly. In the research project described in this report, there were two primary ways the results were directed towards the intended audience. The first was to make the results of the report available to the

immediate stakeholders, namely the participants in the research. Copies of the report were made available and small targeted workshops were planned with all three of the case study sites. The second was to make the results available to a wider stakeholder audience, in particular to the members of the project's advisory committee. Again, copies of the report were distributed and a workshop to discuss the research findings was arranged. In addition, the research results were made available to a wider audience of stakeholders, including workplace education program planners and participants, through the availability of the report on the Simon Fraser University Labour Studies website.

RELATED READING

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