6-2017

An Exploratory Study of School to Work Transition Experiences of Applied Science and Technology Students in Southern Ontario

Robert Kilby
Sheridan College, robert.kilby@sheridancollege.ca

An Exploratory Study of School to Work Transition Experiences of Applied Science and Technology Students in Southern Ontario

by Robert Kilby © 2017

A Thesis submitted to the School of Graduate Studies

in partial fulfillment of the requirements for the degree of

Master of Education in Post-Secondary Studies

Memorial University of Newfoundland

June 2017

St. John’s Newfoundland and Labrador

Abstract

This paper details a qualitative study undertaken on a small sampling of community college graduates. The graduates' pathways from school to work have been studied in relation to existing scholarly transition models.

The author was able to discover only a small number of studies dealing with the college to work transition experience of applied science and technology students, no scholarly papers were found with respect to this student population in Ontario, Canada.

This study was an inquiry into the college to work transition experiences of a purposive sample of graduates from regional community colleges in Southern Ontario. Sixteen semi-structured qualitative interviews were conducted with recent graduates who had completed their studies within the field of applied science and technology.

Several themes emerged with respect to the school to work transition for the participants of this study. Co-op learning experiences were shown to provide a significant boost towards a smooth transition process. Networking, in the case of this study, was considered independently of co-op and also emerged as a valuable resource with

the potential for workplace contacts and links to employment. The study also found that all subjects were aware of available career counselling resources, and many students chose not to partake. A few subjects made extensive use of career counselling and found a substantial payback for their efforts.

The participants of this study have transitioned from school to work through a variety of pathways which approximately matched theoretical school to work transition models. The transitions were unique to each student, there was no one size fits all transition process. The findings of this study could be used as a baseline for future studies to compare and contrast against, a growing body of knowledge will enable the refinement of college programs, policies and services, to the benefit of future college students.

Acknowledgements

The author gratefully acknowledges the study participants, each of whom willingly gave up their time and openly discussed their personal experiences about the journey from college to the workplace. This document would not have been possible without their selfless contributions.

The author also gratefully acknowledges the guidance and assistance of his thesis advisor, Dr. Vernon Curran.

Table of Contents

1.0 Introduction

The post-secondary education to work transition is a time period during which an individual graduates from their community college program and becomes a full time, paid member of the workforce. The effectiveness of this transition is important to all parties with an interest in the process. This includes, but is not limited to, the student, the post-secondary institution, potential employers and society in general. The student has invested their time, personal effort and money in education to improve their standard of living and employment prospects. It is thus critical that a newly graduated person experiences a smooth and timely transition in order to facilitate and maintain a positive state of mind. Charner (1988) found that included among many stated reasons for an employer not to hire someone are: a poor attitude; low level of enthusiasm; lack of motivation and no self-confidence (p. 30). At least one of the preceding four items is likely to be present in an individual whom has become frustrated with an unsuccessful or extended job search. The time frame for a smooth and successful transition is also critical, as Bowlby (2000) has found that within six months of graduation, the percentage of graduates finding full time work tends to level off (p. 48). The post-secondary institution has a vested interest in their

graduates' transition success rates. This is due to the fact that in Ontario, the Ministry of Advanced Education and Skills Development administers Key Performance Indicator surveys of publicly funded colleges (Government of Ontario, 2017). These surveys track and then publish: graduation rates; graduate employment rates; employer and graduate satisfaction for each of the colleges. The colleges may use a higher rank in the Key Performance Indicator as a marketing tool for their programs. A higher percentage of graduates transitioning to gainful employment relative to another institution has the potential to attract more new students.

Employers require graduates whom are able to smoothly transition into the work place and contribute to business productivity. This will permit an employer to focus on their business's growth and well-being rather than personnel and training issues.

Society in general has a great interest in the school to work transition since education is at least partly funded by the taxpayer. The maintenance and improvement of our standard of living as a nation is dependent upon an educated, skilled and reliable workforce whose primary source is our post-secondary institutions. This societal need is an integral part of the human capital theory as presented by

Krumboltz and Worthington (1999) and discussed in detail at a later point in this paper.

The college student body has undergone several recent changes. First, there has been an increase in the portion of college students' as a percentage of the post-secondary graduate population. Ferguson and Wang (2014) graphically illustrate that during the period from 2005 to 2010, the college graduate portion of total Canadian public college and university graduates increased by approximately 1 % (Ferguson & Wang, p.5). The 2009-10 graduating cohort for all forms of public post-secondary education, comprised 35.1 % college graduates from a total of nearly three hundred and eighty nine thousand (389,000) students (Ferguson & Wang, p. 38). During that same time frame, the average age of college graduates rose as well, climbing from a mean of 26 to 28 years of age (Ferguson & Wang, p.6). Ferguson and Wang point out that there are two likely reasons for this age creep. First, there has been a rise in the number of students delaying entry into post-secondary education. The second likely cause is an increase in the number of students with some previous postsecondary education returning to study (Ferguson & Wang, p.8).

Young people are spending more time in post-secondary education, which has led numerous persons in government, education and the media to conclude that a tight labour market is at the root of the phenomenon. Frank, Frenette and Morissette (2015) studied the time period from 2005 to 2012 and have concluded that for this seven year period, a majority of young postsecondary graduates attained full time employment and received an increase in monetary compensation. The paper contains a general statement that, "Overall, the study did not find evidence of a substantial deterioration in the labour market outcomes of young postsecondary graduates in recent years" (Frank, et al., p.7).

Statistically, college graduates of applied science and technology tend to do well in the work force. Ferguson and Wang (2014) studied the Canada wide graduating class of 2009 to 2010. Their study found that three years after graduation, the applied science and technology college graduates had full time employment rates of 85 – 90 % for a group of approximately thirty thousand (Ferguson & Wang, 2014, p.42). The same cohort indicated that their job was either closely related or somewhat related to their certificate, diploma or degree within the range of 82 – 84 % (Ferguson & Wang, 2014, p.45). Ferguson and Wang (2014) also found that applied science and

technology graduates reported a median gross annual income three years after graduation of between forty-five and fifty-two thousand dollars. This contrasts with an overall median of forty-one thousand six hundred dollars for the entire eighty-eight thousand strong college cohort of 2009 to 2010 (Ferguson & Wang, 2014, p.51). Transition into the workforce of graduates from this field obviously has great financial potential, and it is critical that all students have the best chance for a successful transition to full time, paid employment which utilizes at least some portion of their college education.

One possible reason for the 10 to 15 % of applied science and technology graduates who were not employed full time within three years of graduation as noted by Ferguson and Wang (2014) may be either personal choice, or the inability to make a choice. A ten year study by Statistics Canada found that in 2010, approximately 38 % of college graduates had embarked upon a new career path by the age of twenty-five, roughly 14 % of this cohort were still undecided about their desired career choice at age twenty-five (Statistics Canada, 2015, p.10). These two groups total more than 50 % of the study population, who have decided by age twenty-five, not to maintain their original career path. Clearly, some persons take longer than others to

decide what they want to do with, and potentially for, the rest of their lives.

Education provides a good return on the investment. Ferguson and Wang (2014) found that in 2011, Canadian adults with a post-secondary degree or diploma earned an average of 74 % more than high school graduates (Ferguson & Wang, 2014, p.4). The goal for all interested parties should be to facilitate a smooth and meaningful transition from college into the workplace. Information from this study which may help to improve the transition process would be beneficial. As mentioned previously, Bowlby (2000) has highlighted the importance of a smooth and rapid transition to the workplace since the number of graduates finding full time work tends to level off within six months of graduation (Bowlby, 2000, p. 48). This confirms that it is critical to empower and enable students to smoothly and quickly enter the workforce following graduation. Murphy, Blustein, Bohlig, and Platt (2010) point out that this is not always the case, "many emerging adults hit the ground running as they exit college … Others seemingly become psychologically paralyzed, listless, and in more extreme cases, depressed as they leave college" (Murphy et al., 2010, p.174).

Arnett (2000, p.471) frames the period from age 18 to 25 as "emerging adulthood" and points out the fact that the lived experiences will be unique to each individual. This is a time of experimentation and exploration, when individuals will generally have few or no societal constraints. According to Arnett (2000) the emerging adulthood period will encompass the greatest changes experienced in the entire life of an individual. These changes may include: post-secondary education; getting your first job; living on your own; financial independence; cohabitation; marriage; and parenthood. 'It is a time of instability and upheaval' (Arnett, 2000, p. 472). All of this change, and even the potential for change, will excite some individuals and terrify others. 'Those whom are not comfortable with change and its accompanying turmoil are the persons most in need of guidance and support' (Arnett, 2000, p. 472). Educational institution support may no longer be available once a student has graduated. It is hoped that these graduates have the benefit of supportive friends and family, to help lift them back up in the event that they have fallen into a depressed state.

It is critical that college support systems function to minimize or eliminate these latter cases to the greatest extent possible. The graduate has spent a great deal of both time and money investing in

their post-secondary education and it is important that they begin to see a return on that investment as soon as possible. This will keep the individual in a positive frame of mind, thus helping them to complete their integration into a new and very different environment.

Student support services which may be offered by a college to assist with the school to work transition include: resume writing advice and critique; practice job interviews; job search assistance; job postings; job fairs; and general career counselling.

The purpose of this case study was to conduct a qualitative investigation of a purposive sample of community college students who had studied within the field of applied science and technology. The experience of these individuals with respect to their transition from school to the workplace was the primary focus of the study. Crozier, Dobbs, Douglas and Hung (1985) confirm the inherent value of this study, stating that while statistics do have a place in studying the school to work transition, there really is no substitute for interviews which put a "human face" on the data collected (Crozier, et al., 1985, p. 36). Five basic research questions guided this exploratory study.

1.1 Research Questions

- What are the perceptions of recent graduates from applied science and technology subjects regarding their level of preparation for transitioning from school to work and entering the labour market?
- What are the key learning experiences of graduates that have best prepared or aided them in making the school to work transition?
- What types of student support services aided graduates in making the school to work transition?
- What other learning experiences or support services would assist graduates in making the school to work transition?
- What other non-curricular experiences may have aided or contributed to their workplace transition?

The perception of the graduates is central to this study. Has college adequately prepared them for a transition to the workplace? As the actual person whom has gone through this process, their opinions hold great weight and value. This study is qualitative, therefore the opinions of the graduates have been captured in their own words, providing a rich data set.

The graduates have provided their own opinions, subsequent to the experience, with respect to the relative value and efficacy of utilized transition resources. These opinions are personal and have varied with each graduates' circumstances. The feedback has been analyzed for trends which could assist colleges to place more emphasis, within the confines of the curriculum, to assist in facilitating a seamless transition.

Institutions provide student support services in order to assist their students in making a transition into the workplace. According to the work of Person, Ellis, Plum and Boudreau (2005) there are five career development theories applicable to counselling. Person-environment theory accounts for the individuals' interests, skills, and abilities, and then determines how these attributes will fit into a workplace environment. One of the most commonly used person-environment models was created by Holland (1984), "RIASEC—which classifies personality types and environmental factors of the workplaces as realistic, investigative, artistic, social, enterprising, and conventional" (Person, et al., 2005, p. 66). Career decision making theory is primarily based on the work of Frank Parsons (1909) and the need for a guidance counselor to steer the client toward an occupational choice when that person is unable to decide (Person, et

al., p. 66). Developmental theory is primarily based upon the work of Super (1990) and treats career development as a series of stages which are affected by other roles in our personal lives (Person, et al., p. 66). Person, et al. (2005) have chosen to lump social cognitive and social learning together, stating that these two theories examine the interactions between the person, their environment and the behavior of the individual, as it relates to career selection (Person, et al., p. 66).

Student support services, which includes career counselling, are a finite resource. There will be a fixed number of personnel employed by an institution, working either a 35 hour week or a part-time, shortened week. It is not likely that there will be on call individual counselors to fill in when the demand increases. More than 30 years ago, Crozier, Dobbs, Douglas and Hung (1985) pointed out that there was a need to be careful in controlling this resource.

> Post-secondary institutions are experiencing pressures of fiscal restraint and demands for accountability to justify programs and services. Career counsellors have a dual responsibility to provide effective interventions to the clients and to provide the most cost-effective service possible to the institution (Crozier, et al., 1985, p. 8).

In the intervening years, the fiscal pressure on educational institutions will only have increased. The phrase, do more with less, is now commonly preached. In a worst case scenario, an overwhelming demand could potentially lead to the rationing of resources available to high demand clients in order to prevent someone else from being turned away. The results of this study may highlight the need for greater follow up with future graduates to determine areas where improvements should be investigated.

The question about other services or experiences is open ended and seeking feedback with respect to a resource which was absent or simply not made available. Answers to this question could involve resources known to exist at another institution, or just something that the person in question believes would have helped with their transition.

Non-curricular experiences include co-curricular and extra-curricular activities. In this case, the researcher was seeking activities which have, or could have had, a positive impact on the school to work transition process. Co-curricular activities encompass anything which is related in some way to the course of study, but not formally included as a part of the curriculum. The best example of this would be applied

research projects, in which there is no formal instruction, however, the work is overseen by a faculty member. Although there is no formal classroom time, there will be a myriad of potential learning experiences including: design; fabrication; project management; and presentation skills; to name just a few.

Extra-curricular activities generally include school clubs where the students are working on a group project. One example may be the design, fabrication and racing of an off-road one person vehicle known as a Mini-Baja® car. The vehicle must meet rigorous safety and design features, and if it passes scrutiny, the vehicle will be raced against cars from other post-secondary institutions all over North America. To compete and merely finish this race is considered an accomplishment. There are a myriad of potential learning experiences embedded within this venture, which is why many colleges and universities nurture students to form a team and build a car. Likewise there is a similar competition for a one-person road race car known as Formula SAE®. While participating in these activities, students are preparing themselves to participate in, and potentially oversee, projects for their future employer. Project management is very much a marketable skill, however simply improving the self-confidence of graduates would also be of great benefit.

Networking is another extra-curricular activity which has great potential to assist in the graduate transition process. Inviting potential employers from a given sector of the economy to such an event provides a benefit to the student, institution and the employer. The post-secondary institution shows that they care about assisting their graduates to smoothly transition into the workplace. Potential employers have an opportunity to meet newly educated persons and begin the screening and recruitment process from a large pool of candidates. In addition, these companies are receiving exposure to a cohort, some of whom may have never heard of this potential employer or the industry sector the company resides within. The students acquire new contacts which could potentially lead to employment. The students may also benefit through the acquisition of knowledge about employers and workplace sectors for which they may have had no previous knowledge. In career search, as in many other parts of our lives, knowledge is power. This activity takes place in a relaxed atmosphere, which may help alleviate the stress which sometimes accompanies the search for permanent employment.

This study provides qualitative information where none had been found to exist about the school to work transition experience of applied science and technology college graduates in southern Ontario. A

search of several scholarly research databases yielded no peer-reviewed papers on the combined subject and geographical area. Statistics are available (Government of Ontario, 2017), however statistics do not provide the rich and vivid descriptions which are a product of this qualitative study.

The subjects of this study have graduated from a college of applied science and technology in southern Ontario. These individuals received education in one of four programs: mechanical technology; electromechanical technology; computer science; or architecture. The graduates of these programs may be employed in any of the following broad occupational categories: manufacturing plant maintenance or design; product or machine design; process improvement; sales of machinery or sophisticated equipment; robotics and automation; information technology; architectural design.

2.0 Literature Review

Sagen, Dallam and Laverty (2000) surveyed an entire years' graduating cohort from the University of Iowa one month after graduation. This effort resulted in raw data from slightly more than a thousand graduates with respect to their employment transition. The authors statistically analyzed the data set to determine the effects of career preparation in gaining employment. A positive is the fact that there were many participants, the negative is that there is no rich data about their experiences. The authors advocate solely for the human capital theory and point out that statistically a bachelor's degree provides an average annual return of 12 % (Sagen et al., 2000, p. 754). Engineering and technology graduates were segmented under a category known as 'specialized-hard' and this group is of great interest (Sagen et al., p. 757).

The study found that members of the 'specialized-hard' group increased their employment prospects through internships and career related work-experience. Participant responses were statistically analyzed to determine the effectiveness of various factors in contributing to the success of graduates in attaining initial employment out of college. Related work experience was found to increase the success rate for the 'specialized-hard' group by 26 %. Internships

were found to contribute a 23 % improvement in success for the 'specialized-hard' cohort. There is no mention in the statistical data of the efficacy of co-op for the 'specialized-hard' group (Sagen et al., p. 762). A definition of internship is not provided, so we are left to assume that this is an unpaid curriculum related experience. The study makes no specific mention of the benefits of co-op. This error by omission flies in the face of other transition related studies which point to co-op as a positive factor. The co-op program which the University of Iowa has in place is for part-time employment (Sagen et al., p. 758). Sagen, Dallam and Laverty, have come to the general conclusion that there is not a single item which on its own will prepare a graduating student for employment (Sagen et al., p. 763). Instead, guidance counselors must personalize their advice to match the skills, needs and circumstances of each individual (Sagen et al., p. 765).

Baytiyeh and Naja (2012) used mixed methods to study more than two hundred Lebanese trained engineers gainfully employed all over the world. This study was conceived to inquire about the challenges these subjects faced during their transitions from school to the workplace. The study focused on the actual process of fitting into the workplace more so than getting there, it does however provide a few valuable insights. The original participants were quantitatively

studied through the use of a detailed five point Likert scale questionnaire about their transition experiences. From this original group, seventeen out of thirty-five willing participants were then randomly chosen for a detailed qualitative interview. Lebanese students are educated in at least three languages, yet for these study participants, communication presented the greatest challenge and obstacle to their workplace success (Baytiyeh & Naja, 2012, p. 11). The importance of work related experience, in this case internships, was highlighted by a comment from one of the interviewees that school had taught him nothing about the work environment (Baytiyeh & Naja, 2012, p. 9). The inherent value of industry contacts was highlighted by the fact that 26 % of the participants found a job as a result of contacts made during their summer school internship (Baytiyeh & Naja, 2012, p. 6). Networking was an even greater contributor as 31 % reported finding work through a personal network contact (Baytiyeh & Naja, 2012, p. 6).

Roksa and Arum (2012) conducted a longitudinal study of the transition process from school to work for more than nine hundred college students. Their study found a strong correlation between a smooth transition and academic growth and engagement. Critical thinking, complex reasoning and writing, were singled out as skills

which are critical to a smooth workplace transition (Roksa & Arum, 2012, p. 10). One of the interesting points to emerge was that it is critical for young people to be academically challenged in post-secondary education. This challenge has been found to foster 'growth' as an individual. If the program of study requires students to develop high levels of critical thinking, complex reasoning and writing skills, this will help them succeed in both the workplace and their private lives (Roksa & Arum, 2012, p. 14). Students living at home were twice as likely to score low on a measure of critical thinking, complex reasoning and writing skills, which does not bode well for their future transition out of post-secondary education (Roksa & Arum, 2012, p. 11). Research has shown that if the initial school to work transition is fraught with difficulties, there may be a cascade effect which carries through and endures for a person's lifetime (Roksa & Arum, 2012, p. 13). In the closing sentence of their paper, the author's state that in their opinion, post-secondary education carries a duty to prepare students not just for the work world, but for life after as well.

2.1 Transition Models

There are a number of school to work transition theory models described in the literature. Each of these models describe a school to work transition process borne out of scholarly study.

Krumboltz and Worthington (1999) start out by discussing human capital theory. This theory is based on two key points. The first is that an individual with a higher level of education and training will have a greater chance of success in the working world. Point number two is that a country with a larger number of highly trained and educated workers, sometimes referred to as human capital, will be more competitive (Krumboltz & Worthington, 1999, p. 313). When this model functions to perfection, both parties will see a rapid and fulfilling payback. The individual spends their time and money to acquire new skills. This person transitions into a financially and mentally rewarding career and assists their employer to satisfy customer needs for remuneration to both the employer and employee. At the same time, the country is also reaping numerous rewards. The employee pays taxes and purchases goods with their paycheck, thereby helping to grow the economic prosperity of the country. The employer pays taxes for this additional employee, however the increase in personnel may

be the greatest economic benefit to society. This additional human capital will require more resources, leading to greater economic prosperity in parts of the economy indirectly affected by the actions of the employee. There are however, instances during which this model does not function to perfection, such as when an economic downturn results in reduced employment levels.

In the conclusion of their paper, Krumboltz and Worthington (1999) state that the human capital theory alone is naïve in the sense that simply investing in education may not yield the desired outcome (Krumboltz & Worthington, 1999, p.323). Statistics provided by Ferguson and Wang (2014) confirm the fact that simply investing in education does not always yield the desired results. Three years after graduation, community college graduates in the humanities had a full time employment rate of 75 %. This contrasts with a full-time employment rate of 95 % for mechanic and repair technology graduates from within the same cohort and time frame (Ferguson & Wang, 2014, p. 42). If the 25 % of non-full-time employed humanities graduates have voluntarily chosen to forego full-time work then this statistic is not an indication of a problem, the truth is that we really do not know the background circumstances for this group of individuals.

Lent, Hackett and Brown (1999) explore the social cognitive career theory, (SCCT). The paper was written with a view toward the elementary, middle and high school portion of education as it relates to career development. In spite of this focus, there are many points covered which are applicable to the college to work transition. Lent, et al., state that SCCT is a useful theory for creating a conceptual model of the school-to-work process. It is also important to keep in mind that the school to work transition is a long term and ongoing process which begins sometime in school and continues throughout our adjustment while the subject is within the workplace environment. This is not just a point in time, although it may be useful to take a snapshot of an individual's current transition circumstances (Lent et al., 1999, p. 299). The authors contend that it is critical to instill within our youth the principle of never ending career development. Ongoing career development includes: acquiring new skills and knowledge; change management; and periodically exploring the work world for potentially interesting new career opportunities (Lent et al., 1999, p. 308). Lent et al., have stated that what some persons have referred to as floundering, may simply be an experiential career adjustment in progress. 'Ideally, this adjustment would include some form of guided

learning' (Lent et al., 1999, p. 308). SCCT focuses on the relationship between three personal internal attributes.

The first attribute, 'self-efficacy', is the confidence in our own ability to accomplish a task or set of tasks. Self-efficacy plays a strong role in our own assertiveness with respect to the initiation and completion of a particular task. Our own previous experiences of performance provide the greatest source of self-confidence. If we were successful, then we are more likely to believe that this will continue. In the event that we have failed previously then our self-confidence will be substantially diminished. Other factors which may influence our self-efficacy include: learning through the observation of other persons; social influence from our peers; and emotions. All three of these factors could have a positive or negative effect on self-efficacy, depending upon the feedback and circumstances (Lent, Hackett & Brown, 1999, p. 299-300). Lent et al., point out that if an individual's belief in their own self-efficacy slightly exceeds their abilities, this will lead to growth and greater accomplishments. Someone whose self-efficacy greatly exceeds their actual abilities may take on tasks which are too great and thus end in failure, which may result in disastrous long term consequences for the self-confidence of the individual (Lent et al., 1999, p. 307).

The second attribute is the ‘expected outcome', which is based upon our own performance of the task. Lent et al., state that if the expected outcome is not perceived as sufficiently positive, the individuals’ effort with respect to the task may result in failure to complete, or even failure to commence work on the task. In the workplace, this would be the occasionally overheard statement, I don’t have time for that, which is an attempted refusal to even start a particular task (Lent et al., 1999, p. 300).

The third and final attribute in SCCT is ‘goal setting’. Many things in life are accomplished through having a goal, which gives the individual at least some control over a part of their life. Lent et al., contend that “Goal-setting is a critical mechanism through which people exercise personal control or agency” (Lent, Hackett & Brown, 1999, p. 300). In order to be useful, a goal must have a clear and specific scope, be attainable, and be stated publicly with a strong commitment for completion (Lent et al., 1999, p. 306). The authors state for SCCT to be successfully applied, students must have sufficient opportunities to acquire work-related experience. These opportunities need to be seen as an exploration of their own interests or potential interests. At the same time there must be some common link to the students’ life goals (Lent et al., 1999, p. 305). Students

must also be encouraged to seek out their ‘natural support systems’, which includes family, friends and neighbours, for help with career and job hunting. If there is no natural support available, then the student needs assistance to find a network of peers in order to maintain a feeling of control and prevent them from feeling isolated (Lent et al., 1999, p. 306).

Swanson and Fouad (1999) examined the application of the person-environment fit theory (PE-Fit) for the school to work transition. This theory is a blend of Holland's (1997) model of vocational personality types, and the theory of work adjustment created by Dawis and Lofquist (1984). Swanson and Fouad have shown in their paper that these two models are complementary wherein others have seen them as being in opposition to one another (Swanson & Fouad, 1999, p. 338). Person-environment fit is based on three principles.

The first principle is that an individual will search for a work environment which is in harmony with their personal attributes, beliefs and values. The second principle maintains that the degree of fit between the work environment and person will be inextricably linked to the success or failure of the long term relationship between the two

parties. The fit runs on a sliding scale and a better fit is more likely to yield a stable, long term association in which both employer and employee meet or exceed the expectations of one another (Swanson & Fouad, 1999, p. 339). Principle number three is that the fitting process is a two-way street. The person and the environment affect and shape one another. This reciprocal interchange works to insure that there is a balance, if one or the other is always adjusting, a level of dissatisfaction will develop over time. Principle three also helps to maintain the perspective of a system with many interrelated parts, each of which has an effect on the others, therefore they must be treated as a system (Swanson & Fouad, 1999, p. 340).

Boon, Den Hartog, Boselie, and Paauwe (2011) studied an expanded version of the person-environment fit model, examining the person to organization (P-O) and person to job (P-J) compatibilities within the workplace. Kristoff (1996) stated that although P-O and P-J overlap to some extent, they are in fact distinct concepts. Person-job fit relates to the employee skills and abilities which are vital in order to successfully perform a job. There is a direct correlation between a high P-J fit and increased job satisfaction. Person-organization fit accounts for the individual's correlation with the goals and values of the entire organization. A direct link has been found to exist between a low P-O

fit and increased turnover (Boon, et al., 2011, p. 140). A fit will be supplementary when the individual and environment have similar characteristics. The fit will be complimentary when the individual adds something which had been previously missing and was required for success (Boon, et al., 2011, p. 139).

Swanson and Fouad agree with Lent, Hackett and Brown (1999) in pointing out that choosing a career is a process, not a point in time. The process begins in school, far in advance of the physical transition and continues for quite some time within the workplace after the move (Swanson & Fouad, 1999, p. 343). Students require time to explore and expand the knowledge of their own needs, interests and abilities. It would be preferred that this exploration takes place in a systematic way under the guidance of a career counselor. Systemic pressure within the education system often forces young people to make career based decisions prior to them possessing the necessary information or maturity to make such a choice. Counsellors must put forth their best effort to provide a wealth of relevant information while at the same time guiding clients to make decisions which are in their best interests. Students also need to be reminded that their career based decisions may change as they acquire more knowledge about themselves and the workplace. It is important to treat a changed career decision as a

positive sign of growth for the individual rather than as a negative attribute (Swanson & Fouad, 1999, p. 345-6). Swanson and Fouad also point out that clever and successful business people realize that employee turnover is expensive. More and more employers are now willing to invest some effort in the discovery and exploration process for potential new employees. The net result is an informed decision by a new employee which increases the potential of acquiring satisfied, productive and long term members for the workplace team (Swanson & Fouad, 1999, p. 344).

Jenkins and Jeske (2016) examine and discuss the: pre-screening; in-depth exploration; and choice model, (PIC), which originated from the work of Gati and Asher (2001) (Jenkins & Jeske, 2016, p. 2). Jenkins and Jeske have used statistical analysis to determine the efficacy of resources to assist an individuals' path to the workplace from school using the PIC model. PIC is a three stage model which is based on decision theory and encompasses acquiring knowledge of one's self and potential careers within a combined learning and decision-making process. It is generally common for this learning to be undertaken by the individual on their own, through life experiences (Jenkins & Jeske, 2016, p. 2-3).

The first stage, pre-screening, is initiated by an awakening that the individual in question will need to make some decisions about the path their career will take. Pre-screening is very much an information gathering step and as such it is critical for the student to acquire as much relevant information as possible. The individual must perform a self-examination of their career aspirations, personal preferences and skill sets which may be applicable to the workplace. This is a continuous and iterative process, which involves revision and re-thinking as more information becomes available. The required information is not just internal, it is also external and related to career options, schooling and training available, and the relevance of these resources to the creation of marketable skills

(Jenkins & Jeske, 2016, p. 3).

Stage two is an in-depth exploration. This phase of the model involves the verification of data collected during pre-screening and if necessary, acquiring missing information. It is critical that the explorer has the opportunity to interact directly with persons in authority and those with experience in the workplace field. In-depth exploration, like pre-screening, is an iterative, continuous process wherein the participant examines the finer details to determine their best career

fits. At this time, a realistic self-assessment is made with respect to career paths. Possible decisions may include the elimination of careers with limited or no growth possibilities, careers for which training is not readily available or careers for which there is a high barrier to entry. Ideally, stage two will include professional counselling on a one to one basis to provide the explorer with information relevant to their personal needs (Jenkins & Jeske, 2016, p. 3).

The final stage of PIC, the choice, is when the subject makes a selection. It is common for an individual to choose one or more alternative options as a backup. The final choice will likely not be an absolute, it will have been chosen with a reasonable degree of certainty. Although an individual will move through all three stages, everyone will have their own rate of movement, through the process and its stages. A participant may also recycle back when circumstances dictate (Jenkins & Jeske, 2016, p. 3). Jenkins and Jeske discovered that a wide variety of available resources provide the best results for a PIC model subject. One of the most important factors, is that the subject needs to feel that they are being given support to assist them throughout the transition process. The support may come from career counselors, peers, mentors and family (Jenkins & Jeske, 2016, p. 13).

The primary focus of the Krumboltz and Worthington (1999) paper, is the learning theory of career counselling (LTCC). The theory was created as a product of social learning behavioural theory. This theory is based upon the assertion that we are mentally engaged problem solvers, constantly interacting with our surroundings in order to meet our personal needs. The career path chosen by an individual is influenced by many factors, which include our own genetic makeup, the environment around us, our life events and learning experiences. Our own skills, knowledge, interests and values will change over time as a result of these events and learning experiences. Individuals need to be coached and mentored by their career counsellor in order to facilitate the subject's ability to create a desirable and personally rewarding life for themselves. Counsellors must assist their clients to expand their own interests and knowledge by reaching out beyond what they already know.

Krumboltz and Worthington (1999) state that young people who either skip college or fail out will experience an average of six to eight years struggling in the workforce. According to the authors, this struggle may benefit the individual if there are valid learning experiences during what they have framed as trial-and-error. There are however, two potential problems. First of all, the learning is not

organized, overseen or guided in any way, thus learning may not actually occur. The second problem is related to the first, in the sense that any experiential learning may result in self-defeating attitudes and habits (Krumboltz & Worthington, 1999, p. 314).

Krumboltz and Worthington (1999) contend that Vocational Psychology, whose roots date back to Parsons' work published in 1909, seeks to match an individual to known, existing and rigid workplace environments. There is minimal allowance within the vocational psychology theory and its literature for new learning experiences (Krumboltz & Worthington, 1999, p. 315). The learning theory represents an attempt to take career counselling to the next level by helping clients manage their entire career package, as opposed to simply selecting an occupation. Krumboltz and Worthington point out that young people are being encouraged to engage in career awareness activities, in some cases as early as middle school. While increased knowledge at a younger age could be a benefit, they caution that there is a potential dark side as well. The concern is that through the use of assessment tools, an individual could be 'streamed' into a narrow focus of education and career options. This is the opposite tack of what is best over the long term for the student. It is critical that all persons exploring career paths work to expand their base of

knowledge, remain open-minded and keep their options open. These persons must also be reminded that even if they make a choice, it is not cast in stone and may be subject to change for any one of a number of reasons, either internal or external (Krumboltz & Worthington, 1999, p. 316).

The workplace has become increasingly polarized between low and high wage positions, with the higher wage openings requiring a higher level of education and in many cases, specialized skills. At the same time, employers are seeking out contract workers to complete projects and then move on. The age old concept of a job for life with one employer is quickly becoming a thing of the past. Flexibility, teamwork and having the 'right' skills, when they are needed, is becoming the new normal in the workplace. Lifelong learning and the ability to adapt to a changing environment are going to become critical elements for future workplace success (Krumboltz & Worthington, 1999, p. 316-17). Various studies have found that employers are more interested in soft skills when hiring for entry-level positions. Soft skills include, but are not limited to: written communication; the ability to work on a team; being dependable and highly motivated; able to remember and follow instructions; and last but not least, possess a positive mental attitude (Krumboltz & Worthington, 1999, p. 317).

Most important of all, Krumboltz and Worthington point out that young persons must be reminded that it is okay to fail. Failure is a potential learning experience, and if treated within that context, good things will come from what was a part of the journey called life.

In 2009, Krumboltz published his happenstance learning theory (HLT). HLT is intended as a practical application to be utilized by counselors. This theory stems from the fact that humans are a product of the total sum of both planned and unplanned learning experiences. These learning experiences include: "skills, interests, knowledge, beliefs, preferences, sensitivities, emotions, and future actions" (Krumboltz, 2009, p. 135). The randomness of this process means that it will be unique to each individual. Counsellors have a duty to guide clients to embark on a journey of exploration rather than channelling them into a specific career. The end goal for the counselor is to guide and assist an individual to create a satisfying career and personal life. (Krumboltz, 2009, p. 152)

2.2 The Role of the Institution

The institution plays, or at least should play, a central role in the transition to work process. Various studies have highlighted a number of post-secondary institution resources which have the potential to

assist students in their transition. In recent years, there has been an increased focus on the delivery of student assistance resources.

Dadgar, Nodine, Bracco, and Venezia (2014) studied a number of colleges which are integrating support services into the curriculum. Many colleges provide access to student support service staff from a location which is remote from the academic offices. This is a more efficient method of operating a part of the business which is distinctly different from the academic side. Studies have begun to provide data that integrating student support services into the academic stream is beneficial to the students. Quoting from Dadgar et al.

> When services are optional and are not offered as part of students' day-to-day college experiences, many students, especially low income and first-generation students who tend to need the services the most, do not access them (Dadgar, et al., 2014, p. 42).

One of the reasons for those most in need not seeking support, could be the stigma sometimes associated with asking for help. The authors point out that in order to be successful, the integration of support must go beyond simply adding a student success course in the first semester. This simple solution has been shown to lose its

effectiveness within a few semesters (Dadgar, et al., 2014, p. 45-46). In order to be truly effective, support must extend beyond the first year and include real time tracking of student progress, with interventions, if required. Students must also be assisted and encouraged to build their own peer support networks (Dadgar, et al., 2014, p. 43).

Jenkins and Cho (2013) discuss the concept of guided pathways for students. The authors point out that unless students are provided with some guidance, many of them will make poor decisions, wasting both time and money in the quest to graduate from college. Guided pathways provide a clear academic roadmap for the student to follow in order to complete a program and graduate. Ideally, a guided pathway will also include access to effective counselling resources when the student has lost their way or wishes to make a change (Jenkins & Cho, 2013, p. 28).

The field of behavioral psychology has determined that humans are capable of making complex decisions if the information is organized into manageable data sets (Jenkins & Cho, 2013, p. 32). The point is not to make a choice for the student, but to give them an organized set of choices and then allow them choose from the

presented sets. Arizona State University is one of several post-secondary institutions which have created a formal pathway system, referring to it as, "active choice" (Jenkins & Cho, 2013, p. 32). A need by some students for a guided pathway is confirmed in the following quote, "rigorous research from behavioral psychology indicates that too many complex choices can lead to the sorts of behaviors we often see in students: indecision, procrastination, self-doubt, and paralysis" (Jenkins & Cho, 2013, p. 32).

Research studies have tended to indicate that students most in need of career services and counselling are the least likely to seek help (Jenkins & Cho, 2013, p. 27). Jenkins and Cho are in agreement with Dadgar, Nodine, Bracco, and Venezia (2014) that student support is best delivered as part of the academic curriculum as opposed to a stand-alone resource (Jenkins & Cho, 2013, p. 33). This would insure that persons with the greatest need do not have to seek help, it would be offered universally to all. This may also prevent classmates from interpreting a request for assistance as a sign of weakness. If the resource is offered to all students, then no one stands out from the crowd.

2.2.1 Career Counselling

Career counselling began to emerge as a vocation in approximately 1909, with the publication of a textbook written by Frank Parsons and titled, *Choosing A Vocation*. Parsons stated that to make a good career choice, a person has to apply three factors: know and understand yourself; know what will be required of you in the workplace; and finally, be able to accurately interrelate all of the factors which make up the first two. This methodology became known as the trait and factor framework (Crozier, Dobbs, Douglas & Hung, 1985, p. 9-10).

Researcher John Holland (1987) modified the trait and factor theory to make an allowance for personality. Holland found that when our skills, abilities and attitude are a good match to the workplace, the result will be a high level of satisfaction. A number of useful career development and assessment tools have been developed from Holland's theoretical structure (Crozier, et al., 1985, p. 10-11).

In the 1950's, Ginzberg (1951) and later Super (1957), recognized that career preparation was developmental and continuous, as opposed to a one-time event. Super is by far the most influential career development theorist, having authored or contributed content

to scholarly publications over a span of no less than 39 years. Developmental assessment concepts include: career maturity; the relative importance of an individuals' career and home life; ability to make choices; and the effectiveness of the individual (Crozier, et al., 1985, p. 12-13). This theory was intended to be applied over the entire working life of an individual. Super also wrote that our career development is an innate part of how we see ourselves, it is a part of our identity (Crozier, et al., p. 1). In 1980, Super updated his model by adding a concept referred to as recycling. Recycling accounts for the fact that many people now return to school, or simply take a break from working and subsequently re-enter the workforce at the beginning stage of a new occupation. These individuals are recycling their careers and some of them will likely be in need of counselling (Crozier, et al., p. 3-4).

Wendlandt and Rochlen (2008) have studied the scholarly literature with a focus on improving the career counselling of pre-graduate students to enable a smooth transition. The authors point out that the application of traditional career development and transition theories put forth by Super and Schlossberg respectively, make no account for the aspect of socialization (Wendlandt & Rochlen, 2008, p. 157). Wendlandt and Rochlen have studied the socialization stage

models published by five of their scholarly peers and created their own blended three stage model of the transition process. The three stages of their model, in order, are: 'anticipation', 'adjustment' and 'achievement'. It is important to note that Wendlandt and Rochlen envision the process to be continuous and flexible, dynamically adjusting to the needs of an individual.

Anticipation is an exploratory stage, when the individual is gathering data for a transition (Wendlandt & Rochlen, 2008, p. 157-8). At this stage, career counsellors should become involved, when asked, with the goal of providing accurate and relevant workplace data and advice (Wendlandt & Rochlen, 2008, p. 159). A part of anticipation is also the knowledge that a massive change is about to occur in this person's life, and that they are about to experience new found freedoms. With that freedom will also come an entire new set of responsibilities. These changes will inspire and motivate some, stress and depress others. At this crucial time, career counsellors need to interact with students, helping to prepare and inform them about support which is available to assist them during what may be a tumultuous time (Wendlandt & Rochlen, 2008, p. 161-2).

The second stage, which is 'adjustment', begins as the graduate enters the workplace. This will be a time for the newly hired graduate to make adjustments for many things within the workplace, a supervisor, colleagues, tasks and skills required. They may also be required to lower their own expectations with respect to which of their original expectations will be met and how quickly this will occur (Wendlandt & Rochlen, 2008, p. 158). It is most likely that there will be no contact with school counselling personnel at this time. Therefore, in order to provide assistance for step two, a career counsellor would need to take anticipatory action while the student is still in school.

The final stage of 'achievement' entails the new employee conforming to their workplace. Completion of this stage occurs when the employer has accepted the employee as a valued team member and the employee is highly motivated and content (Wendlandt & Rochlen, 2008, p. 158).

Wendlandt and Rochlen's advice for career counsellors is that they must nurture and maintain contacts with alumni and local employers. These contacts will be able to provide useful information about the job market and working conditions. Wendlandt and Rochlen

also contend that it is critical to lower what may be unrealistic expectations on the part of graduates that their work place will be nothing short of perfection (Wendlandt & Rochlen, 2008, p. 160). While stage one may be dealt with by a counsellor in person, the adjustment and achievement stages most likely have to be dealt with by anticipating what the future needs of a student will be. This is quite a tall order, since it will differ for each individual. Crozier, et al. (1985) concur, stating that anticipating future needs and then providing the appropriate assistance "presents a significant challenge to post-secondary career counsellors" (Crozier, et al., 1985, p. 5-6).

2.2.2 Experiential Learning

The original experiential learning theory was part of Kolb's learning cycle, published in 1984 and updated in 2005. Kolb asserts that we create knowledge by transforming our experiences. The learning cycle model included two forms of experience, concrete and abstract. There were two also two methods of experience transformation, active experimentation and reflective observation (Kolb & Kolb, 2005, p. 194). Kolb's learning cycle links all four of these factors, and involves the, "integrated functioning of the total person – thinking, feeling, perceiving and behaving" (Kolb & Kolb, 2005, p.

194). Kolb also states that humans learn from experience over the course of their entire lives and within every environment they occupy (Kolb & Kolb, 2005, p. 195). Experiential learning will only occur if the student is engaged in the process (Zeivots, 2016, p. 355). Of course, someone who is not engaged cannot truly be receiving the full experience. Zeivots states that someone who is engaged will be rewarded with increased creativity, getting out of their own comfort level, improved social skills and greater satisfaction (Zeivots, 2016, p. 357).

Wendlandt and Rochlen (2008) state that the best way to help students prepare for the workplace is through hands-on experience, ideally in a field related to their academic studies. They express the opinion that career counsellors should advise students to perform some part-time work which could also include: volunteering, internships or job shadowing. This provides insight into workplace socialization and will better prepare a student for their upcoming transition (Wendlandt & Rochlen, 2008, p. 162). Wendlandt and Rochlen have also found that many employers perceive a lack of work experience as a negative attribute when they are screening entry level candidates (Wendlandt & Rochlen, 2008, p. 161). Any work experience is a positive, since it provides at least some general knowledge of the

working world to a graduating potential new hire. Wendlandt and Rochlen advocate that career counsellors do their utmost to guide students toward experiences which are as close as possible to the actual work place. This could include capstone courses and projects, workshops and focus groups (Wendlandt & Rochlen, 2008, p. 162).

Co-op has been found to be another valuable hands-on transition resource. Community college based co-op involves a student working for one or more employers for three distinct work terms, each spanning a period of four months. Ferguson and Wang (2014) report that graduating co-op student's benefit from a higher level of employment and are also more likely to secure employment which matches their field of study (Ferguson & Wang, 2014, p. 26). Statistically, Ferguson and Wang found that college co-op graduates achieved a seven percent increase in full-time employment versus non co-op graduates (Ferguson & Wang, 2014, p. 64).

The workplace environment, with its various interpersonal relationships, nuances and hierarchy, is not something which could be learned from a textbook or lecture. It has to be experienced, and co-op provides a student with the actual hands-on experience. Co-op is a form of active experimentation, and when approached with an open mind, Kolb's three remaining factors should be present to some

degree. The true value of co-op is not for a participant to learn all of the deep rooted details about the workplace which they are in. Its true strength is to teach the student how to adopt coping strategies which will assist them to thrive and prosper in any workplace environment. When this has occurred, then the co-op participant will have truly received the maximum possible benefit.

2.2.3 Networking

Networking is another resource which has the potential to assist graduates in making a smooth transition from school to work. Quoting De Vos, De Clippeleer and Dewilde (2009) "Through networking graduates gain access to relevant information, resources, and people that can help them in making the right career choice or finding a job that fits their career goals" (p. 766).

There is the potential that a network contact will connect the graduating student to an offer of employment. Access to relevant information may also provide a significant benefit to the college student. A gainfully employed networking contact has the potential to provide real time data about the working world in general from the perspective of a peer. Contacts in the working space may also provide feedback with respect to etiquette and employer expectations. There is

no substitute for information which has been acquired from a source having attributes similar to oneself and employed at the same level of responsibility. The human resource contact within a company will have an entirely different knowledge base and level of perception than an entry level employee.

Networking may also result in the discovery of previously unknown career paths and employers. Career exploration is a time of discovery and it is critical to explore as many areas as possible prior to making a selection.

It is also a fact of life that in the business world, who you know is often just as important as what you know. A contact inside a company may provide access to internal decision makers, these persons may provide additional support to advance an individuals' career.

Some students and graduates acknowledge that networking is a valuable school to work transition resource. Quoting a graduate respondent from a study by Graham, Shier and Eisenstat (2014) "I think university can be more helpful with networking. … Or help develop the social skills for us to network" (Graham, et al., 2014, p. 212). This individual has recognized the value of networking, post-

graduation, and its' potential to aid their journey both into and throughout the working world.

3.0 Methodology

This study was conducted as an exploratory case study. As per Baxter and Jack (2008) the case study philosophy is based on constructivism. Constructivism provides a rich data set since it allows the participants to tell a story in their own words. The end result should be a better understanding of the interviewee's actions and the thought process involved in those actions (Baxter & Jack, 2008, p.545). An additional attribute in favour of the exploratory case study, according to Baxter and Jack, is to explore a set of circumstances for which there is no clear, single set of outcomes (Baxter & Jack, 2008, p.548). In the case of workplace transition from college, the possible outcomes are as varied as the participants. For the purpose of this study, a successful school to work transition was defined as a subject having completed all college courses for their particular program and subsequently becoming employed for paid remuneration in an occupation related to their field of study.

The initial step was an application to the Memorial University Interdisciplinary Committee on Ethics in Human Research for the interviewing of human subjects. Ethics review and approval was confirmed by the committee in mid-August 2016.

The initial recruitment of study participants was conducted by e-mail, through the social media site LinkedIn®. The targeted study subjects were graduated individuals whom had connected with the researcher through LinkedIn®. As the study progressed, snowball sampling was also utilized to acquire additional interviewees. Prior to setting up an interview, each potential participant was pre-screened to confirm their suitability to participate in the study. The interviewees were a purposive sample of graduated, gainfully employed students. No one who volunteered to participate in the study interviews was turned away.

Data collection involved a series of semi-structured one on one interviews, either face to face or by telephone. All interviews were recorded for later accurate transcription, and the interviewer also took notes during each interview for reference purposes. The telephone interviews were conducted by the use of a voice over internet protocol device known as Magic Jack® plugged into the researchers' computer. These interviews were recorded using a free software program known as Audacity®, which exports an MP3® file. Face to face interviews were recorded with the Windows® accessory sound recorder which also produces an MP3® file.

Prior to the start of an interview, each participant signed a hard copy of a consent form in person, submitted a scanned signed copy, or verbally confirmed their consent while being recorded. The informed consent document was created based on Memorial University Interdisciplinary Committee on Ethics in Human Research principles and standards. A blank copy of the consent document is attached as Appendix B. All participants received either a paper or electronic copy of the informed consent document prior to the commencement of their interview. The interview recording files are password protected and have been stored in a secure, locked location. In accordance with Memorial's graduate research policy, the recordings will be maintained for a minimum of five years following the publication of this document. At the end of the five year period those electronic recordings will be destroyed.

The interview protocol is attached as Appendix A. Completed interviews were transcribed into a Word® document by the researcher and then subsequently verified. Confidentiality and anonymity have been insured through the use of a unique pseudonym to identify each subject in their transcribed interview. A document which provides a key to the identity of all participants is also stored in a securely locked

location and will be destroyed after a period of five years from the date of publication.

During the interviews, the researcher has done his best to heed the advice of two published authors. Creswell (2012) advises researchers to conduct interviews in a quiet location with minimal distractions and background noise to facilitate audiotaping (Creswell, 2012, p. 219) the interviews were conducted under these conditions. Cohen, Manion and Morrison (2005) remind interviewers that they must function solely as a data collection instrument (Cohen, et al., 2005, p. 279). During the interviews, the researcher has followed the interview protocol and refrained from making any feedback comments with respect to subject responses. The sole function of the interviewer has been to allow participants to tell their stories with minimal intervention from the researcher. Researcher intervention was limited to asking the questions, seeking clarification of responses when necessary, and steering the discussion back to the original question when required. Conforming to these points has insured that study participants were permitted to tell their stories with no feedback from the researcher which could potentially bias the response and subsequent results.

Interviews were conducted until saturation occurred. Bowen (2008) in his research note on the concept of saturation states,

> Data saturation entails bringing new participants continually into the study until the data set is complete, as indicated by data replication or redundancy. In other words, saturation is reached when the researcher gathers data to the point of diminishing returns, when nothing new is being added.
>
> (Bowen, 2008, p.140)

3.1 Ethics

The study interviewees were voluntary participants. No one has been coerced in any way through the use of either physical or emotional means. No gifts or money have changed hands, all of the foregoing insured that the interviewees were truly voluntary subjects. Each participant was provided with an advance copy of the informed consent document which had been approved by the Memorial University Interdisciplinary Committee on Ethics in Human Research prior to commencement of the study. Face to face interviewees signed a consent prior to the interview. Telephonic subjects provided their consent verbally at the beginning of the recorded interview. All participants either chose or were given a pseudonym in order to keep

their identity private and confidential. The researcher reinforced a commitment to all participants that any comments made by them would be held as confidential and never attributed directly to them in the ensuing report.

The interviews were conducted one on one, in an environment which ensured that privacy was maintained. There have been no interpersonal, non-business relationships with subjects either before after the interviews were conducted. At all times the researcher has remained unbiased and objective, collecting data and not passing judgment on the actions of the interviewed subjects. The researcher has utilized the platinum standard in order to maintain the dignity and respect of the subjects. A gold standard is to; “treat others the way you would wish to be treated”. The platinum standard is a higher standard than gold, as it states; “treat others the way that they wish to be treated.” Prior to commencement of each interview, subjects were reminded that they were free to stop the interview and withdraw at any time.

The greatest risk to the interviewees would have been psychological harm from reliving what may have been unpleasant memories. The researcher has adhered to the standard of “do no

harm" and if there had been any doubt with respect to safety then the interview would have been terminated and the subject referred for counselling. Fortunately, no such circumstance arose during the interviews. One participant even began laughing while being reminded that the interview could stir up troubling memories and that he was free to withdraw at any time.

3.2 Data Analysis

The interview data was analyzed by using the qualitative research thematic analysis principles outlined by Creswell (2012). When the first interview with Participant 1 had been transcribed and verified for accuracy, it was marked up into segments of information. These segments were then coded into short text descriptive labels. Fourteen distinct text label codes came from that first interview. Subsequent transcribed interviews were similarly coded at this first level for additional codes which had not been present in the transcribed text of that first interview. An additional thirty-one text label codes would emerge following completion of the first level coding for the remaining interviews.

Upon completion of thirteen interviews, there were forty-five code word sets. At that time, there were commitments from three

additional participants and those interviews were completed. When the remaining three interviews were segmented and then coded, the net result was that no new codes had emerged. This point in time is defined as data saturation. Having reached saturation, the human data collection portion of the study was terminated.

The forty-five first level codes were then reduced by eliminating overlap and redundancy. The resulting unique codes were next compared and contrasted to create twelve categories. These twelve categories were subsequently collapsed into six distinct themes which were used to analyze the entire data set through the use of a student licensed installation of NVivo® Pro 11, qualitative data analysis software.

4.0 Results

This chapter contains the results of the study and the relationship between the interviews and thematic analysis performed on those interviews. The six major themes which resulted from the collapse of the twelve categories immediately follow this paragraph. The sub-chapters deal with each of the themes in turn. The final sub-chapter is a very brief summary of the study participant group's transition paths.

The interviewees were predominately male, totaling fifteen of the sixteen participants, and there was one female in the group. Their programs of study included: mechanical technology; electromechanical technology; computer science and architecture. They are presently employed in one or more of: design; manufacturing; equipment sales; management; information technology; or architectural design. These individuals ranged in age from twenty-one to thirty-eight years of age. Eleven of the participants have come through the secondary school system, into post-secondary education and now the workplace. Five persons had returned to school as mature students in order to upgrade their skills. Some of these return trips into post-secondary education were for personal reasons and others were the result of changes in the

workplace. Two of the interviewees came to Canada as international students and have decided to remain here and join our multi-cultural nation. All sixteen study participants were community college educated in the greater Toronto area and are now gainfully employed.

The six major themes and their related sub-themes are:

- Resources created specifically by a college to aid in the transition. Three resource sub-themes are: co-op; career counselling; and applied research.
- Skills taught which employers may desire, therefore potentially improving graduate student marketability. Sub-themes: CAD (computer aided design); HVAC (heating ventilation and air conditioning); CNC (computer numerical control); and project management.
- Skills taught which may help to boost the self-esteem of a graduate student. Sub-themes include: critical thinking; problem solving; and soft skills (communication, interpersonal relations, teamwork).
- Transition resources which originated from a source outside of the college. These resources included: family; friends; classmates; and the student themselves in some cases.

- Faculty interactions which helped to facilitate the transition.
- Other – this theme was created to encompass items which did not fit neatly into the first five. There were three sub-themes: desired resources; negative sentiment; and student perceptions.

4.1 College Supplied Resources

The most widely available college supplied transition resource is career counselling. Most colleges have a career center which is open for all students to drop in and ask for guidance. Counsellors are generally available for consultation by booking an appointment. In the words of an interviewee:

> *"There are different people who can help us with career planning and creating resumes, how to deal with interviews"*
>
> (Participant 8).

Co-op is a college supplied resource which has a great deal of potential to assist the student in making a smooth transition. Unfortunately, co-op is not available to everyone. A student must initially enter their program as a co-op student or transfer into the co-op stream prior to a pre-determined cut-off point. Prior to their first work term, a student is required to maintain a suitable grade point average and must also have successfully completed all courses up to

that point in time. Co-op students receive the benefit of experiential learning within a workplace. One subject credited co-op for providing him with a valuable skill set:

> *"Co-op gave me workplace soft skills"* (Participant 7).

In the words of another graduate:

> *"I think co-op makes a huge difference, especially for students that have never worked in the field, helps them tremendously, it gives them some real life experience"* (Participant 4).

Co-op students' also benefit as a result of having career counselling embedded within their program. Students do not have to seek out career assistance, it comes to them.

> *"We did have a class prior to our first co-op term, to help us with resumes, interviews and cover letters. It was extremely helpful too"* (Participant 4).

Mature co-op programs are also likely to have some learning experiences embedded within them, as the following quote indicates:

> *"During co-ops we are told that we have to do a report and told that we have to focus on what skills, a certain technical, certain interpersonal skills that we develop"* (Participant 2).

The general feeling of the co-op students who participated in this survey is summed up by the following:

> *"It was a really easy transition for me because I was in a co-op program"* (Participant 12).

Applied research projects are another college supplied resource which has great potential for the participating students. This is a working life simulation in the sense that it will have a customer focus, including deadlines, goals, and a required successful completion. The student may also have the opportunity to acquire skills which are not part of the standard college curriculum. In the words of one study subject:

> *"I worked on an applied research project. That had me doing some solid modelling, system design that I think has helped me get the position and has also helped me in the position"* (Participant 15).

4.2 Marketable Skills

Following transition, the study participants have either discovered or confirmed the workplace market demand for a number of skills. These individuals have all graduated from an applied science

and technology program, so it is no surprise that their workplaces require certain technical skills.

Computer Aided Design, also known by the acronym CAD, is a cornerstone of mechanical design. AutoCAD®, Solid Works® and Inventor® are all computer software packages used to create three dimensional models and drawings in mechanical design. CNC is an acronym for computer numerical control, a generic term for technology which programs a metal cutting machine to automatically create complex shapes. In the words of two study subjects:

> *"Institution X helped me to learn about designing through AutoCAD, Solid Works, CNC programming and shop. Which helped me for my career"* (Participant 8).

> *"AutoCAD, Solid Works, all my designing. Inventor, problem solving, a lot of material testing I use a lot of that at work"* (Participant 10).

A requirement for knowledge of heating ventilation and air conditioning has come to the forefront in recent years as we strive to heat and cool our buildings more efficiently. While it is not generally an entry level skill, workplace demand for project management ability is increasing as a team based approach is becoming more common. This

trend is also the direct result of the realization that no one person is likely to have all of the skills to complete a large project. In the words of one subject:

> *"It is project management, my job" and "HVAC was my best course in this college, and it gave me such a strength in my career"* (Participant 3).

4.3 Self-Esteem Builders

Self-esteem builders are exactly what the title suggests, skills which may not be specifically requested by potential employers, however they have the potential to boost the self-confidence of a graduate. Quoting a number of study participants with respect to learning experiences which provided assistance in building up their self-esteem:

> *"The applied mechanics was a good way of implementing on self-based thinking—developed you in a way to apply basics that you learn in school in the job and they merge together"*
>
> (Participant 14).

"College gave me all of the technical knowledge and all of the non-technical knowledge that I needed. General awareness, problem solving, critical thinking skills" (Participant 1).

"I got really good experience at Institution X. About technical stuff, about practical life situations and all—how to work in groups and how to work individually" (Participant 8).

"Time management, prioritizing—exams are all around the same time so you have to be able to prioritize. That's a skill that you can't really teach, but that's a skill that is very needed in the workforce" (Participant 4).

The importance of a strong sense of self-worth should not be underestimated. This attribute is critical to workplace success since it provides the internal strength needed to successfully deal with the inevitable workplace failures and disappointments.

4.4 External Resources

Two study interviewees, participants 9 and 15, found a full-time job after graduation through friends. In their own words:

"It was through networking that I got this job. So through a contact, through a friend of mine, who was looking for a junior engineer for their company" (Participant 15).

"My first job, my friend and my CNC professor both gave me references. My applied electricity professor also gave me a reference and that helped me" (Participant 9). In the case of this individual, the friend who provided the reference was also his first point of contact with the employer.

Study participant 13, was fortunate to find a job with the assistance of an uncle. At an extended family meal, the subject happened to mention that he was looking for a co-op work term placement. His uncle asked for a copy of his resume, and the end result was several co-op work terms at his uncles' employer and a full-time job offer at graduation. In his own words:

"I did the whole co-op placement thing on my own"

(Participant 13).

"My first job out of school was actually my co-op. I did a really good job there during my co-op term, before I even graduated

they offered me a job saying as soon as you are done school come back and we'll hire you full time" (Participant 13).

4.5 Faculty Interactions

There are occasions when a student and faculty member connect on a more personal level than student and learning facilitator. Quoting several study participants:

"My first job, my friend and my CNC professor both gave me references. My applied electricity professor also gave me a reference and that helped me" (Participant 9).

"*Professor Y—introduced me to ASHRAE and at one of their events I met my future employer. He helped me to contact the employer and put in a good word for me, that was helpful*" (Participant 6).

There are also times when a professor will engage in after class discussions with a student and inspire them to explore a previously unknown career path.

"I had a summer professor who got me involved with the American Society for Quality. The professor showed me that

there is this stuff for quality that you can take. That drew me into quality and I developed more in that area" (Participant 14).

4.6 Desired Resources

One of the questions in the interview protocol was what the interviewer framed as a wish list, something which did not exist at your institution that could have helped to improve the transition process. There were very few responses to this question. One participant requested:

"*More career development toward the job field market*" (Participant 3).

Another graduate would have liked more networking:

"*If there were more networking opportunities that would be great."* "*I only had basically two opportunities to network and that was because of Professor Y*" (Participant 5).

4.7 Negative Sentiment

During the analysis, negative sentiment was coded in order to track this feedback and insure that it was not overlooked. Criticism was generally directed towards actual courses, course content or college facilities. For example, there were requests for: more

machining courses; more electrical course content in an electro-mechanical program; more library books; more CAD courses; and a Microsoft Project® management course. These items and their present state within programs are a function of available resources and program design. The allocation of resources cannot suit everyone. It is also important to remember that each college program of study must follow a curriculum approved by the Ontario Ministry of Education. Another critical point to keep in mind is that the college mandate is to provide a general skill set which is widely applicable and inclusive, rather than narrowly focused and exclusive.

One of the subjects made the following remark with regards to faulty engagement and its potential role in post-secondary study. In particular, a lack of engagement and enthusiasm on the part of faculty may lead to a mirror of the same feelings for the students, as the following quote indicates:

> "*Some professors just lectured and left, there was not much after support or enthusiasm—if I see a professor who doesn't really care when he is lecturing then I'm less likely to care when I'm studying*" (Participant 7).

There were also a few critical remarks leveled towards co-op. One successful co-op participant expressed concern that some of his fellow students were unable to get a job with a co-op employer:

> "*Many people are not getting co-op jobs, the percentage getting a job should be higher*" (Participant 3).

Another graduate concurred:

> "*I was in co-op but I did not get a job—I just dropped out of co-op after that—I tried and found another job on leads so that helped me more than co-op*" (Participant 9).

Although he did successfully complete three co-op work terms, study participant 16 expressed the harshest criticism on the subject of a particular co-op administrator:

> "*The co-op department could have done a better job. When I was in co-op for the first time there was a different person, she did a fantastic job. But then she got replaced and the person that was replacing her, I did not feel comfortable*"
>
> (Participant 16).

In this case, the second co-op counsellor forced this student to accept a job offer with a particular company against his wishes. These three

negative comments were exceptions, and the remaining feedback for co-op was positive.

A study participant highlighted the problems created when a college changes a tool used by students without insuring that there are adequate resources in place. In this case, it was a computer aided design software program known as Revit®. In his own words:

> *"We learned the basics of AutoCAD, then all of a sudden you are throwing this other program that really things did not work right in it." "All the faculty had tons of experience in AutoCAD but only a few had experience on Revi®t and then it was so new they were learning as much as we were learning"* (Participant 11).

This same subject also experienced difficulties in his final semester when a new program coordinator was put in place. The coordinator made a significant change in the scope of a large student project four weeks before the end of the semester:

> *"He changed our final year project quite drastically. We were all almost done and suddenly we were scrambling"* (Participant 11).

It is possible that this last minute change was intended to simulate what sometimes happens in the workplace, the customer changes his

mind and sends the supplier off in a different direction. If this was in fact the case, it should have been communicated to these students after project completion, in order to provide the graduates with some context.

4.8 Student Perceptions

When asked if their college learning experiences had helped to prepare them for the working world, the sentiment was overwhelmingly positive. A couple of those positive comments were:

"*Definitely"* (Participant 1).

"Yes. You gave me a good foundation" (Participant 15). Authors' note: "You" refers to the institution, not an individual faculty member.

One subject made the following neutral remark:

> *"It is fifty/fifty—the school gave me the tools—the other fifty percent was personal initiative in my opinion*" (Participant 6).

These were all satisfied customers whom had successfully transitioned into the workplace. Despite attempts by the author to include students known to have experienced difficulty in transitioning, the author was unable to recruit willing study participants from within

the non-smooth transition category. The general sentiment of the study participants are summed up in the following statements:

> "*I think the program is very broad, it's given me a good foundation*" (Participant 15).

> *"For me, the real world examples solidified what I was learning"* (Participant 11).

> *"I have achieved really beyond my expectations. It's an ongoing journey, you learn every day"* (Participant 4).

The interviewees credited the breadth of their various college programs with preparing them for a successful workplace transition. In the words of one study subject:

> "*Even the theoretical stuff—was taught from a very practical focused approach*" (Participant 1).

Another subject highlighted the labs, which are done in groups:

> "*College teaches you how to work with others, and that's a good thing*" (Participant 13).

This response came from a graduate who credits his college education for changing the way that he thinks:

"*It developed you in a way to apply basics that you learn in school in the job and they merge together*" (Participant 14).

This quote neatly sums up one of the critical purposes of post-secondary education:

"To me school is teaching you to learn, when you get to work, now you know how to teach yourself to learn" (Participant 12).

4.9 Summary

There were three specific resources utilized by the study participants to successfully transition into the workforce. Nine, or just over half of the subjects, found employment as the direct result of their college co-op program. Four persons transitioned through the use of networking contacts. These contacts were provided by one of three sources: a friend; a school networking event; or a professor with whom they had forged a connection during their studies. The remaining three individuals used their own resourcefulness and determination to find employment.

The Bell and O'Reilly (2008) transition inventory paper confirms that the summary above is generally applicable to the transitioning student population. "The OECD in their review of 14 countries'

approach to school-to-work transitions concluded that there is neither a single answer to effective transition nor is there a single problem to be addressed."

(Bell & O'Reilly, 2008, p.28)

The six major transition related themes which emerged from the study are: college created resources to assist a transition; marketable skills; self-esteem boosters; resources external to the college; faculty interactions; and the category of other to encompass data which did not fit neatly into the first five categories.

5.0 Discussion

This chapter will explore the relationship between the theoretical school to work transition models discussed in the literature review and the pathways taken by the study participants. A link to one or more model will be established for each graduate.

5.1 Student Transition Methods

5.1.1 Screen – Explore - Choose

One of the subjects, participant 6, utilized a transition methodology which matched and encompassed the pre-screening, in-depth exploration and choice (PIC) model discussed by Jenkins and Jeske (2016). Prior to beginning co-op, this student had noticed that some students spent three work terms with the same employer in the hope of securing a full time position. The tactic had apparently not always yielded the desired result and therefore he made a conscious decision to use co-op work terms:

> "*As a testing ground rather than a way to secure a job at the end*" (Participant 6).

Adding as well that:

> "*The jobs variety in the co-op department was fairly wide. If you are selective enough you get to try all of these different positions in a fairly relaxed way"* (Participant 6).

Prior to the first co-op term, this student had pre-screened his field of employment interests down to five distinct areas. In choosing and applying for co-op positions, he managed to explore four of the five areas which were of interest to him during the course of three co-op work placements. It is somewhat ironic that in the end, participant 6 made the choice of a career in heating ventilation and air conditioning, HVAC for short, the one area of interest not explored during his co-op work terms. It would appear at this point that we have a contradiction, the graduating student has chosen an occupation which was not explored. In fact, a faculty member had assisted participant 6 to explore this field and thus fill in the blanks:

> "*Professor Y taught me HVAC and energy systems, introduced me to ASHRAE"* (Participant 6).

ASHRAE is a professional association, the acronym stands for the American Society of Heating, Refrigerating and Air-Conditioning Engineers, open to anyone within the HVAC field. Professor Y and Participant 6 established a mentor/mentee relationship which provided

the graduating student with a level of comfort to choose a field not experienced hands-on during his co-op work terms. In his own words:

> *"I wanted to be sure that I found a job that I would enjoy and that I would have a long term opportunity to advance in the field —I'm very happy with where I am right now"* (Participant 6).

5.1.2 Social Cognitive

A transition by way of the social cognitive career theory (SCCT) explained by Lent, Hackett and Brown (1999) requires a high degree of self-confidence, something which young graduates may be short of. There were three individuals whom possessed this high degree of self-confidence and therefore were able to transition through the use of this particular model.

Study participant 1 took a co-op work term with an employer after completing his third semester. At the end of that work term, his workplace supervisor requested that he return for another work term. Participant 1 then discussed the possibility of returning to college for one more semester to complete a technician's diploma and starting to work full time subsequent to that one final term. The employer accepted this suggestion, and as a result, the student returned to school for another semester, dropped out of the technologist program

and co-op thereby graduating into a full time job as a technician. Participant 1 is now working in a supportive environment and tackling workplace issues which go far beyond what would be considered normal for his level of education and experience.

Participant 10 had such a high level of confidence in herself that every job which she applied for, resulted in an offer of employment.

> "*I applied to jobs there and whatever I applied to, I just got*" (Participant 10).

Another factor in her favour is that she now has hands-on work experience as a direct result of working part-time for the past several years. Based upon the findings of Wendlandt and Rochlen (2008) previous work experience is a positive influencing factor for new hires by employers (p. 161). All of her previous employers have told this study participant that:

> "*If anything ever happens just know that you are always welcome back here*" (Participant 10).

This would have provided a substantial boost to her self-confidence. An individual with a fall-back option will display a much greater degree of assertiveness, confidence and self-esteem, which makes a strong impression during job interviews.

Study participant 14 connected with a professor who introduced him to the American Society for Quality (ASQ). He became a member of the ASQ and began participating in their courses and other programs. This student subsequently graduated into a quality control managerial position with a manufacturing company. When asked about his college experience, he had this to say:

> "*It was done with effort, blood and sweat but I am reaping the rewards from it. It's just a bit of patience and effort and it takes you far*" (Participant 14).

These three individuals, study participants 1, 10 and 14; were goal setters with a high degree of self-confidence. They were confident but not over-confident. Lent, Hackett and Brown (1999) have pointed out that over-confidence may lead to a workplace disaster for the employee (p. 307). There was some humility present in all three subjects, which helped to keep their egos in check. Each one of them worked toward an expected outcome of interesting, long term employment utilizing a significant portion of their community college education and succeeded. In the words of study Participant 10:

> "*I feel like I use almost every class*." and *"All the classes I took, I use a minimum of 70%"* (Participant 10).

Study participants 14 and 10, are also two of the three individuals who found a permanent work placement after graduation through their own resourcefulness and determination.

5.1.3 Learning Theory

The co-op program encompasses at least a portion of the learning theory of career counselling (LTCC) as discussed by Krumboltz and Worthington (1999). The authors advocate strongly for a flexible and exploratory outlook on the part of students and their counsellors toward potential careers. The simulations described by Krumboltz and Worthington (p. 319) are a rough overall description of the college co-op system, which provides a simulated workplace environment during the students' co-op work term. This is a monitored experience, where it is "safe to fail" and also where there is support which aims to protect both the student and the employers' interests. There are cognitive interventions (p. 319-20) both before and after each co-op placement through an interaction with a counsellor or counsellors. A report will generally be written by each student detailing their experiences and lessons learned during a work term. If required, behavioural interventions (p. 320) are also used in the form of mock interviews and to deal with any personality issues which have arisen during a co-

op work placement. A majority, but not all, of the co-op students in this study transitioned by way of the learning theory of career counselling, which permitted both themselves and their co-op employer to become familiar with one another. Co-op provides an environment for workplace experiential learning in its most basic and hands-on form. Over half of the study participants benefitted from the co-op learning experience, which gave them knowledge of the workplace and employer contacts. Quoting the feedback from a few study participants on the subject of co-op:

> *"Co-op is a very good thing"* (Participant 3).
>
> *"I really enjoyed the co-ops, I think that is a really good selling point of Institution A"* (Participant 7).
>
> *"Co-op was definitely helpful"* (Participant 6).
>
> *"Co-op gave me workplace soft skills"* (Participant 7).
>
> *"I think co-op makes a huge difference, especially for students that have never worked in the field, helps them tremendously, it gives them some real life experience. At the same it allows them to make connections and connections can lead to full time employment"* (Participant 4).

Sagen, Dallam and Laverty (2000) concur, their statistical analysis found that career related work experience greatly improved the possibility of making a smooth transition to work for engineering and technology graduates (p. 758).

5.1.4 Human Capital

There were three study participants who transitioned by way of the human capital theory (HCT) as presented by Krumboltz and Worthington (1999). These individuals have invested time, money and their own energy in themselves in order to improve their lot in life. Technically, everyone whom has been interviewed for this study has utilized at least some portion of the human capital theory within their college studies. Borrowing a famous quote and changing it slightly, if you build it, take it to an employer and sell it to him. In this case, the student has built a new skill set and then found someone to reward them financially for using those skills to the benefit of both parties. There has been a payoff to the graduates, and having interviewed them, the author is confident that all sixteen participants of this study will continue to reap the rewards of their education. In the words of one individual:

"The skills I have gained from college, they were great" and *"I personally feel that college does prepare you for the working world"* (Participant 13).

5.1.5 Environment Fit

The person-environment fit theory (P-E Fit) as discussed by Swanson and Fouad (1999) is based on three principles. The first principle is that a person will seek out an environment which is harmonious with their own values. Principle two is that the degree of fit between the individual and environment will have an influence on the success and longevity of the relationship. The third principle is that the person and the environment will influence and affect one another, change will be a two-way street.

The experience of study participant 10, clearly illustrates the validity of applying the person-environment theory to the workplace. This graduate accepted a job offer which began as a probationary contract. A significant part of the job requirement was to utilize an unfamiliar software. Prior to accepting the offer of employment, the student made it clear they had never used this software and that either training or the time to learn the software would be required. The employer accepted this condition and hired the graduate. Almost

immediately there was friction between the manager and employee which included demands to work unpaid overtime in order to complete projects. In the words of the individual:

> *"The company, unfortunately they were not very nice. They were pressuring me for projects and I could not deliver. I was unhappy at work so I stuck it out while I looked for another job and as soon as I did I left. He was bullying me to stay and finish jobs without pay. He was asking me to work 60 hours a week and pay me for 40. I did not want to feel miserable going in to work every day."* (Participant 10).

This was not a harmonious relationship and additionally, there was not a good fit between this individual and the workplace environment.

A few subjects have acknowledged the requirement to fit themselves into their work place environment. Quoting participants two, seven and thirteen:

> *"I would say they hired you based on aptitude and willingness to learn on the job." "Everything is really learned on the job."* (Participant 2).
>
> *"You learn to cope with change better than in school."* (Participant 7).

"At work I have to work with my team and co-exist with my team." (Participant 13).

The requirement to co-exist with others, sometimes in close quarters, as is frequently the case in an office, was highlighted by the words of participant 5:

"When it comes to how to compose yourself in an office, I was very green, I was still learning and to this day I'm still learning of course." (Participant 5).

Study participant number 1 fulfilled all three principles of the person-environment fit theory. At the end of his first co-op work term, the student was asked to return for a second co-op term. Obviously there was a harmonious relationship and positive fit from the employers' standpoint. The student entered into discussions with company management about a full time position. This negotiation was successful and the student returned to college for one last term and graduated into a full time job. The third principle of the theory was thus fulfilled, the co-op student had managed to effect change at the company and secure full time employment. The author contends that this individual transitioned under the social cognitive career theory, it is apparent however that there were also some aspects of the person-

environment theory present as well in this transition. In the words of the subject:

> *"At the end of the co-op, they said you should come back for another co-op. What I was really interested in, starting full time. So I told them if you give a full time, I can switch—to the two year program and just start full time. So they agreed to that"* (Participant 1).

This individual is presently employed in a supportive environment and tackling workplace issues which go far beyond what would be considered normal for his level of education and experience.

5.2 Institutional Supports

The role of co-op in assisting a smooth transition from school to work cannot be overstated. The subject of co-op came up time and again during the interviews. Co-op was created to fulfill several very important functions. The first is to provide a realistic approximation of the workplace environment. Co-op is not a completely accurate workplace experience due to the fact that it is for a limited time period and the co-op department acts as a middle man. These differences notwithstanding, it is still an acceptable method of introducing and acculturating students into the workplace. An additional set of

important functions is to provide the student with contacts, insight into a particular workplace sector and work experience to put on their resume.

Another college supported resource intended to assist students with preparing themselves for transition, is applied research projects. There is generally no formal classroom instruction associated with applied research projects, the project will however, be overseen by a faculty member. The students do the actual work with guidance from the faculty member, and therefore, learning experiences will be embedded within the project. These projects will have a customer and a due date, which provides a good simulation of the work environment including the inevitable deadlines and responsibilities. In the words of a study participant on the subject:

> *"Being in the applied research team—I did not spend a lot of time on that team, but the limited amount of time was very good learning experience"* (Participant 1).

Confirmation of the learning experience and also the benefit to aid in transition are apparent in the following quote:

> *"I worked on an applied research project. That had me doing some solid modelling, system design that I think has helped me*

get the position and has also helped me in the position" (Participant 15).

5.2.1 Career Counselling

All sixteen study participants were aware of the fact that career counselling resources were freely available at their community college. Seven subjects did not feel a need to avail themselves of this resource, stating simply that there was no need to do so. The remaining nine students used career counselling to varying degrees. Everyone who took advantage of career counselling at the very least, had their resume reviewed. A few individuals also had cover letters, mock interview practice, or both, attended to. Three subjects stood out from the rest as having made extensive use of the available institutional career counselling resources to aid in their workplace transition. Participant 8 was an international student and credits the international student center at his college with providing a great deal of assistance. In his own words:

"*There are different people who can help us with career planning and creating resumes, how to deal with interviews. They teach us a lot about those things*" (Participant 8).

Study participant 11 credited career counselling with significantly improving his general written communication skills and teaching him to write for the business environment which he was about to enter. Credit was also given for career counsellors in assisting him to create a resume which resulted in immediate requests for interviews, this had never happened before.

Far and away, the individual who benefited the most from career counselling was participant 1. In his own words:

> *"I made a lot of use of the co-op department—I really got into all of the co-op classes—even after class just working on my resume—what to change, what not to change. Co-op helped me figure out where I should be applying—they helped me decide where I should be focusing and basically guided me along the way pretty well—how do you go about applying, how do you go about interviewing, how do you go about starting up—how to basically start working"* (Participant 1).

Based upon their interviews, these three individuals perceived career counselling to have made a significant positive impact on their transitions. Although this study captured a relatively small sample, it seems to point to the fact that not all graduates will utilize the full

slate of career counselling services. It would appear that those who see a need will seek out what is available and partake. The most important point may be to ensure that the entire student body is informed of the fact that career counselling resources are available to help support their transitions.

5.2.2 Non-Curricular Activities

Only six subjects reported the use of either co- or extra-, curricular activities. The remaining ten study participants cited a lack of either time or interest for not taking advantage of these resources. Co-curricular activities are an ungraded learning experience which complements the college curriculum. Extra-curricular activities are not explicitly connected to academic learning. These six participating individuals all experienced substantial benefits. Three persons participated in an extra-curricular networking event or events, which had been set up by a faculty member. In one instance, a networking event was directly responsible for connecting a student with their graduating employer. Four individuals worked on applied research or student club projects, both of which fall within the definition of co-curricular. These individuals reported that they either acquired new or sharpened previously existing skills. The skills and knowledge which

the students reported acquiring included: project management; additive manufacturing; solid modelling; report writing and improved presentation skills. In the words of one subject:

> *"Near the end, I got involved with the Formula SAE. That helped me a lot in developing the Solid Works side of stuff, at work we use Solid Works a lot"* (Participant 14).

Solid Works® is a solid modelling software package in common use for creating three dimensional mechanical design models.

The reader will note that the above statements total up to seven students, this is due to the fact that one student participated in both co- and extra- curricular activities.

5.2.3 Faculty

The interviews conducted for this study have highlighted the fact that some students connect with a specific faculty member on a more personal level than student and learning facilitator. Quoting several study participants:

> *"HVAC was a very, very big help. Professor Y is the one who really hooked it up for me, he always looks out for his students"* (Participant 5).

"My first job, my friend and my CNC professor both gave me references. My applied electricity professor also gave me a reference and that helped me" (Interviewee Participant 9).

"Our HVAC project work we did with Professor Y that was awesome" (Participant 3).

"*Professor Y—introduced me to ASHRAE and at one of their events I met my future employer. He helped me to contact the employer and put in a good word for me, that was helpful*" (Participant 6).

One graduate credited a professor with helping him to improve his personal life skills:

"Some professors really taught us how to gain knowledge after school." "How to deal with people, how the work environment is going to be, they teach us how you can improve every day, continual improvement" (Participant 8).

In some cases, a professor may also interact with a student on a personal level and then proceed to guide that individual in the exploration of a previously unknown career path:

"I had a summer professor who got me involved with the American Society for Quality. The professor showed me that there is this stuff for quality that you can take. That drew me into quality and I developed more in that area" (Participant 14).

The above comments agree with the findings of Baytiyeh and Naja (2012) whose research concluded that industry contacts and networking have the potential to provide a substantial boost to successful graduate transitions (p. 6).

Study participant 6 made an interesting comment with regards to college faculty, and more specifically the practical hands-on focus, which is one of the hallmarks of a community college education in the province of Ontario:

"Definitely the biggest advantage was to have people, professors from industry that knew what they were talking about, they weren't just trying to bring the lecture from the book or paper to the classroom" (Participant 6).

5.3 Themes

This study has found co-op to be a valuable college supplied resource. Wendlandt and Rochlen (2008) agree, stating that hands-on

experience provides the most effective method in preparing a student for their eventual transition to the workplace (Wendlandt & Rochlen, 2008, p. 161). Sagen et al. (2000) also found that the portion of their study group which included science and technology students received up to a 26 % increased transition success rate from related work experience (Sagen et al., 2008, p. 762). Related work experience would include both co-op and applied research projects. Wendlandt and Rochlen (2008) further state that students are also well served by experiences which are the best simulation of the work place, including capstone courses and projects (Wendlandt & Rochlen, 2008, p. 162). The value of participating in applied research projects, especially for students not in co-op, may be significant.

Career counselling is another valuable college supplied resource. Two scholars state that in order for it to be effective, several conditions must be fulfilled. Sagen et al. (2000) state that counselling must focus on the needs and assets of the student, rather than on the employment and employers side of the equation (Sagen et al., 2008, p. 765). Person, et al., (2005) concur that counselling must be tailored to the individual and their cultural and social background (Person, et al., 2005, p.67).

Self-esteem builders, which also have the potential to facilitate a smooth transition, have been confirmed by two research scholars. Krumboltz and Worthington (1999) state that employers desire soft skills, including communication, dependability and teamwork (Krumboltz & Worthington, 1999, p. 317). Roksa and Arum (2012) concur with Krumboltz and Worthington on the point of communication, further adding that critical thinking and complex reasoning provide a substantial boost to the ease of transition from college to work (Roksa & Arum, 2012, p. 14).

Networking was an external transition resource which played a pivotal role in several graduate transitions. The importance of this resource was confirmed by Baytiyeh and Naja (2012) who found that the greatest percentage of their study participants found a job through their personal contacts (Baytiyeh & Naja, 2012, p. 6).

5.4 Study Limitations

The scope of this study was limited to a purposive sample of participants whom had graduated from an applied science and technology program at a community college in southern Ontario and entered the workforce. Generalizations drawn may not be applicable beyond this particular group of graduates. A purposive sample uses

non-random sampling to insure that the participants have experienced the condition being studied. In the case of this study, no one who volunteered to participate was turned away. The most valuable use of this study may be to highlight areas of student and institutional interaction worthy of more study.

At the time this study was conducted, the researcher was an active faculty member at a community college in Southern Ontario. This individual had been facilitating the learning process of Applied Science and Technology students for more than five years. The study subjects were volunteers who were recruited directly or indirectly. A number of the subjects were known through a previous classroom relationship. At the time of the study there were no existing faculty/student relationships with any of these individuals. The interview protocol for the study was created in consultation with the thesis advisor, Dr. Vernon Curran, whose guidance has been invaluable. At all times during the interviews, the researcher has put great effort forth to merely collect data and provide no personal influence with respect to the opinions and responses of the study participants.

6.0 Conclusions

The purpose of this study was to explore the school to work transition experiences for a purposive sampling of applied science and technology college graduates. The data was gathered qualitatively, thus providing a rich, descriptive data set for these individuals. This data was processed by utilizing the application of thematic analysis principles.

Co-op work term placement, when it is available, is one of the most valuable resources to assist a college student in making a smooth transition to the workplace. Other resources which provide a simulated workplace environment while still in college are also beneficial. These may include capstone and applied research projects, both of which will have a customer based focus on results and deadlines. Just over half of the study participants attributed co-op with assisting them to make a smooth school to work transition.

Networking opportunities with persons from industry also have the potential to aid students in their transition, especially since young people are not likely to have developed a network which includes connections into the workplace. One quarter of the study subjects transitioned as a direct result of assistance provided through a

networked contact. The contacts in these instances were from a number of diverse sources including: friend; family; faculty member; or an employer.

Three study participants transitioned from college to the workplace by way of their own drive and determination. These individuals possessed the internal strength and self-confidence to set a goal and successfully work to completion.

Everyone who participated in this study indicated that they were aware of readily available career counselling resources, yet only a handful chose to partake. Those who did access career counselling acknowledged receiving a valuable boost to the ease with which they were able to transition.

The study participants represented a wide cross section of individual traits and needs, thus providing a study group which is a reasonable approximation of the current college student body.

It is vital to remember that all transitions are unique and therefore the most important system trait from a students' point of view may be availability and adaptability. Students must be free to pick and choose the resources they require, to the greatest extent

possible, in order to help ensure a smooth transition into the workplace. There is no 'one size fits all' transition resource.

Recommendations arising out of this study are as follows:

- Co-op is one of the most important transition resources available to college students. Unfortunately, not everyone will qualify for entry into the co-op stream.
- Students whom are not in co-op should be counselled to participate in alternate workplace skills development activities, including applied research projects and other non-curricular activities.
- Networking opportunities have also been found to provide a significant boost to the ease of transition for some students. The availability of networking events must be supported and encouraged by the institution in order to provide another potential transition resource for graduating students.
- Career counselling services may not be accessed by all students, however they hold a great potential to aid in a smooth transition. Counselling must be freely available to all students and more importantly, that availability must be communicated to the entire student body by way of multiple communication channels.

It is critical that students are supported by the institution in their school to work transition, student success equals success for all.

References

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist,* 55(5), 469–480.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-559.

Baytiyeh, H., & Naja, M. (2012). Identifying the challenging factors in the transition from colleges of engineering to employment. *European Journal of Engineering Education*, 37(1), 3-14.

Bell, D., & O'Reilly, E., (2008). Making bridges visible an inventory of innovative, effective or promising Canadian school-to-work transition practices, programs and policies. *Canadian Council on Learning*. 1-31. The dèsLibris document collection, accessed through the Memorial University Library.

Boon, C., Den Hartog, D.N., Boselie, P., & Paauwe, J. (2011). The relationship between perceptions of HR practices and employee outcomes: Examining the role of person-organisation and person-job fit. *The International Journal of Human Resource Management*, 22(1), 138-162.

Bowen, G.A. (2008). Naturalistic inquiry and the saturation concept: a research note. *Qualitative Research*, 8(1), 137-152.

Bowlby, G. (2000). The school-to-work transition. *Statistics Canada*, Catalogue no. 75-001-XPE, 43-48.

Charner, I. (1988). Employability credentials: A key to successful youth transition to work. *Journal of Career Development*, 15(1), 30-40.

Cohen, L., Manion, L., & Morrison, K. (2005). *Research methods in education* (5th ed.). London, Routledge.

Creswell, J.W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). New Jersey, Pearson.

Crozier, S., Dobbs, J., Douglas, K., & Hung, J. (1985). Career counselling position paper. *Canadian Association of College & University Student Services*, Retrieved from http://www.cacuss.ca/_Library/documents/Career_FULL_English.pdf

Dadgar, M., Nodine, T., Bracco, K.R., & Venezia, A. (2014). Strategies for integrating student supports and academics. *New Directions Bowlbyfor Community Colleges*, 167, 41-51.

De Vos, A., De Clippeleer, I., & Dewilde, T. (2009). Proactive career behaviours and career success during the early career. *Journal of Occupational and Organizational Psychology*, 82(4), 761-777.

Ferguson, S. J., & Wang, S. (2014). Graduating in Canada: Profile, labour market outcomes and student debt of the class of 2009-2010. *Statistics Canada*, Catalogue no. 81-595-M – No. 2014101, 1-65.

Frank, K., Frenette, M., & Morissette, R. (2015). Labour market outcomes of young postsecondary graduates, 2005 to 2012. *Statistics Canada*, Catalogue no. 11-626-X — No. 050, 1-9.

Government of Ontario (2017). Key performance indicators, colleges and other public institutions. *Queens Printer*, Retrieved from: http://tcu.gov.on.ca/pepg/audiences/colleges/colindicator.html

Graham, J. R., Shier, M. L., & Eisenstat, M. (2014). Misalignment between post-secondary education demand and labour market supply: Preliminary insight from young adults on the evolving school to work transition. *International Journal for Educational and Vocational Guidance*, 14, 199-219.

Jenkins, D., & Cho, S. W. (2013). Get with the program … and finish it: Building guided pathways to accelerate student completion. *New Directions for Community Colleges*, 164, 27-35.

Jenkins, L., & Jeske, D. (2016). Interactive support effects on career agency and occupational engagement among young adults. *Journal of Career Assessment,* 06, 1-16.

Kolb, A.Y., & Kolb, D.A. (2005) Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, 4(2), 193–212.

Krumboltz, J. D., & Worthington, R. L. (1999). The school-to-work transition from a learning theory perspective. *The Career Development Quarterly*, 47(4), 312-325.

Krumboltz, J., D., (2009). The happenstance learning theory. *Journal of Career Assessment*, 17(2), 135-154.

Lent, R. W., Hackett, G., & Brown, S. D. (1999). A social cognitive view of school-to-work transition. *The Career Development Quarterly*, 47(4), 297-311.

Murphy, K. A., Blustein, D. L., Bohlig, A. J., & Platt, M. G. (2010). The college-to-career transition: An exploration of emerging adulthood. *Journal of Counseling & Development*, 88(2), 174-181.

Person, D. R., Ellis, P., Plum, C., & Boudreau, D. (2005). Using theory and research to improve student affairs practice: Some current examples. *New Directions for Community Colleges,* 131, 65-75.

Roksa, J., & Arum, R. (2012). Life after college. *Change*, 44(4), 8-14.

Sagen, H. B., Dallam, J. W., & Laverty, J. R. (2000). Effects of career preparation experiences on the initial employment success of college graduates. *Research in Higher Education*, 41(6), 753–767.

Statistics Canada. (2015). Career decision-making patterns of Canadian youth and associated postsecondary educational outcomes. *Statistics Canada*, Catalogue no. 81-599-X — No. 10, 1-11.

Swanson, J. L., & Fouad, N. A. (1999). Applying theories of person-environment fit to the transition from school to work. *The Career Development Quarterly,* 47(4), 337-347.

Wendlandt, N. M., & Rochlen, A. B. (2008) Addressing the college-to-work transition: Implications for university career counselors. *Journal of Career Development*, 35(2), 151-165.

Zeivots, S. (2016) Emotional highs in adult experiential learning. *Australian Journal of Adult Learning*, 56(3), 353-373.

Appendix A – Interview Protocol

Greet the participant, have them sign the consent form and decide on a pseudonym. Turn on the recording device. Reinforce that they are free to withdraw from the interview at any time.

Please tell me about your journey from college into the workplace.

What learning experiences did you have during your college program that you believe assisted you in finding employment in your field?

What aspects of your college program were most beneficial to you in becoming prepared for work in your field?

Were there any other non-curricular experiences you had either during or after your college program that may have aided you in transitioning successfully to the workforce in your field?

Were you aware of any particular student support programs or services provided by the college in the areas of career and employment? What type of contact did you have with these programs and services? Did you use any college resources to help your transition? If yes, which ones?

Were there any other specific resources, programs or services that could have been available to you to further aid you in transition from college into the workforce?

Overall, do you feel that your college learning experiences helped you prepare for the working world? If yes, how?

Do you have any other comments?

Thank you for participating!

Appendix B

Informed Consent Form (Rev 2–Aug.17/16)

Title:	An Exploratory Study of School to Work Transition Experiences of Applied Science and Technology Students in Southern Ontario.
Researcher:	Robert Kilby, Masters of Education student at Memorial University, rjk364@mun.ca
Supervisor:	V. Curran Ph.D., Professor, Faculty of Education, Memorial University of Newfoundland. vcurran@mun.ca

You are invited to take part in a research project entitled *"*An Exploratory Study of School to Work Transition Experiences of Applied Science and Technology Students in Southern Ontario*."*

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Robert Kilby, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:
I am Robert Kilby, a Masters of Education student at Memorial University. As part of my Master's thesis I am conducting research under the supervision of Dr. V. Curran.

Purpose of study:

The purpose of this proposed study is to inquire into the college to work transition experiences for a purposive sampling of students whom have graduated from an applied science and technology program at a southern Ontario college.

What you will do in this study:
If you choose to participate, there will be a one-on-one interview about your college to work transition. The interview will be audio recorded to permit analysis. You will use an alias in place of your name to keep your identity private.

Length of time:
The interview will take approximately one hour. This will be your only commitment to the study.

Withdrawal from the study:
You may stop participating in this study at any time. There will be no consequences from your withdrawal. If you wish to stop the interview, then state this or simply stand up and walk away. Any data recorded will be erased. The signed consent form will be retained with a note that the subject has withdrawn.
Once an interview has been completed, you will still have up to seven days to contact the researcher and withdraw, or review the transcribed data and request changes, if desired. The transcribed data will contain no identifying information. If you withdraw, the recording will be erased.

Possible benefits:
The information which you provide may help to improve the school to work transition for future college graduates. This information will also add to the scholarly knowledge for this particular subject.

Possible risks:
During the interview you may become upset or otherwise emotionally disturbed while reliving some experiences. Should this occur, the interview will be suspended and you will be asked to make a decision. Possible choices could be: change the sub-topic, stop the interview and seek counselling. At all times your health and safety is the most important issue. If you require counselling as a result of your participation, your family doctor will help you. In addition, most employers include wellness counselling as part of their benefits package. In the event that your need is urgent, contact: 24.7 Crisis Support Peel at **905-278-9036** anytime, day or night. The Crisis Support Peel non-crisis contact number is: 905-451-2123.

Confidentiality:
The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use, or disclosure. The only link between you as a participant and the study will be a signed copy of this document and a coded master list. The signed copy of this consent form and the master list will be stored in a locked cabinet at my place of residence until is destroyed, five years after the thesis has been published. The transcribed hard copy and the interview recording will be stored separately in a locked cabinet for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research. The interview transcriber will be required to sign a confidentiality agreement.

Anonymity:
Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance. Your participation in this study will be kept confidential by the researcher and your data will be maintained in a format which insures your anonymity.

Recording of Data:
The interview will be audio recorded. After the interview has been transcribed to a typed document and checked for accuracy, the recording will be stored on a memory stick in a locked cabinet for a period of five years, as required by Memorial University's policy on Integrity in Scholarly Research.

Storage of Data:
The interview recording will be stored on the hard drive of a password protected laptop computer which is stored in the researcher's place of residence or personally carried. After the recording has been transcribed, the file will be moved to a memory stick in a locked cabinet for a period of five years, as required by Memorial University's policy on Integrity in Scholarly Research. The only other individual who will have access to the recording is the transcriber. A signed copy of this consent form and the transcribed interview hard copy will also be kept for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research.

Reporting of Results:

The thesis will be publically available at the Memorial University of Newfoundland QEII library. Any direct quotations of study participants will be in general terms and not directly attributed to an individual.

Sharing of Results with Participants:

If requested, a link to the published thesis will be provided.

Questions:
You are welcome to ask questions at any time before, during, or after your participation in this research. If you would like more information about this study, please contact: Robert Kilby, rjk364@mun.ca **or** V. Curran Ph.D., vcurran@mun.ca

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:
Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw participation in the study without having to give a reason, and that doing so will not affect you now or in the future.
- You understand that if you choose to end your participation **during or within seven days** after data collection, any data collected from you up to that point will be destroyed.

I agree to be audio-recorded ☐ Yes ☐ No

By signing this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Your signature confirms:

☐ I have read what this study is about and understood the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.

☐ I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.

☐ A copy of this Informed Consent Form has been given to me for my records.

Signature of participant	Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

Signature of Principal Investigator	Date