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**Evaluation of Industry Canada's  
Information Highway Applications Branch  
Youth Employment Strategy Science & Technology Programs**

**Final Report**

**Audit and Evaluation Branch**

**March 13, 2003**

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### NOTE:

*Minor editorial changes were made to this report in order to prepare the document for posting to the Internet (including removal of standard Appendices such as list of interviewees and questionnaires). Readers wishing to receive a copy of the original version of this report should contact the Audit and Evaluation Branch at Industry Canada.*

# Executive Summary

## 1. Introduction

This report describes the Information Highway Applications Branch Youth Employment Strategy Science & Technology (IHAB YES S&T) program's evaluation and presents data gathered during background research, key informant interviews, and surveys of employers and youth intern participants. The evaluation focused on the following four main issues: (1) To what extent is there a need for IHAB YES S&T programs? (2) To what extent is IHAB YES S&T program structure and delivery appropriate? (3) What results have been achieved by IHAB YES S&T programs? and (4) What are the lessons learned, how can IHAB YES S&T programs be improved?

## 2. IHAB YES S&T Programs

In order to provide youth with *specific Information Technology training and work experience*, in addition to helping small and medium-sized organizations make the most of Information Technology, Industry Canada combined its Connecting Canadians initiative with the Youth Employment Strategy (YES) to create the IHAB YES Science & Technology (S&T) Programs. This evaluation focused on the following four IHAB YES S&T Programs: (1) SchoolNet Youth Initiative (YI) [including LibraryNet]; (2) Computers for Schools (CFS) Technical Work Experience Program (TWEP); (3) SkillNet Youth Initiative; and (4) Information Highway/Science and Entrepreneurship (ISE) Camps.

## 3. Methodology/Approach

The evaluation drew evidence from multiple sources, including: a review of existing data from program documentation and web-sites; interviews with Industry Canada representatives from the four programs; a survey of 400 youth who had a work term with one of the four programs; and a survey of 171 employers/contractors who had employed youth interns under the four programs.

## 4. Findings

**Summary of Findings:** Generally, the evaluation indicated that the IHAB YES S&T programs were a success, and highlighted the fact that the IHAB YES S&T programs were key in bringing together employers who wanted to hire personnel with computer/Internet experience and youth who wanted computer/Internet-related jobs, or opportunities to learn more about computers and the Internet.

**Overall Impacts:** Between 1999 and 2002, IHAB YES S&T programs assisted more than 3,000 youth to find employment and have directly provided Information and Communications Technology (ICT) skills and knowledge to an estimated quarter million Canadians. These programs have substantially improved Canadians' knowledge-base regarding ICT and thus have provided a valuable service in today's computer-based society:

- **Youth Impacts:** Over 60% of youth responding to the survey indicated that IHAB YES S&T programs helped them to increase their knowledge and skills in computers/the Internet and almost 65% of youth who were employed at the time of the survey indicated that the job they currently held was directly related to computers/the Internet.
- **Employer Impacts:** Approximately 65% of employers reported that the programs helped increase their organization's knowledge or skills in the area of computers, and 67% reported that program helped to increase their interest in Information Technology-trained personnel.
- **Need for Federal Involvement:** There is a continuing need for the federal government to invest in IHAB YES S&T Programs because they help keep Canada "competitive" with other countries by expanding Canada's communications infrastructure (connectivity) and by promoting the development of ICT skills, which are essential for Canadians wanting to compete in today's knowledge-based economy.
- **Satisfaction:** Both youth and employers were highly satisfied with IHAB YES S&T programs.
- **Program Obstacles:** *Employers* generally noted funding issues (need for faster approvals and dollar transfers) and the short length of the intern work term as being obstacles, while *youth participants* reported a need for better program advertising and expressed concern about the short duration of the work-term, and the need (in some cases) for enhanced work opportunities.

## 5. Conclusions and Recommendations

**Overall Conclusion:** Evaluation results indicate a continuing benefit from and need for the Federal government to invest in IHAB YES S&T Programs because they help keep Canada "competitive" with other countries by expanding Canada's communications infrastructure and by promoting the development of ICT skills, which are essential for Canadians wanting to compete in today's knowledge-based economy. Responses provided for each main evaluation issue indicate that the program rationale was appropriate, that delivery was generally effective, and that results were significant and positive. A number of recommendations were made regarding management of the programs and program structure, including:

### **Recommendations for Management of IHAB YES S&T Programs:**

- **Continue and, if possible, expand IHAB YES S&T Programs:** ICT-related programs need to continue and/or grow to meet their increasing need (Sections 4.1, 4.5 and 5)

- Streamline proposal/funding: provide funding to organizations in appropriate time to hire youth and provide early response indicating if funding will be provided (Section 5).
- Improve monitoring and database: build a more up-to-date database of employer and youth intern contact and demographic information (Sections 3 and 4.7).
- Assess needs of program users: conduct a more detailed assessment of IHAB S&T program effects on youth participants and employers in order to generate future information highway impacts of investments (Sections 4.3 and 4.5).
- Assess needs of targeted Canadian organizations: assess organizations nation-wide in order to determine the need for possible program expansion (Sections 4.5 and 4.6).

#### **Recommendations Regarding Program Structure:**

- Improve program awareness: over one-third of youth respondents were informed of the program through teachers and friends. Many of the interns were unaware that they were part of a government funded program until well after they were hired (Section 4).
- Increase duration of internships/provide more flexible internships: both youth and employers feel the program should last longer than 13 weeks (Section 5).
- Provide better defined learning opportunities: program design should identify the level of ICT knowledge needed by youth interns - employers should clearly communicate their goals and outline the learning opportunities in their proposal and to the youth intern (Section 5).
- Facilitate more flexible pay scales: both employers and youth indicated that interns are not getting paid a salary that reflects their skills (see Section 5). Wages of youth interns with more ICT knowledge could be increased through employer “top-ups” or a mentoring program with a tiered pay-scale/funding scale could be implemented where youth interns with more ICT knowledge are paid a higher wage to perform their regular duties while also being responsible for teaching/providing guidance to less experienced interns.

#### **Recommendations for Future Evaluation Initiatives:**

- Future evaluations: future evaluations of IHAB YES S&T Programs should consider methodologies for addressing program “fit” with ICT needs, cost-effectiveness, and reach.

# 1. Introduction<sup>1</sup>

**The Evaluation:** This report describes an Evaluation of Industry Canada's Information Highway Applications Branch's Youth Employment Strategy Science & Technology (IHAB YES S&T) Programs, presenting data gathered during background research, key informant interviews, and youth participant and employer surveys. The evaluation focused on a number of questions which relate to the following four main evaluation questions:<sup>2</sup> To what extent is there a need for IHAB YES S&T programs? To what extent is IHAB YES S&T Program structure and delivery appropriate? What results have been achieved by IHAB YES S&T programs? What are the lessons learned, how can IHAB YES S&T programs be improved?

## 2. Background

### 2.1 CONNECTEDNESS CANADA – Making Canada the Most Connected Country in the World

Canadian citizens and businesses are living and competing in a global economy where success depends on connectedness -- the development, acquisition, use and, most importantly, sharing of knowledge through networks. If citizens are connected, through their homes, schools, communities and the workplace, they will have better access to the knowledge needed to develop their skills, engage in lifelong learning, and acquire innovative ideas that lead to new and more effective ways of contributing to the economy and to society.<sup>3</sup>

Recognizing the importance of a strong communications infrastructure, in 1997 the Government of Canada initiated the "Connecting Canadians" agenda: a commitment to make sure all Canadians had access to the Internet by the year 2000, regardless of where they live or the size of their income, thereby making Canada the most connected nation in the world.<sup>4</sup> Specific programs also produced related goals, such as the goal of placing 250,000 computers in Canadian schools and libraries. Ensuring that all Canadians are connected by networks to the knowledge, information and opportunities necessary for economic success and social prosperity is at the core of the Connectedness Agenda.<sup>5</sup> In just a few short years, the Information Highway has expanded to the point where it now plays a significant role in everyday business transactions, personal communication, education and countless other areas of our lives.<sup>6</sup> Advancing information and communications infrastructure and applications also contributes to social development by providing opportunities for Canadians to gain and share knowledge for learning, social and cultural interacting, and transacting business.<sup>7</sup>

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<sup>1</sup> The evaluation was developed by an extensive SPR team: Dr. Ted Adam Harvey (overall director for the study); Ms. Marian Ficysz (director of surveys and data processing); Ms. Jennifer Puddicombe (study planning, liaison, design and quality control, and drafting of reports); Mr. Don Storm, Ms. Mary Lee, Ms. Helen Ficysz, Ms. Victoria Long and other SPR staff also assisted with various aspects of the evaluation.

<sup>2</sup> See Appendix A for a complete list of IHAB YES S&T evaluation issues and questions.

<sup>3</sup> A country with the advantage of an advanced Information Highway infrastructure would attract and retain investment and become a location of choice for e-commerce activity, thus allowing its businesses to capitalize on global market opportunities. A strong communications infrastructure also helps Canadians overcome challenges of geography and harsh climate. See: <http://www.tbs-sct.gc.ca/rma/dpr/98-99/ICdpre.pdf>, a.k.a. IC Performance Report 1999; <http://www.tbs-sct.gc.ca/rma/dpr/00-01/ICdpre.pdf> a.k.a. IC Performance Report 2001.

<sup>4</sup> <http://www.connect.gc.ca/en/ar/1009-e.htm>.

<sup>5</sup> <http://www.tbs-sct.gc.ca/rma/dpr/00-01/ICdpre.pdf>, a.k.a. IC Performance Report 2001; <http://www.tbs-sct.gc.ca/rma/dpr/98-99/ICdpre.pdf> a.k.a. IC Performance Report 1999.

<sup>6</sup> <http://www.connect.gc.ca/en/ar/1003-e.htm>.

<sup>7</sup> <http://www.connect.gc.ca/en/ar/1025-e.htm>.

## 2.2 INDUSTRY CANADA'S ROLE -- THE INFORMATION HIGHWAY APPLICATIONS BRANCH

As the lead department in delivering the Connecting Canadians initiative, Industry Canada's Information Highway Applications Branch (IHAB) is at the forefront of the federal government's effort to encourage the use of information technology to build Canadian skills and knowledge as well as promote economic competitiveness and social well-being.<sup>8</sup> Reflecting these federal priorities, IHAB has several goals:<sup>9</sup>

- To develop a telecommunications infrastructure that will increase networking and access to knowledge and information in order to help Canadians become more entrepreneurial and innovative;
- To enhance the economic development of rural communities;
- To provide technology-related skills to youth that will improve their prospects for meaningful employment in the new knowledge-based economy;
- To increase quality Canadian content on the Information Highway; and
- To foster awareness by Canadians of the economic and social benefits of the Information Highway.

Industry Canada and IHAB have made tremendous progress towards the goal of making Canada the most connected country in the world. Having increased the capacity and speed of its overall communications infrastructure, particularly with respect to the Internet, Canada succeeded in having one of the best communications infrastructures in the world. (In 2001, Canada was ranked second among all nations [behind the United States] in connectedness.)<sup>10</sup>

## 2.3 THE YOUTH EMPLOYMENT STRATEGY

The Youth Employment Strategy (YES) was launched by the federal government in February 1997, *to help Canadian youth generally* to get the work experience, knowledge, skills and information they need to prepare for, and participate in the workforce. The main objectives of YES are to help youth: prepare for employment; develop the skills required to secure employment or be self-employed; and, make a successful transition from school into the labour market.

To further the *Connecting Canadians* initiative and the *Youth Employment Strategy*, IHAB YES Science & Technology Programs exist within Industry Canada's to assist youth with *specific Information Technology training and work experience*, while at the same time help small and medium-sized organizations make the most of Information Technology.<sup>11</sup> These programs help employers hire youth with experience in information highway technology (computers, IT, the Internet) to contribute to the achievement of key Information Highway goals such as the development, programming and delivery of on-line applications for learning and pedagogical support for the use of ICT.

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8 <http://oip-bpi.ic.gc.ca/ihab-e.html>.

9 <http://oip-bpi.ic.gc.ca/ihab-e.html>.

10 <http://www.tbs-sct.gc.ca/rma/dpr/00-01/ICdpre.pdf>, a.k.a. IC Performance Report 2001.

11 Within YES, employment opportunities were created for young Canadians in four different funding streams: Science and Technology (S&T) Internships; International Internships; First Nations and Inuit Youth Internships and Student Summer Placements. For related YES background, see: [http://www.youth.gc.ca/yesinfo\\_e.shtml](http://www.youth.gc.ca/yesinfo_e.shtml).

## 2.4 IHAB YOUTH EMPLOYMENT STRATEGY SCIENCE & TECHNOLOGY PROGRAMS

**Four IHAB Programs:** IHAB has several S&T programs which receive funding through the Youth Employment Strategy. These programs have objectives related to the Information Highway and to YES. (See Appendix B for more information.) The current evaluation focused on the following four IHAB YES S&T Programs:

**SchoolNet Youth Initiative (YI):** Participating schools and libraries provide 16-week work terms. Youth who are hired implement and maintain the technical aspects of connectivity<sup>12</sup> by showing schools and libraries the basics of computers and the Internet:

*YES-related objective:* Provide relevant, marketable work terms (in schools and libraries) to help youth secure longer-term careers in technology. Target youth aged 15-30 who are high school (or above) graduates and who have proficiency in Information and Communication Technology (ICT), and who are unemployed or under-employed.

*IHAB objective:* Build the ICT skills youth need for the knowledge-based economy. Supports implementation of technology in the learning process. Also assist schools and public libraries to use and integrate ICT efficiently.

**Computers for Schools (CFS) Technical Work Experience Program (TWEP):** Collect, repair and refurbish donated surplus computers and distribute them free to schools and libraries throughout Canada.

*YES-related objective:* To employ technical program graduates, co-op students, students, youth at risk, contract technicians, and people with physical and/or mental disabilities in its network of computer repair centres.

*IHAB objective:* Help students gain greater access to computer technology so that they can develop the skills needed to thrive in a knowledge-based economy.

**SkillNet YI:** As an initiative under Canada's *SchoolNet*, this program operates a network of 9 on-line career and recruitment services. Its Internet application is designed to facilitate highly detailed search, retrieval, and on-line matching activities, from simple database searches to highly complex e-commerce services.

*YES-related objective:* Employ youth to work at university and college career centres to promote SkillNet services to students and employers in their region. Also helps job seekers use the Internet and SkillNet's technology to access career information, employment prospects, and learning opportunities.

*IHAB objective:* Help national associations, non-profit organizations, industry associations, and sector councils adapt their service delivery to the Internet.

**Information Highway/Science and Entrepreneurship (ISE) Camps:** Creates jobs for youth by operating hands-on day camps (with an ICT component) for children.

*YES-related objective:* Hire youth to teach children about computers and the Internet, providing them with experience that will better position them for employment.

*IHAB objective:* Encourage children to develop their interest and skills in the Internet, other information technologies, science and entrepreneurship fields. Stimulates and enhances the science, technology, Information Highway, entrepreneurship, communication and small business skills of youth interns.

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<sup>12</sup> The term "connectivity" refers to the process of getting schools and libraries connected to the Internet.



## 2.5 IMPLICATIONS OF PAST RESEARCH ON IHAB YES S&T PROGRAMS

**Previous Surveys and YES Evaluations:** Extensive research on the IHAB programs was conducted during the period 1999-2002, including exit surveys of youth completing their internships. We know from examining results from the Youth Exit Surveys<sup>13</sup> that these YES programs benefit youth and help them to achieve their goals. In all previous surveys, the majority of YES youth indicated that IHAB YES S&T programs had made a significant contribution to their skills, and about half indicated that the program had influenced their career path.

However, because past youth exit surveys revealed that up to 77% of youth were planning to return to school after their internship, and because 10-41% of those without a job at the time of the survey had just started looking for work, there is little information regarding how the programs affected longer-term employment experiences and longer-term Information Highway benefits.

Therefore, the current evaluation included surveys to examine not only general program issues, but how the program influenced youth's career choices and job-related prospects, including Information Highway-related outcomes in the longer-term (2-3 years later). The current research also attempts to confirm past findings related to how the programs have had an impact on youth's knowledge and skills, especially in the Information Technology field and to identify implications for future IHAB programs.

**SchoolNet Evaluation:** From the examination of relevant literature and past evaluations,<sup>14</sup> it was apparent that Canada's SchoolNet has been very successful in reaching its goals generally. Through SchoolNet and Computers for Schools (one of SchoolNet's components), all of Canada's schools and libraries now have computers and are connected to the Internet.

Knowing this, efforts in the youth and employer surveys can be focused more effectively on increasing an understanding of *how* the youth component (IHAB YES S&T programs) can best aid these important programs.

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<sup>13</sup> Sources: YES Youth Participant Exit Survey Questions (for all four programs from 1999-00 and 2000-01); Exit Survey Data Analysis for IHAB's Youth Employment Strategy Programs: 1999-2001.

<sup>14</sup> See Bibliography and the Evaluation of the SchoolNet 1 Initiative - Final Report (December, 2000).

## 2.6 PROGRAM IMPLEMENTATION AND FINANCES

The following is a summary of number of youth participants and expenditures for each program for each fiscal year addressed in the evaluation.

**Display 1**  
**Numbers of Youth Participants\* and**  
**Industry Canada Expenditures by Program**

	Number of Youth Participants	Industry Canada Financial Commitment	Cost Per Participant
<b>1999-2000</b>			
SchoolNet YI	566	\$ 1,733,000	\$3,062
CFS TWEP	377	1,100,000	2,918
SkillNet YI/NGR	105	196,852	1,857
ISE Camps	116	366,973	3,163
<b>Sub-Total</b>	<b>1,164</b>	<b>3,396,825</b>	<b>2,750</b>
<b>2000-2001</b>			
SchoolNet YI	488	1,698,220	3,479
CFS TWEP	395	1,444,906	3,658
SkillNet YI/NGR	83	124,000	1,494
ISE Camps	108	360,194	3,335
<b>Sub-Total</b>	<b>1,074</b>	<b>3,627,320</b>	<b>2,992</b>
<b>2001-2002</b>			
SchoolNet YI	264	1,444,497	5,472
CFS TWEP	310	1,460,000	4,709
SkillNet YI/NGR	20**	309,000	1,769
ISE Camps	99	316,432	3,196
<b>Sub-Total</b>	<b>693</b>	<b>3,529,929</b>	<b>3,787</b>
<b>TOTAL</b>	<b>6,939</b>	<b>\$10,554,074</b>	<b>3,176</b>

\* Source: *Industry Canada Quarterly Reports for FY 99/00, 00/01, 01/02.*

\*\* Number of participants dropped because Campus Worklink of SkillNet YI/NGR was sold to *Workopolis* in FY 01/02.

## 3. Evaluation Methodology

### 3.1 OVERVIEW

A number of activities have been undertaken for the evaluation, including background research, interviews with key informants, and implementation of surveys of both youth interns and employers. (See Appendix C for a complete description of the evaluation methodology.)

### 3.2 DOCUMENT AND WEB-SITE REVIEWS

As part of the background work for the evaluation, a review of existing data from numerous sources (including government documents and program web-sites) was conducted. The purpose of the examination of existing literature was to gather key information regarding the current state of IHAB YES S&T Programs.

### 3.3 KEY INFORMANT INTERVIEWS

Interviews were conducted with Industry Canada representatives from the four programs. The purpose of the interviews was to obtain background information and gather the perceptions, views and knowledge of individuals who have played an important role/had experience in the design and delivery of IHAB YES S&T Programs.

### 3.4 SURVEYS OF EMPLOYERS AND YOUTH

In order to learn more about IHAB YES S&T programs, two surveys -- a *youth survey* and an *employer survey* -- were conducted to assist Industry Canada in measuring results and benefits of IHAB YES S&T programs, to determine whether these programs have met their goals, and to assess implications for the future<sup>15</sup>.

*Survey of Youth Interns:* A survey of 400 youth who had a work term with one of the four programs was conducted to obtain data on various aspects of the program from their point of view. One questionnaire was designed to be applicable to all programs.<sup>16</sup> The objective of the Survey of Youth was to obtain data from youth interns regarding various aspects of the specific program for which they worked, including their roles and experience with the program, what they did and what impacts the program had, their satisfaction with the program, and suggestions they had for improving the program. The survey emphasized Information Highway-related topics but also addressed overall experiences and impacts.

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<sup>15</sup> Survey questionnaires are provided in Appendix D.

<sup>16</sup> See Appendix A for a list of all evaluation issues.

*Survey of employers/contractors:* A survey of 200 employers/contractors who had employed youth interns under the four programs was conducted to obtain data on various aspects of the program. One questionnaire was utilized for all employers/contractors, regardless of the program in which they had participated. The objective of the Survey of Employers/Contractors was to obtain data from those who hired, trained, and supervised youth interns to gain knowledge regarding various aspects of the program, including their roles and experience with the program, impacts of the program (particularly on connectivity dimensions), indicators of current and future needs, and suggestions on improving the programs for the future. As with the youth survey, it targeted Information Highway-related as well as overall experiences and impacts. This survey represented an innovative feature of the evaluation, as employers had not previously been surveyed regarding these programs.

### **3.5 PRESENTATION**

This report consists of three main sections: Section 4, which provides an analysis of findings and results and examines the evaluation issues using data from the background research, surveys and interviews; Section 5, which examines lessons learned and areas needing improvement; and Section 6, which provides a summary and recommendations.

## 4. Findings and Analysis<sup>17</sup>

### 4.1 IMPACTS OF IHAB YES S&T PROGRAMS<sup>18</sup>

**4.1.1 Impacts on Youth: *Impacts on Youth's Work Experience:*** IHAB YES S&T Programs appear to have had significant impacts in YES areas of concern. When asked to what extent their internship program had helped them gain work experience generally, youth participants were positive: 80% indicated that it had helped them gain work experience. Regarding ITC-related experience, 67% of youth participants indicated that their internship program had helped them attain work experience in the areas of computers/the Internet. Employer assessments of how *the programs* affected youth were positive: 94% of employers indicated that the programs helped youth in attaining work experience.

*Impacts on Youth's Educational Paths:* From both participant and employer perspectives, IHAB YES S&T Programs appear to have met educational needs of youth. Sixty-eight percent of employers and 40% of youth participants reported that the program helped youth develop an educational path [data from Q.6(e), youth survey and Q.5(e), employer survey]. For example, 39% of youth respondents reported that they had, as a result of the program, completed additional courses in the area of computers/the Internet and 17% indicated that they had changed their academic focus towards the area of computers/Information Technology [data from Q.9, youth survey].

*Impacts on Youth's Computer and Internet Skills:* Regarding employers' opinions, 85% reported that the programs helped youth increase their computer and Internet knowledge and skills [data from Q.5(b), employer survey]. When asked to describe the types of duties performed by youth interns while at their organization, employers confirmed that the types of jobs youth performed had important linkages to IHAB goals in IT, computers and the Internet, creating a significant platform for IHAB impacts on youth, and key skill, career and academic impacts.<sup>19</sup> In addition, 62% of youth respondents indicated that IHAB YES S&T Programs had helped them to increase their knowledge or skills in the area of computers/the Internet.

*Impacts on Youth Employment:* Positive impacts were seen in the ability of youth participants to obtain jobs after their IHAB YES S&T internship. Seventy-five percent of youth participants indicated that they were currently employed, and of those who were employed, 67% reported that they were currently working full-time [data from Q.7(a), youth survey]. IHAB Programs were a key factor in helping youth find jobs: 56% of youth reported that their participation in their internship program helped them to get their current job [data from Q.7(c), youth survey]. Employer assessments of how *the programs* affected youth were positive: 94% of employers indicated that the programs helped youth in attaining work experience, and 88% felt that the programs helped to increase the employability of youth [data from Q.5(a), employer survey].

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<sup>17</sup> This section examines the following issues: C.1a): What are the program impacts on contractors/employers and youth? C.3: Has this program resulted in improved access and knowledge of ICT for employers and youth?

<sup>18</sup> For a summary of how each program has succeeded in reaching its objectives related to the Canada Connectedness Initiative and the Youth Employment Strategy, see Appendix E.

<sup>19</sup> Typical jobs by program were: *Computers For Schools TWEP*: Test, configure and upgrade computers; repair and refurbish computers; and perform hardware and software diagnostics. *ISE Camps*: Develop, design and implement interactive technology; Plan S&T-related topics for youth; and Teach children how to use computers/the Internet. *SchoolNet YI*: Maintain school web-site; Support technology for schools and teachers; and Update and install new hardware/software. *SkillNet YI*: Research and develop e-services; Develop on-line databases of resources; and Transcribe information into web-based databases.

*Impacts on Youth's Career Path:* Regarding careers, 44% of youth participants indicated that their internship program had helped them to develop a career path [data from Q.6(d), youth survey]. For example, 47% indicated that their internship increased their interest in a career in computers/Internet [data from Q.5(d), youth survey] and 64% of youth participants who were currently employed indicated that the job they had was directly related to computers/Internet [data from Q.7(b), youth survey].<sup>20</sup>

*Impacts on Youth's Current Wages:* When youth participants were asked if they thought they were earning a higher wage now than they would have without having participated in IHAB YES S&T Programs, 32% of participants who were currently employed reported that they were earning a higher wage than they would have, had they not participated in the program [data from Q.7(d), youth survey].

**4.1.2 Impacts on Employers:** *Impacts on Organizational Development:* As a result of their organization's participation in IHAB YES S&T programs, 65% of employers indicated that the programs helped increase their organization's knowledge or skills regarding computers. In addition, 67% reported that the program helped to increase their interest in Information Technology-trained personnel [data from Q.4(e), employer survey].

Eighty percent of employers indicated the program was successful in increasing access to computers for persons whom their organization serves and 78% reported success in increasing the computer skills of persons that their organization serves [data from Q.14, employer survey]. Additionally, many employers indicated improvements in IT generally as a result of their organization's participation in IHAB YES S&T programs.<sup>21</sup>

## **4.2 IMPACTS ON SUSTAINABLE DEVELOPMENT<sup>22</sup>**

The Government of Canada is committed to sustainable development as a way to improve our quality of life. This is a major challenge that calls for development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. It also calls for integrating economic, environmental and social objectives. To achieve sustainable development, Canada must build a sustainable economy which generates prosperity, work, a clean environment and other improvements to quality of life. Through its various components -- most directly CFS TWEP -- IHAB Programs were identified during the evaluation as having significant sustainable development impacts, as noted below.

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<sup>20</sup> See: *Report on a Survey of Participants in IHAB YES S&T Programs*, January 31, 2003, SPR Associates.

<sup>21</sup> 71% of employers surveyed indicated that they needed to take steps to improve their Information Technology capabilities [data from Q.4(g), employer survey]. Improvements they were considering or have already implemented included: upgrading or purchasing new hardware and/or software; increasing or expanding on-line resources (Internet/web-site); paying employees for training to learn new applications; or hiring new employees to enhance their organization's computer/Internet skills capacity. The evaluators note that future studies might measure such "leveraged" change as an element of program cost-benefits.

<sup>22</sup> This section examines evaluation issues such as: B.2: To what extent are the sustainable development objectives addressed (economic, social, and environmental)?

**4.2.1 Views of Employers and Youth Regarding Sustainable Development:** Both employers and youth were asked questions related to the programs' impact on sustainability issues. These questions examined the extent to which the IHAB YES S&T programs assisted all Canadians regardless of where they live to access the Internet, how the programs contributed to economic sustainability by helping Canada develop its e-commerce capabilities, and how the program contributed to environmental sustainability. Over 75% of employers and 70% of youth indicated that efforts such as IHAB YES S&T Programs contribute a great deal in aiding Canadians' access to and knowledge of the Internet. In comparison, just over half of employers and youth indicated that the programs help Canada in relation to economic sustainability by helping to develop Canada's Internet and e-commerce. Forty-one percent of employers and 50% of youth reported that their program contributed to environmental sustainability.

**4.2.2 Evidence of Sustainable Development:** Due to the variety of programs within IHAB YES S&T, not all sustainable development goals (economic, social, and environmental) are applicable to all programs. The following sections highlight the sustainability effects which are most relevant to each program.

*Environmental sustainable development:* CFS TWEP provides environmental benefits by ensuring that computer systems are re-used and recycled so that they do not end up in landfill sites.

Under CFS TWEP, non-working systems are also stripped of all functional parts, which are then used to repair other systems. Floppy diskettes containing older or unusable software are wiped and used to distribute diagnostic patches and fixes. The recycling of materials saves substantial energy and reduces carbon dioxide emissions, while ensuring the sustainable use of resources and reducing the use of non-renewable natural resources.<sup>23</sup> CFS has refurbished and donated more than 400,000 computers to schools and libraries, and has sent an additional 500,000 computers for post-consumer recycling, which has resulted in a diversion of an estimated 20,000 metric tonnes of IT equipment from landfills.<sup>24</sup>

*Social sustainable development:* In preparing students for the demands of a world that is increasingly dependent on Information Technology, access to computers is essential. SchoolNet YI and CFS TWEP have helped improve social equity through the provision computers, Internet access and technical advice to all Canadian schools and libraries in all corners of the country. Similarly, Canada's students and teachers need to learn how to use computer technology and how to search the Internet. SchoolNet YI and ISE Camps Programs have furthered Canada's social development by instructing students, teachers, library staff, and children to use computers and the Internet so that they can have the foundation necessary to advance in our increasingly computer-based society.

*Economic sustainable development:* All IHAB YES S&T Programs ultimately aid Canada's economy, because they employ youth and allow them to gain valuable computer-related work experience which increases their employability for the future, because connectedness generally is an economic resource. In addition, SkillNet YI also helps youth find jobs by linking employers and job-seekers through the Internet and by providing under served sectors with web-sites to enable them to use the Internet for recruitment and advertisement.

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23 <http://cfs-ope.ic.gc.ca/Default.asp?lang=en&id=11>.

24 <http://www.ic.gc.ca/cmb/welcomeic.nsf/558d636590992942852564880052155b/0c7825e2a20d148b85256b83006277d2!OpenDocument>.

### 4.3 PROGRAM REACH

IHAB YES S&T Programs not only reach the youth interns whom they employ -- they also reach clients that are served or taught by these youth. With several thousand youth participating in IHAB Programs, IHAB YES S&T Programs were estimated by the evaluators to have directly reached a quarter million Canadians between 1999 and 2002.<sup>25</sup> The extended, or long-term reach of IHAB YES S&T Programs (who is reached by those the interns reach?) is without doubt substantial and many times more than the quarter million persons reached directly. Extended reach cannot, however, be accurately measured at this time. This is because once youth interns teach computer and Internet skills to others, there is no data as to how many people will subsequently learn or improve their IT skills from those taught. Similarly, the number of users of CFS computers is not currently known. The numbers reached indirectly by IHAB Programs is an important indicator of success, however, and should be a topic for further research.

### 4.4 PROGRAM SATISFACTION<sup>26</sup>

Participants of all types -- employers and youth alike -- were highly satisfied with the programs.

**4.4.1 Youth Participant Assessments:** The majority of youth participants were satisfied with all components of the programs. Components receiving the highest satisfaction ratings were: work youth participants performed during the program (82%); the workplace/employer (78%); and the programs in general (77%) [data from Q.12, youth survey]. Youth participants gave slightly lower satisfaction ratings to Information Highway-related program components: 63% gave a positive rating for the increase in their computer/Internet knowledge; and 64% for learning opportunities in the area of computers/the Internet. This may indicate that youth possessed a high level of computer and Internet knowledge prior to entering the internship program.<sup>27</sup>

**4.4.2 Employer Assessments:** Employers were very satisfied with all aspects of the program, providing the highest satisfaction rating (93%) to the program in general, and for the work that youth did during their internship (92% positive rating). Employers were also very satisfied with youth's knowledge of the Internet and its use (91% satisfaction rating),<sup>28</sup> and youth's knowledge of computers and software (83% satisfaction rating). Indeed, 61% of employers reported that they had re-hired previous internship participants [data from Q.6, employer survey].

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<sup>25</sup> This estimate was formulated by averaging results from Q.4(c) of the youth survey [how many individuals did you teach new things about computers and/or the Internet to?] and multiplying by the total number of youth participants in the three year period, as obtained from program reports.

<sup>26</sup> This section examines evaluation issues such as: C.2: How satisfied are contractors/employers and youth with the program?; and B.8: How are issues communicated to IC's attention and dealt with?

<sup>27</sup> When asked to rate their satisfaction with the computer/Internet skills they had brought to the program, about 65% of youth participants reported that they were very satisfied.

<sup>28</sup> The high satisfaction ratings that employers gave to youth's knowledge of the Internet may reflect the youths' high level of pre-existing knowledge of the Internet and may be an indicator as to why only 1% of youth participants indicated that they wanted to learn more about the Internet when asked why they applied to their internship program.



When asked about Industry Canada's level of effort to learn about and to solve any problems encountered during the delivery of the programs, 71% of employers reported that no problems were encountered. Of the proportion of employers (29%) who faced problems, 41% indicated that Industry Canada made a significant effort to learn about problems encountered with the programs [data from Q.9 and Q.10, employer survey.] However, of the proportion of employers who faced problems, 62% indicated their satisfaction with the feedback and support received from Industry Canada [data from Q.8(g), employer survey].

#### **4.5 NEEDS OF EMPLOYERS AND YOUTH<sup>29</sup>**

**Are current needs being met?** A number of elements in this evaluation point to significant needs which are aided by the programs. Most importantly, the employer and youth surveys indicated that significant advances in capacity to use computers and the Internet have been seen in all of the different types of organizations touched by IHAB YES S&T Programs (see section above on impacts). When asked how essential efforts such as IHAB YES S&T Programs were in aiding Canadians' access to and use of computers and the Internet, 91% of employers indicated that it was "essential" or "very essential."

*Unmet Needs Among Current Participants:* Needs of given organizations were addressed in this evaluation by one specific survey question. That question, directed to employers, asked whether the number of youth they employed in the last fiscal year was sufficient to meet their information highway needs. Employers were somewhat divided on this question. Almost 60% of employers reported that the number of youth they employed was sufficient. However, 40% of employers who reported a need for more youth interns indicated a need for an average increase of more than 50% in the number of youth interns.

*Future Needs:* Similarly, responses of employers and youth participants point to a need for more sophisticated training and capabilities to respond to new technologies, new software, demands for increasing skills, etc.

#### **4.6 NEED FOR AND UNIQUENESS OF IHAB YES S&T PROGRAMS<sup>30</sup>**

A wide range of survey data pointed to the value and need for IHAB YES S&T programs. This was reflected in general assessments provided by employers, 91% of whom rated these programs as "essential" or "very essential" in aiding Canadian's access to and knowledge of computers and the Internet.

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<sup>29</sup> This section examines evaluation issues such as: B.3: Are IHAB YES S&T programs (assessment, approval, monitoring, agreements, and internships) responsive to the needs of IC? Contractors/employers? Youth? What needs are not being met? D.2: Are current needs being addressed? and D.1: To what extent have future needs been identified by IHAB programs, employers and youth? If so, what are these needs?

<sup>30</sup> This section examines evaluation issues such as: A.3: Are the IHAB YES S&T programs complementary to any other youth program? Is there any duplication; A.1: Is there a need for the federal government to invest in the IHAB YES S&T Programs? A.2: How does the IHAB YES S&T programs contribute to Industry Canada's mission and objectives under the Connectedness Agenda? Youth Employment Strategy? B.4: How are contractors/employers delivering the internships in the regions?

**4.6.1 Employer Views of IHAB YES S&T: Programs are Unique:** Employers were asked: "To your knowledge, is the program duplicated by any other government or non-government program?" The result was that 93% of employers indicated that IHAB YES S&T Programs were not duplicated by any other programs. Overall, these data indicate that the program is unique and thus of particular value to Canada and Canadian institutions served by them.

**4.6.2 Contextual and Other Evidence:** Further to the needs issue, the evaluators posed the question more broadly, "Is there a need for the federal government to invest in the IHAB YES S&T programs?" This issue is examined in terms of the unique federal role, the importance of the federal leverage and reach of the program.

*Federal Role:* Most IHAB YES S&T Programs involve a collaboration between Canada's provincial, territorial, and federal governments, and teachers, industry, libraries, universities, colleges and schools. Many of the issues faced in increasing connectedness (e.g. access to computers, access to Internet, lack of knowledge and skills in using ICT, etc.) are not limited to specific cities or towns - they are barriers in all Canadian Provinces.

*Need for Federal Investment:* Given the cross-provincial nature of IHAB YES S&T Programs, the need for the Federal government to provide direction is apparent. Since telecommunications are a federal responsibility, that there is an intrinsic need for federal involvement in matters relating to communications technology, including access issues. In addition, without the Federal government drive behind the Connecting Canadians Initiative and IHAB YES S&T Programs such as SchoolNet YI and Computers for Schools TWEP, Canada may never have succeeded in becoming the first country to connect all of its schools and libraries to the Internet.

*Importance of Federal Leverage: What Would Happen Without the Funding?* Without funding for IHAB YES S&T Programs, it is clear that these programs would either no longer be able to run, or would run at a greatly diminished capacity. Both CFS TWEP and ISE Camps rely heavily on youth intern resources. Employers and Industry Canada managers have both confirmed that without IHAB youth interns, these two programs would not survive.

*Reach Revisited: Evidence of Need:* IHAB YES S&T Programs provided skills and knowledge to an estimated quarter million Canadians in only three years, and a much larger number of persons indirectly impacted by the program. Without federal funding to hire the youth who teach others about computers and the Internet, many Canadians would have had no other resources to obtain this valuable knowledge.

## 4.7 OTHER ISSUES<sup>31</sup>

**4.7.1 Awareness:** Both youth and employers were asked how they found out about *the program*. The most commonly cited answers are summarized below.

*How Employers Learned About the Program:* The most prevalent ways employers found out about the programs were: from colleagues at work (33%), receiving mail or a phone call from Industry Canada (16%); receiving an E-mail from Industry Canada (14%); and seeing information about the programs on the Internet (9%) [data from Q.2.(a), employer survey].

*How Youth Learned about the Programs:* Thirty-four percent of youth participants reported that they had found out about their internship program through a friend or a teacher, and 19% reported seeing an ad posted at their school or community centre. Others found out about the program through ads on the Internet or from sources such as a school board or a non-profit/voluntary agency [data from Q.2, youth survey]. It should be noted that several youth commented on the lack of program advertising. Youth's views of obstacles to the program (discussed in greater detail in Section 5), included several comments on the fact that they did not know about the program before being hired. Rather, the employers themselves informed the youth that they were IHAB YES S&T interns.

**4.7.2 Program Tracking and Monitoring:** Program tracking and monitoring involves several aspects, including periodic internal reporting, and surveys of participants, to assess impacts.

*Surveys:* Youth exit surveys were distributed to youth interns between 1998-2002, after each individual had completed their internship. From these surveys, a wide range of tracking data was obtained indicating that program goals were generally being attained. Unfortunately these surveys were not mandatory, nor were they collected in a rigorous manner from a central survey location, so only a small percentage were completed and returned by interns. While being a substantial and informative monitoring effort, these surveys provided views for samples of youth which were not necessarily representative, and provided views of short term impacts only. An additional area of interest is the possibility of surveys collecting ongoing reports for employers, for example, on the results of each employer grant (see Section 6 for recommendations regarding possible changes to youth and employer monitoring).

*Program Reports and Monitoring:* Information about the programs is gathered through various means, including:

- General information on all Industry Canada Programs has been provided in Industry Canada annual Performance Reports.
- Information on the specific IHAB programs has been made regularly available on web-sites specific to each program.
- Internal reports have provided management with ongoing statistical information on a quarterly basis.

No annual roll-up reports were noted, however, which might have provided general summaries of program processes and results, especially as they relate to Information Highway impacts, for example, in a format that would be of use to partners or the general public. Such reports might be useful in the future and could be used in helping to promote continued use of the program.

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<sup>31</sup> This section examines evaluation issues B.5: How are the contractors/employer, and youth informed of the program? Would other approaches have been more effective? and B.7: What tracking and monitoring mechanisms are in place to collect data and to what extent are these being utilized?

## 5. Lessons Learned<sup>32</sup>

**Obstacles:** Few obstacles to program effectiveness were reported by employers and youth. *Employers* generally noted funding issues (the need for faster approvals and transfers<sup>33</sup>) and the short length of the intern work term as the main obstacles to program effectiveness. *Youth participants* reported more obstacles than did employers, although these were relatively few in number, as most participants were generally very satisfied with the program. The most commonly reported obstacles reported by youth involved the lack of program advertising, the short duration of the work-term, and a lack of learning opportunities. The evaluators view these as all being important areas in which the program might facilitate improvements. As well, the evaluators see the lack of planning for the internships by some employers to be an obstacle to good learning experiences for youth.

*Responding to Change in the Information Highway:* Responses of employers and youth participants also point to an increasing need for more sophisticated training and capabilities to respond to new technologies, new software, demands for increasing skills, etc. The evaluators viewed this need as pointing towards additional, ongoing assessments of IT needs for these programs.

**Best Practices Regarding Sustainable Development:** Computers for Schools has also won accolades from Environment Canada in a study on the disposal of IT waste. CFS is regarded as a "best practice" program for keeping material, often potentially toxic, out of landfill sites. The hub of the network of CFS TWEP workshops -- the CFS Technology Centre in Hull -- has developed interesting approaches to repairing and recycling computer monitors as well as recycling cardboard and packing foam supplied by all federal departments and agencies and a major moving company in the National Capital Region. As a result, it receives regular delegations from private sector companies and organizations interested in the recycling of technology waste.<sup>34</sup>

**Best Practices Regarding Design/Delivery/Management:** Employers were asked what types of practices they would repeat with respect to the program, including: providing more "hands-on" programming, for example, in robotics design and development; not trying to provide Camps for all age groups, "focus on a specific group;" focusing on having more publicity and public relations with the community; and not underestimating the value of youth, "they have a vast amount of knowledge and are always eager to learn more" (see Suggestions for Improvements, next page).

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<sup>32</sup> This section examines evaluation issues: D.3: What are the lessons learned from IC, contractors/employers, and youth with respect to program design and delivery, program coordination and liaison, and program monitoring and tracking? What are the program strengths and weaknesses? C.1c: What factors have facilitated/imposed the achievement of IHAB YES S&T programs objectives? B.1: Is the program structure an effective way of meeting the objectives of S&T Programs (IC, contractors/employers, agreements, etc.)?

<sup>33</sup> It should be noted that this issue is not specific to IHAB YES S&T, but rather a common problem with all federal grants and contributions programs.

<sup>34</sup> <http://cfs-ope.ic.gc.ca/default.asp?lang=en&id=37>.

**Suggestions for Improvements by Youth and Employers:**<sup>35</sup> Survey results from employers and participants suggested that IHAB YES S&T Programs are successful in meeting the requirements of the "Connecting Canadians" initiative and a variety of Information Highway-related goals. There are, however, some aspects of the program which may require improvement or "fine-tuning."

Employers provided slightly lower satisfaction ratings to 'feedback and support received from Industry Canada,' and 43% of employers indicated that changes are necessary in order for the programs to respond to their needs [data from Q.20(a), employer survey]. Some changes suggested by employers included: targetting those areas in Canada most in need of IT support such as rural areas; having direct input into schools where IT persons are not provided by school board funding; creating a template that can be used for all Contribution Agreements; and having the program available on a part-time basis year-round for smaller communities where IHAB YES S&T Programs are the only computer tutoring programs available. Thus, it was noted that funding was an area of recurring discussion among employers, possibly suggesting the need for more detailed guidelines or dialogue with partners.

Similarly, youth also identified areas for improvement. Many expressed a desire for more playful and learning-oriented direction from their employers. This is a finding which may have program design implications. Some examples of changes youth thought were needed include: "Better communication between the program's administrators and the interns about the program goals", "Provide some kind of curriculum; more information ...on computers especially designed for day camps...", "Emphasis more on the use on the Internet -- building web pages" and "Increase teacher's knowledge of purpose of my position (some of thought I was there to take over instead of encouraging them to learn)."

*These suggestions may point towards ways in which a clearly valuable program could be made more effective.*

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<sup>35</sup> This section examines evaluation issues: D.4: How can the IHAB YES S&T programs be improved?

## 6. Conclusions and Recommendations

### 6.1 CONCLUSIONS AND EVALUATION ISSUES SUMMARY

**Overall Conclusion:** Evaluation results show that there is a continuing benefit from and need for the federal government to invest in IHAB YES S&T Programs because they help keep Canada "competitive" with other countries by expanding Canada's communications infrastructure (connectivity), and by promoting the development of ICT skills, which are essential for Canadians who wish to compete in today's knowledge-based economy.

**Conclusions by Issue:** The evaluation resulted in a number of conclusions, as outlined below:

**Issue 1: Rationale: To what extent is there a need for the IHAB YES S&T programs?**

The evaluation results show that there is a clear and continuing need for the federal government to invest in IHAB YES S&T Programs because they help keep Canada "competitive" with other countries by providing participating youth with increased computer experience, while expanding Canada's communications infrastructure (connectivity) and providing Canadian employers, youth, and the public in general with hands-on opportunities to learn about computers and new technology and to learn how to make better use of the Information Highway. All of these skills are essential for Canadians wanting to compete in today's knowledge-based economy.

These programs are unique and thus of particular value to Canada and Canadian institutions served by them. Without federal funding for the IHAB YES S&T Programs, it is clear that these programs would either no longer be able to run, or would run at a greatly diminished capacity. (See Appendix B and Section 4.6 for details.)

**Issue 2: Design and Delivery: To what extent is the IHAB YES S&T program structure-delivery appropriate?** The success of IHAB YES S&T Program structure and delivery is demonstrated by the fact that programs have met or exceeded their objectives over the last 3 years, and have been operated with minimal management resources from Industry Canada. Effectiveness of the delivery structure is evidenced by the fact that, aided by the IHAB Programs, Canada became the first country in the world to connect all of its public schools and libraries to the Internet. (See Appendix E.)

These programs have also contributed to Canada's economic, social, and environmental sustainable development: The evaluation results reveal that, in the last three years alone, IHAB YES S&T Programs provided jobs and increased computer experience to over 3,000 under-employed youth, have impacted on the IT capacity of participating organizations, have directly provided ICT skills and knowledge to an estimated quarter million Canadians, have indirectly reached an uncounted number of other Canadians, and have diverted an estimated 20,000 metric tonnes of IT equipment from landfills.<sup>36</sup> (See Section 4.2 for more details).

Appropriate program structure and delivery was also evidenced by the fact that few obstacles to program effectiveness were reported by employers and youth (main issues raised by *employers* generally related to funding flows, while youth *participants* most commonly reported problems related to the design of internships at the employer level). (See Section 5.)

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<sup>36</sup> Source: <http://www.ic.gc.ca/cmb/welcomeic.nsf/558d636590992942852564880052155b/0c7825e2a20d148b85256b83006277d2!>

**Issue 3: Impacts and Results: What results (intended or unintended) have been achieved by IHAB YES S&T Programs?** The evaluation has revealed positive results for both youth and employers. These results were most impressive in the area of Information Technology components of IHAB YES S&T Programs, but also reflected valuable employment results.

Most youth participants and employers were satisfied with the program and specific Information Highway-related aspects. Employers provided the highest satisfaction rating with the program in general (93%), and their satisfaction rating for the work that youth performed during their internship (92% positive rating). Regarding ICT, 65% of employers indicated that the programs helped in increasing their organization's knowledge or skills regarding computers, and 71% of employers reported that they identified needs for IT improvements as a result of being in IHAB programs.

Components of the programs receiving the highest satisfaction ratings from youth were: the work the youth participants did during the program (82%); the workplace/employer (78%); and the programs in general (77%). Youth participants indicating a 63% positive rating for the increase in their computer/Internet knowledge and 64% for learning opportunities in the area of computers/the Internet.

Youth also noted important employment and career impacts relevant to IHAB YES S&T objectives. Seventy-five percent of youth participants indicated that they were currently employed, and of those who were employed, 67% reported that they were currently working full-time. IHAB Programs were a key factor in helping youth find jobs: 56% of youth reported that their participation in their internship program helped them to get their current job; 80% indicated that it had helped them gain work experience and 32% of participants who were currently employed reported that they were earning a higher wage than they would have, had they not participated in the program (see Section 4.1 for detailed supporting results).

**Issue 4: Lessons Learned: How can IHAB YES S&T be improved?** Although IHAB Programs aided many specific goals in ICT in an impressive way, responses of employers and youth participants still point to areas of improvement. Some of these are an increasing need for more sophisticated training and capabilities to respond to new technologies, new software, demands for increasing skills, etc.

This evaluation also raises issues about unmet needs, or how much more this type of program could accomplish. For example, 40% of participating employers indicated that they did not have enough youth interns to meet their needs. This points towards potential for expansion of the program as a program improvement.

Other suggested improvements to IHAB YES S&T Programs include offering more learning opportunities to youth interns, lengthening the work term and/or allowing for more flexible hours over longer periods, and making changes to the proposal tendering/funding schedule so that organizations receive responses about receiving funding in enough time for them to benefit fully from the program, and do not require bridge funding to deal with the financial impacts of funding delays.

## 6.2 RECOMMENDATIONS REGARDING MANAGEMENT OF IHAB YES S&T PROGRAMS

It is useful to consider a number of ideas regarding the future use of IHAB YES S&T Programs. Recommendations include:

- 1. Continue and, if possible, expand IHAB YES S&T Programs:** Computer and Internet skills are becoming as fundamental to our society as math and science. ICT-related programs need to continue and/or to grow to meet this increasing need. Evaluation results support expansion of this program (see Sections 4.1, 4.5, and 5).
- 2. Streamline proposal/funding process** so that organizations receive funding in time to hire youth when they are most needed, with no need for "bridge funding." In addition, providing organizations with an early response from Industry Canada about whether they will receive funding so that they can plan accordingly would be helpful (see Section 5).
- 3. Improve monitoring and database:** Monitoring and Evaluation of IHAB YES S&T Programs would benefit from having a more complete, up-to-date database of employer and youth intern contact and demographic information. Industry Canada provided the evaluators with access to their "Youth Exit Survey Database" which contained the names and contact information of all youth who completed an "Exit Survey" at the end of their internship. The database did not contain contact information for youth who worked for a S&T program, but did not fill out an Exit Survey. Industry Canada would benefit from collecting contact information from all youth interns in IHAB Programs, rather than only for those who complete an exit survey. This would allow evaluators in the future to greatly increase the validity of findings by being able to survey a pool of all youth interns rather than the self-selected sub-sample, and also aid long-term studies.

In order to compile an accurate database of information and statistics, Industry Canada should require employers to submit more detailed information on their organizations and on their youth interns as part of the administrative process. This could be done online, in keeping with the spirit of the program. Additionally, this would fill the need for ongoing employer input, and be especially useful if a brief survey on satisfaction and results were included, possibly including some questions derived from Treasury Board's Common Measurement Tool for client satisfaction (see Sections 3 and 4.7).

- 4. Assess needs of program users:** In order to generate future information highway impacts of Industry Canada's investments, a more detailed assessment of the programs' effect on the consumers of these programs would be of value (e.g. clients of the organizations who employ youth interns, or clients who are taught by youth interns, etc.)<sup>37</sup> (See Sections 4.3 and 4.5).
- 5. Needs assessment of targeted Canadian organizations:** To assess the need for possible expansion of programs such as IHAB YES S&T, an assessment of the needs of organizations nation-wide would need to be conducted. Such a study would investigate issues such as needs for staff who are knowledgeable about computers and/or the Internet, needs for computers and Internet access, and changing types of needs of current staff in relation to ICT knowledge gaps (i.e., does their current staff require training or refresher courses regarding computer, software, or Internet-related issues?) Such knowledge would aid future IHAB YES S&T Programs (see Sections 4.5 and 4.6).

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<sup>37</sup> For example, comments from youth working for Computers for Schools clearly stated that the schools themselves were not using the computers provided to them by CFS, either because they did not meet software or Internet standards or because they often needed additional repairs. If this is the case, Industry Canada might want to re-direct its resources to another program or provide computers to locations which can benefit from them.



### 6.3 RECOMMENDATIONS REGARDING PROGRAM STRUCTURE

Employers and youth each have different needs which the program aids to differing degrees. Employers need to hire persons who possess as much knowledge and skill as possible while, at the same time, this needs to be accomplished with minimal cost to their organization. Youth need a job that either pays very well, or provides them with experience that they were previously lacking, or at least a job that lasts long enough to "look good on a resumé". Not all employers met youth's needs fully, in the period studied. While the internships are managed by the employers, Industry Canada may be able to create the conditions for higher quality internships. Some recommendations regarding IHAB Programs are provided below:

- 6. Improve program awareness:** Many youth interns were unaware that they were part of a Government-funded program until well after they were hired and over one-third of respondents were told about the program by a teacher or a friend (see Section 4.7). This points to a lack of proper dissemination of information regarding IHAB YES S&T Programs. Given the subject matter of the internships, information regarding the program might best be accessed if it were placed on the Internet, perhaps on common job-searching web-sites, in addition to Government web-sites.
- 7. Increase the duration of internships/provide more flexible internships:** Both youth and employers felt that the program should last longer than 13 weeks, in order to correspond more closely to the school semester, to respond to increasing needs, and so that youth can obtain more work experience (see Section 5). To address this issue, longer-term or part-time, year-round positions could be created to aid those organizations that require help year-round. Such a program could also aid youth who are still attending school.
- 8. Provide better defined learning opportunities:** Because the programs continue to be called "internships," there is an implicit assumption that the interns will learn new skills. However, because employers benefit most from youth who already possess considerable skill and knowledge in the area of computers and the Internet, they will often hire the most experienced youth. As a result, youth who lack experience may not be hired for the program and miss the opportunity to gain experience. In addition, highly qualified youth who do get hired often know more about computers than their employers and often do not feel that they have learned much related to ICT during their internship<sup>38</sup> (see Section 5). To address this issue, the program should be designed to better identify the level of ICT knowledge needed for internships. Employers should clearly communicate their goals and outline, both in their proposal to Industry Canada and to the youth themselves prior to their being hired, the learning opportunities they are able to provide to youth, to ensure that there is no misunderstanding. "Tiering" of internships by level of experience could aid this (see below).
- 9. Facilitate more flexible pay scales:** Because the interns that tend to get hired are very knowledgeable, both the youth interns and employers feel that interns are not getting paid a salary that reflects their skills (see Section 5). To address this issue, employers should pay highly qualified youth a higher wage, through their own "top-ups," with the help of either increased Industry Canada funding, or through partnerships with community agencies or others. Another possibility which might address some of the above concerns would be to implement a youth intern mentoring program with a tiered pay-scale/funding scale, wherein more highly qualified youth are paid a higher wage to perform their regular duties, while also being responsible for teaching less experienced interns who are paid less yet who are more in need of obtaining ICT-related experience. Changes in this area could be linked to a longer work term.

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<sup>38</sup> Although CFS interns and employers did not mention that the interns were highly qualified when they were hired, youth still felt that there was a lack of learning opportunities due to a combination of a shortage of equipment to repair and equipment which always needed the same repairs, thus limiting the range of repair experiences.

## 6.4 RECOMMENDATION FOR FUTURE EVALUATIONS

This evaluation raises questions relevant to evaluation and monitoring:

- 10. Plan for future evaluations addressing reach and cost-effectiveness:** Some of the recommendations noted above regarding annual reports from and surveys of employers and improved databases, will aid future evaluations. Additionally, some of the needs-oriented research suggested will aid the identification of more exact results indicators. Any future evaluation of these programs should consider methodologies for addressing program "fit" with changing ICT needs, cost-effectiveness and reach.