

**Aboriginal Students and the Digital Divide:
Non-Formal Learning in the Inner-City**

Lawrence Deane, MSW, Ph.D.
Sherry Sullivan, M. Ed.

Inner City Social Work Program
485 Selkirk Ave
Winnipeg, MB
R2W 2M6

Tel. (204) 790-7217
Fax. (204) 663-8857

deane@cc.umanitoba.ca

We are pleased to acknowledge the generous financial support of the Initiative on the New Economy of the Social Sciences and Humanities Research Council; via the Manitoba Research Alliance on Community Economic Development in the New Economy. For further information please see: <http://www.manitobaresearchalliancecd.ca>

Aboriginal Students and the Digital Divide: Non-formal Learning in the Inner-City

There has been much discussion recently of a so-called digital divide (Norris and Conceicao, 2004; OECD 2000). This term refers to a new form of social inequality based on differential access to information technology (IT). It has been found, for example, that only 22.8 percent of female-headed lone parent families in the U.S. have internet access compared to 51 percent of all other households (Norris and Conceicao, 2004). Only 49 percent Aboriginal households in Canada have a computer compared to 73 percent of other households (cited in Looker and Thiesen, 2003). African-Americans have fewer computers at all income levels than do whites (Norris and Conceicao, 2004). This problem is potentially quite serious for future employment seekers because opportunity is increasingly expected to depend on IT knowledge and skills (Beaudin and Breau, 2001). In places like Manitoba, where much of the growth in the labour force will consist of Aboriginal participants (Loewen, et al 2005), this digital inequality also has a demographic dimension. Not only will individuals be affected by unequal access to computer knowledge but differential opportunities may have implications for the whole economy.

Most proposals to address inequality of IT knowledge involve initiatives to increase the availability of computers and Internet connections, or to increase the teaching of IT in formal educational settings (OECD, 2000; Norris and Conceicao, 2004). Human Resources and Skills Development Canada (HRSDC), for example, has initiated the Community Learning Network (CLN) to provide multi-point access within and across communities. Industry Canada has developed the Community Access Program (CAP) with a goal to establish 10,000 access sites to the Internet in both rural and urban areas and has also launched SchoolNet, First Nations SchoolNet, and Computers in the Schools

to promote digital learning in the education system (Rideout, 2000).

As important as increased access to hardware and formal teaching in schools, however, may be access to flexible assessment of non-formal learning among disadvantaged young people. Most computer learning occurs outside formal instructional settings. Community-based computer access may not adequately meet the needs of many learners (Selwyn, 2005). However, disadvantaged students may have considerable IT knowledge gained in non-formal settings and they may have developed significant skills in spite of the fact that they do not have a computer in their homes. Recent studies indicate that inner city Aboriginal students tend to devalue or undervalue their abilities, and have lowered expectations of their opportunities for employment (Silver et. al., 2002). These lowered expectations result in lower employment levels during their high school years, likely interfere with job finding throughout their employment careers. Assessment of prior learning may make a contribution to equalizing opportunity for this group by improving self-evaluation and expectations for future learning and by granting credit for non-formal learning.

BACKGROUND

IT Knowledge and the Economy

It is frequently stated that knowledge is a key to work adaptation in the new economy. More specifically it is asserted that rapid change in information technology will mean that most workers will need to engage in a process of lifelong learning to stay current with the demands of IT in their occupations (Beaudin and Breau, 2001). In Manitoba, for example, the provincial government's list of high demand occupations has included computer support technician, software developer, and computer systems analyst at least

since 1997 (Canada, 1997; 2005). Within specific high demand occupations “general computer skills” and “internet use skills” are frequently listed. For the Aboriginal community, “Information, Communication Technology (ICT) skills” are specifically listed as in high demand (Canada, 2005).

Reduced Expectations

A recent study of Aboriginal young people attending high school in Winnipeg’s inner city found that many had reduced expectations of future prospects in learning and employment (Silver *et. al*, 2002). The study found that students came to high school expecting to both graduate and to attend University. While at high school, however, negative experiences seriously damaged their hopes and aspirations. Racist attitudes within and outside the school sometimes caused them to doubt their abilities and question their objectives. A sense of cultural difference and distance from their schools caused them to reduce their identification with mainstream values and life goals. The study also found that some teachers and social workers within schools expressed lowered expectations of Aboriginal students compared to others attending the school. Students indicated that the stresses and demands of coping with poverty, poor housing, and the disruptions of family life made it difficult to focus on their futures (Silver *et. al.*, 2002: 28).

These reduced expectations contributed to a differential experience of employment for these inner city Aboriginal high school students. While 76.3 percent of grade 12 students across the inner city had had part-time work while at school, only 36.2 percent of Aboriginal students had such work (Silver *et. al.*, 2002: 28).

Reduced expectations and devaluing one’s social position can have long term and

intensifying effects in an employment market where access to opportunity depends on lifelong learning. Adult learning theories indicate that motivation, self-concept, perception of social roles of the learner, and perceived usefulness of information are key components in the process of learning (Merriam, 2001). Also important is assisting students to appropriately evaluate their learning progress (Cretchley and Castle, 2001). If inner-city Aboriginal young people are inappropriately valuing their current knowledge and future prospects, then appropriate valuation and feedback may be a key to long-term employment potential for this group. If most IT learning is non-formal, then it could well be essential to make available flexible assessment to counteract these negative perceptions of skill levels and knowledge.

Current Study

This study sought to test levels of informal learning on the part of inner city Aboriginal young people and to compare these to the students' own perceptions of their learning. It was hoped that this formal demonstration of the value of non-formal learning would result in improved self-perceptions among students and create motivation for learning and job seeking in the future.

The study worked with ten inner city high school students who ranged in ages from 15 to 18. Eight were Aboriginal. All were residents of some of the lowest income neighbourhoods in the city of Winnipeg. The study helped the students to identify and assess a wide range of knowledge and skills related to transferable employability skills. It also identified their IT skills acquired from various types of experience.

Flexible Assessment

The study used flexible assessment. This is a set of methods that formally, fairly, and accurately assesses learning that students have gained through a range of learning situations (Wong 1996). Learning situations may be categorized as: formal, structured, and credentialed, such as a high school course; formal, structured, and uncredentialed, such as a workshop; and non-formal, unstructured, and uncredentialed, such as learning to use a computer program by oneself or from a friend. Flexible assessment typically consists of challenge exams for standard courses, course equivalencies, and portfolio assisted assessment. This study used both challenge exams and portfolio assisted assessment.

A portfolio is a compilation of material that reflects the depth and breadth of a learner's knowledge and capabilities. It first collects information on learning from a wide range of settings. It then provides documentation that learning has occurred. These may take the form of letters of reference, certificates, and descriptions of situations where skills were demonstrated. Not only is the portfolio product valuable to the learner, but so also is the process is developed. Compiling a portfolio allows the participant to reflect on a broad range of experiences that they may initially be discounted as ordinary, but on further reflection are recognized as contributing to skill development. Mandell and Michelson (1990:2) describe portfolio development as "a significant exercise in critical thinking" Wong (1996:20) states

the process of writing and organizing a portfolio is developmental; it can lead to a deeper understanding of personal strengths and weaknesses and assist the learner in prioritizing personal and academic goals.

METHOD

Participant Selection

Participants in this study were recruited from an after-school program at an inner-city vocational school in Winnipeg. The program offered students job exposure, limited employment opportunities, and skill development. Students volunteered at community clubs and nonprofit agencies, and were sometimes paid for their time. The fact that these students had volunteered to spend extra time at school to enhance their employment opportunities probably indicated that they were above average in motivation. Nevertheless, interviews with them indicated surprise at the levels of ability they discovered, once their skills were formally assessed.

Non-formal Assessment

All students completed prior learning assessment portfolios. The process consisted of analyzing experiences in relation to a particular set of knowledge and skill statements and finding documentary support for their statements of learning.

Students worked through a Transferable Skills checklist in which they rated their employability in 52 specific skill areas on a scale of 1 to 5. Ratings were documented by giving concrete examples of how the students had used the skills. For example under a general heading of *Organizing* they assessed themselves on the skill “keeping records.” Students thought about a time they had kept records and then incorporated the experience into an “I can” statement. One statement read, “I can keep records of money and objects. I have managed a canteen at the community club and kept track of cash and inventory.” Students were assisted through this process by the facilitators asking prompting questions

such as “When you worked at the community centre what did you have to keep track of? What things did you have to write down?”

The second way students assessed themselves was related specifically to their computer skills. Participants were assisted in rating themselves with an IT self-assessment tool that is part of the Prior Learning Assessment and Recognition (PLAR) package for computer skills developed by the Province of Manitoba for Adult Learning Centres (Manitoba, 2006). The tool is intended to assess up to a Senior 4 equivalency and was chosen because of its demonstrated reliability and validity.

The IT checklist was helpful in familiarizing participants with formal IT terminology in preparation for postsecondary challenge exams. It is common for individuals undertaking an assessment to underrate their ability because they do not know technical terms for tasks or skills, or because they do not associate these terms with their own abilities. This was clearly reflected in this study by the fact that in many instances answers to an “I can” statement in the checklist changed from a “no” to a “yes” when terminology was explained. For example, items such as “I can use a scroll bar” or “I can identify the parts of a URL” were initially answered “no.” When the meaning of “scroll bar” and “URL” were explained these answers often changed to a “yes.” For many, it was a breakthrough in self-perception to see their scores change from a failing grade on the checklist to a passing grade, once terminology explained.

Students attended ten one-and-a-half hour portfolio development sessions over a three-month period. They invested considerable time and energy developing “I can” statements, designing and laying out their portfolios, and assembling documentation. All portfolio components were word-processed. Students were encouraged to be creative in their presentation, but to give the whole package a professional appearance so that it

could be used in obtaining employment.

Formal Assessment

After the portfolios were completed, participants were taken to the campus of a post-secondary technical college to write challenge exams. A number of standardized, challenge-for-credit examinations in two postsecondary IT courses were administered. They evaluated technical proficiency required for the courses *Computers in Business* and *Word-processing Theory and Practical*. These courses are offered as part of the Business Administrative Assistant course at Winnipeg Technical College (Winnipeg Technical College, 2006). These were dual credit courses, so that successful completion provided credit at both high school and post-secondary levels.

Interviews

Following portfolio development, and later following the challenge exams, students were interviewed about their perceptions of the range and levels of their employment skills and their specific knowledge and skill levels in IT. They were asked about their perceptions of their abilities prior to assessment compared to their perceptions after their abilities were documented and formally measured.

RESULTS

Results of the study were produced in three forms: the portfolios were documentary evidence of general employment-related skills and knowledge; challenge exams were formal evidence of non-formal learning in IT; and open-ended interviews gathered participants' self-perceptions before and after assessment. Outcomes of these three

measurements are discussed below.

Portfolios

Portfolios captured learning such as volunteer experience organizing an annual general meeting for a nonprofit organization, part-time work at a fast food restaurant, and interests such as auto body repair work and playing a musical instrument. All experiences were related to action statements such as “I can.” The portfolios reflected some distinctly Aboriginal value orientations. Learning events of special significance were often moments related to family such as conversations with grandmothers, experience babysitting and taking care of the house, or time spent with relatives. More mainstream portfolios tend to describe more formal, employment related learning experiences.

Students also described their experience of creating the portfolio. This was important because the learners to recognized and appreciated strengths, achievements, and goals which they may have previously been aware of only vaguely. Comments from interviews capture some of this discovery process:

Thinking about (job skills) I didn't even know that that tied in with this kind of thing. Like “supervision.” I didn't know I was supervising. Never came into my head “Oh I'm the boss now.”

MacDonald's asked (when I applied) “what can I bring to this job?” I'm like “Uhm.” (This) made me realize what I can actually do.

I learned I could speak in public more than I thought I'd be able to. I'm not really

a public person. I'm usually shy.

I'm very good with remembering numbers and facts. I'm a human telephone book.

When I was reading through and reading the examples I was like "holy, I never knew I could like know how to do that ... and it sounds so hard!"

Challenge for credit

Nine of the ten students were assessed in challenge for credit exams. On the standardized tests, all nine students obtained at least one post-secondary credit, and four students obtained two credits. Student grades are shown in table below.

Scores in Standardized Exams in Postsecondary IT Courses

Student	Computers in Business	Word Processing Theory and Practice
1		64
2		63
3	64	80
4	66	80
5	61	76
6		50
7	60	59
8		68
9		66

Source: Winnipeg Technical College

DISCUSSION

This study was formative and exploratory. The measurements of primary interest were of the students' perceptions of their abilities before and after assessment of occurred.

This study found that inner city Aboriginal students did undervalue their general levels of skill, and in particular they underrated their knowledge and skill in IT. It found that although many of the students had no computer at home, they had learned IT skills and

they had done so in non-formal situations more than they had in the classroom. The challenge exams showed that this non-formal learning was sufficient to earn at least one course credit at the postsecondary level and had significant relevance to their employability in the labour market.

This study demonstrates the importance of providing access to flexible assessment for students who, because of minority status, racial stereotypes, and economic disadvantage, are prone to devalue their knowledge and abilities. It adds further support to the position that flexible assessment is important in providing educational and employment opportunities for disadvantaged groups in particular.

It could be argued that most people undervalue or discount their non-formal learning, and that virtually everyone might be surprised by a formal assessment of their abilities. This may be true. Evidence suggests, however, that inner city Aboriginal students devalue their knowledge to a greater extent than do non-Aboriginal inner-city students. In terms of equity, it is important that interventions occur that create an appropriate balance for these students.

While it is important to make available computer hardware along with formal instruction in IT, there is evidence that these interventions may not be fully effective. Most IT learning occurs in non-formal settings, and community access may not meet the needs of all non-formal learners. Given the role of self perception, and the importance of objective assessment of progress, access to flexible assessment is an intervention that can address the motivational aspects of lifelong learning and provide encouragement for students to move to next stages of adaptation and employability. Such interventions are a critical missing component in a public strategy to address inequity of access to information technology.

References

- Beaudin, Maurice, and Sebastien Breau, 2001 *Employment, Skills, and the Knowledge Economy in Atlantic Canada*. The Canadian Institute for Research on Regional Development, Maritime Series.
- Bloom, Michael, and Michael, Grant, “Brain Gain: The Economic Benefits of Recognizing Learning and Learning Credentials in Canada
- Canada 2005 “High Demand Occupations in Manitoba.” Winnipeg: Economic Services Branch, Manitoba Region, Employment and Immigration Canada.
- Canada 1997 “High Demand Occupations in Manitoba.” Winnipeg: Economic Services Branch, Manitoba Region, Employment and Immigration Canada.
- Cretchley, Gail & Jane Castle. 2001 “OBE, RPL and Adult Education: Good Bedfellows in Higher Education in South Africa?” In *International Journal of LifeLong Education, Vol 20*. Taylor & Francis Ltd.
- Economic Innovation and Technology Council 1998 *Looking for the Future*. Emerging Skills Needs Task Group.
- Gallagher, Jim & Michel Feutri. 2003 “Recognizing and Accrediting Informal and Non-Formal Learning in Higher Education : an analysis of the issues emerging from a study of France and Scotland.” In *European Journal of Education, Vol 38, No 1*. Blackwell Publishing Ltd.
- Hayes, Elizabeth, R., 2001. “A New Look at Women’s Learning.” In *New Directions for Adult and Continuing Education, No 89*.
- Marsick, Victoria J., and Karen E. Watkins. 2001 “Informal and Incidental Learning.” In *New Directions for adult and Continuing Education, No 89*.
- McNair, Stephen. 2000 “The Emerging Policy Agenda” In OECD, *Learning to Bridge the Digital Divide*. Paris: OECD.
- Mandell, Alan, & Michelson, Elana. 1990. *Portfolio Development and Adult Learning*. Chicago, IL: Council for Adult and Experiential Learning (CAEL)
- Manitoba 2006 “Prior Learning Assessment and Recognition: PLAR Guide for Adult Learning Centers - Computer Applications 30S” (http://www.edu.gov.mb.ca/aet/all/publications/PLAR/Software_Applications_30_S.pdf accessed March 7, 2006, 10:29 a.m.)
- Merriam, Sharan, B., 2001 “Andragogy and Self-Directed Learning: Pillars of Adult

- Learning Theory.” In *New Directions for adult and Continuing Education, No 89*.
- Norris, Daniel, T., and Simone Conceicao, 2004 “Narrowing the Digital Divide in Low-Income, Urban Communities.” In *New Directions for adult and Continuing Education, No 101*.
- OECD, 2001 *Learning to Change: ICT in Schools*. Paris: OECD.
- OECD, 2000 *Learning to Bridge the Digital Divide*. Paris: OECD.
- Rideout, Vanda. 2000 “Public Access to the Internet and the Canadian Digital Divide.” *Canadian Journal of Information and Library Science*. 25, 2/3.
- Silver, Jim, Kathey Mallett, Janice greene, and Freeman Simard. 2002 “Aboriginal Students in Winnipeg Inner City High Schools.” In *Canadian Centre Of Policy Alternatives*.
- Venesky, Richard L. 2000 “The Digital Divide Within Formal School Education: Causes and Consequences.” In OECD, *Learning to Bridge the Digital Divide*. OECD: Paris.
- Wong, Angelina, T., 1996 “Prior Learning Assessment: A Guide for University Faculty and Administrators.” University stension Press, University of Saskatchewan.
- Winnipeg 2005 City of Winnipeg Neighbourhood Profiles based on 2001 Census <http://www.winnipeg.ca/census/2001/Community%20Area/> (Accessed September 14, 2005, 1:55 pm).
- Winnipeg Technical College 2006 “Business Administrative Assistant - Course Content” (<http://www.wtc.mb.ca/index.cfm?pageID=93> accessed March 7, 2006, 8:25 a.m.)