

**A STUDY OF THE WORK EXPERIENCE COMMITMENTS AND  
ACADEMIC ACHIEVEMENTS OF HIGH SCHOOL STUDENTS**

by

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## **Abstract**

This research outlines a study of the relationship between the part-time work experience commitments and academic achievements of high school students in Alberta's Parkland School Division. Significant research conducted over the past two decades disagrees whether part-time work has adverse effects on student achievement. Economic conditions in Canada have tempted high school students to be employed in various labor roles based on a number of factors. Specifically, this study examines the relationship between the work experience hours and academic achievements of Parkland School Division's secondary school students. The author hypothesizes that when hours of work increase, student achievement decreases. An analysis of the 2009 - 2010 high school data of work experience hours submitted for high school credits toward attaining a diploma will be compared to student achievement in the School Division's high school, Spruce Grove Composite High. A quantitative investigation by means of a multi-variable regression analysis for each grade level, namely Grade 12, Grade 11, and Grade 10, exhibited no significant correlations among the dependent variables (English, Social Studies, and Mathematics marks) and the independent variable, Work Experience Hours. The results of the research analysis did not support the author's hypotheses that this relationship would be significantly negative and that it would increase in relation to the number of hours worked. The information acquired will be reported to assist Parkland School Division and other school jurisdictions to improve educational programming for secondary students.

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## **Chapter One**

### **Introduction**

Part-time work appears to be a common trend with high school students in Canada. Throughout their academic school year, more and more students appear to gain employment while attending high school. Usalcas and Bowlby (2006) state: "During the 2004/2005 academic year, Statistics Canada estimated 939,000 of the 2.4 million full-time students aged 15 to 24 had a job while they went to school" (p. 1). Recently, the author asked a number of students in a grade twelve science class and found that 20 out of 27 had part-time jobs. This observation coupled with the information from Statistics Canada has prompted the author to attempt to discover if there is a relationship between the numbers of hours of employment by students and their academic achievement levels in high school. This research topic is of interest to the author because it appears that the relative number of high school students who are employed in the work force in the school district (Parkland School Division #70) is higher than the national average reported by Statistics Canada. Being a high school administrator, the author wishes to know if the students' employment negatively affects their academic achievements. This research can be useful to students, parents, teachers, and administrators in the Parkland School Division and other school jurisdictions because it may help to explain why some students perform poorly in core subject areas such as math, science, English, and social studies on provincial examinations. It may even offer employers who employ high school students reasons to consider flexible schedules to balance student work at the jobsite and at school. This research will involve an extraction of the 2009/2010 work experience data of students who attended the high school, Spruce Grove Composite High in Parkland School

Division #70. The students' work experience hours will be compared to their respective academic marks in that school year. The results will be summarized and reported to the Parkland School Division #70 Superintendent's Office. With the permission of the School Division, a focused version of the report will also be shared at the participating high school.

## **Chapter Two**

### **Literature Review**

#### **The Community**

Parkland School Division provides educational services to students living in the urban and rural areas within the boundaries of Parkland County located west of Edmonton, Alberta. The school division manages 21 schools including two large high schools. The school division's mission is to create learning environments in which children achieve enduring success and enhance their development. The four main goals of Parkland School Division are to offer high quality learning opportunities for all, strive towards excellence in student learning outcomes, facilitate success for First Nations, Métis, and Inuit students, and be a highly responsive and responsible school jurisdiction. The two high schools; namely, Spruce Grove Composite High School, located in Spruce Grove, Alberta and Memorial Composite High School, located in Stony Plain, Alberta have approximately 1,100 students from grades 10 to 12 in each school. Furthermore, the school division has two Outreach centers, each nearby the two high schools, allowing students to take online or modular-based high school courses.

The City of Spruce Grove has approximately 30,000 people. This community offers proportional versions of the recreational, leisure, artistic, cultural, commercial, and industrial services and conveniences of large urban centres. Shopping centres, parks, trails, schools, and medical facilities are available for a diverse and growing population. "The local business scene features everything from national retailers to local companies which serve a trading area of more than 70,000 people. Industry has also found a home here, and with a skilled workforce nearby, there's plenty of room for growth"

([www.Spruce Grove.org](http://www.SpruceGrove.org)). Many families consider Spruce Grove as a bedroom community to a large city center, the location being eleven kilometres west of the capital city, Edmonton, Alberta. The municipal census conducted in 2010 suggests an even split between males and females and the average age of the population to be in the mid-thirties.

### **The High School**

Spruce Grove Composite High School (SGCHS) boasts as a twenty-first century school through its website and pamphlets. The school is dedicated to follow the Panther Path citizenship values of excellence, dedication, integrity, courtesy, enthusiasm, commitment, cooperation, respect, leadership, and loyalty. In doing so, students are encouraged to be self-directed learners and critical thinkers rather than passive students. Teachers are encouraged to be curriculum facilitators instead of teacher-centered educators.

Furthermore the teachers are expected to develop lesson plans involving multimedia presentations rather than paper handouts, and engage student contributors within the classroom dynamics as opposed to disengaged observers of traditional teaching. Spruce Grove Composite High School offers a wide range of programming for its 1,100 high school students from grades 10 to 12. Its offerings include advanced placement courses in mathematics and English, a full range of complementary career and technology courses; for example, graphic design, robotics, cosmetology, automotive repair, and construction. The school's "Modern Languages / Fine Arts" offerings include drama, music, musical theatre, and art, French Immersion, French as a Second Language, German, and Japanese. Furthermore, Spruce Grove Composite High School offers a Registered Apprenticeship Program, an Outreach Program, and Work Experience Placements.

## **Factors Affecting High School Student Achievement**

High school students' academic success is based on a number of factors that either hinder or help their progress through their school careers. A significant amount of research has been conducted in many countries including the United States, Canada, United Kingdom, Australia, and Korea. This section of the research addresses the positive and negative effects of part-time employment of students. While there are many other factors affecting student achievement, such as work intensity, socio-economic status, extra-curricular activities, parental involvement, substance abuse, ethnicity, homework, attendance, and the labor market; this segment of the paper will address these factors within the larger context of student employment. It is important to note that the factors mentioned above are identified by researchers as integral parts of their respective studies; hence, they are worth including in a literature review of this research topic.

### **Part-time Employment**

The Province of Alberta is currently going through some fundamental changes in its existing education system. Transformational changes to curriculum, delivery of high school courses, and the use of technology are in the forefront of reform to its senior high school educational programs. The former Minister of Alberta Education, David Hancock, stated, "the goal will be to create curriculum that supports learning at any time, any place and at any pace, supporting socially engaging learning opportunities with flexible timing and pacing through a range of learning environments" (Hancock, 2010, p. 5). The described millennial student learners seek personalized learning opportunities that provide relevant curriculum engaging them in their lives long after graduation. Furthermore, a millennial teacher must be, "engaging, being a role model and mentor, bringing learning to life, caring about students, being passionate about subject matter and

teaching” (Hancock, 2010, p. 5). We are at crossroads with the 21<sup>st</sup> century learners as described by Ed Coughlin of the Metiri Group, which serves the education community through a broad range of consulting services that empower educators and education institutions. Coughlin referenced Perkins’ definition of a second curriculum called metacurriculum, which states, “metacurriculum is a complex program of learning facilitation, skill training, and cognitive development that floats above academic content” (Coughlin, 2010, p. 51). Further to the definition, metacurriculum “focuses on the learning skills, habits of mind, and life and workplace skills students will need to be successful in a competitive, shrinking world” (p. 51). Schools cannot just be “certification mills” that push out high school students meeting minimum requirements for diplomas. They need to transform themselves from “transmitters of knowledge and information to orchestrators of a complex program of learning facilitation and cognitive development” (Coughlin, 2010, p. 51).

Part-time employment appears to be a fundamental factor when observing student achievement in high school. Marsh and Kleitman (2005) indicated through other researchers that “part-time employment during high school is a widespread phenomenon in many Western countries such as United States, England, Scotland, and Canada, [and further] rates of such employment are increasing dramatically” (p. 1). Dumont et al. (2009) describe part-time employment of youth as a “fact of life for adolescents in the 21<sup>st</sup> century [and additionally] to be a growing adult acceptance of adolescents who work part-time” (p. 59).



## Positive Effects of Part-time Student Employment

While there is considerable research suggesting the negative effects of part-time employment for high school students, numerous studies advocate positive elements to this type of employment. One view supported by Schill, McCartin, and Meyer (1985), suggests that students having part-time work while in school develop characteristics and skills needed for the “real” work world. “Students who work are better prepared for the business world, have better social and interpersonal skills, and have more job opportunities and earn high wages after graduation” (Schill, McCartin, & Meyer, 1985, p. 2). The Department of Labor (DOL) in the United States, based on their statistics, argues that paid part-time work “benefits school-aged kids, [such as] learning responsibility [when] earning spending money” (American Teacher, 2001, p. 1). Furthermore, many researchers have found a “slightly positive effect of working on achievement for up to 15 – 20 hr [sic] of work per week” (Quirk, Keith, & Quirk, 2001). In addition, Largie, Field, Hernandez-Reif, Sanders, and Diego (2001), in conducting their research support the positive effects of limited employment hours. In their words, these effects “include a stronger sense of personal efficacy and orientation to occupational achievement” (p. 1). Part-time work is also beneficial to youth according to Barton (1996). He supports the view that students having part-time jobs, “demonstrate responsibility, gain real world experiences, and develop organizational, social, and interpersonal skills” (p. 67). A study conducted by Nadirova, Burger, and Mykula (2008) on the predictive qualities of the Student Orientation to School (SOS) instrument postulates “moderate exposure to the job market may be beneficial to students and complementary to school experience” (p. 4). Furthermore, the SOS instrument suggests that students with part-time jobs have a better

appreciation for the importance of school as part of learning and choosing career goals. Hanna and Baum (2001) suggest that previous “studies speculate that market-place work promotes educational attainment by helping high school students to develop industrious work habits and skills [as well as the] ability to manage time” (p. 788). In addition, the students’ primary reasons for working include purchasing vehicles, dating, paying social expenses, achieving independence, and developing future employment skills. A more recent article by Cheh (2007) discusses a work study program instituted by a Chicago-based Cristo Ray Network which runs 12 Roman Catholic high schools within the United States. The work study program allows low-income minority students to be employed during school days for up to 18 hours per week. Students are given an opportunity to work within professional fields, such as law firms and banks. A team of four students fill one 40-hour per week job slot which stretches over the school year. A requirement by the students enrolled in the work study course is their work pay goes towards tuition for college-preparatory programs. According to the Cristo Ray Network, “92 percent of the class of 2006 graduated and 99 percent of graduates were accepted at a college” (Cheh, 2007, p. 21). Cheh proposes that students working while in school as part of their education allows them to be successful in completing their high school diploma requirements. Under a guided structure from school officials, these students benefit educationally from employment and pave the way towards college tuitions and a career path. Limiting the number of hours of the work week for students in this article is similar to other studies suggesting employment does not have a negative effect on academic achievement.

Kristina Zierold's (2005) study of 7,500 Wisconsin high school students revealed part time employment was not associated with student achievement. Her survey found that after school work is a major activity by students; specifically, approximately 80% of youths were employed. For students who worked, 42% reported working 10 hours or less per week while 36% worked over 17 hours per week. The article notes that paid employment may contribute to the well-being of students and their enhanced self-esteem. It may also ease the transition from school to full-time work for students, including forming positive relationships with employers. Statistics Canada (2004) reported that "early labour market participation by students is often seen as a means to gain valuable exposure to the culture and context of work; this experience may generate long-term benefits such as smoother transitions from school to full-time work, practical skills development and high future earnings" (p. 5). However, Statistics Canada cautions the number of work hours should be moderate (19 hours per week) because numbers greater than that will increase the likelihood of student drop outs. Lee and Orazem's (2010) study using the Longitudinal Survey of Youths (NLSY97) leading up to the data year 2002, showed a positive effect of student employment. The authors state: "Our results show that students who are induced to work more intensely while in school do not experience significantly weaker high school academic performance" (p. 38). Furthermore, the authors imply a 10 percent decrease in cumulative hours of work during high school would increase student achievement by a value of 0.02 or less. Additionally, holding family background fixed, girls perform better in academic achievement than do boys in high school.

Poyrazli, Ferrer-Wreder, Meister, Forthun, Coatsworth, and Grahame (2008) studied alternative school adolescents. Two questionnaires, one dealing with demographics and the other with psychological sense of school, were administered along with the use of students' academic achievement scores as measures. The results indicated that students who were employed reported higher grades than did those who did not work. Students who were involved in extracurricular activities also felt positively towards school and adults. The authors further support student employment and school achievement by demographically accounting for "high risk" adolescents. Students who work feel an enhanced sense of belonging in school and have a positive outlook on their future goals. The unique part of this study includes alternative school students who are typically given individual attention and guidance in successfully completing high school.

In another study conducted by Hannah and Baum (2002), the authors reviewed a number of studies suggesting the positive effects of part-time student employment. From reviewing the literature of Schill, McCartin, and Meyer (1985), and Mortimer, Finch, Ryu, Shanahan, and Call (1996), they conclude that:

Studies have found modest amounts of market-place work (less than twenty hours per week) in high school may have positive effects on some measures of school performance. [Furthermore] students who work between one and twenty hours have higher grade point averages than those who do not work and those who work more than twenty hours per week (Hannah & Baum, 2002, p. 2).

School attendance improves slightly and there is an increase in the high school completion rate. John Holloway (2003) states that students who balanced school and work by limiting their work hours gained valuable time management skills that permitted them to work when they went to college. Additionally, Oettinger (1999) suggests that students of high academic ability are likely to hold regular employment by limiting their

hours of work per week. Lillydahl's (1990) analysis of the National Panel on High School and Adolescent Education along with the National Commission on Youth suggest that:

Early work experience would improve post school transition to employment by accustoming youth to general work habits, values, and attitudes that would be expected of them in their adult occupations. In addition, employment would provide youth [sic] with opportunities to assume greater responsibility, authority, and interdependence and enhance students' stock of information about the world of work (p. 308).

Barton (1996) gives a perspective on improving the work experience of students through building relationships between school and businesses. The Policy Information Perspective suggests goals to strive for in the future to enhance the employment of adolescents. Background information implies that students working part-time have historically occurred through generations as children would help on farms and later have paid employment through delivering newspapers, babysitting, and mowing lawns. At the same time, adolescents would assist family businesses in corner grocery stores, bakeries, and hardware stores. Furthermore, the low-skilled labour market opened up employment to teenagers in service industry jobs; such as, gas stations and fast-food restaurants. With the insurgence of the youth labour market, a study conducted by the National Institute for Work and Learning (1984) suggested the following positive remarks: "Nine out of ten feel that their job taught them skills associated with food preparation, half included supervisory skills, and four out of ten learned inventory control" (p. 2). Furthermore, students employed at fast-food restaurants learned skills such as dealing with customers, listening to directions, working as a team, managing time, being dependable, and dressing appropriately.

Green (1990) conducted an in-depth interview with thirty-five seniors from a North Carolina high school. The predominantly middle-class high school students were

asked questions in relation to their jobs or decision not to work, and to the societal context of employment. A conceptual framework was developed to define the social contexts of employment. It included workplace histories of employment as well as family information, social life, peer relations, academics, extracurricular activities, marketplace characteristics, and future goals. The results suggest students deem work as a positive natural transition from schooling to employment, and valuable skills are attained by students during the work progression when attending high school. The author concludes that there are three major roles that employment plays for a high school student. Employment facilitates the transition from school to work, provides structure for involvement in family and school-related activities, and allows adolescents to gain social experiences and/or material rewards in order to have independence. Overall, the students look favorably toward part-time work when attending high school. The author did not mention the duration of work for each of the students interviewed. Generally, based on many other research studies, more than twenty hours per week of employment would have an impact on most of the social contexts of employment identified by Green. As it exists in this literature review, not all positive effects of high school student employment research have been covered; however it does provide some encouraging insight on the aspects of employed student high school life.

## **Negative Effects of Part-time Employment**

Statistics Canada's report in 2004 revealed that Canadian high school students drop out of school for reasons that are based on a number of factors. One such factor is part time employment. An estimated 9,000 students left high school in the year 2002 without completing a high school diploma. Statistics Canada reports that students who worked a moderate number of hours per week (up to nineteen hours), were least likely to drop out. Student dropouts increase significantly for employment rates of 20 hours or more per week. The duration of the employment appears to have a significant positive or negative effect on student success at high school. Singh, Chang, and Dika (2007) hypothesized that work duration would produce a negative effect on achievement. Their study involved 1,547 southwest Virginia high school students completing a 45-question survey. The data were analyzed by hierarchical regression models controlling for variables of part-time work, family background, individual aspirations, and school engagement activities. Some of these other factors besides part-time employment will be addressed later in the literature review. The results clearly indicated that part-time work had a negative effect on school grades, especially for boys who worked more than a twenty hour work week. A study by Vickers, Lamb, and Hinkley (2003), conducting longitudinal surveys of Australian youths, revealed that students who work for more than five hours per week during Year 9 have an increased chance of dropping out of school by Year 12. Additionally, students who work more than 20 hours per week significantly increase their odds of dropping out of tertiary and university programs.

Another study completed by Singh and Ozturk (2000) was on the effect of part-time work intensity on high school course work completed in mathematics and science. In

habits, and positive attitudes, there is little empirical evidence. The study attempts to examine three critical issues related to the costs and benefits of teenage employment. It also examines the relationship between work duration and psychosocial development. First, if work duration does contribute to both positive and negative psychosocial outcomes, then both theoretical and policy considerations should be investigated. Second, another investigation that is required is to determine when part-time work duration becomes too intense for teenage workers. Much of the literature supports the negative effect of part-time employment of more than 15 to 20 hours per week. Third, does the correlate of psychosocial influence affect work duration or is it the other way around? The following psychosocial domains were addressed: substance use such as alcohol and cigarettes, other problem behaviours such as interpersonal aggression and trouble with police, time use such as time spent sleeping and exercising, general and specific life satisfaction, and self-esteem. The data were collected from high school seniors from 1985 to 1989. Questionnaires were administered to 135 public and private schools during the spring of each year. The students' response rate was approximately 84% during the survey years. Analyses were conducted separately for male and female students. In response to part-time work hours, students were given categories for hours of work per week, i.e., (1) none, (2) 5 hours or less, (3) 6 to 10 hours, (4) up to and including more than 30 hours. Evidence showed that over three quarters of senior students were employed. More specifically, over one third of males and one fourth of females were working more than 20 hours per week. A multiple regression analysis was conducted using categories to detect linear and non-linear relationships.



The results were as follows. The strongest predictor of working was race, with white students being the students who were most frequently employed. Employment for males and females occurred in large urban residential areas. A positive bivariate relationship existed between work duration and use of substances such as alcohol and cigarettes. In other words, the greater the number of hours of work per week, the more likely a student is using substances. With regard to deviant behaviour, there was a general positive correlation between increased hours of work per week and behaviour disorders such as crime, aggression, and arguments with parents. The use of time for activities such as sleeping, eating breakfast, and exercising decreased when hours of work increased. Lack of sleep provided the strongest attribute for negative effects when long hours of student employment occurred. Job satisfaction was reported to be highest for males working 30 or more hours. Self-esteem did not show a significant relationship to the number of hours of work. The conclusion of the study suggests support for the part-time employment of students if the jobs are educationally significant for them, and particularly if those jobs lead to future employment opportunities. Additionally, Bachman and Schulenberg (1993) state that the best way to avoid students working long hours of part-time work is to "improve their interest in and commitment to school" (p. 233). The authors agree with previous research that the greater the number of hours spent on part-time employment by high school students, the greater the likelihood of them exhibiting detrimental behavioural issues.

Barton (1996) investigated historical information concerning the growth of adolescent employment opportunities, and additional research was conducted by Charner and Fraser (1984) from the National Institute for Work and Learning. These studies

concluded that part-time work can have a negative effect upon schoolwork and school achievement for students, especially when that work exceeds 20 hours per week. In 1992, 68% of high school seniors were working and half of those students were employed in the food service or retail sales industry. Barton suggests creating a comprehensive effort to improve school-to-work transition in the United States. He advocates “experienced-based education, emphasizing the experience over the work alone and stressing that it is part of education, not just job-skilled training” (p. 5). The goals he set for schools were for them to know: (1) which of their students are working, (2) which employers are hiring students or have hired students, and (3) the employment tasks asked of the students. Furthermore, employers should know how each student employee is doing at school in terms of academic achievements and successes. There would be collaboration and communication between these stakeholders to improve students’ skill sets whether at school or in the workplace. Additionally, the department of education, trade associations, skill standards boards, and the state departments of education and labour would collaborate towards helping students achieve the most out of the employment experience. Barton does suggest that these are broad goals and working toward them may take some time to develop. He also suggests that further research is required in implementing policies and legislation to benefit student employment without risking student achievement.

Canny (2002) studied the youth labour market in the United Kingdom. Her research supports an increase in part-time service sector employment of youth, particularly in retailing, catering, tourism, and consumer service industries. “Students are capturing a substantial proportion of employment which unqualified young people traditionally entered, particularly in retailing, catering and tourism” (p. 278). The author

had two perspectives, namely to analyse the growth and nature of student employment in the UK using data from the Labour Force Survey (LFS), and to explore qualitatively issues affecting the demand for student employment. The quantitative data were acquired from the LFS for the spring quarter of the years 1992 – 2000. The data specifically focused on young people aged 16 -19 years. The qualitative data focused on seven in-depth case studies of the retail grocery sector involving interviews of senior personnel and management. Youth employment increased by 4% to 53% throughout the years 1992 to 2000. Furthermore, male students capitalised on the sources of employment by being available for evening, twilight, and flexible part-time work. Supporting research sustains that engaging in employment is now a widely-held experience for students. “Indeed, one could argue that student employment now represents one of the most important paths in the transition from school to work in the UK” (Canny, 2002, p. 283). Twelve occupations accounted for 80% of the student employment in the UK, from sales assistants, waiter/waitress, to retail checkout operator occupations. Qualitatively, flexible employment provides opportunities for students and employers to hire a “cheap source of easily disposable flexible labour” (Canny, 2002, p. 289). Also indicated in the research is that low-skilled jobs can provide students with an opportunity in retail grocery management positions. Canny’s study includes relevant information about student employment in the UK. Students’ hours of work per week increased from 13 hours per week in 1992 to 16 hours per week in 2000. As supported by previous researchers such as Mortimer and Hobbs, the effect of long working hours diminishes educational performance and leisure activities but increases stress. The LFS suggests students are

working longer in the UK and there is a “significant degree of casualisation [*sic*] within student employment” (Canny, 2002, p. 297).

Chen and Lu (2009) investigated the time spent after school by grade 11 Taiwanese students on the following activities: homework, academic-enrichment programs, private (cram) schools, school-based extracurricular activities, watching TV, sports, extracurricular reading, Internet games, and part-time employment. The authors examined part-time employment in relation to both student educational achievement and psychological adjustment. Chen and Lu (2009) used a national survey of adolescents in Taiwan, similar to research work conducted in the United States by the National Educational Longitudinal Study in 1988. A clustered, multistage, and stratified sample of 10,347 Taiwanese students were given questionnaires in the survey. Part-time employment of Taiwanese students correlated with lower educational achievements, especially when students worked longer than 11 hours per week. Furthermore, 80.6% of the students reported not working at all, while the remainder reported working from 5 hours per week to more than 15 hours per week. The study indicated part-time employment “was not significantly correlated with later depression symptoms” (Chen and Lu, 2009, p. 900). The conclusion of the study suggests a negative effect when comparing part-time employment and educational achievement, but no effect on depression symptoms. Most Taiwanese students spent the majority of their time after school on homework and preparation for tests.

In expanding the understanding of high school students work behavior, Hannah and Baum (2002) studied the market-place work of high school seniors and their school achievements. More specifically, the authors observed the relationship between the

allowance given to students by parents and the students' hours of employment while attending regular high school. In addition, the research relates the effect of market-place work to academic success. The data were collected through a survey given to approximately 4,400 incoming freshman students at Middle Tennessee State University. Self-selected students who chose to go to college between the ages 17 to 19 answered questions based on individual characteristics, labor market behaviors, hours of work per week, school achievement, local economic conditions, and levels of parental support through allowances. The research results indicated that the hours of part-time work are significantly determined by the allowances given to students by their respective parents. Students who receive no allowance work 3.4 hours more than students who receive allowances of \$200 or more. The research also showed that for honors students, part time jobs have a negative effect on honor status when their hours of work are increased. Hannah and Baum used many factors to determine the effects of the relationships existing between allowance, work hours, and academic success of high school students. The recommendations by the authors suggest that the high school employment of students should be cautiously viewed and that the local economic conditions in the market-place drive both student behavior and academic success. Holloway (2003) summarized the National Centre for Education Statistics report conducted in 1997 which showed 30% of U.S. adolescents worked while attending school. Most employment held by students was irrelevant to what students learned in school and did not provide meaningful interactions with adult supervisors. Students who worked more than thirty hours per week showed significant absences from school and lower levels of educational achievement. Students who balanced school and work obtained valuable time management skills in their future

endeavors. Additional evidence that the number of hours worked is a variable worthy of consideration comes from research conducted by Singh in 1998 and Oettinger in 1999. The results from both studies suggest that increases in students' hours of work are negatively correlated with their standardized achievement levels.

Lee and Orazem (2010) used the United States National Longitudinal Survey for Youth (NLSY97) showing 75 percent of senior high school students worked at least one week during their school year. In particular, this study used cumulative work histories of students during their entire high school years to see the effects on dropouts, academics, and the probability of attending college. A theoretical model was laid out identifying a number of factors affecting cumulative work histories. These included parental background, school performance, student motivation, and income. The data gained from the NLSY97 consisted of 3,380 individuals born between 1980 and 1984. The analysis indicated a direct academic performance effect of employment during their high school years. This outcome is a diminutive but statistically significant result. Lee and Orazem imply a ten percent decrease in cumulative hours of work during high school would increase student achievement by a value of 0.02 or less. Furthermore, holding family background fixed, girls perform academically better than boys in high school. The authors concluded that working while attending high school does have a negative effect on students' school achievement. Employment increases their dropout rates and reduces their opportunities for college entry.

Lillydahl's (1990) investigation presents empirical data which suggest that two of the effects of employment during high school are little attention to school work and lowered academic achievement. However, the magnitude and intensity of adolescent

employment can benefit students by giving them greater responsibility, authority, and interdependence within the work world. Supporting literature suggests a negative relationship between working more than twenty hours weekly and grade point average. Lillydahl implies that past literature did not take into account student ability, work status, attendance, homework time, parents' occupations, or family composition as influential factors affecting student achievement when the consequences of their employment were investigated. A multi-equation regression model was used in analysing the data collected through the National Assessment of Economic Education Survey involving over three thousand high school students. The mean number of hours of employment during the week by sophomores was approximately fourteen hours and by seniors was twenty hours. The results of the study included the discovery of a "proxy" which was interpreted to mean that in addition to employment hours, other factors were actively affecting the academic achievements of students. Furthermore the number of students' employment hours has a significant impact on their academic success. "Not surprisingly, students who work in excess of fifteen to twenty hours per week are absent more often from school, spend less time on homework, and have lower GPA's" (Lillydahl, 1990, p. 315).

Lillydahl's research encourages further study of employment and student achievement by assessing longitudinal data and students' desire to attend college once high school is completed. Lillydahl also calls for an investigation of the student employment practices of businesses, possible changes in the criteria for high school graduation requirements, and the scrutiny of the government employment policies and labour laws for their implications for students.

Marsh and Kleitman (2005) completed a study that examines the academic achievement of high school students from a National Education Longitudinal Survey (NELS) conducted in 1988. The authors point out three main models of observation: (1) Subversion of traditional academic goals; (2) Character building; and (3) Threshold, meaning how much work is too much. This investigation evaluated “the effects of working during high school on a comprehensive set of academic and nonacademic outcomes collected during high school and two years after graduation from high school” (p. 339). The NELS data were obtained from a national sample of United States students who were in Grades 8, 10, 12, and two years following graduation. The sample size was 12,084 students who did not drop out or transfer out of school. The analysis consisted of multiple regressions involving linear, non-linear, and interaction terms. Ten background variables along with fifteen outcomes regarding employment were correlated. The results indicated a significant negative effect on 15 of 23 outcomes in their final year of high school. Furthermore, the threshold model suggested working small numbers of hours per week has benefits, while working large numbers of hours has negative effects that increase in proportion to the number of hours worked. Additionally, Marsh and Kleitman found “working during high school undermines commitment/identification in school and subverts traditional academic goals that are not consistent with the developmental/socialization or threshold model of the effects of working” (p. 357). Increased hours of work per week continue to be detrimental to student achievement based on this research. The authors’ examination of the longitudinal survey poised relevant concerns about part-time employment of high school students.



Quirk, Keith, and Quirk (2001) conducted a longitudinal study examining the relationship between student employment and academic performance for a nationwide sample of youth in the United States. Students were tracked as they progressed from Grade 8 to Grade 12. A structural equation model was used to analyze the effects of the National Education Longitudinal Study (NELS). The collection of data included self-administered questionnaires and academic tests. The model controlled the variables gender, ethnicity, family background, and previous achievement. The results showed a negative effect on high school grade point average (GPA). Students who worked more than 13 hours of work per week had a significant decline in academic performance. Interestingly, students who worked fewer than 13 hours per week had better GPAs than did the students who did not work.

Roisman (2002) researched a cross-sectional, nationally representative sample of high school students to study the penalizing effect of employment when attending school. More specifically, for students working more than 20 hours per week, he examined their perceptions of family closeness and its effects on school behaviors and academic achievement. The author hypothesized "that intense work would exact its greatest toll among adolescents who felt least connected to their family of origin" (p. 333). Roisman postulates a moderator model whereby intense work moderates the influence of family closeness on school achievements. Furthermore, he also suggests a mediational model, "whereby intense work furthers adolescents' independence from family which (negatively) impacts school engagement" (p. 334). In-school questionnaires were given to students in grades 9 to 12 through a National Longitudinal Study of Adolescent Health. The responses for approximately 3,161 students aged 14 to 18 were analyzed. The

variables identified by the researcher were school grades, school trouble, adolescent work duration, and family closeness. The results revealed that school grades and school trouble had significant correlations with adolescent work duration. Furthermore, girls with perceptions of low family closeness reported significant problem behaviors.

Statistics Canada (2004) summarizes the analysis of the longitudinal data collected by the Youth in Transition Survey (YITS) in the year 2000 and again in 2002. In May of 2000, 345,000 fifteen-year-old Canadian students were attending high school. Estimates reveal 9,000 of those students left high school by age seventeen in the year 2002 without receiving a high school diploma. The reasons for dropping out of school were categorized as school-related reasons, personal and family-related reasons, work-related reasons, and other reasons. Twenty percent of the students who dropped out stated that it was due to work-related reasons. Furthermore, specific indicators for dropouts include family background, ability, self-perception, aspirations, behavior, peers, engagement, school climate, and working while in school. Statistics Canada suggests students who worked a moderate number of hours per week (up to 19 hours), were least likely to drop out. Student drop-outs increase significantly for employment of 20 hours or more per week.

Steinberg, Fegley, and Dornbusch (1993) suggest research disagrees whether or not there is a negative correlation between adolescent employment and academic achievement. Some surveys have indicated two-thirds of high school juniors and seniors have had some type of part-time employment during the school year. Furthermore, over half of all employed U.S. high school seniors work more than 20 hours per week as indicated by research conducted by Bachman and Schulenberg in 1991. The authors'

research studies the longitudinal relationship between weekly hours of employment of students and previously found variables associated with long work hours. This relationship is referred to as *differential selection*. The relationships between school-year employment and five sets of behavioural and psychological outcomes were examined. The outcomes were school performance and engagement, problem behaviour, internalized distress, adolescent autonomy from parental control, and psychosocial development. The samples of students were from nine high schools in Wisconsin and northern California. A majority of the employment occurred in the service industry; for example restaurants and retail stores. Nine indexes of school performance and engagement were assessed by the researchers each year. Three measures were used for behaviour problems. Two indexes of internalized distress were adopted from an epidemiological studies depression scale, two indexes of autonomy from parents, and the respondents completed a self-reliance subscale from a psychosocial inventory. In relation to previous research stating 20 hours of work being a pivotal point for adolescent employment, the authors included three levels of work for their analyses. These were non-workers (students not employed), moderate workers (student employment between 1 to 20 hours), and intensive workers (students employed more than 20 hours per week). Analyses of variance for selection effects and socialization effects were completed. The results for student employment and autonomy from parents indicate the presence of pre-employment differences among adolescents. Non-employed students are more closely monitored by parents than are students who are employed. Steinberg, Fegley, and Dornbusch concluded that their research supports the conclusion that work of more than 20 hours per week by students leads to "deleterious consequences among adolescents" (p.

178). Students who enter the work force, especially teenagers who work more than 20 hours per week, are academically weak and show poor behaviour in school in comparison to their peers who do not work. Furthermore, working more than 20 hours weekly contributes to delinquency, substance abuse, insufficient time on homework, poor attendance, and negative attitudes toward school. Adolescents whose parents are permissive are more likely to work longer hours and consequently appear to be more self-reliant. The study provides correlation evidence that some of this differential selection prompts negative effects for adolescents who work more than 20 hours per week.

### **Summary of Literature Review**

A number of researchers from numerous countries have concluded both negative and positive effects of student achievement based on employment. The positive effects of employment on high school students indicate not only greater academic achievement but also better work habits, time management, increases in self-esteem, practical skills, dependability, and better peer relations just to name a few. The negative effects of employment among high school students indicate not only lower academic grades, but a number of other factors. The increased duration of employment of high school students affects their attendance at school, increases the likelihood of substance abuse, decreases their self esteem, decreases their hours of sleep, and increases poor behavior and aggression, among other factors. Supporters of both positive and negative effects of employments caution exceeding 15 - 20 hours per week of employment of high school students would have a negative impact on most of the social contexts of employment.

## **Chapter Three**

### **Research Design and Method**

This research involved comparing grade 10, 11, and 12 high school students' work experience hours and their respective marks in three core subject areas; namely, English, social studies, and mathematics. In the Alberta Education program of studies, "Work Experience 15-25-35 are separate courses for credit that provide experiential learning activities undertaken by a student as an integral part of a planned school program under the cooperative supervision of a teacher-coordinator" (Alberta Education, 2014). Work experience hours are submitted by students to the school to acquire credits for graduation. Furthermore, the Alberta Education program of studies states: "Work Experience 15-25-35 courses at each level, may be offered for 3, 4, 5, 6, 7, 8, 9, or 10 credits. Each course is time based; i.e., 25 hours per credit and students may enroll in Work Experience 35 without having completed Work Experience 15 and/or Work Experience 25" (Alberta Education, 2014).

#### **Procedure for Collecting Information**

The author gathered data from the 2009/2010 Spruce Grove Composite High (SGCH) student population of Parkland School Division #70 (PSD70). As the first step of the procedure, the author gained permission from PSD70's Superintendent's Office to acquire relevant information with regard to the study. (A copy of the permission letter is included as Appendix B). Data were gathered for all of the 2009/2010 students that acquired credits in work experience with the educational institution SGCH. Furthermore, for each student identified with work experience credits, his/her respective marks for the three core subject areas were also acquired. The author, an Assistant Principal of SGCH

was given permission to seek assistance from the school division's records clerk to acquire relevant information for the study. Due to the collection of confidential information related to students, the records clerk did not reveal the identities of the students. Instead, each student's record was assigned a unique number that replaced his or her name. For example, student 2 had ten credits in work experience and had an English mark of 78%, Social Studies mark of 82%, Mathematics mark of 77% and an overall average of 73.8%.

### **Procedure for Organizing Information**

The data collected were placed in a spreadsheet identified by column headers stating the student number, hours of work experience, credits earned, student marks in the core subject area, and overall average grade, see Table 1 for an example.

Table 1

Student Course Grade and Work Experience Hours

Student Number	Hours of Work Experience	Credits Earned	English Mark (%)	Social Studies Mark (%)	Mathematics Mark (%)	Overall Grade Average (%)
1	125	5	56.00	61.00	59.00	62.50
2	250	10	78.00	82.00	77.00	73.80
3	150	6	83.00	85.00	92.00	62.80

The transcription of the hours of work and achievement results was followed by the use of the Statistical Package for the Social Sciences (SPSS) data analysis program to evaluate the results of all measures. The author initially placed the results of the survey into a spreadsheet for coding purposes prior to employing the SPSS program for the analysis. The objective of the quantitative analysis was to compare the students' part-time

work hours and their assessment results from the core subject areas by means of a multi-variable regression analysis using the SPSS program.

### **Ethical Considerations and Confidentiality**

The collection of work experience hours and assessment results of all students in the research study will be the property of Parkland School Division #70 and the researcher. It is crucial for the researcher to have data that do not identify any student by name or circumstance. By having the student records personnel from the school division supply the researcher with anonymous but accurate numbers of work experience hours and academic achievement grades for the students, the researcher is confident that no ethical or confidential information requirements would be compromised. Once the project is reported, finalized, and approved by the University of Northern British Columbia and Parkland School Division #70, the spreadsheet data which includes work experience hours and the average marks of the students will be destroyed by means of file deletion and document shredding.

## Chapter Four

### Results

A multiple linear regression analysis was conducted using the SPSS data analysis program to determine the relationship between the students' work experience hours and their achievement in three academic courses, English, social studies, and mathematics. The first set of results describes the relationship between these variables for Grade 12 students.

#### Descriptive Statistics for Grade 12 Students' Data

The descriptive statistics for the dependent variable, work experience hours, and the three predictor variables; namely, English, social studies, and mathematics are presented in Table 2. The mean work experience hours score suggests that most Grade 12 students reported hours of work experience for credits ( $M = 373.44$ ,  $SD = 148.40$ ,  $n = 144$ ) during their 2009-2010 high school year. Their mean marks and standard deviations are as follows: English ( $M = 64.83$ ,  $SD = 9.84$ ,  $n = 131$ ), Social Studies ( $M = 67.57$ ,  $SD = 10.48$ ,  $n = 135$ ), and Mathematics ( $M = 69.76$ ,  $SD = 14.87$ ,  $n = 96$ ). Most students were enrolled in the three subjects. The skew and kurtosis for each of the variables was examined and there were some variations with regard to the Mathematics marks; however, the English and Social Studies marks were well within a tolerable range (assuming a normal distribution). The dependent variable, work experience hours, showed a skew of 0.36 ( $SE = 0.20$ ). The skew falls well within two standard errors of a standardized normal distribution and therefore is non-significant. The kurtosis of -0.42 ( $SE = 0.40$ ) for work experience hours showed similar results of non-significance.



Furthermore, the median of 375 hours was very close to the mean ( $M = 373.44$ ) of grade 12 student work experience hours.

Table 2  
Descriptive Statistics for Work Experience Hours and  
Academic Marks in Three Subject Areas for Grade 12 Students

		Work Experience Hours	English 12 Marks	Social 12 Marks	Mathematics 12 Marks
N	Valid	144	131	135	96
	Missing	0	13	9	48
Mean		373.44	64.83	67.57	69.76
Median		375.00	65.00	68.00	70.00
Mode		250.00	65.00 <sup>a</sup>	68.00	50.00
Std. Deviation		148.40	9.84	10.48	14.87
Skew		0.36	0.07	0.27	-0.75
Std. Error of Skew		0.20	0.21	0.21	0.25
Kurtosis		-0.42	0.04	-0.58	1.67
Std. Error of Kurtosis		0.40	0.42	0.41	0.49
Range		675	55	47	88
Minimum		75	35	47	10
Maximum		750	90	94	98

a. Multiple modes exist. The smallest value is shown.

The predictor variables; namely, the English and Social Studies scores, indicated a similar non-significant skew and kurtosis. English showed a skew of 0.07 ( $SE = 0.21$ ) and kurtosis of 0.04 ( $SE = 0.42$ ). Social studies showed a skew of 0.27 ( $SE = 0.21$ ) and kurtosis of -0.58 ( $SE = 0.41$ ). Both of the predictor variables fall well within  $\pm 1.96$  standard errors of 0, therefore they are not significant at  $\alpha = .05$ . The mathematics marks showed skew of -0.75 ( $SE = 0.25$ ) and kurtosis of 1.67 ( $SE = 0.49$ ). The Mathematics marks appeared not to be normally distributed,  $p < .05$ , indicating the error was

statistically significant, however the effect size was not practically significant. All three predictor variables, English median = 65,  $M = 64.83$ , Social Studies median = 68,  $M = 67.57$ , and Mathematics median = 70,  $M = 69.76$ , have a mean and median that are within one percent of each other. Similar to the work experience hours' results for the mean and median, all the predictor variables are distributed normally. For the purpose of linear regression analysis, the criterion variable, work experience hours, is also distributed normally.

A histogram for the criterion variable, the Grade 12 work experience hours, was also examined and showed a normal distribution, see Figure 1. It can be seen that the

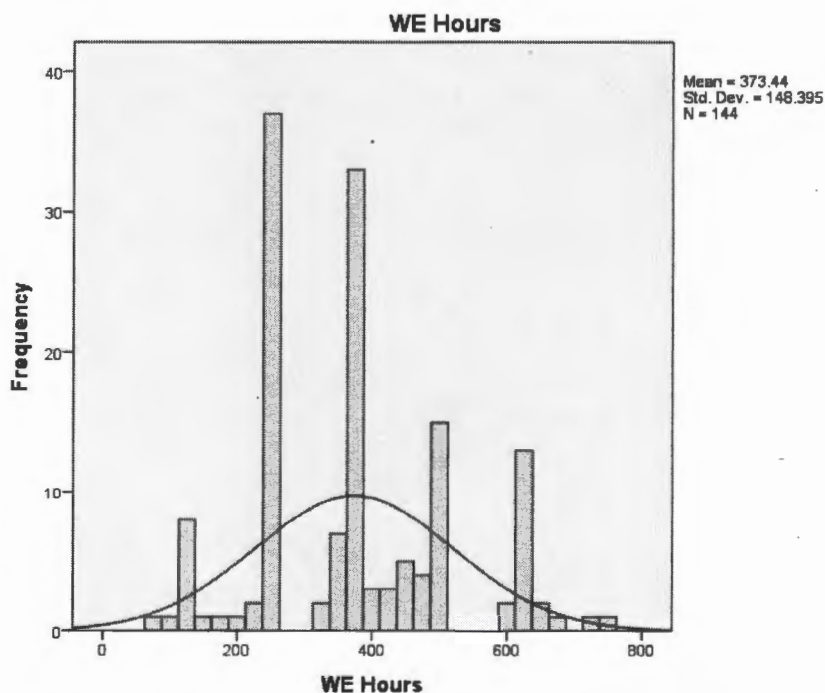


Figure 1. Histogram for work experience hours for Grade 12 students.

dependent variable, work experience hours, distributed into three groups with approximate means of 200, 400, and 600 and an overall mean of 373.44 hours.

Furthermore, the peaks and gaps of the distribution may have indicated the work experience hours were reported in intervals of 5 credits, meaning 250 hours was equivalent to 10 credits (frequency showing above 35 students), 375 hours was equivalent to 15 credits (frequency above 30 students), 500 hours was equivalent to 20 credits (frequency at 15 students). With a large standard deviation of 148.40 hours, it can also be seen that there were significant variations from the mean. Overall the histogram indicated normally distributed data for work experience hours, the dependent variable.

### **Grade 12 Relationship between Work Experience Hours and Numerical Grades**

A multiple regression analysis was conducted to compare work experience hours of Grade 12 students and their respective English, Social Studies and Mathematics marks. The descriptive analysis is presented in Table 3. When using the SPSS software for the investigation of the regression variables, the researcher choose to include only those participants who have marks for all four subjects.

The output resulted in  $n = 84$  participants. When comparing each of the regression analyses to each of the descriptive statistics variables, all of the variables exhibited similar respective characteristics to the regression; meaning work experience hours ( $M = 373.44$ ,  $SD = 148.40$ ,  $n = 144$ ) has similar mean and standard deviation values to those for the regression analysis for work experience hours ( $M = 378.57$ ,  $SD = 152.74$ ,  $n = 84$ ). The Grade 12 English, Social Studies, and Mathematics marks also displayed comparable values. Specifically, the values of the descriptive analysis for English 12 marks ( $M = 64.83$ ,  $SD = 9.84$ ,  $n = 131$ ) are similar to those for the regression analysis for English 12 marks ( $M = 66.13$ ,  $SD = 9.50$ ,  $n = 84$ ); the descriptive analysis values for Social Studies 12 marks ( $M = 67.57$ ,  $SD = 10.48$ ,  $n = 135$ ) are similar to those for the regression analysis

of Social Studies 12 marks ( $M = 69.15$ ,  $SD = 10.76$ ,  $n = 84$ ); and the descriptive analysis for mathematics 12 marks ( $M = 69.76$ ,  $SD = 14.87$ ,  $n = 96$ ) are similar to those for the regression analysis for Mathematics 12 marks ( $M = 69.99$ ,  $SD = 13.48$ ,  $n = 84$ ). This further signified that the distributions of the variables were normal. A majority of the Grade 12 students had work experience hours and took English, social studies, and mathematics courses.

Table 3

Descriptive Statistics for Regression Analysis of Work Experience Hours and Academic Marks of Three High School Courses for Grade 12 Students

Variable	Mean	Standard Deviation
Work Experience Hours	378.57	152.74
English 12 Marks	66.13	9.50
Social 12 Marks	69.15	10.76
Mathematics 12 Marks	69.99	13.48

$n = 84$

The correlation between each pair of variables is shown below in Table 4. The predictor variables have higher correlations with each other than the criterion variable has with each of the predictor variables.

Table 4

Pearson Correlations between Work Experience (WE) Hours, English Marks, Social Marks, and Mathematics Marks for Grade 12 Students

	WE Hours	English 12 Marks	Social 12 Marks	Math 12 Marks
WE Hours	1.00	.07	.04	.05
English 12 Marks		1.00	.62*	.54*
Social 12 Marks			1.00	.47*

$n = 84$  \*  $p < .005$

The researcher chose to enter all predictor variables simultaneously. When comparing the correlations between the criterion variable (WE Hours) and each of the predictor variables (English, Social Studies, and Mathematics), it can be observed that the respective coefficients of .07, .04, and .05 indicated correlation values of almost zero. This further indicated that a significant relationship between work experience hours and each of the independent variables does not exist.

Table 5 presents the analysis of variance (ANOVA) of the regression model for Grade 12 students. The Analysis of Variance for the regression model indicated an F-value of 0.14. The critical value was based on the F-test value,  $F(3, 80) = 2.72$ ,  $p = .94$  which indicated there was no statistically significant relationship between the variables.

Table 5  
Grade 12 Analysis of Variance for the Regression Model

Model	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Regression	10159.01	3	3386.37	0.14	.94
Residual	1926269.48	80	24078.37		
Total	1936428.57	83			

$n = 84$ ,  $F = F\text{-test value}$ ,  $p = \text{probability value}$

The analysis of the sample data collected supported the null hypothesis. Clearly, the results of this analysis provided no evidence of a significant relationship between Work Experience Hours and any of the results for the English, Social Studies or Mathematics courses.

A summary of this regression analysis is presented in Table 6 below.

Table 6  
Grade 12 Multiple Regression Summaries

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	SEE
1	0.07	0.01	-0.03	155.17

*R* = Regression, *Adj.* = Adjusted, *SEE* = Standard Error of the Estimate

The multiple R-value for the predictor variables was .07. The R<sup>2</sup> value of .01 was derived from the ANOVA (Table 5) by dividing the sum of the squares of the regression by the sum of the squares of the total. The value was rounded to two decimal places. The Adjusted R<sup>2</sup> of -.03 was based upon the sample size and the number of regressors. The multiple R-value of .07, the R<sup>2</sup> value of 0.01, and the adjusted R<sup>2</sup> value of -0.03 indicated no practically significant relationship. Furthermore, with an R<sup>2</sup> value of 0.01, zero percent of the variance in the Work Hours was explained by the three sets of subject marks. Once again the ANOVA summary indicated absolutely no statistically significant relationship for the combination of predictor variables with the criterion. This is not unexpected given the lack of a significant correlation between the criterion variable and its predictors. The researcher continued a further analysis of the predictor values. Table 7 summarizes the analysis of the coefficients in terms of multicollinearity. The t-test values 0.43, -0.07, 0.16 with p values of .67, .94, .87 for the English, Social Studies and Mathematics marks respectively indicated no statistical or practical significance. The t-values are significantly less than 2 for each of the predictor variables. Because there is no evidence of a relationship between Work Hours and the marks in any of the three courses,



English, Social Studies, and Mathematics, the remainder of this analysis is an examination of the data and the assumptions of linear regression in order to rule out the lack of a significant relationship being due to problems with the regression analysis.

Table 7  
Grade 12 Model Summary for the Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	p
	$\beta$	Std. Error	Beta		
1	(Constant)	302.64	129.85	2.33	.02
	English Marks	1.04	2.44	.07	.67
	Social Marks	-0.15	2.06	-.01	.94
	Math Marks	0.25	1.53	.02	.87

$\beta$  = estimated coefficients of independent variables,  $t$  = t-value,  $p$  = probability value

The normality of the predictor variable, Work Hours, has already been examined; the distribution is normal and within both statistical and practical definitions.

When examining the independent variables, the three subject marks, English, Social Studies, and Mathematics indicated some noteworthy degrees of correlation. Specifically, English and Social Studies had a correlation of .62, English and Mathematics had a correlation of .54, and Social Studies and Mathematics had a correlation of .47. Even though a positive correlation existed for each subject, the correlation values were weak. Furthermore, the collinearity variance inflation factor (VIF) for English (1.86), Social Studies (1.70), and Mathematics (1.47) suggest no multicollinearity. In short, this is not a source of an inability to find a statistically

significant relationship between the criterion variable and any of the predictor variables (course marks).

The analysis of the residual statistics of the dependent variable showed a mean residual of zero. The standard predicted value and the standard residual also showed a mean of zero. Figure 2 indicates the standardized residual statistics for work experience hours.

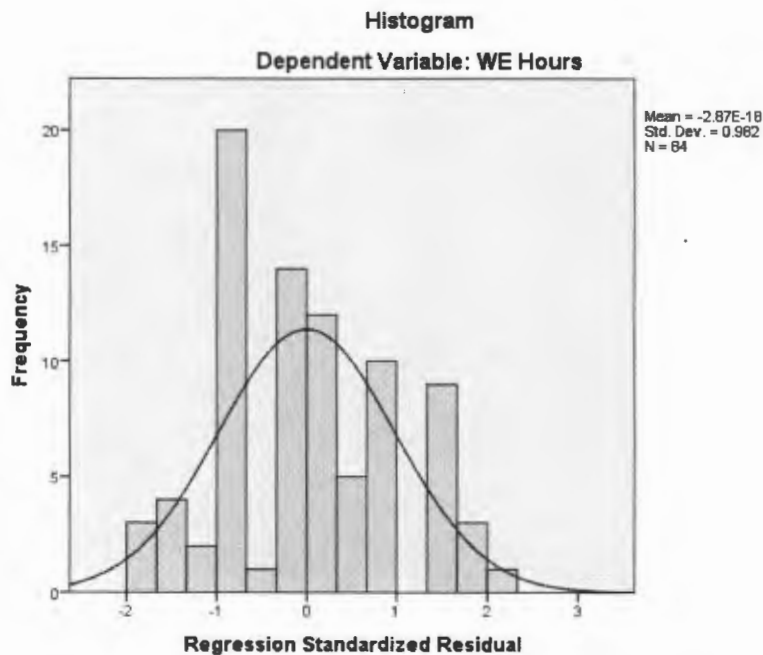


Figure 2. Normally distributed standardized residual of regression for Grade 12 WE hours.

The histogram suggests a normal distribution of the residuals for the dependent variable. A second graphical approach to check for the standard normal distribution was also conducted. A normal Probability – Probability (P-P) plot of the regression standardized residual indicated a normal distribution of the variables with non-significant deviation. Figure 3 indicates the (P-P) plot.



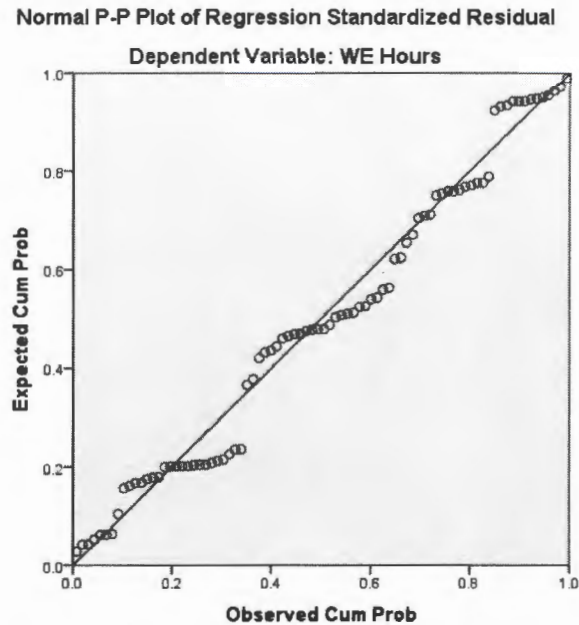


Figure 3. A normal probability plot of the residuals for Grade 12 WE hours.

### **Descriptive Statistics for Grade 11 Student Data**

The descriptive statistics for the dependent variable of Work Experience Hours and three predictor variables, namely English, Social Studies, and Mathematics are presented in Table 8. The mean Work Experience Hours score suggests that most Grade 11 students reported hours of work experience for credits ( $M = 400.51$ ,  $SD = 165.40$ ,  $n = 98$ ) during their 2009-2010 high school year. Their mean marks and standard deviations are as follows: English ( $M = 70.64$ ,  $SD = 9.45$ ,  $n = 95$ ), Social Studies ( $M = 70.73$ ,  $SD = 9.91$ ,  $n = 97$ ), and Mathematics ( $M = 71.86$ ,  $SD = 14.58$ ,  $n = 93$ ). Most students were enrolled in the three subjects. The skew and kurtosis for each of the variables were reviewed and there were some negligible variations for the work experience, Social Studies and Mathematics marks; however, the English marks suggest a stronger normal distribution compared to the other three. The dependent variable, Work Experience Hours, showed a skew of 0.49 ( $SE = 0.24$ ). This skew value falls just outside of two standard errors of a

standardized normal distribution and represents a non-significant skew of the distribution. The negative kurtosis value -1.04 ( $SE = 0.48$ ) also suggests a non-significant kurtosis of the distribution. Additionally, the similarity of the values for the Grade 11 work experience median ( $Mdn = 375$ ) and mean ( $M = 400.51$ ) also indicates the distribution is normal and its skew and kurtosis are non-significant. The predictor variables for grade 11 data, namely English 11, Social Studies 11, and Mathematics 11, indicated some skew and kurtosis. These values for English were -0.97 ( $SE = 0.25$ ) and 1.71 ( $SE = 0.49$ ) respectively and of negligible significance. The median ( $Mdn = 71$ ) was almost equal to the mean ( $M = 70.64$ ).

Table 8  
Descriptive Statistics for Work Experience Hours and  
Academic Marks in Three Subject Areas for Grade 11 Students

		Work Experience Hours	English 11 Marks	Social 11 Marks	Mathematics 11 Marks
N	Valid	98	95	97	93
	Missing	0	3	1	5
Mean		400.51	70.64	70.73	71.86
Median		375.00	71.00	71.00	72.00
Std. Deviation		165.40	9.45	9.91	14.58
Skew		0.49	-0.97	-0.81	-0.43
Std. Error of Skew		0.24	0.25	0.25	0.25
Kurtosis		-1.04	1.71	1.90	-0.02
Std. Error of Kurtosis		0.48	0.49	0.49	0.50
Minimum		125	33	31	30
Maximum		750	88	90	97

This similarity provided additional evidence that the English marks were normally distributed. Similarly, the Social Studies 11 marks revealed a skew of -0.81 ( $SE = 0.25$ ) and kurtosis of 1.90 ( $SE = 0.49$ ). Both values are just greater than  $\pm 1.96$  standard errors. However the median ( $Mdn = 71$ ) is almost equal to the mean ( $M = 70.73$ ), which further supports the conclusion that the social studies scores are normally distributed.

The Mathematics marks revealed a pattern similar to those of the English and Social Studies marks. A skew of -0.43 ( $SE = 0.25$ ) and kurtosis of -0.02 ( $SE = 0.50$ ) for the Mathematics marks indicated non-significant variations of the distribution as it falls within two standard errors of a normal distribution. Furthermore the median Mathematics mark ( $Mdn = 72$ ) is almost equal to the mean ( $M = 71.86$ ). This would additionally suggest a normal distribution of the Mathematics scores. A histogram for the criterion variable, the Grade 11 work experience hours, is presented in Figure 4.

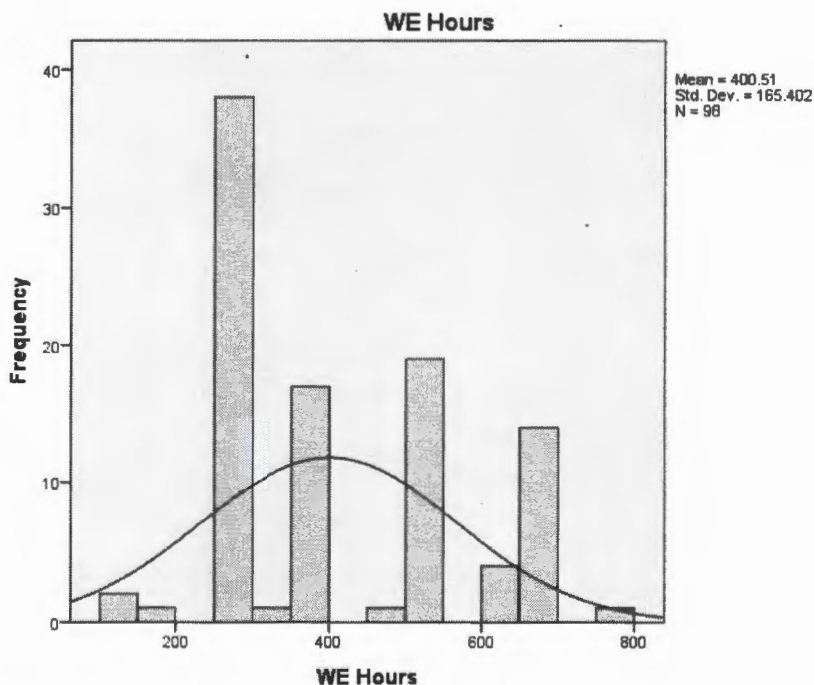


Figure 4. Histogram of work experience hours for Grade 11 students.

In the figure it can be seen that the dependent variable, work experience hours, is distributed into five groups with a dominant mean group existing approximately between 250 to 400 hours. An exceptionally large number of almost 40 students completed 300 work experience hours. With a large standard deviation of 165.40 hours showing significant variation from the mean, the histogram appears to be positively skewed. The graph also appears to exhibit low kurtosis. However, overall the histogram of the work experience hours fits a normal distribution.

### **Grade 11 Relationship between Work Experience Hours and Numerical Grades**

A multiple regression analysis was conducted to compare work experience hours of Grade 11 students and their respective English, Social Studies and Mathematics marks. The descriptive results of this analysis are presented in Table 9.

Table 9

Descriptive Statistics for Regression Analysis of Work Experience Hours and Academic Marks of Three High School Courses for Grade 11 Students

Variable	Mean	Standard Deviation
Work Experience Hours	409.55	164.48
English 11 Marks	70.49	9.62
Social 11 Marks	70.87	10.06
Mathematics 11 Marks	72.27	14.70
<i>n</i> = 89		

When comparing each of the regression analysis results to each of the descriptive statistics variables, all of the variables exhibited similar respective characteristics.

Specifically, the mean ( $M = 400.51$ ), standard deviation ( $SD = 165.40$ ) and number ( $n = 98$ ) results of the descriptive analysis for the students' Grade 11 work experience hours are similar to the mean ( $M = 409.55$ ), standard deviation ( $SD = 164.48$ ), and number ( $n = 89$ ) values for the regression analysis of their work experience hours. The Grade 11 English, Social Studies, and Mathematics marks also displayed comparable numbers for both their descriptive and regression analyses. Specifically, the descriptive values of the Grade 11 marks for English ( $M = 70.64$ ,  $SD = 9.45$ ,  $n = 95$ ), Social Studies ( $M = 70.73$ ,  $SD = 9.91$ ,  $n = 97$ ), and Mathematics ( $M = 71.86$ ,  $SD = 14.58$ ,  $n = 93$ ) were respectively similar to those for the regression analysis for the English ( $M = 70.49$ ,  $SD = 9.62$ ,  $n = 89$ ), Social Studies ( $M = 70.87$ ,  $SD = 10.06$ ,  $n = 89$ ), and Mathematics ( $M = 72.27$ ,  $SD = 14.70$ ,  $n = 89$ ). This further signified that the distributions of the variables were normal. A majority of the Grade 11 students had work experience hours and took English, social studies, and mathematics courses.

The correlation between each pair of variables is presented in Table 10. Similar to the Grade 12 correlation results, the Grade 11 predictor variables have a stronger correlation between each other than they do with the dependent variable. The researcher chose to enter all the predictor variables simultaneously. When comparing the correlations between the criterion variable (WE Hours) and each of the predictor variables, English 11, Social Studies 11, and Mathematics 11, it can be seen that the respective coefficients of .11, -.12, and .05 respectively indicated correlation values that are close to zero. These also indicate that the relationships between work experience hours and each of the independent variables are not statistically significant.

Table 10

Pearson Correlations between Work Experience (WE) Hours and English, Social Studies, and Mathematics Marks for Grade 11 Students

	WE Hours	English 11 Marks	Social 11 Marks	Math 11 Marks
WE Hours	1.00	.11	-.12	.05
English 11 Marks		1.00	.61*	.52*
Social 11 Marks			1.00	.51*

$n = 89$  \*  $p < .005$

Table 11 presents the results of the analysis of variance (ANOVA) for the regression model. The Analysis of Variance table for the regression model indicated an F-value of 1.99. The critical value was based on the F-test table,  $F(3, 85)$  and was equal to 2.71.

Table 11

Grade 11 Analysis of Variance for the Regression Model

Model	Sum of Squares	Degrees of Freedom	Mean Square	F	p
Regression	156282.10	3	52094.03	1.99	.12
Residual	2224349.92	85	26168.82		
Total	2380632.02	88			

$n = 89$ ,  $F$  = F-test value,  $p$  = probability value for statistical significance

Its probability value was .12 which indicated there was no statistically significant relationship between the variables. The analysis of the sample data collected retained the null hypothesis. Clearly, this result indicated there was no evidence of a statistically significant relationship between Work Experience Hours for Grade 11 students and any combination of Grade 11 subject marks. Further to the lack of significance in the data set,



a regression summary table was examined. The results of that analysis are presented in Table 12.

Table 12  
Grade 11 Multiple Regression Summaries

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	SEE
1	.26	.07	.03	161.77

*R* = Regression, *Adj.* = Adjusted, *SEE* = Standard Error of the Estimate

The multiple R value for the predictor variables was .26. The R<sup>2</sup> value of .07 was derived from the ANOVA (Table 11) by dividing the sum of the squares of the regression by the sum of the squares of the total. The value was rounded to two decimal places. The adjusted R<sup>2</sup> of .03 was based upon the sample size and the number of regressors. The multiple R value of 0.26, the R<sup>2</sup> value of .07, and the adjusted R<sup>2</sup> value of .03 suggest approximately zero percent correlation between the predictor variables and the dependent variable. Furthermore, with an R<sup>2</sup> value of .07, zero percent of the variance in the Work Hours was explained by the three sets of subject marks for Grade 11 students. Once again the ANOVA summary indicated absolutely no significant relationship for the correlations.

In addition to the relationship between separate subjects' sets of marks and their Work Hours being examined for the Grade 11 data set, Table 13 indicates the analysis of the coefficients in terms of multicollinearity. The t-values 1.82 and 0.58 with probabilities of .07 and .56 for the English 11 and Mathematics 11 marks respectively indicated no statistical or practical significance.

Table 13

## Grade 11 Model Summary for the Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	p
		$\beta$	Std. Error	Beta		
1	(Constant)	400.53	139.53		2.87	.01
	English 11 Marks	4.32	2.38	0.25	1.82	.07
	Social 11 Marks	-5.02	2.25	-0.31	-2.23	.03
	Math 11 Marks	0.84	1.43	0.08	0.58	.56

$\beta$  = estimated coefficients of independent variables,  $t$  =  $t$ -value,  $p$  = probability value

In contrast, the  $t$ -value of -2.23 and its  $p$ -value of .03 for the Social Studies marks indicate significance. However the  $p$ -value of .03 for the Social Studies marks indicate a marginal significance compared to the more conservative  $\alpha$  level of .01. Additionally, the significance occurred for one of the three subjects and further only one of the three grade levels evaluated in the study.

There is no evidence of a relationship between Grade 11 student Work Hours and their marks in any or all of the three courses, English, social studies, and mathematics, the remainder of the analysis for these students was an examination of the linear regression assumptions. This was conducted in order to rule out the lack of significant relationship being due to problems with the regression analysis.

The students' grades for the three subjects, English 11, Social Studies 11, and Mathematics 11 were positively correlated. The grades for English and Social Studies had a correlation of .61, English and Mathematics had a correlation of .52, and Social Studies and Mathematics had a correlation of .51. The correlations between the marks of



the three subject areas are positive and moderately significant. Even though a correlation existed, the resultant correlations of the predictor variables had no significant effect upon the criterion variable being tested in the regression analysis. An examination of the collinearity variance inflation factor (VIF) for English (1.76), Social Studies (1.73), and Mathematics (1.49) revealed no evidence of multicollinearity creating an inability to find statistically significant relationships between any of the predictors (Grade 11 course marks) and the criterion variable.

The analysis of the residual statistics of the dependent variable showed a mean residual of zero. The standard predicted value and the standard residual also showed a mean of zero. Figure 5 below presents the residual statistics for work experience hours for the Grade 11 students. The histogram suggests a normal distribution of the residuals for the dependent variable.

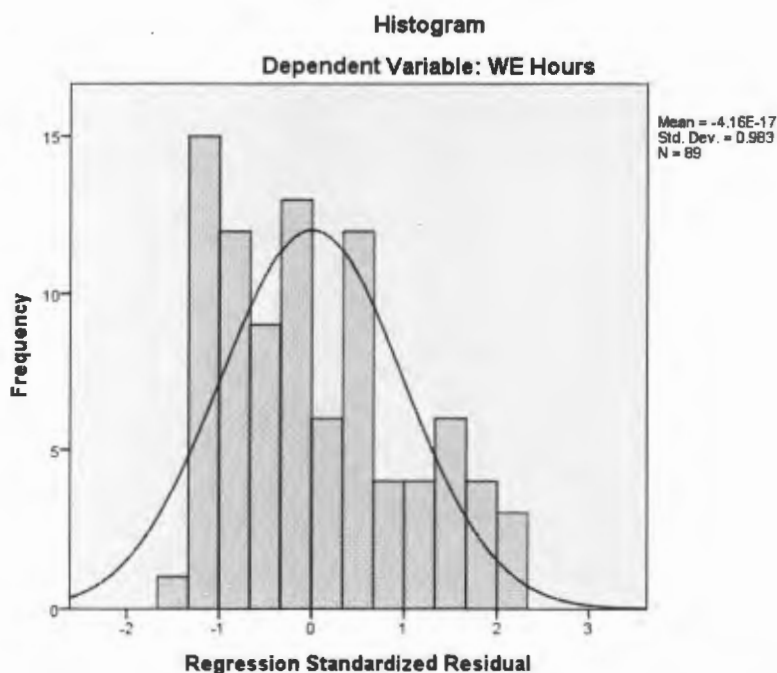


Figure 5. Normally distributed standardized residual of regression for Grade 11 WE hours.

A second graphical analysis to check for the presence of a standard normal distribution was also conducted. The results of this analysis are presented in Figure 6.

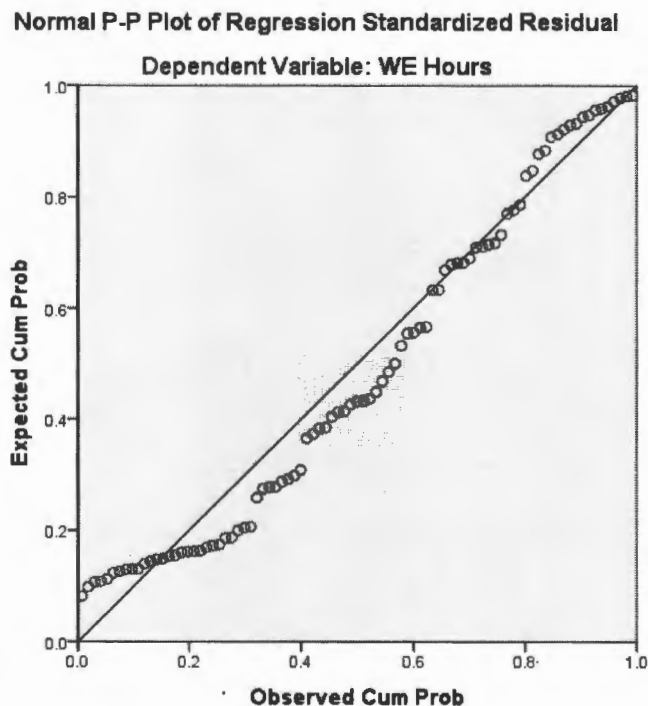


Figure 6. A normal probability plot of the residuals for Grade 11 WE hours.

A normal P-P Plot of the regression standardized residual indicated a normal distribution of the variables with a slight and non-significant deviation.

### **Descriptive Statistics for Grade 10 Data**

The descriptive statistics for the dependent variable, Work Experience Hours, and three predictor variables, namely English 10, Social Studies 10 and Mathematics 10 are presented in Table 14. The mean work experience hours results suggest that during their 2009-2010 high school year all Grade 10 students reported hours of work experience for diploma credit ( $M = 250.00$ ,  $SD = 0.00$ ,  $n = 23$ ). Their marks for English ( $M = 66.74$ ,  $SD$

= 9.66,  $n = 23$ ), Social Studies ( $M = 70.87$ ,  $SD = 9.09$ ,  $n = 23$ ), and Mathematics ( $M = 75.83$ ,  $SD = 12.13$ ,  $n = 23$ ) indicated that all of the students were enrolled in the three subjects. The skew and kurtosis for each of the variables were scanned and there were some variations with regard to the English, Social Studies and Mathematics marks; however, the work experience hours suggest a constant value. The 250 work experience hours clearly showed a uniform distribution. The criterion variable for Grade 10 students (Work Experience Hours) cannot be analyzed. No correlation or regression can be determined due to the fact that the work experience hours have no variability in the data set; hence, they are a constant.

Table 14

Descriptive Statistics for Work Experience Hours and Academic Marks in Three Subject Areas for Grade 10 Students

		Work Experience Hours	English 10 Marks	Social Studies 10 Marks	Mathematics 10 Marks
N	Valid	23	23	23	23
	Missing	0	0	0	0
Mean		250.00	66.74	70.87	75.83
Median		250.00	70.00	70.00	78.00
Std. Deviation		0.000	9.66	9.09	12.13
Skew			-0.55	0.29	-0.42
Std. Error of Skew		0.48	0.48	0.48	0.48
Kurtosis			-0.24	-1.07	-0.84
Std. Error of Kurtosis		0.94	0.94	0.94	0.94
Minimum		250	45	57	50
Maximum		250	80	86	92

The frequency of the work experience hours showed a uniform distribution of 250 hours of work by grade 10 students. It can be seen that the dependent variable Work Experience

Hours is not distributed normally. With a mean of 250 hours and standard deviation of 0, the histogram suggests an invariant allotment for the 23 sample items; therefore, it is not a normal distribution.

### **Summary of Results**

The results of the data analysis for the Grade 12 and Grade 11 data set showed absolutely no relationship between the criterion variable, Work Experience Hours, and its predictor variables, namely English, social studies, and mathematics marks. The Grade 12 analysis indicated non-significant correlations for work experience hours and each of the predictor variables, English 12 (0.07), Social Studies 12 (0.04), and Mathematics 12 (0.05). The regression model for Grade 12 indicated  $F(3, 80) = 2.72, p = .94$ , with the Adjusted  $R$  square = -0.03. The Grade 11 analysis also indicated non-significant correlations for work experience hours and each of the predictor variables, English 11 (0.11), Social Studies 11 (-0.12), and Mathematics 11 (0.05). The regression model for grade 11 data indicated  $F(3, 85) = 2.71, p = .12$ , with an Adjusted  $R$  square = 0.03. A rigorous analysis to determine the distribution of each of the variables suggested that all of them were normally distributed. Despite the fact that there was no relationship between the sets of marks for separate subjects and their corresponding version of the criterion variable, work experience hours, t-tests of the significance of both distributions' multicollinearity were conducted and neither revealed any statistical or practical significance. Residual statistics for the dependent variable also indicated a mean of zero and support for the conclusion that both sets of Work Experience Hours were normally distributed. There was no effect for each of the overall tests conducted and no significance indicated. The Grade 10 data

set could not be analyzed for this effect due to the fact the criterion variable was a constant.

## Chapter Five

### Discussion

The impact of part-time employment on adolescents' academic achievement continues to remain unclear. Numerous factors account for the effect of student achievement in high school. The author hypothesized that part-time employment among high school students at Spruce Grove Composite High would have a negative effect on their academic achievement. More specifically, the hours of work reported by students to gain credits for a high school diploma would have a negative impact on the students' English, social studies, and mathematics marks. Furthermore, the author hypothesized the duration of the number of hours of work reported would increase the magnitude of that negative effect on their academic marks.

A quantitative investigation by means of a multi-variable regression analysis for each grade level, namely Grade 12 ( $n = 84$ ,  $R^2 = 0.01$ ,  $p = .94$ ), Grade 11 ( $n = 89$ ,  $R^2 = 0.07$ ,  $p = .12$ ), and Grade 10 ( $n = 23$ , *independent variable constant*), exhibited no significant correlations among the dependent variables (English, Social Studies, and Mathematics marks) and the independent variable, Work Experience Hours. The results of the research analysis did not support the author's hypotheses that this relationship would be significantly negative and that it would increase in relation to the number of hours worked.

The method of data collection is unique to the study. The author chose to use the 2009/2010 student record information related to work experience hours submitted to gain credits for high school diplomas. Alberta Education permits students to use work experience hours as partial credits toward achieving their high school diplomas. Alberta

Education's program of studies for high school states: "Work Experience 15–25–35 courses, at each level, may be offered for 3, 4, 5, 6, 7, 8, 9 or 10 credits. Each course is time based; i.e., 25 [work] hours per [one] credit..." (Alberta Education, Senior High, WE, p. 1). In doing so, students in grades 10, 11, and 12 in the province of Alberta, bring forth part-time hours of work completed to the school in order to gain credits. Previous studies such as Monahan, Lee, and Steinberg (2011) reanalyzed the data from Steinberg, et al. (1993) using the method of propensity scores such as demographic factors (age, gender, ethnicity, parental education, family structure) and 17 outcome measurements. Dumont, Leclerc, and McKinnon (2009) conducted a longitudinal study based on standardized questionnaires addressing the academic and psychosocial adaptation of four different groups of workers. While there are numerous studies suggesting positive and negative effects of high school part-time employment and student achievement, a number of researchers have concluded there are no significant effects. According to Zierold and colleagues (2005) "there have been mixed reports on the effects of part-time work on high school students, with some researchers concluding that work is good (or bad) for students, that it makes no difference, or has complex effects on academic performance and behavior" (p. 3). Rothstein's (2007) investigation of previous and current research noted: "Despite different methodologies and data sets, for the most part this prior research points to no or a small negative impact of youth employment on academic achievement. The empirical results from this paper suggest this as well" (p. 210). Furthermore, Chanyoung and Orazem (2010) state: "when using instruments to correct for the endogeneity [the results are] consistent with Rothstein's findings, more intensive employment experiences while attending high school have a small, negative and

statistically insignificant effect on high school GPA” (p. 30). Patton and Smith (2009) summarized the Vickers et al. (2003) research of adolescent employment and achievement as follows: “The nature and extent of the impact of part-time work on young people’s educational attainment is difficult to establish, and data from a range of studies is inconsistent” (p. 219). Additionally, Patton and Smith (2009) paraphrased Rothstein’s conclusion as: “In sum, the net effect is not clear, and certainly difficult to ascertain” (p. 219). The author’s research of grade 10, 11, and 12 work experience hours for credits and their respective academic achievements in English, social studies and mathematics revealed no significant effects. An effective analysis of the criterion and predictor variables did not support the author’s hypothesis.

### **Limitations and Delimitations**

The scope of this research project involves the collection of data related to the 2009-2010 Parkland School Division #70 high school student population. More specifically, the data are limited to grades 10-12 students at Spruce Grove Composite High School. The gender of the students was not known to the researcher. Furthermore the data collected by the student records clerk reveals only the number of hours submitted for work experience credits to Alberta Education for each student. Since the data collected includes only the work experience hours submitted by students for credit purposes, the study does not include students with no work experience hours. Student assessment results for the core subject areas were also collected for each student by the records clerk and reported anonymously to the researcher.



## **Chapter Six**

### **Conclusions and Recommendations**

This study set out to explore adolescent part-time work hours and the effect they had on student academic achievement. Many research studies support Western countries' practice of employing high school adolescents in part-time jobs. Spruce Grove Composite High students in the school year 2009/2010 indicated their work experience hours for credits did not have any effect on their students' respective English, social studies, and mathematics marks. Furthermore, the duration of the work experience hours also did not produce any significant detriments for any of the grade 10, 11, and 12 students' academic achievement. Through a rigorous and thorough examination of the variables, the author concluded there was absolutely no significant effect. This research will be shared with the Superintendent's Office of Parkland School Division #70, and further with permission to the respective high school. While this research showed no significant effect of work experience hours for the students' academic achievement, the author recommends a more thorough investigation for future studies. Similar to other research studies, some important additional variables to consider would include socio-economic factors, gender, family unit, race, and extracurricular activities. Due to the fact that students in Alberta can gain credits for work experience hours, future research can also be conducted using provincial data for all high school students thorough a longitudinal study.

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## Appendix A

### Letter Requesting Data Information

Mr. Tim Monds  
Superintendent of Schools  
Parkland School Division #70

Dear Mr. Monds:

My name is Anil Padayas and I am a graduate student in the Master of Education in the Multidisciplinary Leadership program at the University of Northern British Columbia and Grand Prairie Regional College. I am also an employee with our school division and currently assigned to Spruce Grove Composite High School. The purpose of this letter is to request permission to approach the student records clerk to obtain data with respect to student work experience hours and their respective academic achievement in our school division.

My project is intended to understand how the intensity of part-time employment by high school students affects their respective achievements in school. I specifically wish to gain statistical information of students in both high schools within Parkland School Division by means of historical data from the school year 2009/2010. Because this study intends to gain confidential information of student achievement in a school year, I would ask that the student records clerk only identify students by numbers and not by names. The completion of this research will partially fulfill the requirements for my Masters of Educational Studies degree from UNBC and GPRC.

The plan for this study will be reviewed for its adherence to ethical guidelines and approved by the Research Ethics Board at the University of Northern British Columbia. If any concerns, complaints, or questions arise from your participation, please contact me, Anil Padayas by phone (780-975-7162) or by email ([apadayas@psd70.ab.ca](mailto:apadayas@psd70.ab.ca)), or you can contact my Supervisor, Dr. Bryan Hartman, at [hartman@unbc.ca](mailto:hartman@unbc.ca) or (250) 960-6647. If you wish to register a complaint related to this request or your participation, you should contact UNBC's Office of Research at ([reb@unbc.ca](mailto:reb@unbc.ca) or 250.960.5650).

If you approve, I will be contacting the student records clerk within the school division to gain the data required. Thank you for your consideration.

Sincerely,

Anil Padayas  
Graduate student in the MEd Program  
Faculty of Education  
University of Northern British Columbia and Grande Prairie Regional College  
Phone 780-975-7162  
[apadayas@psd70.ab.ca](mailto:apadayas@psd70.ab.ca)

## Appendix B

### Letter of Approval from School District



Excellence In Education

28 June 2011

Mr. Anil Padayaz  
Assistant Principal  
Spruce Grove Composite High School

Dear Mr. Padayaz, *Anil*

**Re: Masters Research**

I hereby grant you permission to access an existing database of Parkland School Division No. 70 for information regarding high school students' work experience hours and their respective high school marks for the school year 2009-2010.

Furthermore, to protect the anonymity of all students involved in the collection of information, an intermediary person (namely the two high school's student records clerks) would collect the information for the research. In doing so, the students would not be identified by name and the information would be forwarded to you.

Good luck with your research project and your journey to earn your Masters degree!

Sincerely,

Tim Monds  
Superintendent of Schools

/ds

c/ Senior Executive  
Personnel File

Appendix C

Memorandum of Approval from Research Ethics Board

# UNIVERSITY OF NORTHERN BRITISH COLUMBIA

## RESEARCH ETHICS BOARD

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### MEMORANDUM

**To:** Anil Padayas  
**CC:** Bryan Hartman

**From:** Michael Murphy, Chair  
Research Ethics Board

**Date:** June 25, 2013

**Re:** **E2012.0607.090.01**  
**A Study of the Work Experience Commitments and Academic Achievements of High School Students**

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Thank you for submitting a request for a renewal to the above-noted proposal to the Research Ethics Board. Your request has been approved.

We are pleased to issue approval for the above named study for a period of 12 months from the date of this letter. Continuation beyond that date will require further review and renewal of REB approval. Any changes or amendments to the protocol or consent form must be approved by the Research Ethics Board.

Good luck with your research.

Sincerely,



Dr. Michael Murphy  
Chair, Research Ethics Board