

Skills for Life and Career Success in the Trades and Technology



Presented by:

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Skills Canada National Competition

Skills for Life and Career Success in the Trades and Technology

Dear Colleagues:

Congratulations for supporting what has been described as the only national, multi-trade and technology competition for students and apprentices in Canada - one in which young people are exposed to hands-on work experience related to the trades and technology and are able to compete at the national level. We should all applaud this focus on career development - an important aspect of a holistic education strategy.

Educators have always recognized how important it is for students in our schools to have opportunities to learn about the future of work and to expand their knowledge about the competencies and skills that they need for career decision making as they explore possibilities and make decisions that will have a long-lasting impact on their lives.

The purpose of this booklet is to provide ideas for reflection, discussion and critique and to make recommendations that will support deep and sustained implementation. The ideas and quotes are organized around “Catalysts for Action.” At first glance, you may wonder about the relationship of some of the catalysts to the specific topic which I have been asked to address. I ask for your indulgence as I have deliberately included other factors that inevitably come into play in career decision making such as our values, beliefs, and assumptions; the importance of literacy skills; the factors that influence our perspectives, and some of the assumptions we make about the purpose of education. This is a research-rich document with many quotes, ideas and insights that teachers may find useful to integrate into their discussions with students, in any subject area, throughout the school year as they help students see the connections between learning and earning.

My presentation is divided into three sections:

Section A: The importance of the skilled trades and technology.

Section B: Education and the pivotal role of schools in preparing students for productive and self-sustaining lives.

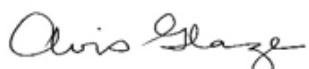
Section C: Next steps and the advocacy needed for systematic and intentional age-related K-12 career development programs that include the skilled trades and technology.

It is my strong belief that opportunities to learn about skilled trades and technology career choices are an essential component of what constitutes effective and holistic education today.

As you continue to assist students in exploring career possibilities, we encourage you to be fierce advocates for students in general, and for those who face barriers and challenges as a result of personal or social circumstances, in particular. The good news is that educators can change trajectories and expand life chances. Let's therefore build upon our successes, seek out experiences that will deepen our knowledge of careers in the skilled trades and technology, and persist in providing the best possible educational experience for all learners. They deserve no less.

Thank you for your assiduous attention and hard work during the pandemic in ensuring that students continue their learning. Your responsiveness and creativity during such unprecedented times served as a testament to your professionalism.

Cordially,



International Education Adviser

Summary of Catalysts for Action

Section A: The importance of the skilled trades and technology.

Catalyst #1:

Ride the Waves of the Fourth Industrial Revolution.

Catalyst #2:

Build coalitions and engage business, industry and other community leaders to expand their support of education in the skilled trades and technology.

Catalyst #3:

Take into consideration the occupations that are considered the most and least prone to automation, the in-demand jobs, the “cool things” you never knew about working in the trades, the most lucrative skills trades in Canada and advice on selecting the trades - especially during labour shortages.

Catalyst 4:

Recognize that having character attributes such as honesty, initiative and adaptability are core values and assets that employers want and which contribute to personal, career, and life success.

Catalyst #5:

Ensure that students have a solid grounding in “the literacies” as essential preparation for careers in the trades.

Catalyst #6:

Pay attention to the findings from the Future of Jobs Report and use the insights in your teaching, problem solving and decision-making process:

Section B: Education and the pivotal role of schools in preparing students for productive and self-sustaining lives.

Catalyst #7:

Seek out and utilize the information, resources and supports provided by the Government of British Columbia to assist in decision making regarding the skilled trades.

Catalyst #8:

Pay attention to the real reasons for skilled trades shortages, determine how this information affects you, what needs to be done and how to ensure that you remain flexible, adaptable and open to learning new skills and competencies.

Catalyst #9:

Know thyself! Self-awareness and self-knowledge are pre-requisites for career choice and decision-making.

Catalyst #10:

Identify, be prepared to discuss and communicate the key beliefs, values, assumptions, premises and personal philosophy that undergird your work in education and career development.

Catalyst #11:

Internalize and act upon key values and beliefs and incorporate imperatives for education in all programs, policies, procedures, operations, research, teaching and interactions as a philosophical underpinning of your equity, diversity, inclusion and anti-racism strategy.

Catalyst #12:

Understand future trends and their profound impact on education and the whole of society.



Section C: Next steps and the advocacy needed for systematic, age-related career development programs that include the skilled trades and technology.

Catalyst #13:

Include character attributes and the “soft skills”, such as collaboration and networking, which have become as important as the traditional “hard skills.”

Catalyst #14:

Prove the assertions of four influential researchers wrong through your actions and interventions.

Catalyst #15:

Pay attention to career development theories and use the information and insights to provide career guidance that is age-related, developmentally-based and consistent with interests, aptitudes, dispositions, values and needs.

Catalyst #16:

Institute actions to move your organization along the continuum of Equality → Equity → Justice.

Catalyst #17:

Embed a culture of continuous school improvement to ensure that your parents, community members and stakeholders describe your school as “a good school” and “an effective school.”

Catalyst #18:

Ensure that all staff utilize the research-informed, high impact strategies to improve student learning and achievement and to ensure that students have the skills required for entry into the trades and technology.

Catalyst #19:

Address Indigenous education collaboratively and intentionally – and with a sense of urgency, so that students can achieve their full potential.

Catalyst #20:

Persist in changing organizational cultures, demystify the trades and technology, and build upon current successes to create greater access, retention and advancement for women, immigrants and members of diverse groups.

Catalyst #21:

Incorporate in your perspectives the value and benefits of parental engagement in education.

Catalyst #22:

Provide strong advocacy to decisionmakers to address the issue of poverty which can shape and determine a student's destiny - if there are no interventions.

Catalyst #23:

Guard against “the willingness to become increasingly unsuspecting yet willing to abdicate your power to make decisions based on your own judgment, include your moral convictions and maintain an attitude of vigilance and doubt in decision making related to the adoption of AI.”

Catalyst #24:

Develop a systematic and intentional implementation plan to ensure that the actions identified in this booklet are embedded in your schools and districts.

Catalyst #25:

Take note of what motivates employees and use these findings to facilitate organizational development.

Catalyst #26:

Utilize the information on the pivotal role of schools in promoting entrepreneurialism and seek out opportunities and experiences to learn more about the trades, technology and entrepreneurialism.

Catalyst #27:

Generate new ideas and discoveries that redefine what's possible for the good of our cities, our country and our planet:

Section A: About the importance of the skilled trades and technology;

Catalysts for Action #1:

Ride the Waves of the Fourth Industrial Revolution

“Technologies are emerging and affecting our lives in many ways. We are at the beginning of a Fourth Industrial Revolution, a new era that builds and extends the impact of digitization in new and unanticipated ways. It is therefore worthwhile taking some time to consider exactly what kind of shifts we are experiencing and how we might, collectively and individually, ensure that it creates benefits for the many, rather than the few”

Davis (2016)

“What is the Fourth Industrial Revolution?”

“The future is already here
- its just not very evenly
distributed.:

Novelist William Gibson.

- Some countries have not yet experienced the second and third revolutions.
- According to the United Nations, (2013), new technologies are in some cases able to “leap frog” older ones. More people in the world have access to a mobile phone than basic sanitation. In the same way the Fourth Industrial Revolution is beginning to emerge at the same time that the third, digital revolution is spreading and maturing across countries and organizations.”

When were the other industrial revolutions?

According to Davis, “**The First Industrial Revolution**” is widely taken to be the shift from our reliance on animals, human effort and biomass as primary sources of energy to the use of fossil fuels and the mechanical power this enabled.

The Second Industrial Revolution occurred between the end of 19th century and the two decades of the 20th century, and brought major breakthroughs in the form of electricity distribution, both wireless and wired communication, the synthesis of ammonia and new forms of power generation.

The Third Industrial Revolution began in the 1950s with the development of digital systems, communication and rapid advances in computing power, which have enabled new ways of generating and sharing information.

The Cost to a Nation of Inadequate Education.

- ✓ Foregone national income
- ✓ Foregone tax revenues for the support of government services
- ✓ Increased demand on social services
- ✓ Increased crime
- ✓ Reduced political participation
- ✓ Reduced intergovernmental mobility
- ✓ Poorer levels of health

Levin (1972)



Catalysts for Action #2:

Build coalitions and engage business, industry and other community leaders to expand their support for education in the skilled trades and technology

“I see the collaboration between educators and businesses essential to building the workforce of the future and in creating innovative approaches to learning by aligning curricula with the skills needed for employment.

An essential part of our business and my personal philosophy has always been focused on creating relationships with our community partners, including K-12 schools and post-secondary institutions. We do this through strategic philanthropy as well as grass-roots initiatives such as employee volunteerism and a giving-matching program, school programming support, meal plans, mentorships, and internship opportunities. We also focus on our employees’ wellbeing by offering flexible schedules to assist parent’s involvement in their children’s activities.

Our scholarship program, Beedie Luminaries, supports students who are facing financial adversity and helps them achieve their educational and career goals. It builds on the premise that further education can enhance future career opportunities, and have the potential to transform not just the student, but families, and communities.”

Ryan Beedie, O.B.C. (2021) *President, Beedie Founder, Beedie Luminaries*

“Publicly funded education is the foundation for an equitable and inclusive society, the fabric necessary for a strong and sustainable economy. COVID has created both stresses and opportunities. More than ever we need strong, courageous and innovative public education leaders who can evolve our schools and engage our children in learning.”

R. Kenneth J. Fredeen (2021) *General Counsel Emeritus*

“Employers have a key role to play in supporting education. They are uniquely placed to inform the next generation about the opportunities in their sector and the skills they need. Our research shows that giving young people the chance to meet and interact with people from the world of work helps to inspire them and leads to improved attainment. It also helps to tackle some the stereotypical views children from a young age often have about the jobs people do based on their gender, ethnicity and socio-economic background. Our research has also shown that employers who support their staff to volunteer in schools and colleges have found their employees to be more motivated, more productive and have a better sense of well-being.”

Nick Chambers (2021) *Education and Employers London, England*

“We in the business world don’t want young people coming into our employment and into our communities who are brilliant, but dishonest; who have great intellectual knowledge, but don’t really care about others; who have highly creative minds, but are irresponsible. All of us in business and the entire adult community need to do our part in helping build young people of high character. There isn’t a more critical issue in education today.”

Sandy McDonnell (2008) *St. Louis, USA*

Ten Core Competencies and Skills Valued by Employers

- | | |
|------------------------|----------------------|
| 1. Accountability | 6. Delegation |
| 2. Ambition | 7. Flexibility |
| 3. Communication | 8. Initiative |
| 4. Conflict resolution | 9. Stress management |
| 5. Decisiveness | 10. Team work |

Indeed Editorial Team (March, 2021)

Skills for Life and Career Success in the Trades and Technology

“Let’s end the Myths of the Skilled Trades

“I’ve been a big supporter of the skilled trades throughout my career...we advocate for increased diversity on their crews, hire apprentices, and aim to reduce the stigma associated with skilled trades and establish a stronger workforce for the next generation.”

Myth #1: “The skilled trades is just a job, NOT a career.”

Myth #2: “You don’t have to be very smart.”

Myth #3: “Skilled trades mean construction worker, plumber and electrician.”

Myth #4: “These jobs aren’t suited for women.”

Myth #5: “You cant earn a good living.”

Myth #6: “There are barriers for diverse workers in the industry.”

Mark Holmes (2022)

Catalysts for Action #3:

Take into consideration the occupations that are considered the most and least prone to automation, the in-demand jobs, the “cool things” you never knew about working in the trades, the most lucrative skills trades in Canada and advice on selecting the trades especially during labour shortages.

Most Prone to Automation:

- Telemarketers
- Tax preparers
- Insurance appraisers, Auto damage
- Umpires, referees and other sports officials
- Legal secretaries
- Hosts and Hostesses. Restaurant Lounge an Coffee Shops
- Real Estate Brokers
- Farm Labour Contactors
- Secretaries and Administrative Assistants, Except Legal. Medical & Executive
- Couriers and Messengers

Less Prone to Automation:

- Mental Health and Substance Abuse Social Workers
- Choreographers
- Physicians and surgeons
- Psychologists
- Human Resource Managers
- Computer Systems Analysts
- Anthropologists and Archeologists
- Marine Engineers and Naval Architects
- Sales Managers
- Chief Executives

“Source: Carl Bendikr Frey and Michel Osbre, University of Oxford (2013)”

The 11 in-demand jobs in British Columbia

Amy Chen (August 14, 2018)

According to Amy Chen, Statistics Canada and the Canadian Apprenticeship Forum state that over 197,000 new apprenticeships will be needed by 2024. She cites 11 of the best trades according to Industry Training Authority (ITA) - and the BCIT programs designed to prepare you for them

1. Automotive service technician
2. Carpenter
3. Construction electrician
4. Heavy duty equipment technician
5. Heavy duty truck mechanic
6. Industrial electrician
7. Machinist
8. Millwright
9. Motor vehicle body repair technician
10. Plumber
11. Refrigeration and air conditioning mechanic

The 9 cool things you never knew about working in trades

Daily Hive Writer (August 2020)

1. Goodbye retirees, hello job openings;
2. Your starting wage is going to be awesome;
3. You actually make money during your training;
4. Job hunting takes hours - not months;
5. More employment growth for trades grads than university grads;
6. Careers in trades aren't exclusively physical;
7. The top in-demand jobs in trades might surprise you;
8. You can get an early start on your trades career with dual credit;
9. Overcoming the gender gap.

The Most Lucrative Skilled Trades in Canada - (Salaries between \$25.00 and 48.00 per hour)

- | | | |
|-----------------------------------|--------------------------|---------------|
| • Heavy Duty Equipment Technician | • Power line Technicians | • Electrician |
| • Steam Fitter- Pipe Fitter | • Oil and Gas Driller | • Plumber |
| • Construction Manager | • HVAC Mechanic | • Welder |

Life in Canada (2020)

Section B: About Education and the Pivotal Role of Schools in Preparing Students for Productive and Self-sustaining Lives

Catalysts for Action #11:

Internalize and act upon key values and beliefs and incorporate imperatives for education in all programs, policies, procedures, operations, research, teaching and interactions as a philosophical underpinning of your equity, diversity, inconclusion and anti-racism strategy.

- All children can learn and achieve, given time and proper supports;
 - Excellence and equity must go hand in hand: they are two sides of the same coin;
 - Students thrive in a culture of caring and high expectations for learning;
 - Effective education is holistic in nature; it includes education about careers in trades and technology;
 - Educators seek to incorporate the key imperatives for education:
- ✓ The Moral Imperative
 - ✓ The Economic Imperative
 - ✓ The Value-for-Money Imperative
 - ✓ The Demographic Imperative
 - ✓ The Social Justice Imperative
 - ✓ The Community Health Imperative
 - ✓ The Enlightened Self Interest Imperative, and
 - ✓ The Human Rights Imperative

Countries do not become civil because they are rich; rather, they become rich because they are civil.” *Robert Putnam*

Catalysts for Action #12:

Understand future trends and their profound impact on education and the whole of society

Twenty-One Trends for the 21st Century . . .

Their Profound Impact on Education and the Whole of Society (Updated Version)

1. Millennials will insist on solutions to accumulated problems and injustices and will profoundly impact leadership and life styles.
2. In a series of tipping points, majorities will become minorities, creating ongoing challenges for social cohesion.
3. In developed nations, the old will generally outnumber the young. In developing nations, the young will generally outnumber the old.
4. Ubiquitous, interactive technologies will shape how we live, how we learn, how we see ourselves, and how we relate to the world.
5. Identity and privacy issues will lead to an array of new and often urgent concerns and a demand that they be resolved.
6. An economy for a new era will demand restoration and reinvention of physical, social, technological, educational, and policy infrastructure.
7. Pressure will grow for society to prepare people for jobs and careers that may not currently exist.
8. The need to develop new sources of affordable and accessible energy will lead to intensified scientific invention and political tension.
9. Common opportunities and threats will intensify a worldwide demand for planetary security.
10. Sustainability will depend on adaptability and resilience in a fast-changing, at-risk world.
11. International learning, including relationships, cultural understanding, languages, and diplomatic skills, will become basic.
12. In a world of diverse talents and aspirations, we will increasingly discover and accept that one size does not fit all.
13. Releasing ingenuity and stimulating creativity will become primary responsibilities of education and society.
14. Breadth, depth, and purposes of education will constantly be clarified to meet the needs of a fast-changing world.
15. Polarization and narrowness will, of necessity, bend toward reasoned discussion, evidence, and consideration of varying points of view.
16. A spotlight will fall on how people gain authority and use it.
17. Scientific discoveries and societal realities will force widespread ethical choices.
18. The status quo will yield to continuous improvement and reasoned progress.
19. Understanding will grow that sustained poverty is expensive, debilitating, and unsettling.
20. Scarcity will help us rethink our view of abundance.
21. More of us will seek personal meaning in our lives in response to an intense, high tech, always on, fast-moving society. *Marx (2014)*

Catalysts for Action #17:

Embed a culture of continuous school improvement to ensure that that your parents, community members and stakeholders describe your school as “a good school” and “an effective school.”

Characteristics of “Good” (Effective) Schools

- There is a moral imperative to educate all successfully, regardless of their background or personal circumstances.
- High expectations for learning and achievement are communicated consistently.
- Curriculum materials are reviewed consistently for bias.
- The curriculum is inclusive, bias-free and does not alienate the students.
- There are no limitations placed on students based on factors such as race, gender, socio-economic status, and other factors covered by Human Rights Codes.
- There is zero tolerance for racism, sexism, homophobia and other anti human behaviours.
- Discipline is applied consistently and fairly
- Staff works assiduously to remove barriers and to enhance life chances.
- There is a holistic approach to education with a focus on the cognitive, affective, and behavioural domains of learning.
- Teachers, students and parents value education in the trades and technology and put effort and resources into career development.
- They solicit input from all sectors of society - business, labour, industry.
- Achievement data are disaggregated by race, gender, SES and other variables.
- Variations in learning are not attributed to background factors.
- Teachers are supported in their efforts to teach effectively.
- Parents are not blamed when their children do not succeed; instead, they are encouraged to participate fully in their children’s education.
- Educators utilize research-informed strategies to address the variables over which schools have control.
- Educators achieve success for all students to the maximum of their capabilities.
- Staff at all levels model, teach, expect and insist upon the demonstration of character attributes such as respect, responsibility, honesty, integrity, fairness, empathy, perseverance, optimism.
- Staff institute policies, programs and interactions that:
 - ✓ Enhance life chances and future career possibilities;
 - ✓ Prepare students for responsible citizenship with a focus on qualities such as altruism, volunteerism and philanthropy.
 - ✓ Promote creativity and an entrepreneurial spirit.
 - ✓ Are inclusive, empowering all children to learn and achieve.
- Principals lead with passion, confidence, intentionality and a sense of mission.
- Parents feel welcomed and are encouraged to participate fully in their children’s education.
- The graduates represent the demographics of the school.
- Excellence and equity go hand in hand.

(Glaze, 2022)

1

“In a completely rational society, the best of us would aspire to be teachers and the rest of us would have to settle for something less, because passing civilization along from one generation to the next ought to be the highest honor and the highest responsibility anyone could have.”

Lee Iacocca, Chairman, Chrysler Corporation.

2

“Our young people are entering an adult life of rapid change and deepening global interdependence... The best performing systems will increasingly become the yardstick for success... Success will go to those individuals and countries which are swift to adapt, slow to complain and open to change.”

Schleicher, OECD (2007)

3

“If schools were equal we would not care what schools our children go to. But oh, we do care what schools our children go to because they are not equal.”

DiAngelo (2015)

4

“Schools pay for years of special education and remedial instruction for failing to ensure that students succeed in the early grades.”

Slavin (1996)

Riding the Waves of Change



Photograph by: Hoang M Nguyen

TEACHERS ...

A little of you lives in every child
with whom you come in contact.
Great is your influence, for you have
contributed to the development of every
advancement in medicine and science.

You speak in every courtroom and
from every pulpit.

Your voice is heard in every song and
your influence is felt in every painting.

You live in the pages of every book
that has ever been written.

You ride into space with every astronaut.
you live in every home and
speak through each child at the dinner table
when the child says, "My teacher says ..."

Walk proudly then, for you are
a teacher.

Author unknown.



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