Changing the Public's Perception of High School Shop Classes to Increase Enrollment in Apprenticeship and Reduce the Shortage of Skilled Trades people in B.C.

by

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Bachelor of Education, University of British Columbia, 2004

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Supervisory Committee

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This project is a guide for the consideration and start up of a secondary school apprenticeship program in British Columbia's public schools. It was created to help other school districts and trades instructors start apprenticeship programs and represents the positive aspects in high school apprenticeship. It also addresses the common road blocks in starting an ACE-IT apprenticeship program.

The guide addresses the three main configurations of program offerings; the application process through the Industry Training Authority (ITA); requirements for a qualified instructor and a properly equipped facility; the funding available through the ITA; and the student selection process for a successful program. Additionally, it examines the benefits to students over a traditional apprenticeship, and a positive school to work transition.

ACE-IT apprenticeship programs are a fantastic way to engage students in trades and skilled labour occupations and are currently one of our best opportunities to help resolve the shortage of trades and skilled labour in Western Canada.

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Lastly, thank you to my two beautiful little girls Dailah and Danika who remind me to have fun and smile every day of my life. You are the reason I work so hard.

Dedication

This paper is for my Dad. A rough and gruff, yet kind and loving family man, who was also a shop teacher. My dad taught me a great deal throughout my life, but above all, my dad taught me work ethic and perseverance. He showed me how to enjoy working with my hands, to build quality projects and have pride in my work. He also taught me compassion and to work hard for others.

My dad was my friend as well as my hero throughout my entire life and he passed away half way through this endeavour of completing my Masters of Education. I miss him and think of him daily.

Chapter 1: Introduction

"If you show me a man who has never made a mistake, I'll show you a man who has never built a single thing" (Richard Gallagher, 1994).

In this chapter I will discuss my own background in regards to trade occupations and where I developed my thoughts around the topics of work ethic, high school shop classes, and becoming a "shop teacher" in the public school system in British Columbia Canada.

Teaching High School "Shop Class".

I am a second generation "Shop Teacher" as well as a Journeyman Carpenter teaching at the secondary level in the public school system of British Columbia Canada. A strong part of my personality and a major part of my everyday life revolves around work ethic and pride in working with my hands. Approximately 50% of my job is teaching work ethic to my students, and how to persevere to complete a project or task. The other 50% is teaching students to operate machinery safely, to enjoy working with their hands, and to create products they can be proud of. As both a tradesman and teacher, I am a promoter of trade occupations in B.C. and feel that our high school shops have developed a poor reputation in the public eye and could better serve our students as well as industry in the province. This poor perception of high school shops needs to be corrected, and we need to put in place a structure for trades education and apprenticeship that starts early in our public school system that is valued by the public (parents and students) as well as industry.

My father was a "shop teacher". An "industrial education teacher" was what he called himself for most of his career, as that was once the purpose of "shops" in high-schools; to prepare our youth for working in industry. Today, we are usually referred to as "shop teachers",

or “technology (tech) teachers”, and as such, I feel we need to revert back to being “industrial education teachers”, preparing our youth to work in industry, or our development as a nation and our resource economy in B.C. may suffer.

My Father, My Mentor.

My father had the strongest work ethic of anyone I have known, completing thirty-one years of teaching in the B.C. public school system without taking one “sick day”. He would often leave for school at 7:30am and return home from school around 5:00pm. He also coached senior high school rugby throughout his entire teaching career. I remember him walking in the door many evenings saying “Well....the taxpayers got their money’s worth today”.

I became a Shop Teacher (Industrial Education Teacher) approximately ten years ago with my dad’s influence, and have also never taken one “sick day”. I’m not sure if I ever will, but I keep saying I will, just to not “compete” with my dad. He passed away July 9th this past summer.

The Purpose of “Shops” in High-Schools.

Shop teachers of my father’s generation taught necessary skills for students to leave high-school and enter the workforce directly. Nowadays, much of the public has a poor opinion of high school shop classes as supported in Phillips (2012) when he states “the bias against vocational education is destructive to our society. Many of the skills needed to compete in the global market of the 21st century are technical skills that fall into the technical/vocational area. The absence of excellence in many technical and vocational fields is also costing us as a nation” (p. 2). With most of the world’s manufacturing being done overseas and our province’s natural resource industries not being what they once were, shop class content and the education of shop teachers have been simplified or reduced to the bare minimum. The focus has moved from

practical industry related content, to cardboard and thumbtack projects or electrical do-dads that are very economical compared to the cost of running an "industry like" shop. Our current shops in the province are underfunded and undervalued to say the least, and are causing potential trades-people to seek different career interests. This is supported in Smaller (2003) when stating "The decline in vocational education facilities in B.C's secondary school shops is a large contributor to school level challenges".

In my experience, the public's general view of shop class has become of a place where less academic students "spend time". Alternately, they complain that the process of manufacturing a quality item of any kind is becoming a lost skill. The stakeholders in the province (politicians and Ministry of Education officials), as evidenced in the underfunding of trades education, tend to think that our youth will develop an interest in trade occupations after graduation without meaningful experiences while in high school shop classes. Although the provincial government has recently provided post secondary institutions with funding increases towards trades programs and certifications, by the time a young person has graduated from secondary school, most have already decided the career path they are going to take. Without a positive experience in industrial education at the high school level, their career choice is not likely going to be in the trade areas.

Why I Am, the Way I Am.

I took my first "regular job" picking potatoes on a local farm at the age of thirteen. I enjoyed working and was proud to have a job and earn money. I had a few jobs during my teenage years, including working nightshift at the local hospital doing housekeeping and security. My teachers used to ask, "Did you work last night?", when I responded "Yes", they would simply suggest that I put my head down and relax. I somehow managed to pass those

classes, maybe because my dad taught at that high school, or maybe because the teachers admired my efforts; to this day I have no idea which. However, I do feel that I learned a great deal from working at a young age. During my high school years, I did quite well in my academic classes, but enjoyed shop classes where I learned a significant amount about working with my hands and using power tools. My shop teachers inspired me to enjoy my work, have pride in working with my hands, and to build quality projects. My father was also one of my shop teachers, and the skills and work ethic that he passed on to me and many other students were invaluable. No matter what the application, I was able to use my general knowledge of machinery and equipment in almost any work that had to be done.

Moving Up the Ladder....So to Speak.

I took a job in construction directly out of high school because I truly enjoyed working with my hands as well as working outdoors. In the early 1990's as I reached my twenties, I realized how broad my knowledge base was. With the skills that I learned in high school, and the ones that I was learning on the jobsite, I quickly moved up the ranks in a local construction company and found myself on a residential framing crew. For some, it took years to reach this position. I stayed with that company long enough to learn the basics and to learn that I wanted to do better quality work than they were producing. I moved around to a few different companies, and found myself a Carpentry Apprenticeship working for a Master Builder from Ireland. He was a great builder, a good teacher and very reluctant when it came to pay increases.

I worked in the construction industry through some tough times, and through some very successful times for approximately 14 years, before suffering a severe separation of my left shoulder that caused me to rethink my future.

Becoming Something Else.

At the time of my shoulder injury, I was working doing residential concrete and framing. I was good at it, I liked it, and I thought I would do it until I could not do it anymore. With my father as my mentor, and many discussions with him regarding different career paths, I decided to follow in his footsteps and re-train to be a "Shop Teacher". I took two years of academics at the local college (mostly sciences), two years at BCIT/UBC (technical training), and my professional year at UBC. There I was, a "Shop Teacher" in August of 2004 with a Bachelor's degree in Education.

I was able to pay for my education by working with my hands and using those skills that originated in my high school shop classes. To that point in my life, I had worked as a carpenter, a commercial fisherman, a construction company owner in Kobe, Japan (rebuilding homes after the 1994 earthquake), a welder/fabricator, a set builder for feature films (I Robot, and The Butterfly Effect), as well as a construction company owner in my hometown.

Where I Sit Now.

I am now a Journeyman Carpenter and a tradesman at heart as well as a "Shop Teacher". I believe in the true value of working with ones hands; "Putting your back into it", "Using a little elbow grease", and "Getting a job done" to name a few clichés. It is an effort for me to sit and relax because it does not come naturally. Many people seem to dislike their work and I believe this reflects in their attitude as well as their health and well-being. I enjoy my work and working hard because it feels good. I truly believe this is something my father has passed on to me, and is the greatest lesson he taught me in life.

I have the privilege of passing these values and skills on to my students, but I feel the public's perception of trade occupations and high school shop classes need to change to accomplish this with any stability and merit over time.

Our Current State of Affairs.

The current provincial government is pushing hard to initiate an LNG (liquefied natural gas) industry to alleviate funding and budget issues in the province and they are seeking vast numbers of skilled trades-people to accomplish this task. Simultaneously, they have been cutting tax based funds to public schools over the last decade or so and moving this funding into private schools. Private schools do not offer "shop classes" or any trades related courses. Without positive experiences in public school shop classes, where will the interest in trades develop in today's youth?

We do not have the skilled labour force to facilitate an LNG and other natural resource industries in British Columbia, One cause may be that, our high school shops have become dilapidated, archaic places where out-of-date machines get used by a small portion of the student population. One answer may be that the government and Ministry of Education officials need to consider having trade skills taught to students at an earlier age, and to provide them with the modern equipment and skilled teachers to do so. This could result in attracting the interest of students, and having them begin to learn valuable trades' related skills at an earlier age.

There is no draw for trades people to become teachers to pass on their skills, and those teachers who are very good teachers in the shop areas (trades people or not) have minimal funding to purchase up-to-date equipment and materials to simulate industry for high school shop students. The inevitable retirement of the "baby boomers" generation is upon us and is going to devastate our skilled labour sources in Western Canada.

Further, with industry in various provinces (particularly our neighboring province) increasing at a steady pace as we climb out of the worldwide economic downturn, "by 2031, Canada will be short 2.7 million workers, reports the Canadian Apprenticeship Forum" (McLean's Magazine, Sept. 2013, p.42). This topic has been in the news in recent times and is of significant concern to all people living in Western Canada as it affects our economy, politics, our immigration policy, and our development as a nation. We need to put in place, a structure for trades education and apprenticeship that is well funded, starts early in our public school system, and is valued by the public (parents and students) as well as industry continues to be of a concern for me as a Journeyman Carpenter and a teacher. As the need for skilled trades-people in the Province increases, so does the value of these people in society, and so do the wages earned in these trade occupations. Many people in society need to change their opinions of high school shop classes from being a dumping ground for students who do not excel at academics, to a place where students can begin to learn work ethic, practical applications of academics, highly skilled processes, and the value and pride of working with their hands.

In this M Ed. project I will examine the literature to better understand some of the challenges that high school shop and apprenticeship programs face throughout the province. I will review some of the current successful high school shop and apprenticeship programs offered in western Canada, and I will promote the current positive actions being taken and what recommendations experts suggest to change the public's perception of high school shop classes, to increase interest and enrollment, and promote high school apprenticeships.

Chapter 2: Literature Review

Most residents of Western Canada that progress through the public school system have the opportunity to participate in “Industrial Education” or “Shop” classes, or as they more recently have been labeled, “Technology Education” classes. These classes are usually taken at the middle school and high school level and include wood work, metal work, electronics, and the like. For many students this is their first opportunity to work with their hands and machinery to produce an object of reasonable quality. Some students enjoy these classes and take away from them valuable lifelong skills, yet they go on to pursue other career interests. Others continue their interests in these areas and pursue a career in the Trades or what is often referred to as “skilled labour”. At the moment, in Western Canada there is a severe shortage of skilled labour and as the Baby Boomers generation retires from the workforce, this shortage will become more evident.

The public’s perception of high school “shop classes” has diminished over the years as a result of under-valuing skills based courses that lead to “skilled labour” or trade occupations. This undervaluing has been the result of industry continually being able to meet the labour demand for industrial and natural resource based projects. The outcome of this under-valuing at the high school level is minimal provincial funding for materials, and the dilapidation of shop machinery. The trend of under-valuing these high school courses must be overturned and programs need to be put in place to cue the interest of today’s youth and the approval of their parents to meet the labour demands of today’s industrial and natural resource economy.

This issue is of significant concern to all people living in Western Canada as it affects our economy, politics, our immigration policy, and our development as a nation. With industry in various provinces increasing at a steady pace as we climb out of the worldwide economic

downturn, “by 2031, Canada will be short 2.7million workers, reports the Canadian Apprenticeship Forum” (McLean’s Magazine, Sept. 2013, p. 42).

In this paper, I will review some of the recent literature on this topic, and I suggest that if we can change the public’s perception of high school shop classes and trades occupations, we can increase interest and enrollment and promote high school apprenticeship, therefore creating a significant reduction in the shortage of skilled labour in Western Canada.

I will begin by examining the challenges that high school shop and apprenticeship programs face throughout the province of British Columbia. I will then review selected current successful high school shop and apprenticeship programs running in the province that improve student interest and enrollment. Lastly, I review the current literature regarding the recommendations and positive actions that are being taken to impact the public’s perception of high school shop classes. Such actions will arguably lead, to an increased interest and enrollment, and promote high school apprenticeships.

Challenges in High School Shop and Apprenticeship Programs.

In the public school system in Western Canada, the curriculum, in part, has been developed to lead students towards attending university as their optimal post secondary choice. Students are told that they must work hard to achieve top grades in academic classes to ‘make the cut’ or be accepted by their university of choice. B.C. government statistics (http://www.bced.gov.bc.ca/reports/pdfs/postsectrans/Prov.pdf) state that approximately 17% of students attend university the year after graduation, and only 45% of that 17% complete their undergraduate degree within four years of enrollment (retrieved Dec. 6th 2014). In the province of British Columbia educational stakeholders need to ask why students are pushed towards achieving university entrance requirements, instead of being prepared more adequately for what

many of their job and career futures hold. This issue has recently come to the media forefront with new initiatives supported on the Construction Foundation of B.C.'s website commenting that:

> Currently, 52 of 60 B.C. school districts offer shop classes in more than 260 schools, with 48 of those school districts offering Secondary School Apprenticeship (SSA) training. With a looming shortage of over 30,000 skilled workers, the B.C. construction industry is working to encourage more young people to enter the skilled trades (Descantes, 2014).

As a "Red Seal" Carpenter and an instructor of a high school Carpentry Apprenticeship (ACE-IT) program, as well as a second generation "shop" teacher, I am a promoter of trade occupations and believe that high school shops have developed a poor reputation in the public eye and could better serve our students as well as industry in Western Canada. This poor perception of high school shops needs to be corrected, and there is a need to put in place a structure for trades education and apprenticeship that starts early in the public school system, that is valued by the public (parents and students) as well as industry. Educators need to make a strong effort to change students' incorrect perceptions of what it is like to work in trade occupations and to inform them that there are a large number of very good paying jobs to fill in these areas.

In vocational education, there are many challenges regarding whether a school runs successful "shop" programs. Some of these challenges are stated by Smaller (2003) "There are school-level challenges to high school [shop] programs----for example, the lack of qualified technical teachers, decline in vocational education facilities, and low status of "vocational"

compared to “academic” programs” (Smaller, 2003 in Taylor & Watt-Malcolm, 2010, p.2). Another challenge that exists in high school shop and apprenticeship programs is the perceived working conditions of trades people by the public. Discussion on these four topics is the focus of most existing literature in this subject area and will be the focus of the next section of this review.

The Lack of Qualified Technical Teachers.

In a recent study titled “Technology Education Issues in British Columbia”, Despres (2011) explored common issues throughout the province in regards to ‘shop based’ high school classes. Despres clearly states the purpose of his study as being, “to expose issues in Technology Education curriculum in British Columbia, Canada, as perceived and articulated by Technology Education teachers and their administrators” (Despres, 2011, p. 4). Despres’ study involved 60 “shop teacher” participants and four “administrator” participants from around the province. Despres discusses the background experiences and education of technology teachers in the province stating, “I wanted to uncover the background experience and any special credentials of participants in order to see if there were discrepancies or convergences between the demands of their teaching job and their training background” (Despres, 2011, p. 10). He includes a participant’s comments in relation to technology teachers’ background and education:

> [Tech Ed classes] are so watered down by mixed levels being taught by teachers that don’t know what they are doing. EG [sic], myself being hired as an electronics teacher. Even though I was an electrician, I knew very little about electronics. I teach drafting and have never been trained in it. Hire carpenters to teach carpentry. Hire mechinests [sic] to teach new machiniests [sic]. Hire inivative [sic] well rounded people

> (knowledge in electronics, metal, auto etc) to teach technology education". (Despres, 2010, p.10)

Findings from this portion of Despres' study found that "indeed there does appear to be some correlation between educational attainment, credentials and experience, and the participants' current teaching role, albeit not strong or direct" (p.11).

Similar to the work in Despres' study, the British Columbia Ministry of Education has recently been reviewing the training and background of "shop" teachers at the high school level, and are trying to determine how many teachers in the province are "Red Seal" certified in a registered trade, as many successful shop and apprenticeship programs currently running are taught by trades people. As an incentive for trades people to enter the teaching profession, the Ministry offers this statement in the (2014) document titled 'Certification of Trades Educators Options Paper', "To encourage qualified Red Seal professionals to enter the teaching profession, ensuring that the K-12 school system has Red Seal professionals to teach trades programs, barriers to teacher certification must be eliminated" (W. Clarke, 2014, p. 1). The Ministry is presently promoting 'specialized career training programs' that allow students to start an apprenticeship in the trade of their choice while they are still attending high school classes. Two of the programs currently offered are; 'Secondary School Apprenticeship (SSA) and Accelerated Credit Enrolment in Industry Training (ACE-IT)'. To teach these specialized programs, teachers must be certified "Red Seal" trades people in the area in which they teach. In a section labeled 'Background' of the document 'Certification of Trades Educators Options Paper', it states "A forum was held in March 2013 to better understand and identify the needs of the education system with respect to trades educators, [forum feedback indicated that the lack of a teaching certificate tailored to trades professionals is an impediment to attracting teachers qualified to

deliver trades programs]" (Clarke, 2014, p.1). The B.C. Ministry of Education is encouraging school districts to recruit "Red Seal" trades people to teach at the high school level in their trained area of expertise.

Currently in British Columbia "Shop Teachers" have to complete a 5 year education degree to teach in the public school system. However, there are exceptions in rare cases that allow a teacher to teach under a letter of permission issued by the Teacher Regulation Branch. Those situations only exist when a more suitable candidate with a teaching degree cannot be acquired by a school district. This is supported in the B.C. Ministry of Education's 'Certifications of Trades Educators Policy Options Paper' where it states:

> BC has a 12-month teaching permit that may be issued to individuals who lack the requirements to obtain a COQ [Certificate of Qualification], but have specialized content knowledge. LOP [Letter of Permission] holders are allowed to teach only when a COQ holder is not available, and there is a need in the K-12 school system. Between 2012 and 2014, the Teacher Regulation Branch issued approximately 40 LOP's to teach in the trades areas (Clarke, 2014, p. 2)

With the current policies in place, a trades-person would have attended 9 years of post-secondary education to complete their Red Seal certification and a teaching degree.

This differs from the Unites States, where "Trade and Industrial (T&I) teachers do not have to follow the same teacher preparation or state licensure rules as other teachers. T&I teachers are hired because of technical expertise and experience in a craft or profession" (Self, 2001, p. 2). Many of the Trades and Industrial teachers teaching in the U.S. public school system have little or no education on "how to teach" they simply have superior skills and knowledge of curriculum content or subject area. The United States also do not have the same rigorous "Red

Seal" trades certification programs that we have in Canada so there is no standard for the level of knowledge a tradesperson may or may not have. In regards to teacher certification, "The National Association of Industrial and Technical Teacher Educators (NAITTE) have proposed a set of teacher preparation and certification standards. Using these standards as a benchmark and a method of determining common ground, a universally accepted level of proficiency for T&I teachers would emerge" (Self, 2001, p. 3).

In the American education system, stakeholders are also attempting to recruit trades-people to teach "shop" classes as the American economy recovers from the recent worldwide economic downturn. Housing and industry in general is beginning to improve and the "skilled labour" shortage is now becoming evident in the U.S. as well. A study on the issue of attaining skilled trades-people by Self (2001) corroborates that attaining certified trades people to teach at the high school level in their trained area of expertise in the U.S. is even more arduous, stating that "Trade and Industrial teachers who have both industry experience and pedagogical expertise are traditionally difficult to find" (Walker, Gregson, & Frantz, 1996, in Self, 2001). Self (2001) acknowledges that the U.S has gone through similar issues as in British Columbia in regards to finding qualified "shop teachers", writing "A severe shortage coupled with an increased demand in specific occupational areas of the field of secondary Trades and Industrial education exists" (Lynch, 1996a; Roth, 1994, in Self, 2001).

Programs like ACE-IT and SSA in British Columbia schools allow students to begin an apprenticeship in a certified "Red Seal" trade while they are still attending high school. A recent study conducted by Taylor and Watt-Malcolm (2010) focused on issues in vocational education titled "Opportunities and Constraints Related to Vocational Education Partnerships in Canada". Taylor and Watt-Malcolm explored high school apprenticeship programs similar to Ace-It and

SSA in three provinces. Their report is based on case studies that were focused on high school apprenticeships in the construction trades. Studies took place in Simcoe County and Hamilton in Ontario, Red Deer and Fort McMurray in Alberta, and Fort St. John in B.C. Taylor & Watt-Malcolm clearly state that "all three provinces have been actively involved in promoting high school apprenticeship programs in recent years and are experimenting with dual credit initiatives" (p. 3). This study differed from that of Despres' study in that, the participants and groups in Taylor & Watt-Malcolm's study were from multiple provinces and the participants were not only educators, but also "a mix of large and small employers, high schools, different apprenticeship trainers, partnership "brokers" (supported often by provincial governments), and government departments" (Taylor & Watt-Malcolm, 2010, p. 3). Results of this study regarding the perception of high school apprenticeship teachers in Ontario also differed from Despres' study, Taylor and Watt-Malcolm write, "Instructors were qualified carpenters with a wealth of up-to-date knowledge of the trade and industry who were willing to share their expertise (cf. Fuller and Unwin, 2003)." (Taylor and Watt-Malcolm, 2010, p. 19). Taylor & Watt-Malcolm also found the quality of the courses differed in high school apprenticeship programs from regular shop classes with comments such as, "The carpentry OYAP (Ontario Youth Apprenticeship Program) is the Cadillac of all training. No one can match the standards, the expectations, the quality of the instructors, the quality of the management, and the resources they have. And they have the pulse on the industry (School district staff, cited in Taylor, 2006)" (Taylor & Watt-Malcolm, 2010, p. 18).

Currently in British Columbia's Technology Teacher education programs, students of all backgrounds are accepted into the program. It is recommended that students complete 30 credits of post-secondary academic courses before attending the technical portion of the program and

before the teacher education program at an accredited university. However, many students are accepted right out of high school or shortly after, creating a diverse cohort of Technology Teacher Education students. It is likely that these younger students would struggle in the early years of teaching as they would have no practical, life experiences to draw from while teaching in the trade areas.

The Decline in Vocational Education Facilities.

High school shops throughout the province have machinery that in many cases was purchased in the late 1960's. This equipment was purchased with the thought in mind that it will be serving the purpose of preparing students for industry. As a result, it is very industrial, heavy duty machinery. In many shops this equipment still runs and functions perfectly, however in most shops this equipment has come to the end of its functioning life and is in desperate need of replacement with modern equipment that is found in industry. Smaller (2003) supports this argument for additional resources with his comments: "The decline in vocational education facilities in B.C.'s secondary school shops is also a large contributor to school level challenges" (cited in Taylor & Watt-Malcolm, 2010, p. 2).

In regard to the decline of facilities in this area of education in high schools, the provincial government insists there have been significant increases to technology education funding in recent years. However, Despres (2010) disagrees writing, "Despite the BC Progress Board Report (Jago, 2006), which encouraged the provincial government to follow through on its mandates [adequate resources for education], the government, boldly grandstanding about increased funding to education, reduced funding to school districts which left them scrambling to ensure proper education for its students" (Beresford et al, 2007, cited in Despres, 2008, p.8). The president of the B.C. Technology Teachers Association, Mike Howard supports the comments of

Smaller (2003) and Despres (2011) in regards to the dilapidation of high school shop equipment. Howard argues “there isn’t enough money for it [technology education]: districts are cutting teachers while expecting existing teachers to maintain shop equipment---which most aren’t trained to do” (Hyslop, 2013).

The need for new equipment and the onerous cost that comes with it has been placed on a frustrated industry. In an article from the Construction Foundation of B.C.’s website it states, “The Construction Foundation of B.C. has received 89 applications from B.C. high schools hoping to qualify for funding to upgrade their skills training facilities through ‘Project Shop Class’, its inaugural fundraising effort. Schools are seeking a combined total of approximately $8.9 million”. Although the B.C. Government collects a tax allotment for education and needs to provide school districts with funding to properly educate our youth in the trades areas, the replacement of dilapidated equipment has fallen on the fundraising initiatives of industry. Haney (2002) states that “Industry is looking for the school system to provide the training and knowledge needed by the next generation of employees” (p. 51). In his doctoral dissertation, Haney also compares the U.S. to a country known worldwide for its excellence in vocational training stating “In some countries such as Germany, the predominant delivery mechanisms for vocational education are company-based and financed by industry” (p. 52). Perhaps this is a direction to consider in B.C. so that industry acquires the entry level skills for new employees it desires, reducing the bureaucratic stalling by government, while also benefiting from a potential reduction in taxes that it can put towards apprenticeship training for the province’s youth.

The partnership of Taylor and Watt-Malcolm discussed previously completed an earlier study in 2008 titled ‘Building a Future for High School Students in the Trades’. Taylor and Watt-Malcolm mention the same school-based issues in the discussion and also compare our broken

trades and vocational education system to Germany when commenting, “Reports have documented barriers to the expansion of apprenticeship, which include the lack of value of high school vocational education, a decline in trades facilities and difficulty attracting teachers with trades qualifications to schools, and the low social status of trades in Canada compared to countries like Germany (Canadian Apprenticeship Forum, 2003)” (Taylor & Watt-Malcolm, 2008, p. 3).

The Low Societal Status of “Vocational” Programs Compared to “Academic” Programs.

In regards to societal considerations of vocational education, the low status of ‘vocational’ compared to ‘academic’ programs” is the main issue in the way that the public views “shop classes”. This is an issue that emerges often in the literature on vocational education. In a report on the Conference Board of Canada’s website titled ‘Solving the Skilled Trade Shortage’ it states that “From an institutional perspective, skilled trades tend to be considered as an afterthought for those who lack the academic aptitude to pursue the normal course from secondary school through to postsecondary school”(p. 2).

The first of many issues that lead the public to believe there is a lower societal status of vocational education is the confusion regarding the subject’s identity. Technology Education was derived from Industrial Education and has had difficulty separating the curriculum of the two ever since. Attempts have been made to change the curriculum from technical processes and procedures involving the use of machinery in Industrial Education to “a concerted effort to align the field with the math and science communities, and most recently, with pre-engineering education” (Wright, Washer, Watkins, & Scott, 2008, p. 79). The curriculum has been manipulated by many shop teachers to try to give it a more academic value, perhaps to juxtapose the notion of the lower social status of the subject area. This is supported by (Wright, Washer,

Watkins, & Scott, 2008) in their study titled “Have We Made Progress? Stakeholder Perceptions of Technology Education in Public Secondary Education in the United States” when they write:

> Technology education professionals should give attention to clarification of academic content and identity. As content is clarified within the profession, internal questions of identity will be largely alleviated. Once this has happened, issues of identity with external entities can be adequately dealt with. (p. 79).

Taylor and Freeman (2011) completed a study titled “‘Made in the trade’: youth attitudes towards apprenticeship certification”. This study involved former Ontario Youth Apprenticeship Program participants to determine whether the students had continued their apprenticeships after graduating from high school. The study was conducted from July 2009 to April 2010. In their report, Taylor &Freeman discuss the issue of “low status of ‘vocational’ compared to ‘academic’ programs” when they write “most [participants] referred to their high school as either as a ‘tech school’ (focused on ‘vocational’ programming) or a ‘collegiate’ (academically-focused school)” (p.351). Taylor & Freeman related the findings of their study of completion rates of high school apprentices to “Youth as hands on or book learners”. This is supported in Haney’s doctoral dissertation (2002) titled “Secondary Students Perceptions of Vocational Education” when he states, “There are two paths in secondary education, a vocational concentration and college preparation” (Haney, 2002, p. 33).

Further proof of the existence of the bias towards vocational education is in a paper titled “Why We Should Care About Vocational Education”. In a section sub-titled ‘Blue-Collar Stigma in White-Collar Society’, Phillips (2012) describes this vocational versus academia phenomenon in stating “the bias against vocational education is destructive to our society. Many of the skills

needed to compete in the global market of the 21st century are technical skills that fall into the technical/vocational area. The absence of excellence in many technical and vocational fields is also costing us economically as a nation" (p.2). Unlike Phillips (2012) who relates the issue to society, Wagner (2008) relates this issue directly to high school curriculum, as he describes it in his book *The Global Achievement Gap* which was recently featured and reviewed on Harvard's Graduate School of Education's website. Wagner states "The global achievement gap is the gap between what we are teaching and testing in our schools [academia], even in the ones that are most highly-regarded, versus the skills all students will need for careers, college, and citizenship in the 21st century [vocational]".

It is clearly evident in reviewing the above literature, that there is a negative public view of "vocational" compared to "academic" programs in B.C. high schools.

Successful Types of High School Shop/Apprenticeship Programs in B.C.

In contrast to the issues facing vocational programs, there are some very successful vocational programs currently running in the province. These programs are intriguing and challenging to students, reflect the demands of industry, and support the need for increasing the quality of vocational programs and apprenticeships. Among them are the Ace-It (Accelerated Credit and Enrollment in Industry Training) programs, as well as, SSA (Secondary School Apprenticeship) programs. Ace-It, as described by Cowin (2012) was "introduced in 2005, Ace-It provides the level one technical component of a high school apprenticeship. Programs are usually delivered as partnerships between school districts and post- secondary institutions. Ace-It credits count towards both high school graduation and post-secondary credentials (dual credit)" (p. 61). Cowin (2012) describes the SSA program as; Beginning in 1994, "high school students can concurrently work and attend high school. They formally register with the ITA (Industry

Training Authority) as Youth Apprentices and participate in around 500 hours of paid, work-based training. Successful completion of the SSA courses provides 16 credits towards graduation and eligibility for a $1000.00 scholarship. Ace-It complements SSA and students are encouraged to enroll in both. 2300 students enrolled in 2009/2010". (Cowin, 2012, p. 61).

The Industry Training Authority of British Columbia has been given the task of doubling the students enrolled in ACE-IT programs in the next two years. On the B.C. Jobs Plan website it states "Doubling ACE-IT spaces will not only increase student choices but also encourage more students to pursue skills and trades training" (p. 11).

Although Ace-It and SSA programs have proven success rates in the province, stakeholders need to consider implicating a more thorough education in early high school years around career choice, so that students can make an educated choice in considering trades occupations as a viable option. This is supported in a report on the Conference Board of Canada's website titled 'Solving the Skilled Trade Shortage' where it states, "There is little in the mainstream system that encourages young people to pursue skilled trades as a first choice following secondary school" (p. 3). The Ministry assumes that students will do their own assessment in regards to the labour market stating, "The Ministry of Education anticipates that enrolment in specialized career trades training programs like ACE-IT will increase as students consider opportunities that align with labour market demands for a skilled workforce" (W. Clarke, 2014, p. 1). Although programs like Ace-It and SSA are proven to align students with necessary skills to find employment in "skilled labour" occupations, there is very little prior 'career choice' information in the trades areas given to students while attending high school.

One of the latest positive changes in high school initiatives is "Project based learning" (PBL). According to Barron & Darling-Hammond (2008), on the Edutopia website PBL

"essentially involves the following: students learning knowledge to tackle realistic problems as they would be solved in the real world, increased student control over his or her learning, teachers serving as coaches and facilitators of inquiry and reflection, students (usually, but not always) working in pairs or groups" (Vega, 2012).

This push towards Project based Learning has fuelled another initiative that is closely related to "shop classes". "Makerspace" is the latest attempt in many public schools to "provide hands-on, creative ways to encourage students to design, experiment, build and invent as they deeply engage in science, engineering and tinkering. A Makerspace is not solely a science lab, woodshop, computer lab or art room, but it may contain elements found in all of these familiar spaces" (Cooper, 2013). In many cases, shop teachers are the instructors in a school's "Makerspace" as many classroom teachers are unfamiliar with tools and machinery and do not have the safety certification that shop teachers receive during their training. Teachers of various subject areas can book time in the "Makerspace" with the shop teacher to bring a class in to learn to work safely with tools and equipment. It is often booked by teachers similar to the way a school's library would be. The downfall of these "Makerspace" areas is "The Safety Issue", as liability and student safety is always an issue when using machinery and tools in school environments. Makerspace is best received by students at the elementary to middle school years.

The acknowledgement of the high level of instruction in high school apprenticeship courses is now being recognized throughout the province, and the fact that skilled trades-people are able to pass on their skills and knowledge, using the apprenticeship learning model. Many of the studies included in this literature review concur that apprenticeship as a learning model, is an effective way to teach today's youth. Taylor & Freeman support this in their (2011) study 'Made in the trade' discussed previously, when they state that their results "help to explain the different

trajectories taken by different youth and have broader implications for thinking about apprenticeship as a learning model" (Taylor &Freeman, 2011, p. 345). Although Ace-It and SSA programs are significantly increasing the number of youth involved in trades and apprenticeship programs, there are many other successful vocational education programs running throughout the provinces of British Columbia and Alberta in "regular" shop classes, simply because they are taught by good quality, experienced "shop" teachers using the apprenticeship structure as a learning model.

The Public Perception of Trades-People's Working Environment.

In an article written on the Skills Canada website titled 'The Myths and Realities about Skilled Trades Careers' it states: "Formal research and anecdotal evidence suggests that negative perceptions and attitudes about skilled trades exist among many youth, parents, and educators throughout Canada" (p. 1). The most common perceptions that the public and today's youth have of trades occupations come from a dramatized version of reality. On the Conference Board of Canada's website, a report titled 'Solving the Skilled Trade Shortage' recognizes this negative perception stating "common youth perceptions are that skilled trades are cold, dirty, outdoor, seasonal, boom and bust occupations, that involve repetitive work, low job satisfaction, and little imagination for even less compensation" (p. 14). In the above mentioned Skills Canada article 'The Myths and Realities about Skilled Trades Careers' the author states "There is no doubt that many trades require "hands-on" work. However, it is important to remember that technology and new techniques have greatly changed the nature of many trades" (p. 4). On modern worksites, all employee safety regulations are controlled and enforced by WorkSafe B.C. in British Columbia and The Worker's Compensation Board in Alberta. Both organizations enforce strict safety

regulations for all work performed by trades people and large fines are issued to employers if they do not comply with these regulations.

Positive Actions and Recommendations to Resolve the Skilled Labour Shortage in B.C.

There are many recommendations by varying groups and organizations to resolve the skilled trades shortage in B.C., beginning with advice from Jason Kenney, the Federal Minister of Employment and Social Development and Minister for Multiculturalism, when he spoke at the BC Business Summit. An article in the Vancouver Sun quoted Kenney as stating "The single most powerful tool employers have to address labour skill shortages is raising wage levels" (Lee, 2013). If wages for "Skilled Trades" increased, more of the province's youth may be intrigued towards trades as a viable career option. However, the wages in the gas and oil sectors are already extremely high. Earlier in this review it was suggested that B.C. consider replicating the German Skilled Trades programs. This is reflected in Minister Kenney's comments declaring "the provinces should look to countries such as Germany and Australia whose training programs are producing better results" (Lee, 2013). The B.C. government is increasing tax grants to apprentices in the province and should continue with these as an incentive for apprentices to remain in the industry they are employed in, as well as employer tax grants for hiring apprentices and youth. Some of these current grants and tax credits include: the Apprenticeship Incentive Grant, the Apprenticeship Job Creation Tax Credit, and the Tradesperson's Tool Deduction (Moreau, 2012).

Although Ace-It and SSA programs in B.C. are helping to increase interest and enrollment in vocational courses, promote high school apprenticeship, and alleviate some of the shortage of skilled trade persons in Western Canada, there are studies that show other avenues that could be possible to incorporate into the public school system in B.C. and Alberta in

vocational education areas. Gentry, Hu, Peters & Rizza (2008) completed a study involving gifted and talented students in Career and Technical Education (vocational education) programs. The purpose of the study was to inquire how the students Career and Technical Education (CTE) compared with their general education experience to attempt to understand the nature, experiences, and needs of students who were talented in CTE areas (Gentry, et al., 2008, p. 186). Gentry, et al. had four themes that emerged. The four themes were "Individualization with no ceiling", "Student-Centered Meaningful Choices", "Instructor as a Developer of Talent", and "Participation in CTSO's (career and technical student organizations)". Organizations such as the B.C. Technology Teachers Association need to promote the notion of gifted and talented students in the technology and vocational education areas, drawing funding from government and organizations that support these initiatives, perhaps in the form of awards and scholarships in these subject areas.

To begin to change the negative perception of trades and vocational education one could learn from the European Union and their efforts to restructure youth employment, the education system, and the mobility of youth in the same concerted effort. In a paper titled "Attitudes Towards Vocational Education and Training" funded by the European Commission, it discusses the 'Europe 2020 Flagship initiatives called 'Youth on the Move'. Stating that the initiatives "aim to improve education and training systems, youth employment and mobility, as well as 'An Agenda for New Skills and Jobs', which aims to improve the relevance of education and training systems to labour market needs" (TNS Opinion and Social, 2011, p. 3). European countries in general have a much more positive attitude towards trades and vocational occupations and a more practical approach to issues in society. The idea to approach change to many topics so closely tied together is not only very efficient, but very practical. The European public has a

much higher sociological and socioeconomic respect for trades people than the North American public. This is supported in the conclusion of the paper titled "Attitudes Towards Vocational Education and Training" when the authors state "The fact that students selecting vocational education and training take much the same factors into consideration as students selecting general secondary or higher education suggests that there is no great social divide separating the young people who choose the two different educational pathways" (p. 29).

Conclusion

In conclusion, as the literature indicates there is currently a negative public perception of high school "shop" classes in Western Canada. To change this perception, and increase interest and enrollment in these classes, as well as, promote high school apprenticeship; technology education teachers and governing bodies must work together to continue the efforts existing in the Ace-It (Accelerated credit and enrollment to industry training) and SSA (Secondary school apprenticeship) programs. They should adapt other existing programs to resemble the apprenticeship learning model as the literature supports it as an "effective way to teach today's youth". We must also look at further developing other existing options such as partnerships with industry and post-secondary institutions. We must consider replicating some of the efforts of the European Union in regards to education, apprenticeship, as well as youth employment and mobility. Lastly, we should take into consideration exceptional vocational programs in high schools, incorporating them and exceptional vocational students into categories such as the gifted and talented. Acknowledging these students for their development of 'hands on' skills, and that their ability to excel in these vocational areas will encourage them to pursue a career in the trades, becoming a valuable asset to society and a large part in reducing the shortage of trades and skilled labour in Western Canada.

Chapter Three: A Guideline for Consideration and Start-up of an ACE-IT Program in B.C.'s Public Schools

At the moment, in Western Canada there is a severe shortage of skilled labour. As the Baby Boomers generation retires from the workforce, this shortage will only become more evident. To meet this need, a style of vocational program has emerged in the last decade in B.C.'s public schools. These programs are known as ACE-IT programs. ACE-IT is an acronym for "Accelerated Credit Enrollment to Industry Training". These courses allow secondary school students to enroll in a program that allows them "dual credit". ACE-IT, as described by Cowin (2012) was "introduced in 2005, ACE-IT provides the level one technical component of a high school apprenticeship. Programs are usually delivered as partnerships between school districts and post-secondary institutions. Ace-It course credits count towards both high school graduation, and post-secondary credentials (dual credit)" (p. 61).

In regards to students, the benefits of an ACE-IT program are considerable. Students are able to begin valuable skills training while they are still attending high school, they gain beneficial employability skills, and they are able to make advantageous connections to industry for potential employment when their ACE-IT training is completed. A good portion of the fees payable in students' first year of training (depending on the program) are paid for through the funding and support of the Industry Training Authority to the school district in which their program is offered. When compared to a student pursuing a regular apprenticeship, ACE-IT programs give students a better overview of the occupation, a broader knowledge base in the first year of apprenticeship, preferred entry into post secondary programs associated with apprenticeship, and better networking within the industry. They have also increased the number of youth pursuing trades training in B.C. however the task of starting an ACE-IT program

regardless of the subject area can be onerous on all parties involved. In an ITA media document it states that "more than 13,000 youth have participated in ACE-IT since its first intake in February 2005. A total of 2,100 students participated in the 2010/11 school year" (Backgrounder, retrieved March 7th 2015).

This chapter provides an overview of the process and issues surrounding the start up, design, and implementation of an ACE-IT training program in B.C's public school system. In addition to the recommendations in this paper, it is strongly recommended to consult with a school district which has previously successfully completed the requirements to start an ACE-IT program. Note that official information in regards to ACE-IT programs can be found through the Industry Training Authority's ACE-IT Program Guide (2014) or by contacting the Industry Training Authority directly at youth@itabc.ca.

In the following pages I will outline the process for setting up an ACE-IT program and share some insights from my experiences, starting and teaching two separate ACE-IT programs in two different school districts. Specific topics addressed include: the general requirements that need to be met; the organization of the program; the hands-on component of the program; and assessment and evaluation.

General Requirements:

The Industry Training Authority (ITA) is the governing body that oversees trades and technical training in the province of British Columbia. ACE-IT programs offer public school students the opportunity to begin an apprenticeship while in a high school environment. The equivalent of these programs, are also offered through many post secondary institutions throughout the province and are labeled as Foundations Programs in course calendars. School districts could simply enroll their students that are interested in trades into these programs,

however, when offered at the post secondary level the cost per student is significantly higher and the success rate is much lower. The following sections discuss the basic requirements needed for a school district to apply to offer an ACE-IT program. They consist of the paperwork needed to apply to the Industry Training Authority, the credentials required for the instructor of the program, the requirements for the facility where the program will be offered, and the type of structure to consider when determining how the program will be offered.

Applying to the ITA. There is a process to follow determined by the ITA, The planning and initial start up of an ACE-IT program is a lengthy process and school districts should allow time for district staff and program instructors to meet to understand and discuss all options available. The best employees in a school district to apply to start an ACE-IT program would be a District Career Facilitator or Trades Co-ordinator in combination with the intended program instructor.

School Districts or other "proponents may apply for ACE-IT funding twice per year, for the September or February intake (ACE-IT Program Guide, 2014 p.11). If it is a School District's first ACE-IT application, the program will be subjected to a one year conditional approval. The purpose of the ACE-IT application process as stated in the ACE-IT Program Guide is "to ensure that School District/Board Authorities are best positioned to offer quality Industry Training Programs" (p. 12).

The documentation required to apply for an ACE-IT program regardless of the subject area are:

- Intent to Deliver Form
- Signed School District/Board Authority Commitment Form
- Eligibility Criteria Cover Form

- Communications Plan
- Program Structure Form
- Technical Training Partner Form
- Industry Training Partner Form

All of these forms are available in PDF format on the Industry Training Authority's website at: http://www.itabc.ca/youth/educators.

Requirements for instructor. The greatest hurdle in starting an ACE-IT program in the public school system in British Columbia is finding an appropriate, qualified instructor. Having an instructor with at least five to ten years of practical experience in industry as a "Red Seal" trades-person is essential for the success of the program. Experience is essential not only for in-depth knowledge of the profession (curriculum), but also for attaining respect from students and parents, and for maintaining safety.

For most ACE-IT programs, an instructor with "Red Seal" or "Trades Qualification" certification and a valid teaching certificate is required. Many school districts also request that applicants have a Bachelor of Education. However, if a potential instructor has a "Red Seal" or "Trades Qualification" and no teaching certificate they can apply to teach in the public school system under a "letter of permission" through the Teacher Regulation Branch provided there is no "more qualified applicant" ("letters of permission" are issued and renewed on a yearly basis). This is supported in the ACE-IT Program Guide (2014) where it states "Instruction is to be provided by a qualified instructor (as deemed by the Technical Training Partner [Post Secondary Institution] and School District/Board Authority) with appropriate industry training credentials or experience. School District/Board Authorities are highly encouraged to use instructors who have credentials in the relevant trade" (p. 14). With this in mind, if an individual had teaching

credentials and no “Red Seal” or “Trades Qualification” credentials a Technical Training Partner could accept such an individual to instruct an ACE-IT program, however, in my experience, the program would be likely be unsuccessful.

Of the few teachers that do possess both Red Seal certification and a valid teaching certificate and/or a Bachelor of Education, many do not choose to start an ACE-IT program because the process of initiating curriculum development, organizing the course materials, and setting up a partnership with a post secondary institution is onerous.

The Ministry of Education is in the process of trying to eliminate the requirement for “Red Seal” trades persons to possess a full teaching certificate to teach in their area of expertise in B.C.’s public schools. In a section labeled ‘Background’ of the document ‘Certification of Trades Educators Options Paper’, it states “A forum was held in March 2013 to better understand and identify the needs of the education system with respect to trades educators, [forum feedback indicated that the lack of a teaching certificate tailored to trades professionals is an impediment to attracting teachers qualified to deliver trades programs]” (Clarke, 2014, p.1). Hopefully, if the requirement of a full teaching certificate is lessened for Red Seal trades-people to teach in their specific area of expertise, more ACE-IT programs will be initiated and access to more ACE-IT programs will be available to students throughout the Province of British Columbia therefore reducing the shortage of skilled labour in B.C.

Requirements for facility. The ACE-IT Program Guide (2014) states that “facilities for industry training programs offered under ACE-IT are to be determined in consultation with technical training partners and industry partners” (p.14). School Districts/Board Authorities must consider that the equipment and/or tools for the program should be of quality to represent the industry standard. Each student should be provided with the necessary common tools/equipment

to perform the duties of a first year apprentice in the designated trade or occupation. In my experience, having purchased tools and/or equipment for two separate ACE-IT programs, program developers must consider that to buy quality does cost a significant amount more; however, the reputation, standards and longevity of the program are dependent on it.

Structure of the program. According to the Learn Now B.C. website, there are ACE-IT programs offered in 35 different school districts throughout B.C. These programs cover 45 different subject areas, with many school districts offering multiple ACE-IT program subject areas to their students. Subjects range from the most common such as: Carpenter, Automotive Service Technician, Hair Dresser, and Welder. To the less common such as: Aircraft Maintenance Technician, Dairy Production Technician, Production Horticulturalist, and Meat-cutter. All of these programs are vital in introducing students to the trade or skilled labour area of interest. They are also key in providing students with the skills to transition from high school to the workforce, which is a perennial issue in education. On the ITA website it recognizes 48 different trades that have a "Red Seal" designation. It also states that "The Red Seal Program is recognized as the interprovincial standard of excellence in the skilled trades. The program was established more than 50 years ago to provide greater mobility across Canada for skilled workers" (http://www.itabc.ca/red-seal-program).

If ACE-IT programs did not exist, students would have a much more difficult task to begin an apprenticeship and become a trades-person. Traditionally, they would have to gain employment in their trade area of interest after graduation. Then, they would then have to prove their worthiness to their employer and become indentured as an apprentice with that employer. After that, they would have to register as an apprentice with the ITA, and lastly, they would have to work for one full year under the supervision of a "Red Seal" tradesperson before attempting to

register for “level one” classes at the closest post secondary institution, many of which have waiting lists for entry into trade programs.

ACE-IT programs have different structures depending on the school district in which they are offered and depending on the subject area they address. School Districts have three options in the way they can provide an ACE-IT course to students. They can send students directly to a post secondary institution, they can partner with a post secondary institution and offer a portion of the program in the high school and a portion at the post secondary institution, or they can apply to the ITA to be a designated training facility and offer the whole ACE-IT training program in the high school. The latter structure however, requires the school to meet all of the ITA’s requirements for qualified instructor, facility, and documentation/testing.

If a school District cannot offer an ACE-IT program because they lack facilities, sufficient numbers of students or a qualified instructor, the school district could enroll their interested students in a regular “Foundations program” offered at the nearest post-secondary institution and pay their tuition with the funding provided from the ITA. However, this method of delivery has had a poor success rate for the students involved because they are separated from the school system both socially and academically. The cost per student is also significantly higher.

If a school district can provide the facility as well as a qualified instructor and agree upon the separation/coordination of duties with a post secondary institution, they can offer an ACE-IT program within the public school system with a portion being completed at the post secondary institution. This is the most common offering as well as the most successful. If seeking this option, an employee of the school district (either career facilitator or instructor) should approach a post secondary institution by having an initial meeting with the appropriate administrator

(Dean of Trades or Trades Co-ordinator) to see if they offer a program in the desired subject area, and if the institution is willing to partner. If a partnership is possible, the two organizations need to come to an agreement regarding the division of the curriculum and weighting of marks/grades. In most cases, once this is agreed upon, the two institutions will have a Letter of Understanding (LOU) drawn up to formalize the agreement.

Lastly, if a school district chooses to be a designated training facility, they must meet all of the requirements set out by the ITA. This is a strictly regulated process that includes the following five steps:

- Application
- Curriculum Review
- Initial Site Visit
- On-site Program Audit
- Recommendation and Approval

This five step process has a fee schedule as well, and applicant districts are required to pay the following:

- Application fee of $350.00
- Curriculum Review $350.00
- Site visit of Subject Matter Expert (SME) $625.00 to $938.00
- On site Program Audit $625.00 to $938.00
- Travel and Minor Expenses (which are location dependent)

In a document titled ‘Guidelines for Training Providers Applying for ITA Program Designation’ it states that the designation process is designed “to ensure high standards with respect to facilities, tools and equipment, instructor qualifications, occupational standards and curriculum,

assessment processes, student supports, safety requirements and general operations" (p. 5). It is rare for a school district to become a designated training facility as it is a lengthy process and can be difficult and costly to meet the requirements of the SME during the site visit. In many cases the facility must have the same attributes and equipment of a post secondary institution, however there is rarely appropriate funding in the public school system to accommodate this.

Organization:

The following sections discuss the organizational issues that may arise whilst considering the start up of an ACE-IT program. Some of these issues include: the funding a district can apply for from the ITA, the student selection process, as well as the time allotment and structure of the program offered.

Funding from ITA. Many school districts find that the funding provided by the ITA for ACE-IT programs is minimal to start trades programs, to maintain them at a level required to uphold student interest, and maintain the quality assurance needed to receive continued support from the ITA. As an ACE-IT Carpentry instructor and after having initiated the start up of two separate programs in two different school districts, I have some insight into the struggles and needs associated with setting up a new program.

ACE-IT program developers in a school district should seek contingency funding in addition to ITA funding before start up so that funds are available should additional resource needs or other expenses arise in the first year of an ACE-IT program. This additional funding could possibly be obtained through the school district, corporate sponsorship, technical training partners, fundraising, etc.

Once a program has completed its first year, the funding from the ITA is usually sufficient to maintain the program provided it has a high success rate and receives full ITA

funding per student. A program is often able to create some minor additional revenue through projects completed by students or a service provided by students. As long as student recruitment is adequate to fill the available seats and the school district has an equipment replacement budget in place, funding for ACE-IT programs is not usually an issue once the first year is complete. Program organizers should consider setting up a trust account within the school district so ITA funding does not have to be completely depleted each year. Adequate funding and appropriate use of budgets are extremely important to ensure the longevity of any ACE-IT program.

ITA funding for ACE-IT programs is provided on a per student basis and as it states in the ITA's ACE-IT program guide, is only provided "to approved technical training that leads to Level One or Certification of Qualification" (p.18). The ITA program guide also states that "funding preference is given to first time eligible applicants" (p. 18). Therefore, if applying for funding for a second level of technical training or a new trade program, the funding will be reviewed on an individual basis and is subject to available funding.

Some ACE-IT courses are offered over one semester with the class running all day to ensure that students are fully engaged in the program. Others run second semester for a double block in grade eleven and again second semester for a double block in grade twelve to allow students a longer time to absorb content. Some courses do half the curriculum at the high-school and half at the post secondary institution. The funding is the same regardless of the structure of the program or whether the district has a technical training partner. If a school district has a technical training partner, the school district pays the student's tuition for that portion of training out of the start-up funding per student provided to the school district by the ITA. No matter which structure a school district chooses to provide an ACE-IT program, the initial funding provided for ACE-IT programs can be spent in any way the District deems fit to provide the

service. The funding will be based on the type of program, and the number of students in the program. For each registered student, the School District offering the program should receive $1200.00 for initial funding as stated in the ACE-IT Program Guide 2014 (p. 18). Commonly this funding is not only for the purchase of materials and equipment, but could also be used to provide extra preparation time or a teaching assistant to an ACE-IT instructor. The only exception to this initial funding formula is for the Heavy Duty Mechanic program and a Commercial Transport Mechanic program, in which case, the per student initial funding is $1700.00 (ACE-IT Program Guide, 2014, p. 18). These two programs require additional funding because they require specialized equipment and are usually only offered in a post secondary setting and the tuition for these programs is high.

Upon completion of the program, results of successful students should be reported to the ITA within 45 days (see ACE-IT Program Guide, p. 18), and a completion payment of $1000.00 per successful student will be paid to the School District offering the course. For students in a Heavy Duty Mechanic or Commercial Transport Mechanic programs the completion payment is $1500.00 per student.

Prior to 2013, if a School District could provide an ACE-IT student with work experience directly related to their ACE-IT training and under the supervision of a Red Seal credentialed person, the school district could also apply for additional funding of ”$375.00 for 120 hrs and $750.00 for 240hrs” (ACE-IT Program Guide, 2010, p. 19). However, this funding for work based training is no longer available to school districts through the ITA. Instead, the ITA is now trying to re-direct some funding towards the student/apprentice. If a student is registered as a Secondary School Apprentice (see the ITA website under SSA for details) the student can now

receive 480 hrs. work-based training credit towards their apprenticeship and are eligible to receive a $1000.00 scholarship if they meet the following criteria:

- registered with the ITA as a youth apprentice.
- graduated with a Grade 12 Dogwood Diploma or Adult Dogwood.
- successfully completed SSA 11A, SSA 11B, SSA 12A, and SSA 12B no later than three months after graduation.
- maintained a C+ average or better on all Grade 12 numbered courses.
- reported a minimum of 900 hours (relevant work experience) to the ITA within six months of secondary school graduation (p. 23, Secondary School Apprenticeship Guide, 2014).

To ensure students meet the last requirement, it is common practice for school districts to withhold completion of the grad transition requirement for students to graduate; therefore the six month window is extended because the student has not officially graduated from high school. It is a commonly known “loop hole” in the system which allows many more students to receive their SSA scholarship.

To summarize, the total amount of ACE-IT funding a School District receives per ACE-IT student is $2500.00. This would include $1500.00 for start-up funding and $1000.00 for completion funding for every student that registers and completes an ACE-IT program. The only exception to this total amount of funding per ACE-IT student is for a Heavy Duty Mechanic (HDM) or a Commercial Transport Mechanic (CTM), in which case the school district would receive $1700.00 for start-up funding and $1500.00 for completion funding for a total of $3200.00 for every student that registers and completes those two particular programs. The funding is the same regardless of the structure of the program or whether the district has a

technical training partner. If a school district has a technical training partner, the school district pays the student's tuition for that portion of training out of the start-up funding provided to the school district by the ITA. If a student is an SSA student as well as an ACE-IT student, they have the opportunity to earn an extra $1000.00 scholarship for work based training. This funding is dependent upon School Districts submitting all of the required documents to the ITA within the requested time frame.

Student selection process. The student selection process for ACE-IT programs is the most critical component to a program's success. Programs should be open to all students in a School District and student selection should be of a rigorous nature to attract the most desirable students to ensure the success of the program. Interviews should be conducted by the instructor so he/she can gain a true depiction of the students applying to the program. There should be a minimum requirement for all academic and practical courses related to the program. For example, in an ACE-IT Carpentry program there should be a minimum Math requirement (such as a C+ or better in Apprenticeship and Workplace Math 11) to ensure that students are capable of completing the required math to perform tasks involved in Carpentry work. Program developers should also consider a minimum grade for English/Communications 12. If a program has a technical training partner, many of these academic requirements are already in place for students to continue with their ACE-IT program at the post secondary institution. Other related courses to the ACE-IT program of choice should have minimum grades for entry as well. For example, ACE-IT Carpentry students should have a C+ or better in other shop courses such as Carpentry and Joinery, Drafting, etc. In addition to meeting academic and related course requirements, there should be a written commitment by each student as well as their parent/guardian to have near perfect attendance or a maximum number of days absent from the

program as well as a commitment to complete the full program. This can be accomplished with an attendance contract signed by both student and parent.

Administrative Issues:

During the start up and implementation of an ACE-IT program there are often some administrative issues due to the number of stakeholders involved. Many of these issues initiate with the amount of funding ACE-IT programs receive in relation to regular school courses.

Within school/district. To avoid resentment amongst staff members in regards to funding it should be clearly communicated to all staff members that ACE-IT funding is a separate entity, provided through the ITA, and that no other programs are losing money due to a school offering an ACE-IT program.

ACE-IT instructors need to work with school administrators to encourage them to promote ACE-IT programs as a competitive program with a maximum number of seats available, as well as a feature of the school in regards to programs offered. Instructors also need to work with school counselors in relation to student selection for ACE-IT programs. Counselors may need to be informed of the attributes and pre-requisites students need to have for entry to a program so that the correct students are placed in ACE-IT courses and success rates are optimized.

ACE-IT programs should be offered to all students in a school district and school administrators need to be accepting of students registering “cross boundary” to other schools for specific programs that are offered. Senior management in a school district can diffuse this issue if they promote diversity in programs offered throughout a district and ensure that every school has some form of unique program that draw in students to the school. Instructors of ACE-IT programs should persuade other teachers to promote ACE-IT and encourage them to “shoulder

tap" students who they feel may have an interest in the program or that they feel would be successful in a program.

In some cases, there is competition for students among elective teachers and this is a common problem in schools that allow promoting or advertising of programs. Administrators need to maintain a balance in elective programs offered, ensuring that there are not too many options for electives so that programs can maintain enrollment, yet still diverse enough to meet the interests/needs of most students. Successful ACE-IT programs typically don't need to advertise as the students usually do the advertising for them. If an ACE-IT program is set up properly, students realize the value in the program and it will draw students from throughout a school district.

Number of seats. The number of students in an ACE-IT program can also cause controversy amongst a school's staff. The average number of students in an ACE-IT program in B.C. is sixteen. This replicates the number of students in trades classes at most post secondary institutions. The technical training partner often sets the number of students in a class and trades classes regardless of the subject or level, are typically based on sixteen seats to fill a class. Therefore, if an ACE-IT program has a post secondary partner and students are to continue their training there, the number of students in an ACE-IT program need to meet the requirements of the institution. ITA funding allows a school district to have a reduced number of students in ACE-IT programs and it should not affect other courses offered in a school as far as the student to teacher ratios regarding staffing.

Time allotment and structure. ACE-IT programs should be structured to meet the requirements of their post secondary partner, however there are endless numbers of ways to structure programs and a good deal of flexibility within the school. Some ACE-IT courses are

offered over one semester with the class running all day to ensure that students are fully engaged in the program. Others run second semester for a double block in grade eleven and again second semester for a double block in grade twelve to allow students a longer time to absorb content. Some courses do half the curriculum at the high-school and half at the post secondary institution.

In my ACE-IT Carpentry course, I have 10 grade eleven students and 10 grade twelve students. They attend class for a double block in second semester of grade eleven and again for a double block in second semester of grade twelve (a total of 480 hrs. of instruction). After their high school portion of the program, they proceed to the local community college where they receive an additional ten weeks of full time classes to complete the ACE-IT program. As a result I only have to recruit ten new students per year and the program does not produce more new carpenters than the labour market can support in a smaller town. During the grade twelve portion of the course, much of the curriculum is duplicated but with different practical "hands on" projects to apply the theory to. This overlap of theory/curriculum allows for students to achieve a "mastery of knowledge" in the subject area. During my program, I cover approximately 60% of the total curriculum for "level one" Carpentry. During the ten week college portion of the program they attend full time classes with another "Red Seal" Carpentry instructor and the school district pays for the tuition of these students out of the "start-up funding" provided by the ITA. At the end of this portion of the ACE-IT program, students write a final three hour provincial exam, on which they must achieve a grade of 70% to pass the entire program and for our school district to receive the final "completion funding" per student. This program is currently one of the most successful ACE-IT programs in the province with a 100% pass rate for the past eight years.

Many ACE-IT courses with a post secondary partner often have a full cohort of sixteen students and the post secondary partner prefers to keep the students in this separate cohort away from their regular/adult students. Others courses mix ACE-IT students and regular/adult students together in the hopes that the younger ACE-IT students will choose to behave more responsibly to match the behavior of the regular/adult students and that the their grades will increase as a result.

"Hands on" Work

The "hands on" portions of an ACE-IT program are extremely valuable as it is these portions where instructors can emphasize work ethic and quality of work. It is also used to show the "real life" details of the trade or occupation and whether students can actually foresee themselves doing this kind of work for a longer duration of time.

Pace of ace-it. The "hands on" component of ACE-IT is a large part of the draw for students to such programs. It should be slightly more than 60% of an ACE-IT program's content, but not so much as to take away from the theory and rigor of the program. The "hands on" components should always have a strict deadline to simulate work in industry. In the set up of a course, the main objective for an ACE-IT instructor is to meet the learning outcomes as efficiently as possible due to the volume of curriculum and the length of time allotted to teach it. The pace of an ACE-IT course is often greater than that of a regular high school course and as a result projects need to reflect the increased pace while maintaining good quality work.

Project types. Projects should be designed so as to meet several of the learning outcomes for the course simultaneously in order to efficiently use the time allotted for each course. As an example, in my ACE-IT Carpentry program, students complete a drafting assignment where they design and draw floor plans for a 3-bedroom house. Students are then put into groups of 4-5

students, a foreman is assigned, they choose a student's floor plan, and then build a scaled (1 foot = 1 inch) model of that house using stationary power tools in the shop. While completing the model, students learn the terminology involved in construction and also answer 20 questions from the B.C. Building Code. From the completion of this four week project the following learning outcomes are met and assessed: Drafting, jobsite hierarchy and group work, scaled representation, stationary power tool maintenance/safety/and use, construction terminology, and use of the B.C. building Code.

Work experience. Ideally a minimum of two weeks of work experience will be included in an ACE-IT program to give students a realistic view of the occupation. As stated in a previous section of this paper, the ITA used to provide funding to support work experience, however it no longer provides this financial support. Many school districts have a work experience coordinator or a district career facilitator and a staff at each school to provide students with this opportunity. It is highly recommended that programs take advantage of this service provided by the school district to allow students a realistic, hands-on perception of the occupation that their ACE-IT program represents.

If possible, it is also recommended to try to place students on a work experience placement with school district trades staff when students are new to a program. Many of the projects in the district are slightly slower-paced than industry jobs and school district staff may have more time to spend giving students instruction. As students progress in their ACE-IT programs, placement in industry is recommended to give students a faster paced, more realistic experience in the trade or occupation. Regardless of where the student is placed for a work experience term it should be for the benefit of the student and not a free labour source for industry. There are times when students will provide physical labour to a work experience

sponsor, however, an effort should be made to provide students with the opportunity to apply and develop a broad range of their knowledge and skills. Students should be proud to demonstrate what they have learned through their ACE-IT course experience.

Assessment and Evaluation:

In agreement with training partner. Assessment and evaluation in ACE-IT programs are often done in conjunction with a post secondary partner. The structure of the program and how it is divided between the school district and the post secondary institution, will generally determine how and who does the assessment and evaluation. The curriculum for trades training is set by the ITA and trades programs are designed to produce students with a 'mastery of knowledge' therefore a minimum grade of 70% for all work completed is also set by the ITA.

Work ethic. Work ethic is a critical element of all ACE-IT programs and assessment for work ethic should be included in all work completed within an ACE-IT program. Work Ethic should be discussed regularly and students should be aware that employability in the trades is based on work ethic. As an ACE-IT instructor, I find that many youth lack a strong work ethic and simply being on time and ready to work is a major learning outcome for ACE-IT students.

Post secondary partnership. Assessment and Evaluation in any ACE-IT program should be included in the original discussion with a post secondary partner. With clear documentation supporting the break-down of curricular goals, each learning outcome should be assessed in writing as well as physically. Regardless of who does the instruction and who does the assessment, it should be clear amongst both parties of when and how students will be evaluated at the end of the program and what exactly the evaluation will consist of.

Summary:

To summarize, ACE-IT programs appear to be a beneficial component in our education system. For the increasing number of students in B.C.'s public schools interested in pursuing a career in the trades and skilled labour areas they are essential. ACE-IT programs provide a good transition from high school to the work force and promote good work ethic for students involved. They also give students a better overview of the occupation, a broader knowledge base in the first year of apprenticeship, preferred entry into post secondary programs associated with apprenticeship, and better networking within the industry.

Instructors for ACE-IT programs are difficult to find because at the moment, instructors need both 'Red Seal" certification in their trade as well as a valid teaching certificate, and in many cases are requested to have a Bachelor of Education. However, if a potential instructor has a "Red Seal" or "Trades Qualification" and no teaching certificate they can apply to teach in the public school system under a "letter of permission" through the Teacher Regulation Branch provided there is no "more qualified applicant" ("letters of permission" are issued and renewed on a yearly basis). The Ministry of Education is currently trying to eliminate the requirement for a valid teaching certificate for "Red Seal" trades people so that they can teach within their area of expertise in the public school system. If this proposal comes to fruition, it is hopeful that more ACE-IT programs will be initiated and access to programs will be available to students throughout the Province of British Columbia therefore reducing the shortage of trades and skilled labour throughout B.C.

There are many possibilities for the structure of ACE-IT programs and flexibility in developing an appropriate program that suits the needs of the students and the school district in which the program is offered. School districts can send students directly to a post secondary

institution to complete their training, they can develop a partnership with a post-secondary institution and deliver a portion of the program in the high school and portion in the post-secondary institution, or they can become an independent training center that offers the complete program within the high school setting.

Funding for ACE-IT programs is provided by the Industry Training Authority and the total amount of ACE-IT funding a School District receives per ACE-IT student is $2500.00. This would include $1500.00 for start-up funding and $1000.00 for completion funding for every student that registers and completes an ACE-IT program. The only exception to this total amount of funding per ACE-IT student is for a Heavy Duty Mechanic (HDM) or a Commercial Transport Mechanic (CTM), in which case the school district would receive $1700.00 for start-up funding and $1500.00 for completion funding for a total of $3200.00 for every student that registers and completes these two particular programs. The funding is the same regardless of the structure of the program or whether the district has a technical training partner. If a school district has a technical training partner, the school district pays the student's tuition for that portion of training out of the start-up funding provided to the school district by the ITA. If a student is an SSA student as well, they have the opportunity to earn an extra $1000.00 scholarship for work-based training.

Student selection is the one most critical component in regards to ACE-IT programs. The process should be open to all students within a school district and be rigorous in nature. It should consist of a minimum standard in related academic courses, an interview process, pre-requisite courses, and a commitment to the program through an attendance contract signed by student and parent/guardian.

Administrative issues may arise due to the number of stakeholders related to an ACE-IT program within a school district. These issues should be handled by administrators and senior management in a productive, professional manner so as to alleviate any negative responses within the school community.

The “Hands on” component is critical to ACE-IT programs. Approximately 60% of the content in a program should be hands-on so as to not take away from the theory and rigor of the program. Hands on components should always have strict deadlines to simulate work in industry.

Assessment and evaluation should be discussed and clearly stated in the agreement between a school district and the post secondary partner prior to the start of an ACE-IT program. It should have a 70% pass rate, and always contain a work ethic component. Students should be assessed equally on theory as well as the “hands on” components of the course.

The Industry Training Authority of British Columbia has been given the task of doubling the number of students enrolled in ACE-IT programs in the next two years by the current provincial government to help reduce the shortage of skilled labour in the province. On the B.C. Jobs Plan website it states “Doubling ACE-IT spaces will not only increase student choices but also encourage more students to pursue skills and trades training” (p. 11). In order for this task to be achieved, the government must sufficiently fund public schools to support their efforts in offering trades and skilled labour training. If appropriate funding is provided, more ACE-IT programs will be initiated, more students will develop an interest in trades and skilled labour occupations and access to programs will be available to students throughout the Province, therefore reducing the shortage of skilled labour throughout British Columbia.

Chapter Four: Reflection

When first presented with the idea of a project for my Master's program I knew I wanted to do something of value in the area of trades and skilled labour education. I first considered developing curriculum for a high school Carpentry Apprenticeship Program that I teach. However, in discussion with University of Victoria program instructors, I progressed to thinking more broad range and towards sharing my knowledge with others. After having started two separate Carpentry Apprenticeship programs in two separate school districts, I decided the best way for me to share knowledge in my teachable area would be to show others the involved process of "How to Start an Apprenticeship Program in a Public School in British Columbia".

Summarization of Chapter Three Project

The most common type of program currently offered is known as an ACE-IT program, which is an acronym for Accelerated Credit to Enrollment in Industry Training. Starting an ACE-IT Program in a public school involves stakeholders from various governing bodies. The Industry training Authority is the official governing body for apprenticeship training and the Ministry of Education oversees all activities offered in the public school system in British Columbia. Both of these large organizations can be frustrating to deal with and difficult to get answers from. ACE-IT programs also commonly involve a partnership between the school district in which a program is offered and a local post-secondary institution. So I decided to create a guide that would help other school districts and trades instructors start apprenticeship programs. This guide represents the positive aspects around high school apprenticeship, and also examines the common road blocks in starting an ACE-IT apprenticeship program.

The guide also examines the benefits to students in having an ACE-IT program offered to them in comparison to a traditional apprenticeship. Some of these benefits include being able to

start valuable skills and trades training while still in high school, making beneficial connections to industry, paid tuition, preferred access to post-secondary programs, and a positive school to work transition. The project also discusses the three main configurations of how a program can be offered which are: independently within a high school, in partnership with the high school and a post-secondary institution, or directly through a post-secondary institution.

The following key elements are addressed; The application process through the Industry Training Authority (ITA), acquiring a qualified instructor and providing a properly equipped facility, the different structures/configurations that are possible when offering an ACE-IT apprenticeship program, funding available through the ITA, students selection for a program, potential administrative issues, the nature of projects that should be incorporated in this type of program, as well as the assessment and evaluation that follows. ACE-IT programs are a fantastic way to engage students in trades and skilled labour occupations and currently one of our best opportunities to help resolve the shortage of trades and skilled labour in Western Canada.

Looking Back While Looking Forward

While reviewing my professional thinking, beliefs, intentions and activities before and after the completion of my Masters program, I realize the broad range of topics that were discussed, as well as both the traditional and modern aspects of education that were incorporated into the program.

Before embarking on this masters program, I was set in my beliefs in the value of working with ones hands, creating physical or practical assignments/projects in my teachable area, not realizing that many students may not be comfortable in sharing their learning in that way. Looking back, I was some-what narrow minded and such an advocate for trades and skilled applications that I was losing the value in much of the learning that can happen outside of the

curriculum. After the completion of my master's program, I see a great deal of value in incorporating technology in the delivery and presentation of curriculum in my courses, as well as allowing students to experiment in the use and application of technology in the assessment and evaluation of the curriculum of a course. Allowing this to take place, forces me to let go of some of the control I traditionally had in the classroom/shop and allows learning to happen on its own outside of what is instructed.

I also see a bigger picture in education and ways of incorporating both global awareness as well as local indigenous approaches to education. Realizing that we are in an interesting, transitional time in education throughout the world and many different approaches to learning and knowing are being applied and discussed. Our traditional lock-step method of teaching is in many ways, out of touch with what is happening in our world and with how our youth are able to acquire information almost instantaneously. In no way do I think we should completely disregard our traditional methods of teaching. However, we should be open to trying different methods to create an approach that applies to many different scenarios in diverse subject areas, incorporating various ways of learning for both student and teacher. In this transitional time in education we have a rare opportunity for both student and teacher to learn together and from each other.

In regards to assessment and evaluation, I still have more traditional thoughts that students should be assessed both practically and through written theory. An opportunity for students to both "show" and "tell" what they have learned. However, I am now more open to how the practical side of learning is assessed and how students can share what they have learned. Whether through physical creation of an object, documentation of a process, or presentation of an object or process, students should be allowed the opportunity to exhibit their learning in their own way.

What to do with it now?

My graduate experience through the University of Victoria will affect my personal career in that it will allow me to re-evaluate my current practice and make changes to accommodate my new-found knowledge and thoughts around curriculum and education in general. As well as, make changes as to where I think I might progress with the curriculum in my teachable areas. I also think it may present opportunities to take leadership roles in education in the area of curriculum in both my school and the school district in which I work.

After the completion of my graduate experience, I think that I could eventually consider making a transition from teaching high school in the public school system in B.C to teaching at the post-secondary level. I think I would be able to contribute significantly at this level, and be in a position to discuss trades and "dual credit" ACE-IT programs with various stakeholders, as well as future possibilities of growth for such programs. I would like to make some positive contributions as to which direction I feel trades and skilled labour education should progress to help resolve our continuing problem of the shortage of trades and skilled labour throughout the Province of British Columbia and Western Canada.

Key Recommendations:

I would hope that with the many aspects of society and education that trades and skilled labour education affects, other educators would be interested in engaging in this topic. If they were to choose to further the discussion in this general area, I would recommend the following topics for them to consider:

Do some primary research in the shop/elective subject areas. As a teacher of wood work and construction, I found that throughout my entire masters program at the University of Victoria it was very difficult to find scholarly papers written on trades occupations and the subject of high

school shop programs. Very few articles have been written that are related to these elective areas and I think that if shop/elective teachers taking masters programs decided to put in a collective effort to produce some primary research in our teachable areas, our masters programs could be much less onerous.

I found that many students in my cohort at the beginning of the program were unaware that we were not able to conduct our own primary research through the Masters of Education program. We were told at the end of the first summer session that we would have to change to an MA if we chose to pursue primary research. We were also discouraged to pursue this avenue due to time limitations in gaining approval from an ethics board. With many teachers of less academic subject areas wanting to complete a Masters program, an effort to produce modern primary research in these subject areas could prove to be quite valuable and less arduous for teachers of practical, hands on, subject areas to complete a Masters of Education program. Overall the MEd. program was of value however, searching for scholarly papers in less academic areas of education was very frustrating to say the least. Up- to- date primary research in the area of shop/elective programs would be valuable to many Masters of Education students in the future.

Create an accurate representation of what students are doing after graduating from an ACE-IT program. After having been involved in ACE-IT programs for the last eight years, the most common question I am asked is "What do most ACE-IT students do after they complete the program?". I always answer "Well.....they begin working in industry and start their career as a trades person". This response is only through me keeping in contact with some students for a short period of time after graduation. However, there is no accurate, existing document that tells the ITA or instructors what former ACE-IT students do after they complete their program. Is the

funding from the ITA being well spent? Are we creating trades people that are able to continue working in industry after ACE-IT? If up to date contact information was recorded and former students were encouraged to contact the school in which they completed their ACE-IT program for a set period of time after they graduate, then both the ITA and current ACE-IT instructors could have an accurate representation of what their students are doing and if there is any way that programs could be altered to more effectively meet the demands of industry and ACE-IT students. We assume that ACE-IT students progress to complete their apprenticeships, but we have no way of knowing as they are only tagged as an ACE-IT student in their first year of a four-year apprenticeship.

What can we do to further engage our youth to develop an interest in skilled labour occupations? Although ACE-IT programs are a fantastic way to engage students in trades and skilled labour occupations, is there something else we can do to increase the interest in trades occupations and the opportunities for our youth in relation to the school to work transition in the trades and skilled labour areas? With the new Trades Exploratory programs (courses teaching multiple trades at the high school level) in place, are we developing an interest for a greater number of students to enter a variety of trades programs/occupations? Can events such as "Try a Trade" where elementary students have an opportunity to try various trades under the supervision of senior high school students for an entire day, create an interest in trades for students in the elementary years that will continue into their high school years? There are many options that the ITA and the Ministry of Education are currently promoting, but it would be worth a closer look to see if school districts are making good use of funding and the opportunities presented to them.

With regards to ACE-IT programs, is there a way that we can help students confidently find their place in the labour market after the completion of an ACE-IT program? As a Carpenter, and ACE-IT instructor for many years I find that one of the most important skills that students lack when leaving high school, is the ability to confidently seek employment. Although many students complete a section in Planning 10 to create resumes and apply for jobs, it is not specific to the trades and students often lack these skills by the time they graduate. If we, as shop/trades teachers, value the opportunity that is currently before us and the funding that is currently allocated to our subject areas, we must take advantage of this time because once the shortage of trades and skilled labour has been resolved, the funding pool will dry up and the Ministry of Education will move on to resolve the next issue in education.

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