The Digital Learning Record

(ePortfolio)

Background Paper

prepared for the
CLFDB Learning Record Working Group

by

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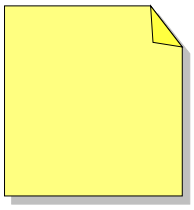
1. Introduction to the CLFDB Learning Record Project

Skills Passport.... Learning Portfolio... Functional Resumé. There are a variety of labels for the concept of a learning record. The CLFDB has initiated a project to further the development of a learning record that will, it is hoped, contribute to increasing the effectiveness, efficiency and equity of Canada's labour force development system.

The CLFDB and many others have become interested in a record or portfolio that:

- accounts for the variety of formal and non-formal learning of an individual,
- describes and "certifies" the skills and knowledge acquired by this individual,
- is developed and "owned" by individual Canadians,
- can be used to increase the portability of individual's skills and credentials between employment circumstances and geographic regions of Canada,
- can be used to promote a training culture in Canada,
- can become the supply-side information, in a labour market information system, about individuals available for work or training, and
- can increase the efficiency of the entire labour market system.



As it is conceived of by the CLFDB, the Learning Record may be another name for what has been called, by others, the Skills Passport, Skills Portfolio, Learning Passport, human capital account, Life Work Portfolio, Career Passport, Learning Passport and Planner, Cumulative Record of Learning Achievement, individual profile, resumé, dossier, curriculum vitae. **Indeed, one important task of the working group is to find the appropriate label for this "product."** (*These sticky notes are placed at strategic question spots for you to record your thoughts*.)

There are huge amounts of experience, expertise and creativity to draw on for this project. The purpose of this paper is to synthesize "what's out there" regarding a learning record, to identify the relevant labour force development and public policy issues, and provide direction to the work of the LR Working Group. This paper is not intended to be completely comprehensive; it is representative of the literature and initiatives found in Canada, on the Internet, and in the international community. It is intended to underscore the complexity of such an initiative as it relates to other labour force development and public policy issues; hence, the appendices. At this time, the concept of a learning record is muddied by a huge number of working

definitions and competing interests. The need for this project is largely evidenced by the number and variety of initiatives, set out in this background paper, that fall under the rubric of a learning record. It is also evidenced by lack of a systematized, standardized learning record for use by any number of constituencies. For example, professional educators in Halifax[1] stated conclusively: "There is currently no Cumulative Record of Learning Achievement which incorporates formal and experiential learning across educational programs and learning experiences." This situation only serves to confuse individuals and fracture the system that needs consistency and standardization to be effective and efficient. The problem is compounded by the rapidly changing context of labour force development and societal change.

This project is directly related to the mission of the Board, to three ongoing priorities of the Board (occupational standards, school/work/school transitions, career and employment counselling) and to two CLFDB projects currently under way (labour market information and recognition of prior learning). A number of agencies and organizations are interested in the concept of a learning record or portfolio, notably the Corporate Higher Education Forum. As a public policy issue, it may be a concept that can only be instituted with any real effectiveness at the national level. The CLFDB is taking an active lead in this area, in keeping with its mandate and mission, to ensure that the project is national in scope and inclusive of all the labour market partners. It may be appropriate for the Board, through its consensus building process, to generate standards and a strategy for the design and implementation of a Learning Record. In fact, it is an item of responsibility suggested to the CLFDB by the PLAR Working Group in its Recommended National Strategy[2].

The purpose of this project, then, is to examine the variety of approaches Canadians could take, on a national basis, to a Learning Record and make recommendations about both the format/substance of a Learning Record and national standards to ensure consistency and usability. Members of a working group will combine their background knowledge with the views of their constituents, international experiences, and the literature in the field. They will discuss options for format and processes in order to reach consensus about a recommended format and

[1] The Consortium of Nova Scotia University Continuing Educators who, in partnership with the Native Council of Nova Scotia, Nova Scotia Community College, the Nova Scotia Department of Education and Human Resources Development Canada have begun to develop an adult learning assessment centre in Halifax.

[2] Please see *Improving Training and Access to Employment through Prior Learning Assessment and Recognition* (CLFDB, July 1996).

national standards to support that format. They will debate such issues as underlying principles, issues of verification or content validity, electronic and non-electronic applications, links to experiential learning, links to career counselling and development, and support processes to enable individualization. The Board and its constituents will further debate the proposed Learning Record and standards, then disseminate and promote the national standards for a Learning Record.

What is a Learning Record? The short answer to that question is: A Learning Record doesn't exist. The concept of a learning record has been developed in a variety of ways by a variety of individuals and agencies for a variety of purposes and with a variety of forms and content. The variety, complexity and resulting confusion does not serve anyone well: job seekers, education/training graduates, employers, or society at large. For purposes of this project and this paper, however, a learning record may be conceived of as a type of resumé that goes beyond a listing of credentials and work experience, that incorporates both formal and non-formal learning, and that, therefore, may provide a more complete picture of the skills and knowledge that a person possesses. The concept of a learning record is better understood through an analysis of developments across Canada and around the world (section 2 of this paper), and through the context of change that it is set in (section 3 of this paper).

2. Developments, on A Geographic Basis, in the Concept of A Learning Record

2.1 The Learning Record in Canada

For the past three or more years, there has been evidence of growing interest in the concept of a learning record. Perhaps the organization with the most long-standing interest has been the Corporate - Higher Education Forum, formerly centred in Montreal and now in Calgary. For CHEF purposes, a "learning passport" is defined as a certificate of assessed competence and/or a self-maintained record of formal and experiential learning achievements. According to John Dinsmore, former CHEF president and learning passport advocate, "benefits include better planning of learning needs, motivation to learn effectively, helping to choose what to learn and lessening waste due to wrong choices. Widely employed, such a record can help to foster a learning culture."[3] In a 1993 report, CHEF proposed that a Learning Passport would respond to

[3] from correspondence regarding a market-fostered learning system model, J. Dinsmore to K. Barker, February 1996.

several needs identified in Forum Beehives and at the 1993 annual general meeting. For example, it would:

- recognize and respond creatively to the reality of lifelong learning;
- validate a wide variety of learning experiences at a time when output measures are considered essential;
- connect employers' requirements with educators' teaching emphasis and learning assessment;
- focus attention on the need for students to develop specific competencies as well as knowledge;
- encourage self-management of education and training to enhance lifetime employability;
- facilitate the career changes most persons will make over a working life; and
- increase the portability of credentials.

The same report proposed a project to answer such practical questions as:

1. What experiences would qualify for a passport stamp?
2. Who would authorize accreditation of experience beyond that now graded by institutions?
3. For what employers is this passport intended?
4. What would the passport look like; for example, would it begin as a loose-leaf binder and ultimately go on computer disc?

CHEF did not actually go forward with that project. Attached as Appendix A to this paper is the 1994 report of CHEF Vice President Pat Roman which outlines progress to that point.

2.1.1 Examples of learning records

In addition to the CHEF leadership, there are a vast number of separate initiatives. The following are examples, and the list is by no means complete.

- In the adult literacy field in Ontario, the Literacy Link is piloting RALS (Recognition of Adult Learning System) and a "smart card" which looks like a bank card whereby all the learner's skills and training are listed.[4]

- The Sectoral Skills Council has developed a *Exploring Careers Guidebook* which directs individuals to questions regarding their skills, qualifications, strengths, needs, and preferences. It is essentially a form of portfolio development and career planning. A second tool for recording achievements, skills and training under development.[5]

- At Concordia College in Edmonton, the Centre for Career Development Innovation has developed several programs/products to encourage secondary level students to plan and manage the development of skills for the workplace. Notable among them are:
  - *FOCUS: A personal inventory* (1993) consisting of an IBM diskette and instruction booklet to guide students in maintaining an inventory of personal development;

[4] Source is Sarah Maloney, WWEBS Coordinator of Literacy Link Eastern Ontario.

[5] Developed by Carl Aspler and Associates, 1995, for the sector council of the electronics industry. According to Gregg Murtagh, the second phase has "bogged down" in details about cost and implementation.

- *ENGAGE* with a magazine and five booklets for student, teacher, workshop leader and parent use in planning career development;
- *Framework for Success: An employment skills handbook* to assess progress in self-development work.

- Also in Alberta, the ministry of Career Development and Employment has a produced at least the following documents:
  - *Beyond Credentials: Enhancing recruitment by assessing Transferable Skills* (1992), and *Beyond Credentials: Enhancing recruitment by assessing Applicant Values*, guidebooks for employers;
  - *Skills are your passport* (1988), a guidebook for students/workers which includes an actual skills passport modelled on the Canadian passport.

- Using the Conference Board's Employability Skills Profile as a basis, some of the applications include:
  - an *Employability Skills Student Portfolio* with a booklet, storage folders and a binder for $20 as well as an *Instructor's Guide* with computer diskette for $30, developed for use in schools by Nelson Canada in partnership with the Calgary Educational Partnership;
  - *ESP*, an Employability Skills Portfolio developed by OISE (Ontario Institute for Studies in Education) Guidance Centre which includes some really valuable suggestions for examples of "evidence" to assemble in a portfolio;
  - at Northern Telecom's Summer Institute for Teachers at Queen's University, as well as at the Institute on Education and Employability in the Queen's Education Faculty, active attempts to help K-12 teachers incorporate employability skills training and assessment in their classrooms.

- The Royal College of Physicians and Surgeons of Canada has a program called the Maintenance of Competence Program (MOCOMP) to help medical specialists track how they remain current in their knowledge and skills through both group and self-directed learning, philosophically based on D.A. Schon's *Educating the Reflective Practitioner* (Jossey-Bass, 1990). Doctors maintain a PC Diary to record learning which is used in practice under the headings of knowledge, skills, attitudes;[6] and they can use the diary as a source for self-accredited group programs and self-directed learning portfolios.

[6] Both MOCOMP and PCDiary are copyrighted products. Both service as excellent models for process and development.

- In the university setting, efforts focus on both the clients/customers and on the provider of education/training, for example:
  - faculty at Dalhousie University have access to *Recording Teaching Accomplishment: A Dalhousie Guide to the Teaching Dossier* which outlines a process and a product (dossier) that focuses heavily on the accumulation of evidence of achievement;
  - at the University of Guelph, the Counselling and Student Resource Centre is piloting a project called *Taking Charge* to help students track their progress toward the eleven learning objectives established by that university in 1992-93. Students receive a 3-ring binder for this purpose, and faculty are encouraged and helped through workshops to support its use;
  - a Learning Passport for Arts students will soon be available at the University of Alberta;
  - an *Automated Resumé Registry and Referral System* at the University of Saskatchewan matches graduates and employers.

- Many Canadian corporations have experience analyzing jobs in terms of the skills required to perform them effectively. This information, used to hire, to identify training needs, to conduct regular performance appraisals, and to improve quality, is basic to the development of skills/knowledge lists and records. Leaders in this field may be IBM (with a separately-managed learning institute), Xerox, Bank of Montreal, Canadian Imperial Bank of Commerce, and Imperial Oil.

- HRDC and Industry Canada are entertaining a proposal to create a Learning Passport and Planner. It is described as "an online summary (or portfolio) of a worker's professional experience...used by employees, employers, and training providers to determine what training employees require to perform a new function."[7] The proposal goes on to describe how the Learning Passport data is recorded on a Smart Card, a microprocessing chip or integrated circuit embedded in a plastic credit-card-sized card, which feeds into an organization's personnel database, the HRDC kiosk, or an Internet site. The proposal alludes to the commercial potential of such a product: the technology, methodologies, and learning products.

[7] Taken from a document entitled *Executive Summary for the Learning Planner and Passport*.

2.1.2 Purposes of a learning record

While there isn't one clear, commonly-used, or standardized form of learning record, what has been proposed and/or developed to date typically has a specific purpose. One example is the academic learning record. In the minds of some, a learning record is a like a complex transcript of achievement at formal learning institutions. For example, in proposing its Adult Learners' Assessment and Advising Centre,[8] a consortium of Nova Scotia universities alluded to "a Learning Passport system, enabling learners to build portfolios of education and training by drawing on all sectors of the higher education system." They pointed out that development of such a system "requires substantial policy initiatives in the areas of credit transfer, course articulation, modular curriculum development and accreditation of learning." They do speculate that "the portfolio building approach to education may ultimately require accreditation of applied degrees, consisting of learning in different contexts: community college, non-credit continuing education, university and on-the-job. The variety of institutions that may provide components of learners' portfolios makes it unlikely that any one of them would accredit an applied degree. Instead, an accrediting agency which is not itself a provider is the most likely method of introducing applied and non-traditional degrees into a higher education system." All in all, however, the learning record they conceive of does not take into account non-formal learning.

From a second perspective, a learning record may be a record for planning and management of formal learning. According to John Dinsmore, "planning and management of one's individual learning activities will be assisted and coordinated with a cumulative record of achievement: a learning passport." The consortium of Halifax universities acknowledge "the need for portfolio learning:[9]

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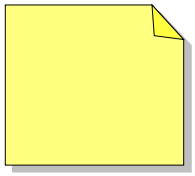
[8] Taken from page 5 of a proposal generated by the Consortium of Nova Scotia University Continuing Educators in partnership with the Native Council of Nova Scotia and Nova Scotia Community College, submitted to the Nova Scotia Department of Education and Human Resources Development Canada, June 1995.

[9] From page 13 of the proposal.

An adult learner with labour force experience may make different demands on the higher education system than a traditional student would. An adult may already have a portfolio of previously acquired higher education, whether from the community college or the university sectors, and training while in the labour force. An adult faced with a requirement to make a mid-life career change may not be particularly well served by the presently available "bundles" of educational accreditation. They may seek to augment their learning portfolios with additional education drawn from different levels of the higher education system to complement their existing knowledge and skills. However learners who need access to courses but who are not necessarily in the usual degree stream may find their way blocked by institutional barriers. The lack of prior learning assessment and difficulty in gaining academic standing based on competency tests of prior learning deny them access to the resources they need.

In this conceptualization, a learning record is a tool by which to compare the formal learning an individual has with that which s/he needs from the formal learning environment. This, too, is a somewhat limited application of a learning record.

From this discussion, it becomes clear that the **first question for the Working Group may be: what purpose(s) should a Learning Record serve?** Another way to ask the same question is: What is the public policy problem that a Learning Record could solve?



2.2 In the United States

In the United States, there are both commercial ventures and public policy endeavors, small scale and large, related to the development of a learning record as it is conceived of in this project. The following are samples.

One example of a learning record is a commercial product call Life Work Portfolio, "a place to store information about yourself that will help you look at career options, make decisions and plans, write résumés, and prepare for interviews....takes you, step by step, through the process of career development."[10] It was developed with an advisory committee representing job training programs, adult education, and displaced homemakers programs; reviewed by a National Review Team comprised of leaders in the field of career development; and piloted at major universities, corporation sites, veterans affairs offices, job training offices and community

[10] From a brochure advertising the Life Work Portfolio, available from Oklahoma Department of Vo-Tech, 1-800-654-4502. Comes with portfolio and guide at a cost of approximately $5.00 US.

colleges[11]. The Life Work Portfolio is "both a place and a process," a place to store information about oneself, and a process of career development. It claims to:

- follow basic steps of career development;
- comply with National Career Development Guidelines;
- be useful in many settings, by groups or by individuals;
- teach a decision-making model and steps for goal setting;
- organize personal documentation of competencies, skills, accomplishments;
- offer a flexible, expandable format;
- allow people to begin wherever they are in the process;
- provide a framework as individuals progress through various training programs; and
- tie in well with existing career development programs, job seeking workshops or self-employment programs.

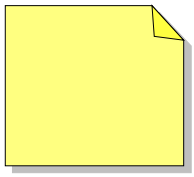
A sample of this product should be available at the first meeting of the Working Group.

[11] The development process is critical. This example may be a good model.

A second example, also a commercial product, is WorkKeys. Developed by the American College Testing (ACT) Program, WorkKeys is a comprehensive system that includes job profiling or analysis of the skill requirements of jobs; individual skill assessment to determine one's current skills; and instructional support to help educators as they assist learners in improving their skills. ACT has identified "key generic employability skills... crucial to effective performance on most jobs."[12] In Canada, the Association of Canadian Community Colleges has the rights to promote and profit from WorkKeys. What is relevant for purposes of the learning record is the portion of the process called Skill Assessment, an actual tool and matrix, through which an individual are supposed to be able to:

- document and credential generic employability skills;
- provide employers with evidence of skills attained;
- identify personal education and training needs;
- link education and training with employment;
- document skill development over time;
- identify jobs for which current preparation is sufficient;
- explore appropriate career paths; and
- target training to skill needs.

Issues that might be of concern here are: the American orientation/language, absence of links to other LMI.



[12] Information about WorkKeys is available from ACT Client Services, PO Box 168, Iowa City, IA 52243-0168.

A third example is the Online Learning Record[13] which is based on the California Learning Record. The California Learning Record (CLR), on which project student assessment materials have been based, is produced by the Center for Language in Learning, located in El Cajon, California. The CLR is adapted with permission from the Primary Language Record (PLR), developed and copyrighted by the Centre for Language in Primary Education, Webber Row, London SE1 8QW. The PLR has been used in London elementary schools since 1985 and is now being introduced in New York City. The CLR, since 1988, is being used in K-12 schools throughout California. Both centers collaborate to create the PLR/CLR assessment system for classroom use and for public accountability.

On a more esoteric level, at the 1996 Annual meeting of the American Council on Education, mention was made of a proposal to develop a single system of learning and credentialing which would operate locally through community learning systems and nationally with a clearinghouse and resource centre, and for which a learning passport would be an essential element. There are a number of LMI initiatives in the US, and the degree to which this proposed credentialing system would link to the LMI systems is unknown. In short, there isn't a single US model for a learning record that could simply be adopted.

[13] More information is available from Peg Syverson: syverson@uts.cc.utexas.edu.

2.3 In the United Kingdom

Unlike in Canada or the US, in the United Kingdom, a form of learning record system is now in place. A National Record of Achievement (NRA) had been proposed and piloted in the 1980s by the Department of Education and Science (DES). A model was introduced in March 1991, created jointly by the DES and the Employment Department. As of January 1993, a NRA (National Record of Achievement) is mandatory for all school leavers. The format is very basic: a hard covered 9"x12" book with clear plastic pockets holding pages on which information can be entered. Where appropriate, there is space for the signature of the person providing accreditation or validation of achievement. For school leavers and for adult learners/workers, the NRA provides a voluntary national recording system for all qualifications and achievements in which individuals can enter personal details, a summary of qualifications and credits towards them, summary of other achievements and experiences, a personal statement, and details of school attendance and employment history. The NRA can be linked to the National Database of Vocational Qualifications and the National Vocational Qualifications system.[14] Its successful use requires considerable support for personal and career development. A study of the application of the NRA[15] for action planning reveals the following.

- In Further Education, there is a growing use of the NRA as part of admissions and initial guidance processes. There appears to be limited use of recording achievement or action planning in preparation for transition at the end of FE courses.

- In Higher Education, there is little evidence of a culture encouraging student action planning and the recording of achievement. The trend to a wider range of entrants to HE is focusing attention on assessment and accreditation of prior learning.

- The training sector make more extensive use of the NRA. It is a source of concern that action planning processes can be driven by the requirements of NVQ's, with little or no focus upon the needs or personal development of individual trainees.

- In the employment environment, there is generally little evidence of action planning, review and recording of achievement, although most larger organizations have appraisal or other development processes. Appreciation of the potential of the NRA to support employee development is low.

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[14] More information about the British system of NVQ's is available in the background paper prepared by K. Barker for the 1995 Training Standards project.

[15] A report of the 1994 study was summarized in *The National Record of Achievement and Support for Personal and Career Development: A Review of Research and Current Activity in Employment, Training, and Post-compulsory Education.*

- For individuals, the NRA can provide a framework to support transition and development throughout life, but the support and encouragement from organizations is not available.

Following on and building on the NRA, an actual Skills Passport has been proposed and promoted by the Confederation of British Industry (CBI). In it's 1995 report entitled *Realizing the Vision: A Skills Passport*, the CBI calls for a skills passport that stresses lifetime learning and the acquisition of core skills. The NRA supplemented by individual action plans is the favoured model. According to the CBI, the passport would be part of a training framework where the three major stakeholders - government, employers and individuals - have contractual obligations. In order for the notion to work, a large number of initiatives have been put in place (eg., NVQ's, Investors in People program and standards) and more are required. For the CBI, the skills passport is part of a "skills revolution" to help citizens and businesses of the UK remain competitive in a global economy. In the report,[16] they state:

> In a world of growing uncertainty, we all need a new passport and the best passport for the 21st century will be a skills passport. A skills passport which will help to secure that first job. A passport with turns a job into a career. And a passport which helps us to move successfully from one phase in life to another; from job to family to job; from temporary to full-time to part-time work; from income earning to retirement to community work. Only a skills passport can meet the challenge of changing technology and globalization, because individuals and employers share a need for sustained levels of competence - the ability to carry out increasingly complex roles requiring adaptability, responsibility and creativity.....Training and updating of skills still receive much less attention than they should, and learning as a whole tends to be static, not dynamic; a temporary passport, not one for life.

According to the CBI, the Learning Record should indicate acquired competence based on a secure possession of the core skills: communication, working with others, application of numbers, improving own learning and performance, problem solving, and information technology. Employers, who make up the CBI, believe that the essential objectives and outcomes of foundation learning for young people should be:

- Strong values and attitudes - including a regard for others, self-confidence and honesty, and also a positive attitude to change
- Good basic skills and core skills - as above
- National qualifications - almost all 16 year olds should have 5 good GCSEs; the vast

[16] Taken from page 6 of *Realizing the vision: A skills passport* (Confederation of British Industry, 1995).

majority of young people should have vocational or academic A-levels or equivalent

- Career planning - understanding the world of work, knowing about learning and work opportunities.

These are all captured in the Skills Passport notion, which as the CBI conceives of it, is:

- **for all:** every individual has equal access to the skills passport and to the full range of possible routes of progression;
- **owned by the individual**: it empowers each person to take control of his or her own learning;
- **for life**: learning will not cease at 16, 18, or 21, but will need constant updating to be useful and valid, with the individual owner of the skills passport being responsible for ensuring that updating takes place; and
- **dependent on partnership**: its credibility requires the support of the whole community - governments, employers, educationalists and trainers.

The CBI goes even further to suggest a learning contract in which:

- the Government will fund foundation learning, deal with failures of the learning market and foster lifetime learning for all
- the Employer will fund all employee training in terms of job-specific and firm-specific learning, will contribute to broader knowledge and skills that will assist the employees longer term performance and will support foundation education through education business links
- the Individual will fund all those aspects of learning throughout life which are not employment related or part of foundation learning, and will pursue opportunities to develop core transferable skills.

Development of a skills passport scheme, according to the CBI, would require the creation of world-class outcomes from foundational learning, employer commitment to lifetime learning, and long-term funding. The motives are not dissimilar to those held by Canadians.

2.4 In Australia

In 1992, the Australian National Training Authority (ANTA) was established to develop a national system of vocational education and training. It was given a specific task by the heads of government to coordinate, plan and allocate funds for publicly-funded vocational education and training, and ANTA is "committed to ensuring that the money it spends on behalf of

governments and taxpayers brings results." The national goals are very similar to the mission of the CLFDB, i.e., to:

- build a more effective, efficient and collaborative national training system,
- improve the quality of the system,
- improve opportunities and outcomes for individuals,
- improve responsiveness to industry needs,
- ensure equity within the system, and
- increase public recognition of the value of vocational education and training.

According to ANTA, the existing training market is likely to become more competitive and training providers will need to ensure that they have a client-oriented approach which will include providing a clear, administratively simple and non-bureaucratic means of accessing what is available, tailoring provision of training to specific needs, emphasizing quality outcomes and client satisfaction, and being innovative and adopting best practice. ANTA states that quality assurance measures must be developed and implemented on a national level to provide mechanisms for monitoring standards and evaluating performance.

Some specific ANTA objectives are to:

1. outline measures to ensure private providers are able to be registered and their courses accredited, and ensure that both private and public providers are equally recognized;

2. develop a streamlined, industry-driven accreditation system which ensures the effective operation of the National Framework for the Recognition of Training (NFROT);

3. participate in a range of national cooperative activity which will further the implementation of key training reforms such as competency-based training, recognition of prior learning, development of State Training Profiles, and strategic planning;

4. develop and implement strategic planning processes that ensure efficiency and effectiveness in planning, process development and linkage building, especially in relation to resource allocation decisions, industry involvement, and provider responsibility and contributions; and

5. develop quality approaches across a range of areas such as resource management, capital works planning, curriculum and delivery at the system or provider level.

It would seem that either the NFROT system (# 2 above) or the State Training Profiles (# 3 above) might be learning records as conceived of by the CLFDB. Actual development is currently unknown.

2.5 In New Zealand

As a part of a *Skill New Zealand* strategy which commenced in 1991, the *National Qualifications Framework* (NQF) program has been "designed to facilitate continuous training, skills upgrading and retraining throughout an individual's working life". According to the Prime Ministerial Task Force on Employment (1994), NQF "aims to do this by allowing skills to be formally recognized no matter where or how they are learnt, and by making it easier for similar components of one qualification to be cross-credited to another" (p. 72). The foundation of the NQF is the *unit standard*, defined as the criteria against which performance in a particular area of skill or knowledge will be measured; qualifications will be made up of tailored packages of credits; and any provider can offer any course, as long as they are accredited to do so. In New Zealand, Industry Training Organizations (ITOs) are responsible for identifying their industry's current and future skill needs, setting national NQF unit standards, and developing training packages. In the identification of key themes and issues, the Task Force on Employment concluded that "employers and trainers need accurate and user-friendly information about the knowledge, skills and attributes of potential employees and students." This would point to or support the notion of a skills record, but as with Australia, the development of a learning record is not currently known.

2.6 In conclusion

It is conceivable that there are good examples of learning records to be found in other countries. More likely, in many jurisdictions, the need has been identified and efforts are under way. For example, mention of "a European Individual Portfolio Pilot Project managed by the National Council for Vocational Qualifications on behalf of the European Commission with the cooperation of education, training, employment and career organizations and the European employers' and trade union confederations" is made in a recent British document. The various developments, in general and particularly in Canada, are driven by a variety of changes in the labour market, in labour force development, in industry, and in society at large.

3. Contextual Developments Related to a Learning Record

3.1 Innovations in resumé writing

The labour exchange function, matching people and jobs, is facilitated in large part either by application forms created by employers or resumés created by individuals. There is a whole field of endeavor centred on the creation of resumés, ostensibly as a marketing tool for individuals and as a job-matching tool for employers. In some measure, this is a project to create standards for a new form of resumé. In recent years, the field of resumé writing has grown and changed.

While the traditional resumé of education and/or work experience, and the more academic curriculum vitae still exist, new forms of resumés have been created. For example, a business consultant (President David Cawood of Mackenzie Institute in Vancouver) says that a resumé should portray a person with all the characteristics of success. He charts the "old and new styles of resumés" this way.

The Old	**The New**
industry experience	a fresh perspective
steady but fast upward progression	at least one period of reflection, probably caused by a setback
brimming with self-confidence	prepared to admit errors
aggressive and dynamic	sensitive and reflective
great problem solver	great problem finder
superb time management, always busy	major periods of "doing nothing"
in control at all times	on the brink of losing it sometimes
assertive - gets what s/he wants	realizes that what you want may be the last thing you need
has an answer for every question	has a question for each answer
well connected to the establishment	well connected to themselves

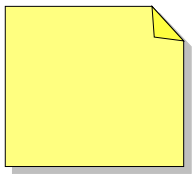
The skills and knowledge required of workers is always changing; however, the change signalled here is quite fundamental. With the increased demand for individual responsibility and innovation, the nature of resumés and other formal application documents has changed. It used

to be that one perhaps differentiated between a functional and a chronological resumé. Now there is a much wider variety, and the "standard" resumé may be a thing of the past.

In some respects, resumé writing and career planning have become combined. For example, the "what color is your parachute" series advocates an interconnected approach to career development. Another example is an interactive microcomputer software program for young people, available from HRDC. *Knowledge Opens Doors: Get a Life... Get an Education* is on a free diskette with accompanying booklet. An individual follows the directions to create a type of portfolio of self-identified interests and strengths in three categories: skills derived from hobbies and activities, interests derived from volunteer job choices, and strengths derived from the students favorite subjects in school. It is cursory to say the least, but it is a good introduction to the concept of both resumé development and a skills record for youth.

At the other end of the spectrum, employment application forms have undergone much change. On the one hand, legal requirements have made certain information mandatory and other information privileged. According to the College of Nurses of Ontario, developing application forms that require applicants to identify prior learning and explain how it meets performance criteria for required competencies has been extremely difficult. The candidate recruitment and selection procedure has become a science in many cases. It is conceivable that a learning record might contribute either positively or negatively to that process.

From one perspective, a learning record may be a new form of resumé. A learning record could be a sum total of "this is who I am, what I know and can do." From another, it may be a backup to the creation of a targetted resumé. It may not make sense that a person passes his/her learning record out to all and sundry. **What is/should be/could be the connection between a learning record and the labour exchange function?**



3.2 The changing nature of work

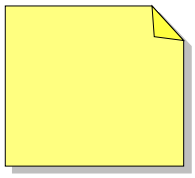
Do we need to bother to apply for jobs any more? We strongly suspect that the majority of jobs are not filled through standardized matching processes, but rather through personal contacts. We know that there are fewer and fewer full-time, regular jobs. We know that more people are expected to operate as entrepreneurs and knowledge workers, selling skills and knowledge to a variety of employers. Everyone acknowledges that the nature of work is changing[17]. The changes are characterized, for example in HRDC's 1995/1996 *Prospects: Canada's Guide to Career Planning,*[18] in the following way.

CONCEPT	OLD "THINK"	NEW "THINK"
Work / Career	A full-time permanent job is the only acceptable work and career choice.	Other work options may suit you better: part-time employment, job sharing, multi-tracking, or self-employment.
Success	Success is promotion and a climb up the corporate ladder.	Success is personal development and engaging in activities which mean something to you personally.
Job Security	The longer you stay with the same employer, the better. Your personal security is linked to the permanence of your job.	Chances are you won't stay in the same job long. Your job security is linked to your personal competence, transferrable skills, and adaptability.
Career Development	The organization is totally responsible for your career development.	You are responsible for your career development and ongoing learning.
Work Values	Loyalty to a company is valued in itself and is rewarded by job security.	Your are valued for your ability to contribute to a task and to adapt to new demands.
The Company	The company is like a nuclear family and will take care of you.	The company is like an extended family based on partnerships, networks and shared responsibilities.
Company Structure	The company structure is based on a chain of command involving clearly defined jobs.	The company structure is based on work that needs to be done by teams. Team members may have to perform many different jobs.

[17] There is a vast literature on the changing nature of work. It is, however, contradictory. Demographics indicate one set of trends, eg., in *Boom, Bust and Echo* (Foot and Stoffman, 1996) while implementation of NAFTA implies another.

[18] page 19, adapted from *Radical Change in the World of Work* by Kris Magnusson and Barrie Day.

These and other changes in the nature of work emphasize the need for new means by which to describe workers, jobs and matching processes. For example, what skills and knowledge do entrepreneurs and knowledge workers have? **It may be that** the language currently used to describe strengths and abilities is dated, and that **a new language is needed to describe the contents of a learning record.** Or it may be that it is impossible to have one "language" or one type of learning record.



3.3 The proliferation of electronic labour exchange systems

The labour exchange process has been operated both publicly and privately for as long as there have been labour markets. Just as there are sweeping changes in resumé preparation and in the nature of work, there are changes in the labour exchange function. One of the newest forms of employee-job matching is the electronic labour exchange, and systems are proliferating at an unprecedented rate. At production of this paper, the following are but a sample of what is available on the Internet for employment and employee seekers. In addition to job newsgroups as free fora for posting resumés, there are:

- for jobs in Canada,
  - Netjobs at http://www.metjobs.com/

    NetJobs Information Services regularly runs an ad in Maclean's magazine, and it says it "is the Canadian Career Centre on the Internet. Employers and Job hunters can access current and timely employment related information such as our extensive career listing and resumé databases, along with information on trends, career fairs and links to other sites. NetJobs allows all computer literate, progressive individuals to connect with Fortune 1000 companies. Access to all information is FREE."
  - JobMatch

    JobMatch[19], "one of Canada's largest resumé database services" claims to have over 42,000 resumés, in over 3,000 categories, on file nationwide. Employers receive resumés free; job seekers pay $25.00. JCI Technologies Inc. says that it

[19] from an ad run relatively regularly in the Careers section of the Vancouver Sun.

is "a revolutionary new service to Canadian companies" and that employers will receive resumés of "qualified" job seekers.

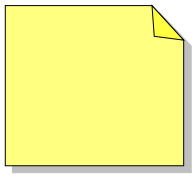
- for employment agencies,
  - Recruitex at http://www.recruitex.com/

- for employees internationally,
  - Manpower,with world headquarters in Milwaukee, at www.manpower.com, which claims to connect employers to 1,500,000 talented workers in 41 countries.

- for jobs internationally,
  - E-Span Career Pro Database (US-based) at http://www.espan.com
  - Online Career Centre (US-based) at http://www.occ.com

According to Gillian Shaw, who writes for the Vancouver Sun[20], a general job search on E-Span Career Pro Database, using only the keyword *engineer* produced, in April 1996, 2,433 listings and that was up from the 2,328 for the same search a week before. The same search on Online Career Centre produced 3,443 items.

What is most significant for purposes of this project is that every electronic matching service is different. They are unique and they cannot relate to each other. How the consumer benefits from this is a mystery. **Should there be a direct relationship between a learning record and an electronic labour exchange function?**



[20] from an article in the Vancouver Sun, April 2, 1996 entitled *Simple text will help your job-seeking efforts on 'net* by Gillian Shaw.

3.4 Labour market information systems

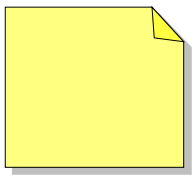
The labour exchange function is a portion of the larger labour market information (LMI) system. Considerable effort is currently being expended by HRDC, the CLFDB and others to develop a national system of LMI services. As stated earlier, a learning record could dovetail with innovations in the labour exchange and career development processes. It is hypothesized that a LMIS (Labour Market Information System) should be like a three-legged stool. One leg is information about jobs available, another is about training and career development available, and the last is about the people available for and/or needing the jobs and/or the career development. The platform on top the legs is the matching process, for which technology is increasingly used.

One such example, a part of Canada's developing LMI system(s), is the *National Graduate Registry*. It provides an sample of the information that an individual, in this case a recent graduate of a post-secondary educational institution, could enter into an ELE system. Another example is *JobScan,* a computerized skills profile linked to Canada's occupational classification system. Both will be demonstrated to the Working Group when they meet.

Typically, labour force or labour supply data has included, among other things, the following demographic characteristics: age, race, sex, occupation, income level, welfare status, educational level, interests, skills, work history and previous earnings. Currently, the information that people enter about themselves is self-selected and self-described, usually unverified and unverifiable, on a checklist approach, and devoid of reference to non-formal learning.

The pivotal questions for purposes of this project are:

1. How do individuals describe themselves when they enter an electronic labour exchange system?
2. Is this method the best method possible?



It may be hypothesized that a Learning Record could become the third leg.

The CLFDB has just released a document entitled *Putting the pieces together: STEP II, Toward a coherent labour market information system.* From that document, it becomes clear that there are a wide variety of approaches to an electronic labour exchange; that this causes problems

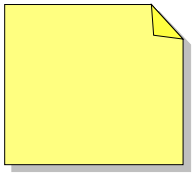
for workers, employers and educators; and that standards for "standardization" may be needed.

There are two important observations related to the current work on LMIS.

The first observation is that, in the Categorization and Sample Types of Labour Market Information (Appendix 3 of that CLFDB document, pages 33-35), there is **no mention** of information about individuals. The list **does** include:

- career information (with 12 subcategories)
- labour market information (with 12 subcategories)
- education and training information (with 12 subcategories)
- educational institution information (with 6 subcategories)
- work experience programs, including training provided by professional associations
- costs
- course information

This project, therefore, is an opportunity to add an important category of information to the work on developing LMI, perhaps round out the LMI system. The third appendix does list the categories of LMI users, and again, the list is perhaps inconclusive but instructive. It includes some sub-categories of job seekers and training seekers.[21] **More importantly, who are the intended users of a learning record system?**



The second observation is that the proposed standards for LMIS may have direct applicability to the Learning Record, especially if it is hypothesized to be a part of LMIS. The CLFDB Steering Group on LMI recommended the following *eight standards* "that would coordinate all aspects in the development and use of electronic Labour Market Information Systems in order to meet a diversity of client needs, especially those who are least equipped to access this information."[22]

1. *Accuracy and adequacy*

   The usefulness of an integrated LMIS will depend on its accuracy and adequacy, which will be ensured through, for example, the following elements (all of which are currently missing):

   - linkages between private and/or public sector-developed occupational coding structures or skills checklists (eg. the National Occupational Classification

[21] See pages 37-39 of the 1996 CLFDB report of the Steering Group on Labour Market Information.

[22] From pages 16-21 of the report.

System, JobScan, Graduate Student Registry)
- a universal structure with common definitions for education and training course information
- complete sets of national occupational standards
- verification of information about job seekers.

2. *Accessibility*

   A LMIS should be accessible to all. Access to technology, affordability, language, standard protocols, and accommodation for persons with disabilities are among the difficulties that limit use of an electronic LMIS.

3. *Privacy*

   Privacy should be safeguarded, and only legitimate users should be able to enter the system.

4. *Employer awareness*

   A LMIS must be simple to use and able to respond to diversity of workplace needs.

5. *Balance in ownership*

   No single interest should maintain total control over the information.

6. *Diversity of delivery modes*

   Information should be provided in the greatest number of delivery modes possible, eg., braille and synthesized voice, multi-media such as video and graphics, through kiosks and television and the Internet.

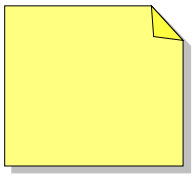
7. *Interrelationship of information (categories)*

   The various categories of career, education and labour market information must be interdependent. "Job seekers should be able to determine the skill sets employers need and employers should be able to determine the skill sets of individuals." The information should be electronically exchanged, and special help should be available.

8. *User self-reliance*

   Users should be able to access the information with little or no outside intervention. The goal should be to develop common user-friendly systems that have the greatest possible compatibility with clients.

Again, these standards might serve as a beginning to the process of developing standards for a Learning Record. What's missing? Perhaps currency, cost...



For individuals, there is clearly an advantage to having a Labour Market Information System that they can actually use. The potential benefits of LMIS for employers are reduced cost of hiring, wider coverage, identification of skilled workers, improved human resource planning efforts. For the education/training industry, the benefits relate to better marketing and better identification of consumer needs. However, the CLFDB LMI Steering Group has clearly stated that, in Canada today, there isn't an effective labour market information system of information gathering, and there isn't an effective labour exchange system that is used by a significant percentage of employers hiring people, accessible to all job seekers, fully integrated from the local to the national level, and/or operated at a reasonable cost to the individual and society.

3.5 Labour mobility

Policy-makers have discovered that there have been systemic barriers to labour mobility, and that provincial policies prevent transferability and portability of occupational credentials. In some regions, jobs exist but workers aren't locally available; in others, high unemployment rates reflect a surplus of workers and a shortage of jobs. For a number of reasons, this has been recognized as a problem, and "remedied" through the introduction of the Agreement on Internal Trade. Effective July 1, 1995, federal, provincial and territorial governments have agreed to remove barriers to interprovincial trade and ensure the free movement of persons, goods, services and investments within Canada. The objective of Chapter 7, which deals with labour mobility, is to enable workers qualified for an occupation in one part of Canada to have access to employment opportunities in any other province or territory. The backgrounder on Chapter 7[23] indicates that three barriers have limited labour mobility: residency requirements; practices regarding occupational licensing, certification and registration; and differences in how occupational qualifications are recognized. The Chapter states that:

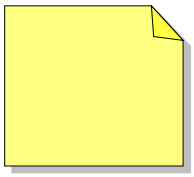
1. Residency requirements will no longer be permitted.

[23] *Opening the doors to Canada-wide Employment* (Forum of Labour Market Ministers, 1995).

2. Practices for licensing, certification or registration of workers in a regulated occupation are to be based mainly on competence, rather than the length of training.
3. Differences in occupational standards, between provincial jurisdictions, are to be reconciled.

The second requirement or policy change removes reliance on credentials and reinforces the value of "prior learning." That is to say, it is possible for an individual to demonstrate competence and acquisition of the required skills, knowledge and abilities as an option to having the provincially recognized credential. The entire process of improving labour mobility is enhanced by a learning record that indicates the individuals skills, knowledge and abilities in a relatively standard fashion. Without a learning record, an individual might have to provide evidence of achievement/competence every time s/he moved and/or applied for a new job. Among other things, the cost of continual validation of learning could be prohibitive. An alternative process might be to attach a clear statement of all skills, knowledge and abilities that each and every academic and occupational credential represents.

It may be that the an effective way to approach the development of a learning record would be to work with the provinces directly through the Forum of Labour Market Ministers, particularly as it contributes to the Labour Mobility Chapter.



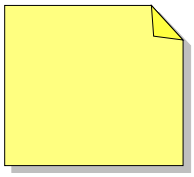
3.6 Education and training reform

Canada's education and training system is changing. In some cases, there is external pressure for reform. For example, Ron Farris[24] studied training reform in various countries, and he concluded, first, that there is a particular set of reforms needed to develop a world-class training system; and second, that Canada is far behind other countries in these reforms (please see Appendix B). The CLFDB and many others are pressuring for a training system that is effective, efficient and equitable, through, for example, consideration of the same reforms listed by Farris. The impetus is, in large part, pressure from the globalized economy in which Canada's labour force operates. As well, there is internal impetus for change; and the formal education/training

[24] Farris, R. (January, 1994). *Major reforms in training systems in five countries: A review of reforms in Scotland, England and Wales, Australia, New Zealand, and the United States.* Paper prepared for the BC Ministry of Skills, Training, and Labour.

system is struggling with such challenges as reduced funding, competing demands for resources, stakeholder demands for accountability, and customer dissatisfaction. Appendix C is a brief overview of eleven ways in which Canada's education and training system is changing as identified by FuturEd Associates.[25]

This is the "education/training" context in which a learning record must find a place to connect and to be useful. Clearly, it is a part of the larger reform movement in the education/training community.

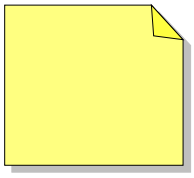


[25] Excerpted from a paper, *Education in the future for the future*, presented at the World Future Society annual general assembly, Washington DC, July 1996, by K. Barker.

3.7 Human capital accounting

Moving from the field of education/training to business and economics, the learning record is set in the context of innovation in accounting, asset management, and knowledge industries. Human capital accounting is related to systems for intellectual capital accounting being developed for business firms.[26] Intellectual capital measurements are intended to see whether a company's total body of knowledge is growing, and to suggest ways in which a company can use its intangible assets better. Intellectual capital data might include, for example, how much a company spends on information technology and business development; ownership of patents, specialized databases, information systems and customer goodwill. Measuring intellectual capital may be like giving a company a corporate IQ test. Companies such as Northern Telecom Ltd., Canadian Imperial Bank of Commerce and Dofasco Inc. are developing ways to measure intellectual capital. The Canadian Institute of Chartered Accountants and the Society of Management Accountants of Canada have launched an effort to develop standard ways to measure intellectual capital. "At the very least, the attempt to measure intellectual capital draws attention to underutilized bodies of knowledge within a company." At S.A. Armstrong Ltd. in Toronto, there is an intellectual capital scheme that encourages people to identify areas of expertise and to share their knowledge throughout the company, and this has resulted in twenty new product creations over the past two years.

It is not a far stretch to imagine ways of measuring human capital and human assets, that is, the skills and knowledge embodied by employees, individually and collectively. A learning record could conceivably become a human spreadsheet.



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[26] from Eiley, B. (June 1996). Bean counting for brains, *Canadian Business,* p. 71-72.

3.8 Prior Learning Assessment and Recognition

The CLFDB, with HRDC and many other agencies, has promoted the assessment and recognition of all types of learning: formal and non-formal. In contemporary society, formal credentials acquired through formal learning have become the means of recognizing learning for employment purposes. It is now recognized that learning takes place not only in formal learning institutions, but in the workplace, the community, the family and leisure activities. It is now recognized that that learning is valuable, can be assessed, and should be recognized and "used" by learners, employees, educators and employers. The process of Prior Learning Assessment and Recognition (PLAR) captures this concept, and logically leads to the development of a learning record. If a person goes through the process of identifying, describing and gathering evidence for his/her own learning, it only makes sense that s/he should keep a record of that. If nothing else, it removes the need to replicate the process; and PLAR can involve a considerable amount of time and effort. Two observations are relevant here.

The first observation is that, while PLAR has gone a long way to acknowledge and reinforce the value of non-formal learning, it is still in the early developmental stages. The means by which to assess and recognize non-formal learning are just being explored. It would be nice if a learning record could adopt the language of non-formal learning from the PLAR field, but no such luxury exists. It does make sense to dovetail efforts however.

The second observation is the utility of the PLAR standards that have just been developed. They may serve as both a model for format and content for the Learning Record Standards. The purpose of the standards is to ensure that PLAR is developed and applied in a effective, efficient, equitable, transparent, reliable and valid fashion across Canada for the benefit of individual Canadians and of the labour market. The implementation of PLAR on a national basis is intended to achieve six important public policy goals: the efficient use of resources, the development of a lifelong learning culture, the advancement of social justice, co-ordinated and coherent labour force development, education and training reform, and the management of change specific to labour force development. The following principles comprise the recommended minimum standards for Prior Learning Assessment and Recognition in Canada.

1. PLAR must be accessible and relevant to people as individuals, i.e., it must focus on the unique needs and abilities of the individual.

2. Assessment and recognition must be of learning (knowledge, skills, and judgement acquired through study or experience), not of experience.

3. The PLAR process must equitable, i.e., barrier-free and bias-free.

4. The PLAR process must be efficient, i.e., make the best use of resources for the individual.

5. The PLAR process must be effective, i.e., it must provide the opportunity for recognition of the prior learning, and it must not hold out false promises.

6. The PLAR process must be transparent, i.e., the individual must know the criteria against which s/he is being assessed.

7. The assessment must be reliable, i.e., it must be against criteria that are recognized and respected by all the labour market partners, eg., occupational / skill standards, stated learning outcomes, stated credential requirements.

8. The assessment tools and their PLAR application must be valid, i.e., they must be recognized and accepted by all the labour market partners.

9. Individuals assessing prior learning must be trained to perform this task.

10. The assessing organization must provide assessment options, and the opportunity and assistance for individuals to make choices.

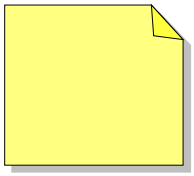
11. Recognition awarded through PLAR should not be differentiated from that awarded in the traditional manner.

12. Recognition resulting from PLAR should be transferable and portable within and between organizations and jurisdictions.

13. PLAR must be an option or opportunity, and not a mandatory process.

14. An appeal procedure must be available.

Are these relevant to a learning record? What are the general principles that must underly a Learning Record if there was to be one?



In conclusion, there are a wide variety of initiatives and concerns that form the context for a learning record project. What else would you add?

4. The Learning Record as a Public Policy Issue

Like Training Standards and PLAR (Prior Learning Assessment and Recognition) before it, the Learning Record is imbedded in a complex set of national (federal/provincial) public policy issues. Some of them are discussed above. Others include: changing responsibilities for training and labour market management (devolution to the provinces); national standards and standard setting; national unity; technological innovations and industrial development; economic globalization; credentialism and workplace change; development of a lifelong learning culture; human resource development practices. In fact, it is the interrelationships between national unity, national standards, and devolution of federal responsibilities to the provinces; challenges to Canada's credentialling system, i.e., its formal, public education and training system;[27] and economic restructuring and globalization that form the basis for much innovation in labour force development. In this context, any proposal for a Canada-wide learning record system and national standards that describe the content, development process, and usage is clearly a major public policy issue.

4.1 The Learning Record as a Public Policy Issue

The design and implementation of a Learning Record policy/strategy is related to a number of separate by interconnected public policy issues. Policy development requires addressing such questions as the following.

1. In Canada, what is "the problem" that a Learning Record, given all that we know about it, can address? What are the policy options or alternatives, in addition to a Learning Record, that address this problem? Is a Learning Record the best policy option?

2. In Canada, what is "the problem" that a Learning Record, should address? What are the underlying values and assumptions of the problem and the "solution"? What are the implications and potential outcomes of this policy option?

3. What would a Learning Record policy look like? Who has responsibility to develop and implement such a policy? How does it meet the following criteria?

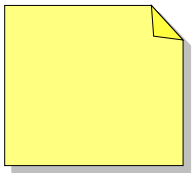
[27] This is explored more fully in the background paper to the PLAR project, available upon request from the CLFDB (613-230-6264).

3.1 Will the policy action result in a net gain in socioeconomic efficiency and can those who gain compensate the losers? (the Kaldor-Hicks Criterion)

3.2 Will the policy action result in at least one person being better off and no persons being worse off? (the Pareto Criterion)

3.3 Will the policy action result in a gain in welfare for the members of society who are worst off? (the Rawls Criterion)

4. What is the current "policy" guiding the development and implementation of a Learning Record in Canada?



One view of the answers, that largely reflects the perspective of the CLFDB, is found in Appendix D, an article written by Lenore Burton and Kathryn Barker for the periodical *Policy Options.*[28] The article concludes that, in partial answer to the public policy questions, standards are necessary, national standards are necessary, and national standards specific to labour force development in Canada are necessary. It is worth a reminder that the CLFDB develops **recommended** standards, as it has no authority of implement or enforce standards of any kind.

Members of the Working Group should have constituent views on the questions posed above; and the purpose of the project is to arrive at a consensus view, taking all constituent views into account.

4.2 National standards as public policy

The term "standards" is always contentious. "National standards" is even more contentious. Nonetheless, the labour market partners at the CLFDB have arrived at the conclusion that they will use the terms and leave the debate about terminology behind. The following is excerpted directly from the policy paper on PLAR which was adopted by the CLFDB board in July 1996.

> Standards describe what is acceptable and what isn't; therefore, standards are a standard means by which to implement public policy. The U.S. Office of Technology

[28] published in the June 1996 edition as *National Standards for Canada's Workforce* (p. 46-48).

Assessment, in its 1992 document *Global Standards: Building Blocks for the Future*, observes the following.

> *Standards govern the design, operation, manufacture, and use of nearly everything that mankind produces. There are standards to protect the environment and human health... There are even standards of acceptable behaviour within a society. Standards generally go unnoticed. They are mostly quiet, unseen forces, such as specifications, regulations, and protocols, that ensure things work properly, interactively, and responsibly* (p. iii).

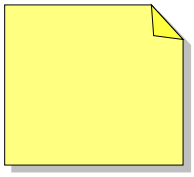
Standards, like policies, exist whether they are clearly stated or just generally accepted; however, standards that are not clearly stated often allow too much room for interpretation, confusion and abuse. Fair and justifiable formal standards are often needed to ensure quality of products and accountability of systems. In the view of the labour market partners, this is the value of national PLAR standards. These standards are not intended to supplant institutional or organizational policies; they are intended to be a comprehensive description of best practice in Prior Learning Assessment and Recognition. Best practice in PLAR ensures that prior learning is appropriately recognized so that individuals have access to training and employment.

The Office of Technology Assessment also notes that standards are developed or achieved by one of three methods:

1. by government, though a regulatory process (authority);
2. through the market, on a de facto basis (custom);
3. negotiated through a voluntary consensus process (consent).

The CLFDB process is the latter process, i.e., these recommended national PLAR standards have been developed and recommended by labour market representatives on the Board and its PLAR working group. While the CLFDB has no authority to enforce standards, it has the responsibility to generate recommended national standards that describe best practice and contribute to the achievement of a labour force development system that is effective, efficient and equitable.

It is conceivable that the same can be said about standards for a Learning Record. Is there another body that could/should set national standards for a Learning Record? Are there any real or dangerous drawbacks to recommended national standards for a Learning Record? How does one implement recommended national



standards?

5. Issues and Questions About A Learning Record

The development of a standardized Learning Record is far from easy. The following section illustrates some of the issues and questions that surface. Again, this list may not be complete; it is intended to illustrative.

5.1 Terminology

Labels are important, and words come heavily loaded with different connotations for different age groups, ethnic groups, regions of Canada, indeed, all the labour market partners. As stated earlier, one of the toughest tasks is to appropriately label the concept embodied in the learning record as it is conceived of here.

- Is it a Skills Passport, the term used by the Confederation of British Industry in the UK? Does the word "skills" encompass all that a person has achieved or acquired?
- Is it a Learning Passport, the term used by former HRDC Minister Lloyd Axworthy and by the Corporate - Higher Education Forum? What does "learning" mean?
- Is it a Skills Portfolio? Does this create confusion with portfolio development as it relates to PLAR?
- Is it perhaps "a cumulative record of achievement" or a "human capital account"?
- Is it a Life Work Portfolio, the term used by the Oklahoma Department of Vo-Tech?
- What about Career Passport, the label used by HRDC[29] in *Canada Prospects: Canada's Guide to Career Planning 1995/1996?*
- How about Learning Passport and Planner, as in a proposed project at HRDC?
- What's wrong with calling it an individual profile, resumé, dossier, curriculum vitae?

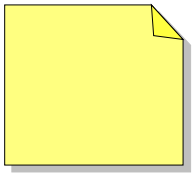
[29] available from HRDC, Career Information Partnership.

The most contentious terms seem to be "passport" and "portfolio," the latter because it has been associated by some predominantly with the PLAR process, with artistic endeavor, and/or as an alternative means of assessment. For example, portfolios, used in the ongoing assessment of learning in a formal teaching institution, may consist of research projects, science experiments or literary papers, artefacts, and tests accumulated by a student.[30] Students in a California high school have an electronic folder with different documents, *Hypercard* stacks, projects and graphics.

With regard to the former, "passport" was used consistently by the Corporate - Higher Education Forum because, they said, as a tool it would facilitate movement between the worlds of education/training and work. It may not be the best term if we throw into the mix, the learning world of life in general, i.e., non-formal learning that is assessed and recognized through PLAR. For some, a passport has been a document that prevented them from residing in Canada and from benefiting from Canadian society. In a nutshell, the Working Group has the important task of making recommended labels for the concept of a learning record.[31]

5.2 Utility

Elements that affect the utility of a learning record include: currency of the information, integrity of the information; flexibility; ease of development; ease of maintaining. Anything that can be conceived of as a barrier to use should be identified and addressed at the outset.



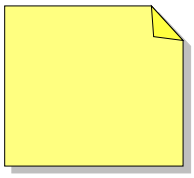
Different constituents will identify different limitations for a learning record. It may be, in fact, that such a system is impossible, given the sheer number of potential limitations. Is there an alternative?

[30] Promoted, for example, inreforms to education in the state of Oregon beginning in 1991.

[31] The term "record" even has the negative connotation of being what one exits prison with.

5.3 Values and perspective

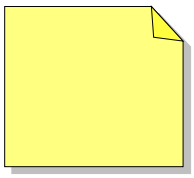
Can a learning record be value-neutral and perspective-neutral? Should it be? Is there a problem if the creator of the record holds certain values and the user holds different values? For example, in a section of a resumé entitled "Achievement" comes the following exhortation.



> "Think about what you did for each employer to make that company better... Did you have an idea which was implemented and saved the company money? Were you promoted several times due to your contributions? Were you given positive reviews, and why? Were you selected for a key program or training? ...These points show your worth."[32]

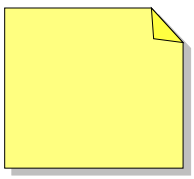
"Worth" and "achievement" are culturally loaded and affected by gender, age, ethnicity, ability.

In a related manner, is it possible to embody more than one perspective in a learning record? Is it necessary to encompass the perspective of the writer/producer with the perspective of any or all consumers/users of the learning record? If only one perspective can be accommodated, which one is most appropriate?



5.4 Costs and cost savings

Unquestionably, there are costs associated with the creation of learning records. Are there counter-balancing cost savings? Is there evidence that a system of learning records benefits individuals and society?



According to CHEF, the record of prior learning or skills is at the least a personal investment. In order to establish such a record, an individual must be capable of

[32] from *A Guide for Resumé Writing,* produced by Southworth Company of West Springfield, Massachusetts, and distributed with quality paper for printing resumés.

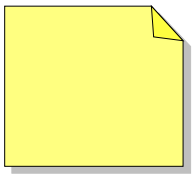
introspection, must possess the vocabulary to recognize and name his own skills and knowledge, and must be able to establish the relationships that exist between certain learning and knowledge that result in his acquired skills. In short, not everyone is capable of this exercise. The cost of assistance and guidance just for the establishment and updating of this type of document must be acknowledged.

5.5 Technological implications

Anyone who has tried to use the Internet or who finds him/herself continually upgrading computer hardware and software knows the nightmare of differing protocols. Clearly, if a Learning Record is to be digitalized and automated, one set of protocols is needed. Some of the issues that have been identified include:

- text format: different computers and programs produce different results, so a particular format may not translate well to someone else's screen
- use of headers for "surfing, " i.e., what fields are necessary? appropriate?
- timing and currency: how current is current?
- security: is encryption sufficiently developed to ensure privacy of and access to information?

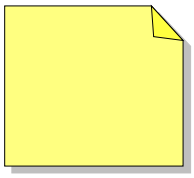
Many of these problems are partially addressed by the recommended LMI standards outlined earlier. The real problem may be determining if there are answers to these questions, and who has them.



5.6 International credentials / multicultural values

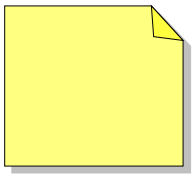
This issue is more fully discussed in the background paper to the PLAR project. Suffice it to say at this time, all of the problems with identifying and verifying skills, knowledge and credentials in the Canadian context are multiplied in the international context. It may be that there is an appropriate international body that provide valuable input into this project.

5.7 The debatable necessity of a fixed record



On the Electronic Labour Exchange, a job seeker fills out a skill profile in response to those skills listed for a particular occupation. That is to say, the job seeker **first** selects a category of job which, based on the National Occupational Classification System (NOC), lists the required skills. In this process, the individual doesn't enter a resumé, and there is no need for a fixed, comprehensive list of the individual's skills and knowledge. This raises the question, once again, of whether or not it is desirable to have a learning record substitute for a resumé, given the notion that a record will contain mention and validation of skills/knowledge that may have no applicability to the job in question. A supplemental question becomes: can an employer be so certain of exactly which skills and knowledge are required, no more, no less?

5.8 Perceptions of sources



"On a resumé, the reader will often equate your value with that of your employer." So saying, one authority tells the resumé writer to "build up" a former employer/industry if it is not a recognizable company. This points to the potential problem with sources of information and references. In fact, it may be just the problem that formal credentials get around: they have been accepted short-hand versions of the individual's skills and knowledge and the reputation of the credentialing body has been very important. It may be that no one has the energy to tamper with that system. How does one attempt to ensure that the sources of information are credible, reputable, honest, fair, unbiased....etc.etc.? This issue is discussed more fully in the next section on development processes for a learning record.

5.9 In conclusion

An professional placement/employment recruiter with international experience was asked about the concept of a learning record or portfolio as it is conceived of for this project. Here's what she said.

> *This works in the entertainment field, where, for example, VHS tape work samples are becoming the "norm". I started an entertainment division from practically scratch and created a format similar to this "format" . Since no SIC codes existed in any detail for the numerous entertainment positions I hired for, I created my own coding system where I could bring up all my, say, scenic carpenters with scroll saw experience. I got totally away from resumes with my system. Once I 'd ref checked a contractor for skill level, I didn't need to keep rechecking him/her in the future. I suspect this system worked because many contractors either had no resume, or a poor one. They were used to being hired on a who-knows-who basis. As well, the portfolio approach stop contractors from trying to pass off other people's work as their own. It also works well in the trades, i.e. plumbers, carpenters, etc., as I also implemented this program in this area, as well.*
>
> *On the negative side, traditional hiring employees may be reluctant to adapt. When I left the firm, my former colleagues were frustrated with the new way the entertainment department had been set up, and from what I heard from my former area manager, it took two people to replace me, as one was on almost full time duty writing traditional resumes for these contractors for internal use, as the clients didn't expect resumes.*
>
> *I predict the "smart card" idea will be a flash in the pan for some industries, and be a permanent fixture in others. Why? This idea works well in any entertainment, blue collar technical or clerical area where skill sets are emphasised. It might work for contract consultants. It makes hiring fast, simple, and direct - less speculation. The applicant either has the skills, or doesn't. Initial screening of "card printouts" can be done by a low level internal employee. As well, it is poor for management where intangible skills are emphasized. How to you quantify someone's ability to motivate a team?*
>
> *The idea may be great for a national recruitment database, especially if accessible through Internet, etc. But applicants may be feel this is a sign "Big brother is coming", and not want to be listed on a national database and be trackable. This could especially be the case if someone prefers to have it not known they are laid off or fired, or disclose their age by how long they've worked. There's a big difference in saying 10+ years work experience on a resume and having a smart card print out 38 years work experience in "x". Many employers do not want to hire retirement age people. If someone is trying to change careers, this could make it tough as they would be slotted.*
>
> *I predict we'll see a return to pictures on smart cards. Employers are faced with affirmative action hiring and want to comply. But many have asked me on the phone - what 's this person's "appearance"? Sometimes they mean, "clean cut", sloppy, "Buffy from Radcliffe" (inside recruiter slang for a pretty receptionist type), etc. Many times they want a minority to meet affirmative action requirements or in the case of crown corps, for "image". Crown corps tend to blatantly request a minority, such as aboriginal or female, no white men. I'm not saying this is fair or right, but employers want it, and I suspect it will come back. There's also a "look" to the type of people certain companies hire. Disney is a good example of this, as well as other entertainment industry companies.*

Finally, I feel smart cards should include the date of last drug screening. In L.A. , the percentage of worker's comp claims is substantially higher for illicit drug users.

There's nothing like the voice of experience to inject a lot of reality into an academic exercise.

6. Making Recommendations about a Learning Record

It is difficult to resolve the issues about a Learning Record without making some recommendations for content, development processes, format and medium. From the developments to date, there are a vast array of resources to draw on, and the following are examples. It may be assumed that standards for a learning record will encompass content, development process, format, and usage. The first step is to consider the general nature of a Learning Record, i.e., the basic policy issues.

6.1 Learning Record policy development

Developing a policy or standards for a Canadian Learning Record implies making recommendations for change or improvement in an existing system. Some guiding questions are the following.

1. What is the problem that a new, different Learning Record could solve?

    1.1 Is anything wrong with traditional methods, eg., functional or chronological resumé? If so, what?

    1.2 What does a learning record or resumé do, and has that function changed in any way?

    1.3 What are the characteristics of the public policy problem?

2. How would a Learning Record solve the perceived problem?

    2.1 What are the characteristics of a Learning Record, i.e., its recommended format, content, development process, and uses?

    2.2 What are the strengths and weaknesses?

The next step is more focused questions alluded to in #2.1 above.

6.2 Content of a learning record: skills and knowledge

It may be that the Working Group recommends the development of a unique and innovative list of potential skills and knowledge that individuals might possess. Chances are, however, that such a list exists, or that existing lists and ideas might be combined to advantage. From among the many established lists of skills, some are:

- traditional skill lists, eg., lists of "transferrable skills"[33] including:
  - technical, job-specific skills, eg., haircutting
  - functional skills, eg., communication, analytical, computational
  - self-management skills, eg., loyalty, integrity, flexibility
- new/emerging skill lists, eg.
  - change/transition skills in *Prospects: Canada's Guide to Career Planning*
  - entrepreneurial skills in *Minding Your Own Business* (HRDC, 1995)
- translating actions into skill statements, eg.,
  - *Skill Building*, a brochure produced by the Stay in School Initiative of HRDC
- skill verbs, eg.,
  - *Volunteer Skills Portfolio: Passport to the Paid Workplace*, a package developed by the Association of Junior Leagues, Inc., 1985
- employability skills, eg.,
  - five skill categories developed and promoted by Motorola Corporation in the US
  - the Employability Skills Profile developed by the Conference Board of Canada
  - sixteen workplace basics identified by employers and outlined in *Workplace Basics: The Essential Skills Employers Want* by Carnevale, Gainer and Meltzer (Jossey-Bass; 1990)
  - a comprehensive and succinct list of five competencies (ability to work with resources, others, information, systems, and technology) and a three-part foundation (basic skills, thinking skills, and personal qualities) found in *What Work Requires of Schools: A SCANS Report for America 2000* (US Department of Labour, 1991).[34]

[33] From *Beyond Credentials: Enhancing recruitment by assessing Transferrable Skills*, and *Beyond Credentials: Enhancing recruitment by assessing Applicant Values* (Alberta Career Development and Employment, 1992), and *Skills are your passport* (Alberta Career Development and Employment, 1988). A second set, called a Transferable skills inventory, has been produced by HRDC in a self-help pamphlet entitled *Looking at Yourself*.

[34] SCANS: Secretary's Commission on Achieving Necessary Skills for the US Department of Labour; an offshoot of President Bush's 1990 establishment of six learning goals for the nation's schools.

In a similar fashion, a learning record could draw on such occupational classification lists (in which skill/knowledge requirements are inherent) as:

- American Standard Industry Classification codes (SIC)[35]
- Canadian National Occupational Classification codes (NOCs)

Lists such as these are useful either for a checklist approach to skill/knowledge identification or a more narrative approach. Certainly, standardization is an asset to the process.

What is the recommended content of a Canadian Learning Record?

6.3 Development processes

The two most important issues here are probably the process of identifying an individuals skills and knowledge as distinct from credentials and work experience; and validating the claims of skills, knowledge and achievements of individuals.

6.3.1 Translating experience and credentials into skills and knowledge

It can be assumed here that the PLAR process is one means by which to translate experience and credentials into skills and knowledge. PLAR processes are varied, and include portfolio development courses, demonstrations, artifacts, and other evidence for acquired prior learning. It may be that there are other forms.

What is the recommended process of translating experience and credentials into skills and knowledge?

[35] The first number indicates the industry, and the following numbers break down the title within that industry. It's helpful in database searches and probably would be used on smart cards.

6.3.2 Validation of evidence

A Learning Record has severely limited utility if the claims of skills and knowledge cannot be verified. Credentials are relatively easy to verify; and credentials have, in the past, served as a short-hand method of displaying skills and knowledge. However, the issue of "integrity" of a Learning Record leads to both the type of evidence to gather and means by which to validate evidence in a concise and reliable fashion. Here are some examples of means by which this issue has been addressed.

One way to validate claims of evidence or achievement is to have supervisors or someone in authority validate with a signature. For example, the Sectoral Skills Council has developed a booklet that lists the program modules for a variety of training programs with the actual learning outcomes (general and specific skills) for each module. Under each terminal performance objective or specific skill is a place for the date, the supervisor's signature, the signature of a Joint Committee/JWTC Representative (labour), and the trainee's signature.

A second way is to extrapolate from years of experience. For example, the JobScan questionnaire for job seekers lists areas of expertise and categories of work setting or environment, and asks only for an indication of how many years of experience for each[36].

A third way is to extrapolate from the type of experience. For example, the system used by MedHunters, a recruiting firm for the healthcare industry, is to ask for a detailed description of where the individual has worked. The MedHunters system is fully electronic, and individuals enter data into a computerized database. The recruiters at MedHunters feel that they have enough experience to extrapolate from the individual's work venues (eg. a teaching hospital or a small town doctors office) just what skills and knowledge the individual has.

[36] JobScan is a service of HRDC.

A fourth way is to set up formal institutions, either mandatory or as a service. For example, in the US, the Centre for Adult Learning and Educational Credentials, part of the Amercian Council on Education[37], has the capacity to take formal responsibility for credentialing of learning acquired outside educational institutions and for assessing extrainstitutional learing validly and reliably. It does this through programs that focus on:

- linking the military education/training environment with the public system (AARTS: Army/American Council on Education Registry Transcript System; and Military Evaluations Program);
- evaluation of national standardized tests and professional licensure exams for college credit recommendation (Credit by Examination Program);
- alternate means for adults to earn high school credits (GED: General Education Development Testing Service);
- evaluation of formal training offered by business, industry, government agencies, labour unions, and professional associations for college credit recommendations (PONSI: Program on Noncollegiate Sponsored Instruction).

These are examples of processes that are followed, and options available.

What is the recommended evidence to gather?
What is the recommended verification or validation process?

[37] American Council on Education, One Dupont Circle, Suite 250, Washington DC 20036-1193.

6.4 Format for a learning record

It may be either impossible or imperative that there be one format for a Learning Record. Each example of a resumé or passport described in this paper is a sample format and/or medium. The range of variety includes:

- 3-ring looseleaf binders, like the British NRA
- a replicated Canadian citizenship passport, such as that included with the booklet *Skills are your passport* from Alberta Career Development and Employment (1988);
- smart cards (The concept is explained and expanded on in Appendix E).
- CD Roms
- collections of papers in folders
- kits with "fill-in-the-blanks" such as the *Volunteer Skills Portfolio: Passport to the Paid Workplace*, a package developed by the Association of Junior Leagues, Inc. (1985)
- digitally recorded checklists for electronic matching services, such as that of JobScan
- forms with blanks to be filled on the Internet, such as the National Graduate Register (Industry Canada)

Is there one recommended format for a learning record? If so, what?
Is there one recommended medium for a learning record? If so, what?

7. Conclusion

The Learning Record Working Group has a difficult task ahead of it. It may deliberate the public policy issues and determine a rationale for a Learning Record. It may discuss the pros and cons of one standardized Learning Record. It may examine different types of labour market systems and national standards; it may draw on them or ignore them. In the end, the goal is to generate recommended national standards that could guide the development and implementation of a Learning Record.

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Appendix A

Learning Passport Developments in 1994 at the Corporate - Higher Education Forum

◆ a report prepared by Patricia Roman, Vice President of the Forum, 5 August 1994

1. The Forum and the Learning Passport

1.1 The idea that the Forum might create a format (looseleaf booklet? computer disc?) in which adults would maintain a record of their knowledge and skills acquired through education, work and life experience was raised during discussion of the future higher education (1992-93). The name "Learning Passport" was suggested for this tool, since it would facilitate movement between the worlds of education/training and of work.

1.2 People increasingly are recognizing the need for lifelong learning to achieve success in life and work. They are discovering that they must identify their skills as well as their knowledge credentials for job entry and inevitable job change. The Forum's own work on skill development (*Making the Match* 1986) forecast these trends.

1.3 The Forum, through its membership of business and university leaders, is well positioned to synthesize industry's experience in defining the skills needed to perform work functions with higher education's experience in accrediting the mastery of knowledge in order to develop the Learning Passport.

1.4 Forum work on higher education over the last two years has highlighted the importance of viewing students as clients whose interests and needs must be identified and met. Moreover, the student population is changing as more part-time and mature students seek access, often for reasons different from those of traditional students entering from secondary school, and often on different schedules, with different priorities and different learning styles. Their prior learning would be more effectively recorded in a Learning Passport than the traditional transcript.

1.5 Employers could benefit from a document which presents the preparation of prospective and retraining employees in terms of their developing knowledge/skills base as perceived by them and, where appropriate, validated by the providers of education/training. In addition, having the student/employee responsible for maintaining this document puts responsibility for career management where business increasingly wants it to be.

1.6 Students/employees would benefit from taking charge of a personal learning plan, thereby becoming more aware of the need for continuous learning to fill gaps in skills/knowledge. Because of the growing importance of motivation for lifelong learning, this is an important inducement to development of a Learning Passport.

1.7 Institutional providers of continuing education should support the Learning Passport as a means to involve students more closely in the education and training process and motivate them for success. In addition, the Learning Passport may serve to encourage the integration of skill development into programs (e.g. general arts, social sciences) in which students are not aware that they are acquiring capabilities which serve a function in the workplace along with knowledge of a discipline.

2. Some Current Initiatives Relevant to the Leading Passport

2.1 A number of federal and provincial departments and NGOs are actively working to improve articulation and encourage equivalency standards across college, university and industry training programs (e.g. CLMPC, ACCC, HRD Canada, COU, Open Learning Agency in B.C., AUCC). Prior learning assessment (PLA) is an important part of the accreditation and articulation mentioned above. As this work moves forward, a Learning Passport would facilitate record-keeping and capitalize on decisions as they are made.

2.2 The PONSI program of the American Council On Education evaluates learning done outside universities (in industry, associations, colleges, for example) for equivalent university credits which are then recognized across all states. It has close to 200 sponsors who pay annual fees to cover costs of keeping student records and publishing an annual guide. Its budget is over $300k. It also reviews courses outside of the U.S.A and trains review teams. The Forum could seek its advice or recommend using its services for university accreditation of non-university courses in the Learning Passport.

2.3 University of Guelph has initiated a pilot project called "Taking Charge" in which students will keep records of their skill development throughout their undergraduate years. Skills have been defined in relation to the university's established learning objectives, which in turn have drawn from the *Making the Match* research of faculty member Dr. Fred Evers. This project suggests a possible test site for the Learning Passport.

2.4 In addition, some 15 Forum university members offer special programs to help their first year students take full advantage of their exposure to higher education. Further, the University of Manitoba, which has a history of surveying its own students at every level, is coordinating a cross-Canada survey (about 9 universities) of student needs, interests, attitudes and outcomes. Dr. Ray Perry of that university (a CHERD associate) has done substantial research which equates student success with "a sense of control in their learning environment" (such as a Learning Passport might offer them). The Forum's work on higher education for the past two years has tracked growing recognition of the need to better serve students who are becoming increasingly anxious about prospects for employment on graduation and throughout life. The Learning Passport offers a way to help students plan for the development of their job skills as they learn their disciplines, addressing these concerns.

2.5 Several Forum corporate members have developed/are developing comprehensive catalogues of the skills required for various positions, on the basis of which hiring, performance ratings and retraining planning are being done (e.g. Xerox, Imperial Oil, Canadian Bank of Commerce). This corporate experience would be useful in developing the Learning Passport.

2.6 In addition, new learning centres are being developed by corporate members in the

banking sector (e.g. Bank of Montreal, CIBC), primarily but not exclusively to serve employees. Again, this developing experience in new methods of training would be useful for the Learning Passport. (Note: VP Jim Rush at the Bank of Montreal co-directed with Fred Evers the *Making the Match* skills research.)

2.7 Universities with extensive and longterm co-op programs (e.g. Waterloo, Sherbrooke) and the relevant national university co-op association (CAFCE) have experience in validating work experience for university credit which would be useful in developing the Learning Passport.

2.8 Queen's and Laval universities faculties of education have been cooperating in a summer program to help teachers teach skills in the context of their courses (K-12 level). This experience might be extended to interested university faculty, so that they can help students to direct attention to skills development and record it in a Learning Passport.

2.9 A number of professions require continuing professional development by practitioners. The MOCOMP, or maintenance of competence, program helps medical specialists to self-direct and self-assess their continuous updating through use of a diary to record learning resulting from courses, reading, conferences, etc. in terms of its effects on practice. It is a model which has attracted the attention of other professions (e.g. architects) and should be considered in planning the Learning Passport

2.10 The province of Alberta is revising an earlier publication (1988) entitled *Skills are your Passport* for release in November 1994. The original publication, now out of print, is intended to help people assess what skills they have used in the past, enjoy using in the present and would like to develop in the future to plan for job entry or job change.

2.11 Holland College, Prince Edward Island, has pioneered competency-based education using DACUM (Develop A Curriculum) methodology. Certain features of this program are interesting in terms of the Learning Passport, although it is very specific in connecting precise skills with occupations as is appropriate for a community college. The concepts of rating and producing a record of performance and providing a warranty are interesting features.

2.12 A publication described in the *Bulletin* of the Association of Commonwealth Universities (on order, not yet received) suggests that there is some experience in the U.K on which the Learning Passport could draw: *Using records of Achievement in Higher Education,* Kogan Page London and Philadelphia, 1993.

Appendix B

Training Reform

Ron Farris studied training reform in five countries in 1994: Scotland, England and Wales, Australia, New Zealand, and the United States. He concluded that *the following are some of the characteristics of a reformed training system in a nation committed to creating a world-class workforce prepared for the knowledge-based global economy of the 21st century* (p. viii).

1. Partnerships: a long term commitment of government (both political will and resources) to create a world-class workforce by:
    - devolution of responsibility to the social partners for industry-based standard setting and assessment, and
    - decentralization of institutional management

2. Responsiveness/accessibility:
    - flexibility enabled by the building blocks of competency based, modularized curriculum delivered in various ways
    - recognition and equal value of learning regardless of how it was acquired
    - increased use of continuing education and open learning resources
    - increased attention to customized, just-in-time training to meet specific needs
    - increased access for equity groups

3. Relevance:
    - an emphasis on more and better school-to-work pathways
    - relating learning to the world of work and to life
    - building a strong base of general education and competencies for participants in restructured workplaces and economies

4. Quality:
    - a focus on reform informed by research and best practice, locally and internationally
    - emphasis on assuring quality inputs, processes and outcomes which meet client (learner, employer, funding agency) needs
    - the infusion of enabling technologies into the education and training systems to ensure world class learning and support systems - and international articulation

To this end, all five countries except the US have already established:

- national standards and certification
- competency-based modularized curriculum
- international articulation of standards and qualifications
- devolution of responsibility to social partners
- social partner support for reforms
- increased quality assurance

- increased institutional responsiveness and accountability
- assessment of prior learning
- facilitation of transfer and progression within or between occupations and/or education systems
- rationalization of trade qualifications
- increased multi-skilling training
- reformed apprenticeship
- youth training initiatives
- **applied electronic technologies to program/framework information systems, student information systems, and open learning systems**
- reformed funding systems

In Canada, there is evidence of movement towards training reform on most of these fronts, but few can be said to be concluded.

Like PLAR, to be effective in the labour market context, a Learning Record requires a system that enables portability and transferability of credits and credentials. The formal education / training community has primary responsibility for helping Canadians acquire needed credentials and workplace competencies. That community is fractured into a confusing array of systems, levels, standards, and types of providers who are often competitors. Credits and credentials acquired in one system and/or province should be recognized in all provinces or systems, and this requires great collaboration and co-operation inside the education / training industry.

Appendix C

Canada's Changing Education/Training System

◆ excerpted from *Education in the Future for the Future* (Barker, 1996)

Persistent calls for change to Canada's education and training system are heard from all quarters: parents, students, politicians, business leaders, employers, unions, taxpayers, concerned citizens. Much attention is focused on the perceived problems, but as much attention should be focused on how the system is changing. The changes are partially in response to criticisms and calls for accountability, and partially in response to unrelenting forces for change in all aspects of contemporary society. The following are eleven ways in which the system is beginning to look very different; not all changes are necessarily desirable.

It is changing, first, to an open system from a closed one. It is finally acknowledged that there is a Canadian education/training system of schools, colleges, universities and agencies, publicly-funded and for-profit. With few distinctions, across Canada classrooms, instruction, instructors, administrators, curriculum and materials look pretty much alike. Further, it is acknowledged that education is a production system of interdependent elements: inputs, processes, outputs, and feedback mechanisms. Changes in one element impact on every other element. Finally, as a social system, public education has been closed to its external environment, but the walls that kept the community out are coming down. New partnerships are being forged. The pressure has come from parents and employers, and from the environment, eg., government budget cutbacks that cannot be ignored. The education/training system is co-evolving with, eg., the labour market system, economic globalization, and community social development.

The second change in the formal education/training system is to a competitive position from a monopolistic one. The public education/training system has had a monopoly on credentials, and this is increasingly challenged by choice and competition at all levels: local charter schools, international certifying bodies, the Internet and computer programs, industry-specific sectoral councils, commercial institutions, and corporations like the Royal Bank, Disney and MacDonalds. In places, the education industry is blurring into the entertainment industry and into the media.

Funding cutbacks have caused the system to seek alternative finances. Where a charity model is applied, at universities for example, competition for donations is getting stiff. Competition is

stiff, too, where a business model is applied and institutions such as community colleges market education/training products and services for profit. The distinction between public education and private/commercial is blurring.

The third change is to an individualized approach from a bureaucratic one. The education/training system has been highly structured and regulated. The group instruction and evaluation mode has dominated. Increasingly there is a demand for individualization through applications of information technology, attention to individual learning styles, variety in delivery modes, and recognition for nonformal learning. The mass education system, with big institutions, big unions, big bureaucracies, is fracturing in the same manner as other societal institutions: government, the military, business, healthcare. Authority is being decentralized. Like other knowledge workers, educators are forced to think of themselves as entrepreneurs rather than employees.

A fourth change is to being responsive from being prescriptive. In the past, society accepted that the state and the education/training system knew best what people should learn and how they should learn it. Students were "empty vessels" to be filled. Rejecting this arrogance, students and their advocates, business and labour, taxpayers and politicians are pressuring for changes in all aspects of the sytem, and they are being heard. Power is shifting from the producer to the consumer through, eg., dissemination of consumer information like the MacLeans comparison of universities, and the promotion of Training Standards developed by the Canadian Labour Force Development Board.

A fifth change is to a cyclical process from a linear one. The education/training system has been age-dependent and time-dependent. All students six year olds have been in grade one and all students in first year university will finish certain credits in two semesters. Fixed entry and exit requirements aimed at the average have allowed for failure by those who aren't average. There is a concerted movement towards competency-based assessment and modularized instruction that make time and age irrelevant. Awareness of the need for lifelong learning has learners returning, repeatedly, at all ages and to all sorts of learning systems. Adult are studying primary academic skills. Secondary students are learning employability and career skills. Childrens' advocates point out that education begins long before schooling begins. Gone is the old paradigm of finishing formal education with, eg., a high school or college diploma; gone is the idea of being finished.

A sixth change in Canada's education/training system is to a learner-enabling focus from a student-screening focus. In the past, standards and testing systems have been used to sieve the academically successful from "the failures." The drop-out problem, adult illiteracy, and indifference to the apprenticeship system all illustrate the problem with this approach. Awareness of the concept of human resource development, combined with increased individualization and choice, has resulted in a focus on achievement for all students. Adults, in particular, see no reason why they should be allowed to “fail.”

A seventh change is to education as a right/responsibility from education as a privilege. Canadians have taken education/training for granted. However, as consumer groups demand effectiveness, efficiency, equity, quality and accountability in public education, they are intent on exploring and exposing their rights through, eg., class action law suits. This is reinforced by both
the trend towards privatization of public institutions, and public disenchantment with representative democracy. As individuals are given more responsibility for their own education/training through new student funding mechanisms, their expectations about outcomes and service are changing.

An eighth change is to an industry from a costly social agency. The education system has been, in part, an extremely expensive instrument of socialization and social stability. Increasingly, education/training is being viewed as a service industry with accountability to customers, and as an internationally-competitive industry to be marketed globally. As a knowledge-based industry, the system produces both knowledge workers and knowledge/research that contributes substantially to the Canadian economy. Money spent on education/training should be labelled an investment in human capital and social stability, rather than an expenditure.

A nineth change is to being capital intensive from labour intensive. The system has been highly dependent on human labour for, eg., instruction in countless isolated classrooms and institutions, curriculum design and development in countless institutions and/or twelve different provincial jurisdictions, testing, counselling, registering, managing.... So many of these functions can now be done faster and cheaper by technology. So many others are being done by collaborative groups for the benefit of each one. This combined with budget cutbacks is

resulting in massive downsizing of human capital expenditures, resulting in layoffs in the education industry all across Canada. As with other Industrial Age institutions, the role of workers is changing dramatically.

A tenth change is to promoting change from maintaining the status quo. The education/training system has been oriented to the past and the present. While the future is uncertain, it will certainly be very different. In processes and practices, the education/training system must model positive, proactive change. Starting with community colleges, the public education system is becoming somewhat future-oriented. Other education/training providers will follow or become historical artefacts. Futurists argue for a radically different learning system, one that helps humans understand long-term danger and global threats to human survival, one in which teachers and students learn from each other, one in which "the school" is imbedded in the life and work of the community.

A last, but not necessarily final change is to a national concern from a strictly provincial one. In the past, education has been jealously guarded as a provincial responsibility. However, it is now seen also as a national issue, evidenced by many collaborative projects of the Council of Ministers of Education, Canada, and by leadership projects of the Canadian Education Association with Human Resources Development Canada and others. While publicly-funded education is a provincial jurisdiction, and labour force training is about to become the same, there is a growing recognition of the need for pan-Canadian efforts, for example, in such areas as:

- achievement testing, specifically through the School Achievement Indicators Project of the Council of Ministers of Education, Canada (CMEC);
- applications of technology, that is, the SchoolNet endeavor of Industry Canada;
- common curricula and credit transferability through, as an example, the efforts of the CMEC to standardize the first two years of an undergraduate degree at universities across Canada;
- recognition of prior learning, evidenced by the development of recommended standards and implementation plan by the labour market partners at the Canadian Labour Force Development Board;
- national training standards, developed from the consumer's perspective by the CLFDB;
- marketing the public college sector, specifically through the College Canada plans of the Association of Canadian Community Colleges (ACCC);
- many others.

The need for national standards to enhance portability of credits and credentials, to develop occupational standards and international credentials, to link education/training and labour force development, to implement systems for recognition of prior learning, perhaps even contribute to national unity are clearly recognized by the Internal Trade Agreement, the Canadian Labour Force Development Board and others. Provinces are increasingly willing to work together on, eg., curriculum and testing projects. National organizations largely representing the providers of education/training have developed a national presence and a working relationship, through projects of the National Education Organization's Committee (NEOC), fora sponsored by the Canadian Education Association (CEA), national conferences organized by the CMEC, and through this project.

Applying the principle of subsidiarity, clearly, some decisions in the provision of education/training are local or institutional; some are provincial; and some are national, even international. Some consumers of education/training, industry sectoral councils and displaced workers from region-specific industries for example, are not limited to particular local or provincial jurisdictions, yet there is not a national coordinating body to approach for information or to expedite labour mobility. Other consumers are from the international community and they, too, must expend great effort to develop their own understanding of the complexity and variety of education/training provision in and from Canada. While the publicly-funded and not-for-profit portions of the system are mired in jurisdictional and bureaucratic details, the private and for-profit providers of education/training are rapidly expanding this growth industry, again without coordination or standardization.

In summation, there are significant, isolated and uncoordinated change initiatives all across Canada, and the combined effect is very powerful. Taken together, these and other changes are evidence that the education and training system is moving from the Industrial Age to the Age of Information. This is the context in which the proposed Learning Record links to key reform initiatives.

Appendix D

Canada's Workforce: In the Market for National Standards

◆ a draft version of the article printed in *Policy Options* (Burton and Barker, 1996)

Standards are necessary, national standards are necessary, and national standards specific to labour force development in Canada are necessary. Standards are the means by which to describe and plan for products and services that are of the highest quality; and consumers must play a major role in describing what quality is. Canada's vast workforce is a part of our national industrial and social system. National standards are needed to enable the labour market to function as a part of the larger national and international economic policy structure. The public policy problem right now is that, while there is an urgent need to coordinate the labour market within a larger national industrial strategy, the workforce is increasingly developed and managed in a fragmented fashion. To ensure equitable access to appropriate training and employment, Canada's workforce is in the market for national standards, and it must be involved in the development of those standards. The public policy objective should be a labour force training and development system in Canada that is effective, efficient and equitable.

Standards are necessary.

Water quality standards. Child safety seat standards. National healthcare standards. Gun control. Standards are created in response to fears about safety and security, requests for quality and uniformity in mass-produced goods and services, and demands for fairness and accountability in governmental decision-making and expenditures of public resources. Standards provide stability, and they are especially needed in a rapidly changing environment. At one time, citizens were content to let governments and technical agencies set standards for them. Now consumers want and need to be involved in the setting of standards for the services and products that they pay for, either directly or through taxation.

Standards describe what is acceptable and what isn't. They are a tool with which to describe quality, make improvements, and demonstrate accountability. In the emerging market-driven economy, it is the customer who sets and enforces informal standards, buying or rejecting products and/or services. In the public policy arena, where standards are a standard means by which to implement public policy, the creation of formal standards falls to those perceived to

have the moral authority to set them. The problem is that we're not sure who to trust with that authority in many cases. One thing is certain, however; standards that are set by the producer or provider of a service are perceived to be self-serving. Fair and justifiable formal standards, created by those with the recognized authority, are needed to ensure quality of products and accountability of systems, to reduce confusion, and to bring about positive change.

A good illustration is the persistent calls for standardized quality indicators in education and training in Canada by the likes of the Corporate-Higher Education Forum, the Council of Ministers of Education Canada, the Canadian Chamber of Commerce, the Information Highway Advisory Council, the Conference Board of Canada, the Canadian Labour Force Development Board, and many others. They all state the need to improve education and training in Canada through standardized indicators, a focus on results, development of competence-based systems, monitoring of system achievements, and a commitment to quality and service. Standardized indicators eliminate the problem of conflicting views of quality in education or training, for example, the traditional measures of the education system (enrolment and retention rates, average grades, achievement levels), the cost-benefit methods of the business community, the fiscal accountabilities of taxpayers, and the moral accountabilities of concerned citizens. Until very recently, there has been little concern for the customers' views about quality. Technically, consumers set informal quality standards by accepting or rejecting training options; realistically, they seldom have the tools, background or options with which to question the education or training that is put before them. Clearly, a working definition of quality should incorporate the views of all stakeholders, and a process is needed to develop quality standards in education and training as in other similar pan-Canadian public policy areas.

National standards are necessary.

Many forces have combined to make national standards an important public policy issue. New technologies, changing values, and reduced finances are forcibly altering almost all societal institutions or systems, such as the workplace, education and training, healthcare, the military, and government. The distinction between public and private institutions is blurring. Restructuring, at all levels, causes enormous stresses and contributes to the need for the stability that standards provide.

At the national level, pressures for and against national unity, juxtaposed against a concurrent

decentralization of much federal authority, has raised the question of how to promote and ensure a unified national identity. National standards have emerged as one policy option. For example, the need for harmonization of standards around interprovincial trade has resulted in the recently signed Internal Trade Agreement. The Red Seal program for apprenticable trades was an earlier attempt at national standards. In addition, economic globalization and increased transnational competition have made national standards an international policy imperative. For example, Canada is one of very few countries without national standards for training and qualifications to serve as the basis of international articulation negotiations and to ensure competitiveness in the knowledge-based global economy. Some fear that, unless we set our own national standards for education and training, they will be determined through NAFTA negotiations or dictated by such international standards as ISO 9000.

In the public policy arena, the creation of formal standards falls to those with the legal authority to set standards; but the problem is that we're not sure who has that authority in such critical cross-jurisdictional areas as the environment, healthcare, education, and the labour market. Applying the principle of subsidiarity, national standards are obviously needed only in areas of national interest, but how is something determined to be a national issue? Canadians have ended up with a patchwork of public programs and services that differ substantially across the country; that Canadians cannot live, work or study without impediment in their own country should be of national interest.

Desirable as they may be, the term *national standards* always meets with resistance. For example, Quebec continually rejects all national standards, and all the provinces resist national education standards for political reasons. *Standards* imply a ceding of control to a higher authority; *standards* imply compliance, enforcement and punishment. Issues of semantics and politics are often used to prevent even the beginning of standards-setting, and the public may be denied the formal standards it deserves to promote individual and collective well-being.

Standards specific to the labour market are necessary.

A large measure of individual and collective well-being is productive participation in the labour market. The functioning of the labour market includes labour force preparation and development, the labour exchange function, and human resources management. These are imbedded in the larger systems of education, industrial development, and immigration. If these

public policy areas functioned efficiently to serve all Canadians equitable and effectively, there would be no need for national standards. Such is not the case.

To begin with, the labour exchange process is highly informal, inefficient and undirected. There are jobs for which there are not the right workers, and workers for whom there appear to be no jobs. Not enough information is known about either the skills required or the unfilled jobs, particularly in emerging industries. There is no standardized method for gathering or disseminating information about jobs, training or workers available.

To compound the problem, the process of labour force preparation and development is fraught with mismatches. Members of the labour force may be initially trained outside of Canada, immigrating with work experience or credentials that don't readily match our customary credential categories. Members of the labour force may be trained or retrained through work or volunteer experience rather than through formal education, again confounding the customary process of recognizing learning. Members of the unemployed or underemployed workforce may have skills they can't use, or need to use skills they don't have; or they may have credentials that they can't use if they need to move to another part of Canada to find appropriate employment.

The labour force preparation and credentialing system is neither effective, efficient, nor equitable. It is all but impossible to transfer education/training credits between institutions or provinces, to get recognition for experiential learning, or to find a publicly-funded training institution that is learner-focused, outcomes-based, or responsive to the needs of industry. On the other hand, few industries have taken the time and resources necessary to determine the occupational skills that are needed in the present and the future, and that should serve as the intended outcomes of training. The very notion of credentials and their credibility is challenged by increased competition between the providers of education/training which may be public, commercial, community-based, local and/or transnational. Without national standards, there is limited quality control or accountability in the labour force training and development system.

In Canada, labour force training and retraining has emerged as the policy answer to unemployment, underemployment, and organizational restructuring that is being felt in all sectors of the Canadian economy. If training is the answer, what is the public policy problem? It may be that provincial borders prevent portability of workforce credentials, the autonomy of training institutions prevents transferrability of training credits, the inertia of industry prevents clear articulation of training needs, the funding mechanisms have not required customer-oriented accountability measures, and/or current and relevant labour market information is lacking. The most resounding policy problem is that the entire education and training system needs to be transformed for the twenty-first century, and there is no leadership to plan for and implement the necessary changes.

Each view of the problem presents a policy option, and clearly most have been rejected. A national office to ensure quality, effectiveness, efficiency and equitability of education and training for all Canadians is one option that has been rejected. A second rejected option is a national system of occupational standards and credentialling bodies. A third is standardized labour market information. The options that are left include improving the quality of training and access to employment, by whatever means possible, to improve the functioning of the labour market. The labour force development policy environment is particularly problematic, with persistent wrangling over the effectiveness of training as a policy option, the costs and purposes of training, the individual and the jurisdictional responsibilities for training, training in the context of a lifelong learning culture, even the definition of training. Out of this chaotic situation emerges the clear need for some national standards specific to labour force development.

National standards specific to labour force development.

It is neither possible nor desirable to regulate every aspect of the labour force development system. However, based on the fundamental utility of standards, it would be useful to have, at the least, minimum standards for national implementation in the areas of occupational skill requirements, occupational and academic credentials, application of prior learning assessment and recognition, labour market information, and others. Similarly, it would be useful to have standards of excellence in training and career counselling, access to training and employment for the equity-seeking groups, and human resources management. There have been repeated calls for national standards in most of these areas. In the areas of training standards and occupation standards, there has been notable progress.

Occupational standards describe the specific skills and abilities required for successful completion of occupational tasks. A set of occupational skill standards can serve as a nationally-validated reference to enable training curriculum development and accreditation criteria. According to the Committee on National Standards for Applied Science and Engineering Technologists, Canadian firms have recommended national occupational standards because they promote worker mobility, create a consistent educational system, allow companies to compare applications, make job definition easier, raise the quality of technical staff, improve the organization of the educational system, avoid duplication and overlap, and regularize the Canadian system in an international context. Industry, i.e., employers and workers, have the obvious responsibility and authority to create at least minimum standards for occupational skill requirements. Occupational standards are being developed within some industries through, for example, credentialling bodies and sectoral councils.

Training standards describe excellence in training or quality training. Training is a product or service offered by providers of training for purchase by such consumers as government funders, sectoral councils, and individuals. Training is also conceived of as a production system of inputs and resources (eg., facilities, personnel, curriculum), processes and practices (eg., intake, counselling, instruction, student evaluation), outcome and outputs (eg., for individuals and for society), and feedback mechanisms (eg., program evaluation). Each and every element should be of the highest quality. For the consumer of training, quality training is training that is effective (i.e., does what it says it will do), efficient (i.e., makes maximum use of available resources), and equitable (i.e, is accessible to all and promotes success for all). Training standards comprise a description of training that is effective, efficient and equitable. Recommended national training standards have been developed and promoted by the labour market partners at the Canadian Labour Force Development Board. Training standards and occupational standards are two areas of labour force development in which national standards are being developed in a consensual, non-regulatory fashion with involvement by all stakeholders.

Developing national standards specific to the labour market.

Who, then, should develop national standards specific to the labour market and what is an acceptable process? Standards, according to the U.S. Office of Technology Assessment

(OTA), are developed or achieved by one of three methods:

1. by government, though a regulatory process (authority);
2. through the market, on a de facto basis (custom);
3. negotiated through a voluntary consensus process (consent).

The OTA observes that, in the public policy arena, the pluralistic nature of North American society favors the third process. The government regulatory process has painful limitations in cross-jurisdictional areas and in influencing the labour market, and it may be that the current stratification of government in Canada is becoming irrelevant. Moreover, the public and the market no longer grant governments the authority to set relevant and inclusive standards. For formal standards in the public arena, the process of consensus building is facilitated by new partnerships and technologies. Even in public policy, the consumer or client has an important, even direct role in standards development.

To set national standards specific to the labour market, three things become have become clear. First, the process should be negotiated through a transparent, inclusive, iterative and voluntary consensus process. Second, the consumers of programs and public policies should be included. In the case of labour force development, the customer is a composite of business, labour, and the equity-seeking groups. Third, the process must cross jurisdictions in innovative ways and find a means to obtain voluntary compliance. At the national level, the organization that best represents the consumers of labour force development services may be the Canadian Labour Force Development Board (CLFDB). The CLFDB is made up of representatives from all the labour market partners: business, labour, equity-seeking groups, the education/training community, federal and provincial governments. It is national board mandated to provide private sector input into public sector decision-making regarding labour force training and adjustment at all levels. Decisions are based on consensus, and recommendations are developed through consultation with a broad and inclusive spectrum of organizations representing business, labour, equity, and education. Through the CLFDB, recommended national training standards have been developed, and work is underway to develop standards for the pan-Canadian implementation of Prior Learning Assessment and Recognition (PLAR). The Board has been granted the moral authority, by the labour market partners, to set recommended national standards specific to labour force development.

With changing and competing demands on all resources, new strategies and practices are needed. National standards are needed in some areas that have been sacred provincial

jurisdiction and other areas where there has been no formal or coordinated jurisdiction. To develop standards, national standards, and national standards specific to labour force development, much work remains to be done.

Appendix E

Smart Cards: Expanded Information

Smartcards represent an exciting new technology in the Information Technology (IT) industry, especially in the fields of data exchange and financial transaction execution. Within a few years, these miniature computerized devices are likely to play an indispensable role in the global economy and in our daily lives. In an increasingly wired world, smartcards provide the ultimate solution for safeguarding the integrity of exchanged information. With an embedded microprocessor or memory chip, smartcards offer an efficient and secure means of transferring data, satisfying a real need of the Information Age.

What is a smart card? Similar to a credit card, a smart card stores information on an integrated microprocessor chip located within it. There are two basic kinds of smart cards. An "intelligent" smart card contains a central processing unit -- a CPU-- that actually has the ability to store and secure information, and "make decisions," as required by the card issuer's specific applications needs. Because intelligent cards offer a "read/write" capability, new information can be added and processed. For example, monetary value can be added and decremented as a particular application might require. The second type of card is often called a memory card. Memory cards are primarily information storage cards that contain stored value which the user can "spend" in a pay phone, retail, vending or related transaction. The intelligence of the integrated circuit chip in both types of cards allows them to protect the information being stored from damage or theft. For this reason, smart cards are much more secure than magnetic stripe cards, which carry information on the outside of the card and can be easily copied. Smart cards are an effective way of ensuring secure access to open interactive systems, such as encryption key mobility, secure single sign-ons and electronic digital signatures.

Outwardly, smartcards resemble credit cards or bank cards. But instead of a simple magnetic strip, smartcards include an embedded microprocessor or memory chip. This "smart" capability provides an efficient, portable and secure means for verifying and transferring data, satisfying a critical need in this Information Age. By the year 2000, over a billion smartcards are expected to be in use around the world.

One example of a smartcard that illustrates the possibilities of a learning record is MicroChart,[38] a portable medical record. This medical record is encrypted on a computer chip embedded into a plastic card the size of a credit card. MicroChart Inc. has implemented the first international medical smartcard in the world. A MicroChart can store a complete overview of a medical record. It includes demographic data, diagnoses, medications, emergency data, immunization records, healthcare surrogate information, allergies, operative procedures, and the names, dates and addresses of all medical visits. Any individual can apply for and carry a MicroChart in their wallet. Any healthcare facility in the world can apply for MicroChart Access to read and write to a patient's card. A MicroChart is a smartcard which looks just like a credit card, but contains a computer chip which allows important, lifesaving, medical information to be carried by the individual.

An example of the technology that could be utilized is ASE, the Aladdin Smartcard Environment. As the global demand for smartcards expands, ASE claims to be the first product on the market to offer software developers a comprehensive, versatile and cost-effective system for taking advantage of this new business opportunity. ASE gives PC developers and systems integrators a modular toolkit for developing smartcard applications for virtually any use. The system is said to be exceptionally flexible, reliable, and easy-to-use, combining all the components required to develop smartcard-based applications: ASESoft, an integrated library of software interfaces and utilities, ASEDrive, a versatile read/write smartcard drive, and a wide selection of ASECards to suit diverse needs and functions. The ASE system's modular structure may make it ideal for developing both mass-market and small-audience applications in the fields of access control, authentication, computer security, education, electronic payment, healthcare, and transportation, to name just a few. ASE promotions go on to say that inter-operability and multiple-application functionality make ASE a highly cost-effective development solution. Because it supports smartcards of many types, from many manufacturers, ASE provides developers with a single, standardized solution designed to meet all their requirements. Security is one of ASE's core strengths, a direct result of the expertise in data security Aladdin has acquired over the past decade. Sophisticated encryption algorithms and anti-debugging mechanisms combine to provide a high-security architecture that safeguards data integrity. ASE also enables developers to implement advanced security functions like authentication, electronic purse, and public key cryptography.

[38] copyrightt © 1996 MicroChart Inc.

New developments have even made it possible to include photographs on a smartcard. Coms21, a leading Australian supplier of smart card technology, will be exhibiting its Key Control system at CeBIT'96. Coms21's 'Visagecard' technology, which electronically captures photos of people or other images in a compact smartcard/key format will be available for licensing. Coms21's Key Control system allows for totally secure transfer of confidential personal data such as bank account and drivers licence details or security access approvals. Applications include cashless gaming and gaming management control systems, security access control, driver licensing, banking, immigration control (passports), medical record storage and smartcard-type applications.

Card technology experts from the Smart Card Forum, a multi-industry group formed to explore the use of smart cards in various applications, predict the development of so-called hybrid cards. Such cards may contain not only an embedded microprocessor chip or memory module, but also a mag stripe and bar coding. Thus, a single card can access different hardware systems, such as merchant card readers, ATM machines and bar code applications. Adding the card-holder's photograph, printed name and signature would further enhance the hybrid card's already significant security features.

The concept of smart cards is not without controversy. For example, in the banking industry, there is considerable concern about the legal and regulatory implications of "Advanced Card Programs." In a May 1996 presentation to the Financial Applications Seminar, John Burke noted that an American body, FDIC, has established an internal New Banking Technologies Task Force which is studying developing technologies, such as stored value card programs, on-line (PC) banking and electronic checking. The FDIC is presently analyzing the variety of legal and policy issues which are presented by these emerging technologies. Among the many issues identified by Burke, his discussion of privacy (the use of transactions records and personal information) has application to the concept of a Learning Record Smart Card. Burke says that, while smart cards provide consumers with greater data base control, they also have the potential to pull a great many transactions from the anonymous world of cash into the carefully mapped world of transaction records and audit trails. Those facts create legal issues.

1. Who "owns" the personal data stored on the cards and who is responsible for its security and accuracy?

2. What are the privacy implications in a stored value world where the documentary trail of small item purchases, telephone toll records, transportation records, etc. could translate readily into a diary of a person's daily movements: where, when, with whom, for how long?

3. Who will have access to this diary and under what circumstances? Direct marketers? Family members? Employers? Private detectives? Benefits officers? Historians? Social scientists? Bank personnel? Law enforcement investigative personnel and their computers?

4. Should the consumer be made aware that transaction records exist and how they may be accessed or used?

He goes on to recommend that smartcard providers contract with consumers.

- ◆ Start with the premise that the consumer is the "owner" of the personal information being requested. Clearly describe the information that is needed -- and why.
- ◆ Define the consumer's rights to, and responsibility for maintenance of updating of, personal information stored on a smart card.
- ◆ Make full disclosure not only of the purposes for which the personal information will be used but also the circumstances under which it, or information generated as a result of a smart card transaction, will be disclosed to business affiliates or third parties.
- ◆ Stipulate the privacy protection measures that will be followed by you, your business affiliates and third parties with respect to that information.
- ◆ If the particular application requires compliance with federal or state laws, identify those laws and confirm your commitment to compliance.
- ◆ Reference or attach your corporate privacy protection policy.
- ◆ If possible, emphasize the privacy/security advantages of smart card technology.
- ◆ Specify how long the information will be retained, when it will be disposed of and how.
- ◆ Provide the consumer with the right of access to the information and a process for correcting errors.

It would be important to identify, in Canada, the sources of privacy protections before going any further with a Learning Record smartcard.

Finally, here are answers to frequently asked questions about smart cards, adapted from an Internet article by Chris Kavanaugh & Associates, Inc. of the Smart Card Forum hosted by Perot Systems Corporation.[39]

1. Are smart cards really all that new? It seems that there was a lot of discussion about them some years back, but nothing ever happened. What's changed to make them top-of-mind again?

You're right, eight or nine years ago, there was a lot of talk about smart cards in the U.S. During this time, France and other European countries were implementing national systems using smart card technology, largely in the banking industry. That interest, however, never gained much momentum in North America until recently.

2. A number of things have occurred in recent years that have caused both industry and government in North America to renew their interest in smart cards.

First, smart card technology has matured considerably and its costs have come down to the point where the technology makes good economic sense in a variety of application areas. Second, the rapid increase in card-related fraud over the past few years has created the need for a level of security that smart cards are uniquely able to provide. Finally, the convergence of various electronic technologies, together with a desire on the part of many industries to forge new alliances and offer enhanced services has established a role for smart cards as access keys to these new services.

3. Will chip cards allow "big brother" to know everything about you?

No, chip cards may provide you with greater privacy because they have the ability to allow you to control who has access to the data you carry in your card.

4. I've heard that smart cards pose security and confidentiality problems. Is that true?

Contrary to what some people believe, smart cards actually offer more security and

[39] E-mail address for the Smart Card Forum is ck@hct.com.

confidentiality than other financial information or transaction storage vehicles. Unlike cards that rely upon a magnetic strip to encode information, information stored on smart cards is stored on a micro chip, which can be secured in one of several ways. First, a card can have its own built-in security keys, such as PIN numbers that match the access code, much like an ATM card. Second, since the micro chip on a smart card is imbedded in the card, tampering with the card without destroying the chip is extremely difficult. Finally, many smart card applications eliminate the need to manually enter an access code that could be viewed by an unauthorized person.

5. What about preserving the confidentiality of, say, medical information?

Medical records could be protected by PIN numbers, as mentioned previously. But to go one step further, medical records could be encrypted by a second key, known only to the physician or other medical personnel who needed access. Thus, a smart card could offer two levels of security. The first level would give the card user control over accessing the card's data, and the second level would afford access only to parties who have a need to see the data.

6. What are the major benefits that smart cards offer consumers?

The benefits, of course, depend on the application. But in general, applications supported by smart cards benefit consumers in a number of ways where their lifestyles intersect with information and payment-related processing technologies. Some of these benefits include the convenience and security of not having to carry cash; the ability to manage or control expenditures more effectively; fraud reduction; reduced paperwork and elimination of the need to complete redundant, time-consuming forms; and the potential of having one card with the ability to access multiple services.

7. Will there ultimately be one worldwide smart card standard, or will each country have its own?

It's premature to state with certainty how many smart card operating standards will ultimately exist. It is possible that several standards will emerge, keyed to major applications, such as telephony, financial services and healthcare. The important thing is not how many standards exist per se, but their interoperability across applications and borders.

8. You will hear the terms "chip card," "integrated circuit card" and "smartcard" used to refer to a plastic card with a chip. Are these different types of technology?

No, a chip card is the same as an integrated circuit card. There are three types of integrated circuit cards: Simple memory card, Hardwired logic card, Microprocessor card. The term smart card is used in different ways by different organizations but typically a smart card is defined as a card with a microprocessor.

9. What is a contactless card?

There are two types of contactless cards. The first is a contactless proximity card, such as AT&T's, in which the card is read by inserting it in a special reader. The second is a remote contactless card, in which the card can be read from a distance such as at a toll both.

10. How is a chip card different from the magnetic stripe cards that I carry in my wallet or purse?

Existing magnetic stripe cards usually access an on-line data base. A chip card carries more information than can be accommodated on a magnetic stripe card. A chip card can make a decision; it has relatively powerful processing capabilities that allow it to do more than a magnetic stripe card, e.g. data encryption.

11. How many chip cards have been issued worldwide?

We do know that more than 300 million chip cards were issued in 1993. The approximate breakdown is as follows: 260 million phone; 3-4 million GSM; 24 million health; 23 million bank; and 10 million pay TV.

12. Why do we need to develop standards for chips cards?

We need a standard infrastructure to allow us to use the cards we carry at many different locations around the world. You can use your magnetic stripe cards at almost every retail POS device and ATM in the world because the magnetic stripes on the back of these cards have been standardized and the devices reading these stripes understand how to read and process the

standardized data. We need to develop global standards to allow the chip cards you will be carrying to be used nationally and internationally in a consistent manner.

13. What is the difference between a multiple application card and a card that can access multiple services?

One of the "in" topics for those debating the benefits of chip cards is the multiple application card. We read articles on the DANMONT electrical purse system in Denmark and make the assumption that this is a multiple application card. Multiple application cards, when they are developed, will probably support different types of applications, e.g., health care, financial services, transportation, loyalty programs and vending. Many of these applications will have very different specifications. The DANMONT card is a single application electronic purse that can access multiple services because each of the service providers conforms with a single specification.

14. What is the cost of an average chip card?

Trying to respond to this question is like asking the cost of a car without defining whether it is a used VW or a brand new Rolls Royce.