CONSTRUCTION TECHNOLOGY FOR WOMEN

LEVEL 1 & 2 CURRICULUM FOR GRADES 10, 11 & 12

BUILDING OUR FUTURE:

An Exploration of the Design and Technology of the Built Environment

WITT
NATIONAL NETWORK

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Janet Adams, Eleanor Ross
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Section 1. Introduction

Construction Technology for Women (CTW) was a three-year, pilot project designed to promote construction technology as a viable career path for 300 young women in Canada attending secondary school. The WITT National Network (WITT NN), an education and advocacy organization for women in trades, technology, operations and blue collar work across Canada, with funding from Human Resources Development Canada, took a leadership role with unions, employers, educators and governments to plan and deliver this innovative project. The efforts of all the stakeholders focused on the development and delivery of two high school credit courses and two internship sessions for the young women accepted into the course. This curriculum was offered at all 8 pilot sites and incorporates the input of the project. It is a broad-based curriculum that can be adapted into high schools across Canada.

Construction Technology for Women Course Definition

The term "construction technology" includes a broad range of occupations including engineering, drafting, building trades, fibre optics and architecture technology. (See Appendix 2 for a more comprehensive listing of occupations).

This construction technology course includes:

- An integrated mix of material covering career exploration, construction systems, technological literacy, personal effectiveness, and inquiry skills.
- The study of design, methods, materials, tools and equipment for residential, commercial, industrial, recreational and other built environments.
- The physical products and systems required to maintain and service built environments, and related human, social and environmental concerns.

Project Goals and Description

The goals of the project were to:

- Increase the interest and enthusiasm of young women about careers in construction technology.
- Positively influence systemic change in the construction technology sector, in secondary schools and in post-secondary institutions by developing gender and cultural awareness materials and workshops.
- Increase the representation of women and improve the climate in which women work by creating bridges between education and industry.

- Promote a broader vision of women's roles in the workforce by raising awareness about technology careers.
- Prepare young women in secondary schools to enter construction technology careers which offer opportunities to develop necessary knowledge, skills, critical thinking abilities and technological literacy, examine attitudinal stereotypes and systemic discrimination, understand and deal effectively with harassment, develop confidence in themselves and explore the transferability of their skills, knowledge and experience.
- Encourage the transfer and inclusion of the course in high schools across Canada.

There were a total of eight CTW pilot sites, with a National Project Group that served in an advisory capacity. It was composed of representatives from key national groups such as the Canadian Construction Association, the Canadian Vocational Association, the Canadian Home Builders' Association, Labourers' International Union of North America (LIUNA), Women in Science and Engineering and the Association of Consulting Engineers in Canada. Each site had a Local Advisory Council with a broad-based membership composed of representatives from the school board, industry associations, labour, employers, local WITT members, community college or university, representative provincial ministries, and the community. A Site Steering Committee was composed of the Site Coordinator, WITT members, teachers and employer representatives from the Local Advisory Council.

This broad range of project stakeholders facilitated links between the schools, employers, and labour. These links were critical in order to proactively deal with the possible bias and hostility experienced by women entering workplaces in which they are under-represented. Each site delivered gender and cultural awareness workshops for teachers, guidance counsellors and employers.

Program Description

The CTW program is comprised of two courses, one introductory (Level 1) and the other advanced (Level 2), of one credit each and totalling approximately 220 hours. Both courses focus on the development of technical skills and critical thinking and introduce a wide range of career options in construction technology, such as mechanical systems, carpentry, electrical systems, engineering, architecture, heating, ventilation and air conditioning (HVAC), energy conservation retrofitting and computer assisted design (CAD).

The Level 1 course is exploratory. It focuses on smaller projects and requires more direct facilitation. The internship following Level 1 provides an opportunity for testing new-found skills and perceptions. The Level 2 course continues to build on this foundation in greater detail. By the time students move to Level 2 they may require less direct teaching and have more opportunities for consultation. They will be more focused, more self-directed, and their projects will be larger and more specialized.

In the CTW program, students use both concrete and conceptual tools and materials to create objects to solve human problems. Throughout the program they receive the practical experience they need to develop confidence, inventiveness and an understanding of technology.

An employer-paid summer internship of 6 to 8 weeks follows each course, integrating practical work experience with formal education.

The program is designed for young women 16 to 19 years old attending high school in grades 10, 11 and 12. Efforts are made to include an equitable representation of aboriginal, racial minority and women with disabilities. Recruitment is directed to those young women who:

- Show an interest in math and science.
- Demonstrate an interest in construction technology.
- Demonstrate an interest in pursuing a career path in science, technology and technical trades fields.

Recruitment strategies vary to meet the needs of the target population. In order to meet the challenges of this course, some schools may provide special measures for young women who are interested but do not have adequate math or science skills. These accommodations may include tutoring, mentoring, peer partnering, parent involvement and/or repeating a math or science course.

Interactive Curriculum Planning Process

Using an interactive curriculum planning process, this project has ensured that stakeholders have had an opportunity to provide input into the content and context of the course. The teachers piloting the course have played a key role in determining the finalized curriculum. Using this document as a framework, teachers will be able to develop specific learning experiences, prepare the learning environment, select media and equipment, and prepare instructional materials. The involvement of teachers and guidance counsellors is critical to the development and delivery of this project. They have the ability to fine tune both the design and teaching of the course to meet the needs of their students.

The balance of this document details the curriculum for two secondary school credit courses in Construction Technology for Women. This program is intended to systematically work with young women to expand their horizons at a time in their lives when they experience numerous conflicts and pressures. The program will develop strategies that can be used throughout our educational system to help young women recognize the many career opportunities in the construction technology sector.

The course is designed to expand the students' ways of thinking about the world, their connections to their communities and their understanding of themselves. They will identify existing abilities and acquire new skills that are transferable to their ongoing education, workplace, community and family life. The curriculum also builds inquiry and learning skills that will help students understand their learning styles and support further learning. Finally, it aims to enhance self-confidence and discover solutions for success by focusing on the special pressures and difficulties that women face in a predominantly male trades and technology environment.

Section 2. Context

In recent years a variety of factors have combined to make it appropriate to implement high school credit programs in construction technology for young women in Canada. The focus of this section of the curriculum is a presentation on the realities of the women's experience in the work force and high school education.

The pilot project, the curriculum, and the instructional strategies to implement the CTW program have emerged from an extensive literature review, during which information about the realities of the labour market and of high school settings was analyzed. An analysis of what has been learned from female-specific technological programs for adults was also completed. The sections below provide a synopsis of the findings and present a rationale for offering a specialized course of study in construction technology for young women.

Current Workforce Realities

Gender inequalities are apparent in the workforce. According to Statistics Canada (1995) women make up 45% of the labour force but are still concentrated in a narrow range of "traditional" jobs for women, while men are found in a broad range of diverse occupations.

"The majority of employed women continue to work in occupations in which women have traditionally been concentrated. In 1994, 70% of all employed women were working in either teaching, nursing and health-related occupations, clerical positions, or sales and service occupations. This compared with just 31% of employed men [in these occupations]." (Statistics Canada, 1995.)

Despite women's increased participation in the workforce, they were still under represented in many areas. For example, only 19% of the workers in the natural sciences, engineering and mathematics fields are women, and only 2% of workers in the construction industries are women. (Statistics Canada, 1995.)

Low numbers of women in the training and education programs that are required for employment in these fields imply that the proportion of women will not rise noticeably in the near future. In 1995, only 1.2% of all apprentices registered in 16 predominant trades were women. Although 53% of full-time college students are women, they make up only 12% of all students in engineering and other technologies. (Statistics Canada, 1995.)

On average, women who are working full-time earn $28,400, only 72% of what men earn in full-time jobs. (Statistics Canada, 1995.) Encouraging young women to enter a wider variety of occupations opens up new opportunities for them to improve their earnings. For example, a nursing supervisor or registered nurse earns an average of $32,700 (88% of workers in this field are women) while a civil engineer earns an average of $46,700 (only 6% are women). (Human Resources Development Canada, 1996.)

Young women leaving high school without the pre-requisite technical abilities and skills typically find work in low-income, technologically vulnerable occupations. Societal values and gender stereotypes are often reinforced in the schools through gender streaming in courses.

> "Not surprisingly, girls and boys follow different tracks in school, tracks that reflect society's expectations. Boys have a tendency to go into mathematics, science and technology where they will acquire, throughout their student life, well-defined and marketable skills. For the most part, girls are channeled into general education which very often doesn't translate into marketable vocational competencies." (Bailey, 1995.)

Women also continue to face discrimination and harassment while working on construction projects. A Newfoundland WITT report on women who worked on the Hibernia oil platform construction project in Newfoundland indicated that women "experienced barriers to full and equal participation that began at the training level and continued through to lay-off decisions ... Despite a workplace harassment policy and sexual harassment workshops for the men on the site, 61% of the women construction workers reported experiencing sexual harassment at work or in the camp."(Construction Industry Employment Law News, 1996.)

In spite of the barriers to these occupations, women who are employed in these areas report high levels of job satisfaction. For example, 93% of the women in the Hibernia survey reported being satisfied or very satisfied with their jobs at the Hibernia site. (WITT Newfoundland and Labrador, 1996.)

The well-paying jobs of the future are strongly linked to education, training and technology and to the possession of basic employability skills. These include the academic skills of communication, thinking and learning, the personal management skills of positive attitudes and behaviours, responsibility, adaptability and teamwork skills. (Conference Board of Canada, 1998.)

Realities of High School Education

In high-school settings, young women are not always being provided with gender-neutral career information. Teachers and guidance counsellors have critical roles to play in counteracting gender streaming in career selection and promoting broader occupational choices for young women. The lack of information about science and technology occupations is one of several barriers that women face to entering into occupations in which women are under-represented.

The streaming of young women away from mathematics and sciences continues to thwart them in their future plans.

> "Streaming at earlier stages has tracked them away from basic knowledge in maths and science and tool skills training . . . Streaming has been an accepted philosophy in educational circles. It has been based upon, and has resulted in, the gender stereotyping of most occupations into men's jobs and women's jobs...Women's socialization process in Canada has ensured that they, for the most part, have not received basic orientation to tools and technical skills or developed the personal skills to operate effectively in male-dominated workplaces." (Braundy, 1990.)

Posen and Novogrodsky's (1990) benchmark analysis of occupational integration shows that:

> "Women avoid maths and science in high school resulting in lack of basic qualifications necessary for many professional, technical and scientific jobs.
>
> Schools generally tend to shy away from confronting the controversies of the social and political world, so that adolescents make choices about their future without knowing the practical social, political and economic realities.
>
> Educational programs should also be targeted to parents and other adults who work with young people.
>
> Improved career guidance must be available for young women and parents."

One approach to address these concerns is to use an integrated curriculum that is geared toward developing an understanding of technical, occupational, organizational, managerial, social, historical and cultural aspects of technology and industry and the inter-relationships with academic subject areas. (Hall, 1994.)

The CTW course is directed to students who are interested in math and science. However, teachers must recognize that many women have had a negative experience of learning math and science, and that even interested students may have low self-confidence, may be convinced that "they can't do it," that "they aren't good at it" or that "others will make fun of them." Teachers will need to spend some time with the students addressing these issues. They may want to meet these issues head on by encouraging students to discuss what learning math and science has been like for them. The students may need to be reassured that they can learn math and science. (McKeag and Blair, 1994.)

Using a cross-curricular approach, this course will reinforce concepts and theories learned in other contexts. (Ontario Ministry of Education and Training, 1995.) Teachers and parents will likely find that the students' positive learning in this course may enhance cross-curriculum learning in such areas as math, science and geography. The study of environments and impacts of technology can reinforce concepts in human and physical geography as well as social studies. The application of measurement in project design and layout will demand the use of applied and coordinated geometry, algebra and trigonometry. The study of hazardous materials and the safe use of mechanical devices will reinforce chemistry and physics studies.

The program's cross-curricular approach is further enhanced by how practical applications are used to demonstrate theoretical knowlege. A strong component of the progam is the use of hands-on learning and a holistic approach to the subject matter. This approach will develop workplace communication, problem solving and critical thinking skills necessary to function effectively in the world of work.

The students in the course may have some ambivalence about their participation in this program because of societal sex-role stereotyping. Their families and peers may not support them. They may need reassurance around their identities as women. Role models and supportive family members can be valuable here, encouraging the students to explore their career interests and develop their potential.

A recent American study examined how women in high school make decisions about taking technology courses. (Silverman and Pritchard, 1994.) The reasons why women did not take technology courses explain the importance of this project and may be helpful in the recruitment and retention of women in the CTW program. Reasons are listed below, followed by a statement (in bold font) on how the Construction Technology for Women program addresses the issue.

- They were reluctant to be one of the few women in the class. **Because this course is only for women, reluctant students will be more likely to enrol.**

- They lacked knowledge about technology careers and their requirements. **This course has specific components on career exploration. Role models, employers, site visits and the internships will provide important information for career planning.**

- They lacked a sense of the economic realities that could inform their choice of careers and help them make reasonable plans for further education and training. Many did not want to acknowledge that the kind of jobs available with a high school diploma are very limited in terms of salary and promotion. **Teachers, employers, and role models will provide important information here regarding job opportunities with further training.**

- They often failed to make the connection between what they were doing in class and technological careers. Most had no opportunities to get work experience related to their career choice, nor little contact with role models. **The internship, role model and relational learning components of this course are critical to building this connection.**

Relevant reasons young women gave for enrolling in technology courses were:

- Students were attracted to technology courses because they enjoy working with their hands and like the independence and chance for creativity provided by these classes. **The many opportunities for hands-on technology projects and creativity will be strong motivators.**

- Their interest was often encouraged by relatives or friends. This encouragement was particularly important for women, because men are more likely to have previous experience with technology. **Parental involvement and support will be very important. Teachers need to find ways to involve parents in course activities.**

- They shared a sense of being "trailblazers." **Although this finding came from interviews in mixed classes, this same pioneering spirit is likely to be found in the CTW course and can be a strong motivator.**

The combination of an integrated, cross-curricular approach and the extensive use of gender-sensitive and inclusive instructional strategies should go a long way to encouraging systemic change.

Lessons Learned from Previous Technological Training Programs for Adult Women

This curriculum incorporates the lessons learned from a review of programs that have focused on the movement of adult women into under-represented occupations. Some key issues are highlighted below and again are followed by a statement (in bold font) on how the program plans to address the issue.

- Adult programs fail to remove structural barriers.

"Previous CCLOW [Canadian Congress on Learning Opportunities for Women] research has shown that adult education and training programs for women during the last two decades have had little impact on improving the general level of equality for women in Canadian society. Our research confirmed this finding. During the course of our investigation, we identified many good programs for women, which have had excellent outcomes for the women involved. However, these programs by themselves are not sufficient to create the kind of structural changes which are necessary. . . [Women] are faced with a built-in bias toward inequality." (Wismer, 1988.) **Through the involvement of industry, employers and labour, this project will work toward reducing the bias faced by the students, especially during their internships and further study. The CTW Committees can play a key role in educating relevant parties to build support for the program graduates, through the development of gender and cultural awareness workshops and materials.**

- Women-only programming appears to be most important for introductory programs.

"In a discussion group of tradeswomen ... there was some discussion of whether there should be classes of women only or women and men. Primarily, the opinion was that introductory level courses should be made up of women only, with more advanced training, such as apprenticeship level classes, being mixed. This was seen as a way to help assist women, who may not have had the same exposure to the skills needed for employment in the trades, to attain the required knowledge and skills." (Braundy, 1989.) **This women-only course will provide a base for women entering post-secondary technology programs.**

- Hands-on skills and tools training are important components of any technological program.

"In training courses it was felt that a minimum of eight weeks should be devoted to the hands-on skills training aspect, providing participants with specific skills such as hand tools, blueprint reading and other technologies. It should be assumed by instructors that participants have little or no prior experience working with these tools and related theoretical concepts. The hands-on portions of the course did much for developing tool skills as well as building self-esteem. Those courses that taught more in-depth theory were valued more highly than those that just skimmed the surface." (Wismer, 1988.) **This course will combine frequent hands-on skills and tool training with theory. In-service training will enable teachers to better assess and support students who have no prior experience working with tools and related concepts.**

- Role models are critical for young women.

"Teachers and role models from the community should be women. The importance of seeing women in technical occupations reinforces the image that young women can see themselves undertaking. Invite employers to visit the program." (Ferguson and Nichol, 1994.) **Role models and supportive employers will be important components. The CTW Committees can be instrumental in locating role models.**

- It is important to include social and cultural analysis.

"Our interviewees described an approach to education that starts with questioning why things are as they are; and moves on to encourage the students to look at themselves and their community - to identify the barriers they face in reaching their potential or realizing their aspirations; and together with others, to reach agreement on how to act to reduce or eliminate those barriers. They described a 'whole' approach to education, extending from cradle to grave, and designed to enhance imagination, intuition, social and physical life, and an appreciation of beauty." (Wismer, 1988.) **There will be an emphasis on self-directed and relational learning that will encourage inquiry. The course will approach construction**

technology holistically; examining physical products, human needs and wants and environmental sustainability.

The curriculum's use of practical applications to demonstrate theory, actual workplace problems, role models and mentors should go a long way to address systemic barriers.

Technological Literacy

The call for technological literacy in our society grows stronger each year. Our capabilities are being exponentially extended through the development of new technological processes and products. To achieve our technological potential and assume responsibility for society's use and possible misuse of various technologies, we need a basic understanding of our technological world. "We need to understand the consequences and interrelationships of technological developments, so that we can design and use systems that are compatible with our societal and environmental limits. This requires technological literacy."(Wright, Israel and Lauda, 1993.)

Women and other marginalized groups have traditionally been isolated from this dialogue. Heather Menzies, a well known Canadian activist, writes that "one truth is that technology doesn't just have an impact on people, people have an impact on technology … and must reassert meaningful public control over the key technologies so people everywhere can start programming them to serve the needs of people and human communities. This new critical discourse must be centered in people, in the social context in which restructuring is occuring, and we must all participate if it is to be effective." (Menzies, 1996.)

Technological literacy may be defined as an "understanding of technological evolution and innovation, and the ability to apply tools, equipment, ideas, processes and materials to the satisfactory solution of human needs." (Pucel, 1992.) Also, technological literacy is about understanding how technological systems are integral parts of social systems. It is appreciating the social value of technology as well as its limitations, and having the critical thinking skills to evaluate the positive and negative impacts of technology in society.

As well, people who are technologically literate have developed "common sense knowledge of technology ... including the basic understanding and ability to use technology that is necessary as part of our cultural literacy." (Pucel, 1992.) Here the term "common sense," means developing a confidence in one's ability to use tools and solve problems using a basic understanding of the general principles of mechanics, physics and math. This intuitive and reasoned knowledge is developed through hands-on experience, such as a familiarity with the feel of a tightening screw so you don't overtighten and break it. The principles are also generalizeable; so that learning about electrical conductivity in flashlights can be applied to designing phone networks. This combination of intuitive, creative and reasoned knowledge of technology will provide a useful set of skills and confidence applicable across a wide range of career opportunities.

As we enter the new millennium, the importance of technological literacy grows in all facets of our lives. Since women have traditionally been under-represented in technology courses and careers, many may have had limited technological exposure. It is of particular importance that young women develop technological literacy to avoid low-paying, traditional job ghettos.

The major goal for this course of study is to develop the students' technological understanding, within the context of construction technology. "The development of such literacy requires unique types of learning skills that can only be developed through hands-on sensory experiences with tools, equipment, ideas, processes and materials." (Pucel, 1992.) Such hands-on technological experiences are fundamental to this course.

Section 3. Teaching and Learning Construction Technology

Introduction

Based on the research done for this project, the curriculum incorporates specific teaching strategies that will support a holistic course, combining construction technological literacy with personal effectiveness. These key features are; gender-sensitive and inclusive teaching, support for different learning styles, building inquiry and self-directed learning skills, project-based learning and the encouragement of life-long learning. Technological literacy and confidence in their common-sense abilities will be a key advantage for students graduating from this course and will expand their career options.

In addition to fulfilling their traditional role as sources of information, teachers must act as facilitators, encouraging students to take more responsibility for their learning. The strategies presented below will be supported by in-service teacher training.

Gender-Sensitive and Inclusive Teaching

The teacher must provide a safe, supportive, comfortable and creative environment in which to assess and develop knowledge, skills and confidence. Language and materials need to be gender-neutral and inclusive, illustrating and valuing different cultures, races and roots. The teachers must be sensitive to the students' past experiences with math and science, as described previously. "A Checklist for a Gender-Sensitive Learning Environment" is presented in Appendix 1.

Learning Styles

Research has shown that people differ in the way they learn. (American Association of University Women, 1992.) One learning style model was developed by Dr. Sandra Seagal that seems relevant for this project maintains that within each of us there are three different capacities for learning; **mental** (thinking, conceptualizing), **relational** (relating, connecting, feeling) and **physical** (doing, making). (Seagal, 1989; Brooks, 1986; Bohnen, Booth and Klie, 1991.) While every person uses all three modalities, one tends to predominate, especially when we are in new situations.

Identifying and understanding one's own learning style can facilitate learning. Teachers can help students' identify their learning style and use a variety of teaching and learning methods to support these different styles. Because technology education has frequently emphasized mental and physical learning, it will be important to incorporate activities that use relational learning. This is especially important in dealing with women, because many women have a predominantly relational learning style. One study of women in college programs who were preparing to enter technology and trades training, indicated that 93% were relational learners. (Brooks, 1986.) This may be a natural style of learning for women or a learning style that has arisen as a result of women's socialization.

The most important tools in relational learning are:

- Interacting with others.
- Connecting the lessons to past or current events and experiences.
- Being able to practice.
- Talking to others while learning.
- Being able to take own time.
- Having fun while learning.
- Having own routine.

Women have reported that they learn best if presented with an overview of the material during which they can:

- Relate it to themselves.
- See a demonstration.
- Go back and forth between application and discussion[1].

Women students stated that a good instructor is someone who:

- Interacts with the student.
- Goes back and forth between theory, demonstration and application.
- Is sensitive to students' pacing.
- Encourages discussion.
- Pays individual attention to students' work.
- Sets guidelines and rules on acceptable behaviour.
- Provides support and help with personal growth issues.

(Bohnen, Booth and Klie, 1991; Silverman and Pritchard, 1994.)

Many of the learning activities suggested in later sections are done in groups to encourage relational learning.

[1] For example, "This part of the engine moves the same way as a rocking chair. That's the rocker arm (gestures with own arm). Instead of your legs pushing the chair, the piston on this end pumps it back and forth. To change the speed, you adjust this bolt (adjusts bolt). See … it's moving more slowly now. This is part of several different systems in the engine - what else in the engine is affected by this adjustment?" (Students think of, or observe as many changes as possible, calling out changes as they discover them. The instructor leads discussion about why and how these parts are related.)

Self-Directed Learning and Inquiry Skills

Self-directed learning is the inner disposition to take control of one's own learning. Self-directed learning, individually or in a group, encourages students to explore issues that are meaningful to their lives and supports their relational learning style. The acquisition of self-directed inquiry skills will be a major benefit for the students in the program. These skills can be transferred to the many contexts in which the young women will find themselves during their working and private lives.

The development of inquiry skills, sometimes called the "problem-solving process" or the "design process" is an important component of this course. At the beginning of a design process the learner analyses a given set of conditions in order to identify a problem, challenge, or need. The learner then works through a number of stages to arrive at a solution. Although distinct, these stages do not necessarily follow a rigid sequence. Reflection and evaluation of work at each stage of the process is important. As learners do so, they may discover that they need to return to an earlier stage to make modifications or complete a particular step sooner than originally planned. (Ontario Ministry of Education and Training, 1995.)

The following chart outlines steps in the technological inquiry process.

Technology Inquiry Process

1. Develop a focus	• Identify an unmet human need/problem requiring a technical solution (e.g. design, system, product). • Bring feelings and thoughts about the topic to the surface. • Establish a focus by clarifying the specific technical problem.
2. Collect information	• Identify relevant existing technical methods and knowledge. • Assess the adequacy of the information. • Identify various probable solutions. • Identify required resources. • Record findings.
3. Choose a design for the best solution	• Consider availability of materials, tools, resources, time and ergonomic and aesthetic requirements. • Determine the social acceptability and economic feasibility of the solution. • If relevant, construct a sketch or model. • Modify the solution, if needed, to maximize efficiency and acceptability. • Choose best design solution.
4. Develop a product	• Construct the product, process or system.
5. Evaluate the product	• Evaluate the product's efficiency and acceptability. • Extrapolate the product or process to other things. • Communicate the inquiry and its results.

Adapted from Ontario Ministry of Education and Training, 1995.

Learning by Doing

Projects are the primary means by which students will learn the subject matter and reach expected outcomes. Keys to success will be the teachers' abilities to provide important direction and support. Pitfalls may include student helplessness, embarrassment, or avoidance of hands-on work. It will be important for teachers to provide support and frequent reminders to students to acknowledge and take responsibility for their personal progress.

Learning for Life

Construction Technology for Women uses a very broad definition of education. While the courses are the formal aspect of this experience, it nests within the informal aspects of the students' lives, including the summer internships and opportunities in the home and community. The CTW program should involve the exploration of and connection with the community where the school is situated.

These other experiences will enrich the formal course of study. They also will introduce and support the important idea of life-long learning. Rapid and constant changes in technology mean that success in the labour market now and in the future requires a conscious commitment to ongoing formal and informal learning.

An important role of the teacher will be helping students understand and recognize the necessity of life-long learning. Technology courses provide an excellent opportunity for teachers to demonstrate the meaning of continuing education or retraining, since rapidly changing technologies often mean that teachers may be learning a new technology while they are introducing it to the students. They can model a positive approach to innovations in the field. (Ontario Ministry of Education and Training, 1995.)