

**TEACHING FOR THE FUTURE: EVALUATING INTERN TEACHERS'
CAREER EDUCATION PROJECTS**

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Dedication

To Lars Welde – an inspiring person, gifted scholar, beloved brother, and friend.

Abstract

Students who participate in career education are more likely to connect their classroom learning to the real world (Harkins, 2001; Orthner, Jones-Sanpei, Arkos, & Rose, 2013). Unfortunately, not all students are regularly exposed to career education, and students do not always perceive that current methods of delivering career education are helpful (Bardick, Bernes, Magnusson, & Witko, 2004; Witko, Bernes, Magnusson, & Bardick, 2006). A teacher-training program was introduced to enable intern teachers to integrate career education projects into their mainstream Grade 1 through Grade 12 courses. This non-experimental study used quantitative and qualitative content analysis to examine the effectiveness of 46 career education projects and their corresponding 75 types of career education interventions that were implemented by 46 intern teachers. Forty-six project reports and 1034 student evaluation surveys were examined to determine general trends in project strengths, challenges, and recommendations for future career education projects. Overall, the projects were effective and engaging, as 62.3% of students indicated that career education had helped them to learn more about themselves, 71.6% felt that it had helped them learn more about careers, 72.6% reported that it made them excited about what they could do with their lives, and 65.6% reported that they wanted to learn more about different careers. The results of this investigation corroborated extant research, as students benefited from engaging in a variety of developmentally appropriate learning experiences that allowed them to engage in self-exploration and identify potential careers of interest. Implications for future research and practice are provided.

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Chapter 1: Introduction

Background

Career education, which informs students about potential career options and endows students with the necessary skills to control the lifelong development of their careers (Super, 1975), is paramount in allowing students to connect academic learning with future life and career goals (Harkins, 2000; Johnson, 2000; Orthner, Jones-Sanpei, Arkos, & Rose, 2013; Schultheiss, 2005, 2008), thereby enhancing their educational experiences and future career prospects. Some career practitioners advocate for the creation of a Kindergarten through Grade 12 (K-12) career education curriculum that is integrated across academic subjects (Bernes & Magnusson, 2004; Harkins, 2001; Hiebert, 1993; Schultheiss, 2005, 2008), and for career development training to enable intern teachers to infuse career education into their courses (Bernes & Magnusson, 2004; Millar, 1995; Schultheiss, 2008; Super, 1975). To meet these goals, two undergraduate career education courses were developed for intern K-12 teachers and delivered by intern teachers in Southern Alberta, Canada.

In the first career education course, intern teachers are first introduced to career and life planning processes and prepared to integrate career education into mainstream curriculum content. In the second course, intern teachers implement career education projects into their practicum placements for course credit and submit final reports and standardized student evaluation surveys detailing each project's effectiveness. These practicum placements constitute the final practicum of the intern teachers' undergraduate degrees, and in these placements intern teachers are responsible for teaching half of each school day and delivering semester-long courses to students. Accordingly, these

placements require intern teachers to demonstrate considerable responsibility and independence in their course delivery. Each career education project consists of several career education interventions. To date, 54 intern teachers have completed the course, approximately 75 types of career education interventions have been implemented, and 1389 students have encountered career education in their learning. However, these completed projects have not yet been analyzed to identify common strengths, challenges, and recommendations for career education. This synthesis will highlight effective career education interventions that can be emulated to increase students' career development within the context of mainstream academic curricula.

Overview of the Research

A cohort-style, non-experimental approach was used to analyze the career education projects that have been implemented by intern teachers. Two mixed-methods coding frames (see Appendices A & B) were created to extract quantitative and qualitative data from each project and its student surveys, much like questionnaires are used to gather information from participants (Prasad, 2008). These instruments used a combination of single-response, categorical-response, and open-ended items to capture: (a) the project's teaching environment and its specific career planning interventions; (b) ratings of student participation and the perceived helpfulness of each intervention; (c) open-ended responses regarding what students liked most and least about the project; (d) strengths and challenges of the project; and (e) recommendations for future projects. The coding frames also captured each project's perceived adherence to four standardized learning outcomes. These outcomes include whether students: (a) learned more about themselves; (b) learned more about careers; (c) became excited about what they could do

with their lives; and (d) became interested in learning more about different careers. Taken together, these learning outcomes indicate the extent to which a given project inspired and educated its students. The coding frame domains were selected for analysis because of their potential to inform the development of career education within the course and in a broader educational context.

Using SPSS, descriptive statistics were calculated to summarize frequency counts and percentages for each project's quantitative data. Qualitative content analysis (Forman & Damschroder, 2008; Schreier, 2012) was used with NVivo 10 to deductively and inductively analyze qualitative information and identify emerging and recurring themes.

Research Questions

Career education projects and their corresponding student evaluation surveys were examined to address the following research questions of interest:

General effectiveness of projects.

1. What are general characteristics of career education projects that are rated by students as being highly effective?
2. What do students like most about career education projects?
3. What do students feel could be improved in career education projects?
4. How do student participation rates relate to each of the four standardized learning outcomes?

Effectiveness of specific career education interventions.

5. What interventions are most related to each of the four standardized learning outcomes?
6. What interventions are rated most highly by students across grade levels?

7. What interventions are most popular amongst students in elementary, junior high, and senior high school, respectively?

Future directions for curriculum development and teaching strategies.

8. How do projects at the elementary, junior high, and senior high level typically differ from one another?
9. What are common strengths across career education projects?
10. What are common challenges across career education projects?
11. What are common recommendations for improvement that are made for the future implementation of career education projects?

It is hoped that analyzing the career education projects to answer these research questions will provide educators with useful information that may then be used to improve the quality of integrated career education. This research has the potential to inform and positively impact curriculum development, teaching strategies, and, in turn, long-term career and life outcomes for numerous students. In this sense, the current study aims to enable teachers to “teach for the future” and help students to reach their academic and career goals.

Overview of the Thesis

This chapter was designed to provide a brief introduction to the thesis topic and establish a broad context for the research questions. The remainder of this thesis is divided into four additional chapters.

Chapter 2 includes a literature review that describes extant career education literature pertaining to students in elementary, junior high, and senior high school. In

addition, a more detailed description of the career education courses examined in this study is provided.

Chapter 3 outlines the data sample, instruments, data collection, and data analysis methods used in the thesis. This section includes crucial information regarding the creation of the data collection tools and the procedures used to analyze the data.

Chapter 4 describes the results of this study. This involves presentation of the demographic information of the sample and highlights the study's findings with respect to the research questions previously described.

The fifth and final chapter concludes the thesis with a discussion of the research findings and data trends. Furthermore, the study's strengths, limitations, and implications for future research and practice are described.

Chapter 2: Literature Review

The aim of this literature review is to provide a detailed theoretical and practical background for this study by describing relevant theories and highlighting existing research (Bryman, Teevan, & Bell, 2009). To do so, this review has been divided into four parts: (a) a theoretical overview of students' career development, which includes a discussion of selected career development theories and their application to school-aged children and adolescents; (b) career education research detailing current career education efforts and/or needs assessments at the elementary (Kindergarten to Grade 6), junior high (Grade 7 to Grade 9), and high school (Grade 10 to Grade 12) levels, and the relationship between student engagement and career education; (c) a detailed description of the career education courses targeted by this study as well as their culminating assignments; and (d) an overview of the rationale for the current project.

Part I: Theoretical Overview of Students' Career Development

Definitions. Prior to examining research surrounding career development and education, it is important to define several career-related terms; namely, *career*, *career development*, *career education*, and *career infusion*. Herr and Cramer (1996) cite Super's (1976) definition of career as the most common conceptualization of the term. According to Super, career is

the course of events which constitutes a life; the sequence of occupations and other life roles which combine to express one's commitment to work in his or her total pattern of self-development; the series of remunerated and nonremunerated positions occupied by a person from adolescence through retirement, of which occupation is only one; [and] includes work-related roles such as those of student,

employee, and pensioner together with complementary avocational, familial, and civic roles. Careers exist only as people pursue them; they are person-centered.

(Super, 1976, p.4).

Overall, Super contends that career is a complex, multi-faceted description of the ongoing events and roles that constitute an individual's life. Based on this definition, Herr and Cramer assert that careers are unique to each individual, created through personal choice, and unfold across life.

Career development may be conceptualized as lifelong behavioural processes and influencing factors that form an individual's work-related values, occupational selection(s), decision-making style, self and career identities, and educational literacy; "career development proceeds – smoothly, jaggedly, positively, negatively – whether or not career guidance or career education exists; as such, career development is not an intervention but the object of an intervention" (Herr & Cramer, 1996, p. 32). To promote smooth and positive career development, career education is used to assist students throughout their development.

Super (1975) defines career education as education that "[teaches] about career development and [helps] students to control the unfolding of their careers as changing sequences and combinations of roles in education, home, community, occupations, and leisure as they go through life" (p. 27). Therefore, career education aims to: (a) inform students about potential career options; and (b) equip students with a set of skills that will allow them to exert control over the gradual development of their careers. Career infusion is a specific form of career education that integrates career concepts and planning strategies into the mainstream curriculum to impart relevance to subject matter at school

(Millar, 1995). For the purposes of this study, the terms career infusion and career integration will be used interchangeably to denote the incorporation of career-related concepts and skills into a variety of subject areas.

Theories of career development. Numerous theories have been proposed to describe career development in children and adolescents. It is beyond the scope of this project to exhaustively examine all relevant career theories; instead, several prominent theories will be described in each of the following categories: developmental career theories (Erikson, 1968; Gottfredson, 1981, 1996, 2002, 2005; Super, 1975), learning theories in career development (Bandura, 1986, 1994; Krumboltz, 1996, 2009; Lent, Brown, & Hackett, 1994), and process models of career development (Magnusson, 1992; Miller-Tiedeman & Tiedeman, 1990; Porfeli & Lee, 2012; Tiedeman & O'Hara, 1963). Each of these categories will be briefly examined to provide a comprehensive context for the integration of career education in elementary, junior high, and senior high schools.

Developmental theories of career development. Magnuson and Starr (2000) suggest that integrating the work of child development theorists with career development theorists provides a framework for fostering the development of age-appropriate career awareness, career exploration, and career planning skills. This section addresses several well-known career theories that describe career development throughout childhood and adolescence (Erikson, 1968; Gottfredson, 1981, 1996, 2002, 2005; Super, 1975). For the purposes of this study, each theory is discussed in terms of its application to school-aged students between the ages of four and 18.

Erikson's Psychosocial Theory. Erikson (1968) proposed that the human life cycle involves eight stages in ego growth, which correspond with a series of crises that

individuals face as they grow and mature. Of interest to this study are the stages of *initiative versus guilt*, *industry versus inferiority*, and *identity versus role confusion*. In the first stage, children aged four to five years old develop tendencies towards initiative if they are free to explore, experiment, and ask questions of parents and teachers; if children are limited and feel as if their questions are unimportant, they develop feelings of guilt about acting on their own (Snowman & McCown, 2012). In the next stage, industry versus inferiority, children aged six to 11 develop a sense of industry if they are encouraged to create, succeed, persevere, complete tasks, and attempt difficult tasks. Children who are unsuccessful or derided by others develop feelings of inferiority and as such never learn to enjoy intellectual tasks and take pride in their work (Snowman & McCown). In the third stage, identity versus role confusion, adolescents aged 12 to 18 are to develop the roles and skills that will allow them to take a meaningful place in adult society. Adolescents who are unsuccessful experience role confusion and do not have a clear sense of their identities and their future goals.

Munley (1977) observes that Erikson's life stages appear to give appropriate emphasis to vocationally relevant dimensions of human development. For children and youth, the development of basic senses of initiative, industry, and identity appear to be highly relevant to career development and planning. A sense of initiative allows career seekers to independently and confidently examine potential careers of interest. Industry is important, as industrious individuals are able to take pride in their abilities and bring their career goals to fruition. Finally, an understanding of one's identity – that is, one's personal attributes, interests, skills, and aspirations – is essential to the determination of meaningful career and life decisions. Vocational choice, commitment, and career

decision behaviours of adolescents reflect the extent to which they have resolved their identity crises, as “a person without a sense of identity, a sense of who he is, where he is going, and how he fits into society may well be incapacitated in terms of vocational choice and career decision-making” (Munley, 1977, p. 264). Erikson’s theory is applicable to career education for students of all ages, and educators may choose to tailor career-related activities to help bolster students’ development of initiative, industry, and identity.

Super’s Life Span Theory. The first two stages in Super’s (1975) theory, *the growth stage* and *the exploratory stage*, apply to students in elementary, junior, and senior high school. The growth stage, ranging from early childhood to early adolescence, involves the interaction between children and their homes, neighbourhoods, and school environments, which contributes to the development of certain abilities, interests, and values. Relationships with others and experiences with objects and ideas may facilitate or discourage development, depending on the nature of the experiences. Super theorized that concepts of self and potential occupational goals begin to emerge during the growth stage as children internalize the information that is provided to them by their adult role models. Occupational preferences generally reflect emotional needs rather than aptitude or actual interest and may be either fixated or frequently changing.

The subsequent exploratory stage commences in adolescence, although the process of exploration begins much earlier and extends throughout the life span. During the exploratory stage, young people try out a variety of activities, roles, and situations. This is a time where youth may specifically engage in activities to learn more about their occupational interests, aptitudes, plans for education, and career opportunities.

Adolescents who engage in limited or inadequate exploration may flounder or drift rather than systematically investigate their personal attributes and career prospects. In contrast, successful exploration allows adolescents to further develop their “abilities and interests, it confirms or contradicts the suitability of role models and of self-concepts, and it aids in their clarification and it eventually makes possible their translation into occupational preferences and their implementation in paid employment” (Super, 1975, p. 29). In each of Super’s stages, career education is crucial to allow students to learn more about themselves, develop their interests and abilities, and consider appropriate career options.

Gottfredson’s Theory of Circumscription and Compromise. Gottfredson (1981, 1996, 2002, 2005) created a developmental career theory wherein children exclude occupational options based on their perceived appropriateness to the child’s sense of self. Cognitive development is fundamental, as it determines a child’s cognitions regarding occupations and conceptions of self that are used to appraise whether a given occupation would be appropriate or not (Leung, 2008). According to Gottfredson (1981, 1996, 2002), career choice is derived from a process of elimination as children progressively circumscribe occupational options based on developmental aspects of self-concept. For children, career goals are shaped more by public aspects of self-concept such as gender and social class rather than private aspects such as skills and interests (Leung). As children mature, they may compromise their interests and select potential occupations that cater to their preferences for prestige and sex-type (Leung).

Gottfredson proposed four developmental stages of circumscription: *orientation to size and power*, *orientation to sex roles*, *orientation to social valuation*, and *orientation to the internal, unique self*. In the first stage, children aged three to five perceive

occupations as roles taken up by adults (Leung, 2008). In the second stage, sex-role norms and attitudes play an instrumental role in defining the self-concepts of children aged six to eight; children assess potential occupations in terms of whether they suit the child's sex and eliminate options that are perceived to belong to the opposite sex-type. The third stage applies to children aged nine to 13 as social class and status become influential to their self-concepts. Therefore, children at this stage tend to eliminate occupations that they perceive to have unacceptably low or unrealistically high levels of prestige for their social status. In the fourth stage, adolescents over the age of 14 begin to consider their personality, interests, values, and skills in the occupation selection process.

At each of Gottfredson's stages, the danger is that children will eliminate potential occupations based on inaccurate cognitive perceptions and limit themselves to an increasingly small pool of potential occupations. Therefore, career education based on this theory focuses on expanding children's knowledge about careers and developing their private aspects of self-concept. Children are then less likely to prematurely foreclose potential career options or make decisions based on inaccurate perceptions.

Auger, Blackhurst, and Wahl (2005) interviewed 123 first-, third-, and fifth-grade American children and examined the types of careers they expected to have and wished to have. Auger et al. found evidence to support Gottfredson's theory of career development, as Gottfredson's theory postulates that around age five, children's career aspirations become less rooted in fantasy and more shaped by social influences such as gender expectations and social prestige. Accordingly, older children with more social experience had already started to profess interest in more socially prestigious and less sex-typed careers than younger children. Auger et al. suggest that the students had not yet

started to realistically appraise their own skills and talents, as their intended careers reflected social prestige rather than personal skills and aptitudes. Accordingly, an appropriate goal for career education is to enhance students' knowledge of possible career choices and to encourage them to refrain from eliminating careers that may eventually suit their interests and talents.

In a similar project, Blackhurst, Auger, and Wahl (2003) conducted focused interviews with 119 elementary students and examined their understanding of vocational training requirements for 15 notable jobs. By fifth grade, students had a conceptual understanding of vocational training requirements but were highly inaccurate in how they applied this understanding. Students overestimated the need for college and overrated their own prospects of attending college. Blackhurst et al. suggest that their work supports Gottfredson's theory of occupational choice, especially with respect to social valuation because fifth grade students had already started to rule out potential jobs that were low in social status. Given their findings, Blackhurst et al. recommend that educators begin to provide vocational training information to students in late elementary rather than middle school, because it is developmentally appropriate and it will allow students to develop realistic educational and occupational goals. If students are not accurately knowledgeable about the training requirements for particular occupations, they may be more likely to prematurely eliminate those occupations from their vocational choices.

Summary. Overall, it appears that developmental career theories are most concerned with the relationship between career development and children's developmental stages. The exact nature of these stages varies depending on the theory,

but in general theorists agree that supported learning, self-exploration, and the provision of career-related information need to start at a young age so that children are better equipped to transition through developmental stages with awareness of themselves and their future career goals.

Learning theories of career development. In contrast to the previous section, the theories described in the following paragraphs do not pertain to specific developmental stages; rather, they involve learning processes that are encountered by students at all levels. Education is a significant contributor to students' self-efficacy (Bandura, 1994), planned and unplanned learning experiences (Krumboltz, 2009), and the social and cognitive factors (Lent, Brown, & Hackett, 1994) that guide their career development. Because of the central role that education plays in students' development, an examination of career development in children and adolescents needs to consider career development through the lens of learning theories.

Bandura's Self-Efficacy Theory. Bandura (1994) defines self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over the events that affect their lives...[these] beliefs determine how people feel, think, motivate themselves, and behave" (p. 71). Bandura suggests that individuals with a strong sense of efficacy view demanding tasks as challenges to be mastered, set challenging goals for themselves, stay committed to their goals, and attribute failure to inadequate effort or absent skills which are obtainable. As a result, these individuals are resilient to adversity and productive in their successes. In contrast, Bandura proposes that individuals with low perceptions of self-efficacy doubt their capabilities, avoid difficult tasks, set their goals low, and have weak commitment to their goals. In the face of failure,

those with low self-efficacy are more likely to dwell on their personal shortcomings and lose faith in their capabilities.

Accordingly, an individual's perceived self-efficacy can strongly influence his or her career choice and development, as individuals with higher perceptions of self-efficacy are more likely to consider a wide range of career options, better prepare themselves educationally for their chosen occupational pursuits, and experience greater success in their careers (Bandura, 1994). Leung (2008) alleges that students who have the ability and potential to learn in school and succeed in future careers may be hampered by low perceptions of self-efficacy that prevent them from engaging in the learning processes that would enable them to develop their skills, interests, and potentials. Bandura asserts that experiences of mastery in tasks, vicarious experiences provided by social models that succeed through sustained effort, appropriate social persuasion to reinforce one's capabilities, and emotional self-regulation to reduce stress reactions can enhance individuals' levels of self-efficacy. Therefore, these areas should be targeted in career education to foster and reinforce a sense of self-efficacy in students, so that they are better equipped to enter adulthood and experience success in their careers.

Krumboltz' Happenstance Learning Theory (HLT). According to Krumboltz (2009), each individual's career destiny develops through planned and unplanned learning experiences and therefore cannot be predicted in advance. Therefore, it is essential to help individuals participate in a variety of learning experiences so that they can constantly develop their career destiny rather than make a single career decision that only applies to their situations at a specific point in time. Krumboltz describes HLT as "an attempt to explain how and why individuals follow their different paths through life

and to describe how counselors can facilitate that process” (p. 135) and adds that HLT views human behaviour as “the product of countless numbers of learning experiences made available by both planned and unplanned situations in which individuals find themselves....[these learning] outcomes include skills, interests, knowledge, beliefs, preferences, sensitivities, emotions, and future actions” (p. 135). Educators can assist students in enhancing their learning experiences by creating engaging activities and providing opportunities that allow students to advance their cognitive, physical, and emotional skills. Creed, Patton, and Prideaux (2007) highlight the importance of career education and work experience as intentional components in adolescents’ education. Career educators must include activities to increase adolescents’ career decision-making confidence, with the understanding that these activities need to be catered to students of varying academic abilities (Creed et al.). As educators help create meaningful opportunities for students to learn more about themselves and develop their skills, students will also evolve and develop the skills and attributes that will assist them throughout their career journeys.

Social-cognitive career theory (SCCT). Lent, Brown, and Hackett (1994) combine elements of Bandura’s (1986) and Krumboltz’s (1996) learning theories to generate SCCT, which accentuates the role of learning in individuals’ development of interests. Specifically, Lent et al. contend that behaviour occurs based on complex interactions between situational and domain-specific influences, dynamic aspects of an individual’s self-system, and personal agency. Therefore, career choice is made based on the interactions between personal factors, learning experiences, and contextual influences. Personal factors include individual characteristics such as gender, race/ethnicity, health

status, and socioeconomic status. Learning experiences contribute to the individual's sense of self-efficacy and outcome expectations, which then influence the individual's level of interest in a given domain, choice of goals, choice of actions, and ultimate performance and attainment in that domain. For children, it is essential that they be exposed to a variety of learning experiences that relate to occupational behaviour. As children learn through practice, modelling, and appropriate feedback from critical people, they will gradually cultivate skills, develop personally meaningful standards, and become adept at recognizing their abilities and estimating the outcomes of their actions (Schultheiss, 2008). Therefore, career education with a SCCT background should focus on exposing students to relevant career-related learning experiences and assisting them in developing their interests and abilities.

Summary. In general, the learning theories described in this section do not focus on a particular developmental stage and/or grade level for the implementation of career education. Instead, these theories highlight the need for educators to provide students at all levels with a variety of positive learning experiences that serve to expand their views of themselves, their abilities, and how their personal attributes could be purposefully applied to the world of work.

Process models of career development. Life career planning includes a series of sub-skills (Magnuson & Starr, 2000). These skills include one's ability to generate and evaluate possible options, make informed decisions, develop action plans, and evaluate the process and outcomes of action plans. The process models of career development (Magnusson, 1992; Miller-Tiedeman & Tiedeman, 1990; Porfeli & Lee, 2012; Tiedeman & O'Hara, 1963) described in this section aim not only to describe career development,

but also to facilitate decision-making processes across other life domains. If students are able to begin developing and internalizing the skills involved in these process models, they will be better equipped to facilitate and maximize their decision-making, both expected and unexpected, at subsequent stages in their lifelong career development (Magnuson & Starr).

Tiedeman and O'Hara's theory. Tiedeman and O'Hara (1963) created a two-phase decision-making model that incorporates personal awareness and external information into the decision-making process. This model involves *anticipation* and *accommodation*. The anticipation phase is comprised of *exploration*, *crystallization*, *choice*, and *clarification* stages wherein individuals prepare for action. In exploration, individuals examine potential educational, occupational, and personal choices. They are involved in crystallization when they try to analyze and organize personal and career-related information. Through crystallization, individuals develop more concrete choices and decisions. They then clarify their goals and start to develop action plans that outline how they will reach their objectives. This leads into the accommodation phase, as individuals engage in *induction*, *reformation*, and *integration* to put their plans into action. During induction, individuals are willing to learn from knowledgeable others. In reformation, they transition from being receptive to learning from others and begin to assert themselves and influence their environment. Finally, in integration, individuals are able to match their goals with the objectives of others in their environment. As a result of moving through these stages, individuals develop a sense of equilibrium and purpose. They will likely use this decision-making process many times over the course of their lives, as they develop new goals, enter new situations, and synthesize their ongoing

experiences to find meaning. This theory is especially applicable to junior and senior high school students who are considering specific career paths and developing concrete plans of action to attain further education and technical training for their future careers.

Miller-Tiedeman and Tiedeman's LifeCareer theory. Miller-Tiedeman and Tiedeman (1990) developed the concept of LifeCareer to recognize the unique relationship between life and career; that is, life is career and career is life (K. Bernes, personal communication, September 6, 2013). In addition, a major life process for individuals is to detach their personal realities, the actions and beliefs that are uniquely theirs, from the common realities that are essentially dictated by society. Miller-Tiedeman and Tiedeman emphasize that individuals need to make meaningful career decisions based on their personal realities. In LifeCareer, individuals align themselves with their personal realities and liberate themselves from the restrictions and limitations of the common realities endorsed by society. As a result, their ensuing careers reflect meaning and purpose rather than work. As individuals become better at recognizing and following their personal goals rather than those dictated by society, they are more likely to make personally meaningful decisions and competently adapt to career change (Miller-Tiedeman & Tiedeman). Like Tiedeman and O'Hara's (1963) theory, LifeCareer is applicable to students who are preparing to make career-related decisions. Based on the premises of LifeCareer, it is crucial that career education encourage students to: (a) realize that life and career are inextricably intertwined; and (b) develop and consider their personal realities when they are contemplating career-related decisions.

Porfeli and Lee's exploration, commitment, and reconsideration. Porfeli and Lee (2012) describe career development during childhood as a process comprised of career exploration, career commitment, and career reconsideration. Career exploration evolves from a broad exploration of potential career identities to an increasingly deep exploration of core characteristics of the self and career opportunities that are perceived to suit these characteristics. Career commitment consists of making a vocational choice and then identifying the self with that choice. Reconsideration occurs when an individual has established a career choice but remains flexible in orientation and is still willing to consider other career choices. Accordingly, career interventions should facilitate vocational identity development to allow students to understand who they are and then find congruent career options. To this end, Porfeli and Lee recommend the implementation of curricula that enable students to connect school subjects with various occupations to demonstrate how their learning applies to their future, and how their academic aptitudes correspond with job characteristics.

Magnusson's Five Processes Model. Magnusson (1992) conceptualizes career and life planning as a five-stage process that involves *initiation, exploration, decision-making, preparation, and implementation*. In a school context, Magnusson's steps assist students' career selection and decision-making processes across other domains of their lives. In initiation, students complete tasks and activities to foster self-discovery. This is followed by the exploration stage, as students take the knowledge gained from the initiation stage and analyze it to better understand their interests, strengths, weaknesses, and aspirations for their lives. The goal of exploration is to allow students to gain a better understanding of who they are so that they are better equipped to make educated

decisions regarding their career interests. It is also crucial for students to research various careers at this stage so that they can evaluate whether their careers of interest fit their personal abilities and lifestyle needs.

Students then enter the decision-making stage wherein they weigh the pros and cons associated with each career option and then make decisions regarding their intended career path. This leads into the preparation stage, as students seriously consider the steps that they must take to reach their intended career goals, such as specialized training and/or informational interviews with subject matter experts. Preparation is followed by implementation, as students commence their goal-oriented courses of action. It is important to note that Magnusson's stages are not strictly linear; they may be started at any point and each stage can be returned to as needed. Magnusson's Five Processes Model provided the theoretical foundation for the career education interventions implemented by intern teachers who completed the undergraduate career education course considered in this thesis; therefore, this theory will be described in greater detail during Part III of the literature review and will become particularly central to this study's description of the career education interventions.

Summary. A unique feature of the process models described in this section is that they are applicable to many areas within students' lives. Instead of proposing a fixed set of developmental stages or ideal learning experiences that successful students must navigate, these theories emphasize the importance of teaching students to engage in functional, holistic decision-making patterns that can be applied to a wide range of career and life decisions.

Conclusion. Each family of theories described in this review offer different perspectives on career development with regards to school-aged children. By themselves, theories that focus on developmental stages (Erikson, 1968; Gottfredson, 1981, 1996, 2002, 2005; Super, 1975), learning experiences (Bandura, 1986, 1994; Krumboltz, 1996, 2009; Lent, Brown, & Hackett, 1994), or decision-making processes (Magnusson, 1995; Miller-Tiedeman & Tiedeman, 1990; Porfeli & Lee, 2012; Tiedeman & O'Hara, 1963) may inadequately describe the complex process of career development. However, when taken together, these theories provide a broad context and describe what children need at specific age levels as well as ongoing learning experiences and decision-making processes that should be fostered and developed through carefully integrated career education.

Part II: Career Education Research

In this section, extant research in career education will be reviewed to describe characteristics of career education at the elementary, junior high, and senior high levels, respectively. The trend in the literature appears to shift from describing specific career education techniques at the elementary school level (Beale, 2000, 2003; Gillies, McMahon, & Carroll, 1998; Harkins, 2000, 2001; Proctor, 2005) to describing students' perceived career education needs in junior high (Bardick. Bernes, Magnusson, & Witko, 2004; Gibbons, Borders, Wiles, Stephan, & Davis, 2006) and senior high school (Bloxom, Bernes, Magnusson, Gunn, Bardick, Orr, & McKnight, 2008; Truong, 2011). For this reason, this section's focus on junior and senior high career education is slightly different than its presentation of elementary career education. To conclude, this section will include a discussion of school engagement and its relationship to career education.

Elementary school. Several authors (Harkins, 2001; Herr & Cramer, 1996; Schultheiss, 2008) have outlined desired outcomes for career education at the elementary school level. These goals typically involve: (a) developing students' self-awareness (Harkins; Herr & Cramer; Schultheiss); (b) encouraging students to form positive attitudes, habits, and develop competencies (Harkins; Herr & Cramer); (c) enabling students to link classroom learning with real-world applications (Herr & Cramer; Schultheiss) and (d) helping students to develop a sense of relatedness to others, the ability to empathize, and a coherent set of values (Schultheiss). In addition, career guidance at this level involves delivering developmentally appropriate career-related knowledge and aims to prevent children from prematurely discarding future career options (Herr & Cramer). These outcomes are supported by elements of the theories described in Part I. For example, emphasis is placed on developing students' competencies (Erikson, 1968), enhancing their levels of self-efficacy (Bandura, 1994), and preventing students from prematurely circumscribing their career options (Gottfredson, 1981).

Proctor (2005) outlines a career education intervention that was successfully implemented in an Australian elementary school. This intervention consisted of career-infused course content and the execution of two career and learning oriented conferences. Teachers from each grade-level met and devised strategies to connect their teaching methods with overarching career education themes of personal development, learning skills and strategies, and building awareness of the world of work. Overall, the infusion of career-related learning and the two career-related conferences were received extremely well by students, parents, and teaching staff.

Harkins (2001) advocates the use of literature to promote elementary students' career education. Literature enlivens students' learning about the world of work, as students are more likely to attend to a story than a dry subject area textbook, and stories add relevance and foster discussion about similar jobs (Harkins). In addition, literature is used throughout the school day, so it can be naturally used to enhance students' learning. Harkins concludes that "literature provides context and is a logical source for additional information on almost any subject...it can also be an important first step in creating a life plan" (p. 32). Therefore, the use of literature in career education with children is beneficial in many ways, and it is often easily integrated into subject areas such as Language Arts and Social Studies.

Career education can take place at school during conferences and novel studies, but it is also useful to consider planning career-related field trips and excursions. Beale (2000) describes a carefully designed field trip for elementary students to a hospital. The field trip introduces students to local sites of employment, demonstrates the necessity of work and the requirement that employees work together, and helps alleviate the anxiety that students typically associate with hospitalization experiences. Two fifth-grade classes who took part in a planned hospital visit of this nature reported that they significantly enjoyed and learned from their field trip. It is essential that the teacher link features of the hospital visit to children's classroom experiences, because this increases the relevance of what they are learning in school.

It is not always possible to plan career-related field trips; however, there are other creative ways of bringing career-related situations to the school. Beale (2003) details a career guidance activity wherein elementary students are introduced to the concept of

running a restaurant and the need for employees who work together as a team. In this activity, the teacher acts as a novice restaurant owner and enlists student actors to help run the restaurant. This activity was implemented in several third and fourth grade classes and was well-received by both students and teachers. In this case, drama was used as a tool to heighten student engagement and enjoyment during career education, and help them relate school to the world of work.

Although devoting conferences, field trips, novel studies, drama presentations, and entire lesson plans to career education is useful, it is still possible to convey elements of career education using simpler methods. Harkins (2000) asserts that career education in elementary school can be achieved through simple strategies such as adding work-related clothing and tools to a classroom's dramatic play centre and then discussing various occupations and their relationship to students' lives. Until students acquire concrete knowledge about the world of work, the concept of having a job remains abstract. Ultimately, students need to connect their school learning with work place reality, and learn that academic courses are related to real-world problems. Since education aims to prepare students for the future, children need to start developing work-readiness skills at an early age (Harkins).

Children who take part in career education gain greater self-knowledge and a better understanding of how their school-based learning relates to various jobs than peers who do not participate in career education (Gillies, McMahon, & Carroll, 1998). Gillies et al. evaluated the effectiveness of a program that focused on providing Grade 6 children with an understanding of themselves, the world of work, and how they could apply school knowledge to the world of work. Compared to peers that did not take part in the

10-lesson program, students in the career program scored higher on measures of self-knowledge, that is, of career options and the factors that could influence career choice, and on measures of how school learning relates to potential jobs. Gillies et al. provide evidence to suggest that even relatively brief career programs are advantageous for the students who partake in them. Like Harkins' (2000) work, this is promising because it suggests that career education does not have to be a daunting, all-consuming process for it to be effective. Instead, instructors can try to integrate career education where possible and thereby produce positive student outcomes such as increased self and career awareness.

Junior high school. Herr and Cramer (1996) list several key concepts of career guidance in junior high, grades seven through nine, and assert that career guidance at this level: (a) must take into account the transitional nature of junior high and the necessity of student exploration and planning; (b) emphasizes the consequences of curricular and course choices made in junior high so that students do not prematurely limit their options; and (c) provides timely, relevant, and accurate information to students so that they can explore and develop informed educational and/or occupational goals. Career education at the junior high level fits with several theories from Part I, as students are entering the phase wherein they must make identity-defining decisions (Erikson, 1968), having learning experiences that could determine the course of their lives (Krumboltz, 2009), and learning to make career-related decisions and apply decision-making processes (Magnusson, 1995; Miller & O'Hara, 1963).

Bardick, Bernes, Magnusson, and Witko (2004) used the Comprehensive Career Needs Survey (CCNS) to assess the career counselling needs of 3562 Southern Alberta

junior high students. Student responses were examined to assess students' perceived relevance of career planning, individuals they would approach for assistance in career planning, and the nature of help they would like with career planning. Students indicated that, in general, career planning was perceived as relevant, and if it was not important at the time of survey, it would become important in the future. Students reported that they would like help with career decision-making, accessing relevant information and support, and selecting appropriate courses. Based on these findings, Bardick et al. recognize that junior high students are thinking about their futures; therefore, introducing career planning to students at this level is beneficial because it increases students' perceptions of the relevance of career decision-making and encourages them to explore potential career options rather than putting off this important process for the future.

Gibbons, Borders, Wiles, Stephan, and Davis (2006) surveyed 222 ninth grade students in North Carolina to examine their current educational and career plans, the resources they were accessing for their planning, and the information and resources that they wanted. Gibbons et al. found that, although the students in their sample had stated specific and stable career goals, they had not finished exploring potential careers and were open to further exploration. Consequently, students at this level require more accurate information about careers and college planning before they begin to eliminate potential career options based on inaccurate perceptions of the financial commitments associated with postsecondary education (Gibbons et al.). Rather than waiting until high school to impart students with specific career planning information, Gibbons et al. advocate concerted efforts from elementary school through high school to provide

students with accurate information, support, and encouragement to assist them in their career development.

High school. Herr and Cramer (1996) provide key concepts for career guidance in the senior high school context. At the senior high level, career guidance: (a) must acknowledge wide variation in students' career development and their needs for career guidance and counselling; (b) aims to assist students in specific planning of their next steps in education and work, life role decisions, and assume responsibility for their career decision-making and its consequences; and (c) includes structured classes, group and individual counselling, workshops, computer-assisted programs, assessment, self-directed activities, integrating work and education, and job placement. Career education in high school courses is especially effective because students at this level tend to be concerned about their career options and have a better understanding of their life goals (Truong, 2011). Based on these objectives, perhaps the most relevant career theories at this stage are those that emphasize career exploration (Super, 1975), career decision-making processes (Magnusson, 1992; Porfeli & Lee, 2012; Tiedeman & O'Hara, 1963), relevant learning experiences (Bandura, 1986, 1994; Krumboltz, 1996, 2009; Lent, Brown, & Hackett, 1994), and the recognition that career and life are heavily intertwined (Miller-Tiedeman & Tiedeman, 1990; Super).

Career education can be particularly difficult to accomplish in high school education, because "even when the information is as relevant as that on occupations related to chemistry in a course on chemistry it is still not the knowledge that college entrance exams cover nor is it the information that the chemistry teacher feels he should be expected to know" (Super, 1975, p. 36). Super suggests that career education can be

infused into subjects such as English and Social Studies with greater ease, as students may write about or examine literature that involves ways of life and work in various occupations and/or history involving key political, cultural, economic, and social contexts. However, Hutchinson (2012) notes that, “while science educators are not career educators, they can recognize, support and integrate aspects of career-related learning in their delivery of the curriculum and enhancement of enrichment activities” (p. 96). Hutchinson implies that, with the right training, science educators can discuss career-related learning and information with their students. Taken together, these perspectives suggest that, while integrating career education into content-heavy senior high courses can be daunting, it can be accomplished if teachers are adequately trained and prepared to do so.

Witko, Bernes, Magnusson, and Bardick (2006) examined the CCNS results of 1088 senior high students in Southern Alberta, Canada. The majority of students in this sample indicated that they were considering more than one career option or had a specific plan for their post-high school pursuits, and most respondents expressed confidence that they would reach their future career goals. However, Witko et al. found that mature students may delay career-related decision making, and therefore they require assistance with career planning earlier in their educational paths. Earlier career education would be useful in helping students to carefully navigate the career planning process rather than waiting to make career-related decisions towards the conclusion of high school.

Bloxom et al. (2008) used the CCNS to examine 888 Southern Albertan Grade 12 students' career needs and their perceptions of the effectiveness of high school career development services. Bloxom et al. report that Grade 12 students generally have

established career plans; however, the resources they currently access are not perceived as effective. In particular, an isolated high school course devoted to career and life management (CALM) was not perceived as helpful to students' career planning. Instead, students would appreciate access to more career development resources to help them pursue their passions, understand their interests and abilities, and acquire more information about post-secondary education.

Truong (2011) analyzed two counsellor interviews and 35 student questionnaires regarding career education at an Ontario high school. The students reported a degree of certainty with their postsecondary plans and indicated that experiential learning had been beneficial to their career planning. Truong argues that the integration of career education into routine teaching helps students connect academics with career planning. Truong favours curricular integration in career education because: (a) the inclusion of a career planning component in each subject wherein students explore an occupation linked to the subject area links the subject to career planning; (b) the integration of career planning into subject courses helps students to examine academic and career pathways, transition from high school, and receive individualized attention; (c) the integration of career education across subjects forces students to consider their career goals with greater depth and earlier than they otherwise may have; and (d) cross-curricular career education reduces the pressure placed on limited counselling resources and empowers students to be independent in their preparation for the transition from high school. Based on Truong's position, it appears that the integration of career education across subjects can have an abundance of positive outcomes for high school students.

Career education and student engagement.

Student engagement. Upon reviewing the literature, Trowler (2010) writes that student engagement is “concerned with the interaction between the time, effort and other relevant resources invested by both students and their institutions intended to optimise the student experience and enhance the learning outcomes and development of students” (Trowler, 2010, p. 3). Based on this definition, student engagement is explicitly linked to the quality of the student’s learning experiences and outcomes. Similarly, Alberta Education (n.d.) asserts that students’ experience of engagement is closely linked to student learning, and student engagement takes place when “students make a psychological investment in learning....are involved in their work, persist despite challenges and obstacles, and take visible delight in accomplishing their work” (Alberta Education, n.d., para. 2). This statement suggests that student engagement is a complex phenomenon, which involves behavioural, emotional, and cognitive elements.

Fredricks, Blumenfeld, and Paris (2004) describe student engagement across behavioural, emotional, and cognitive dimensions. If students were behaviourally engaged, they would generally adhere to behavioural norms, such as attendance and participation, and refrain from displays of disruptive or negative behaviour (Trowler, 2010). Students would demonstrate emotional engagement if they experienced “affective reactions such as interest, enjoyment, or a sense of belonging” (Trowler, p. 5). Finally, cognitively engaged students would demonstrate investment in their learning, a desire to go above and beyond basic requirements, and relish challenging opportunities. Trowler argues that each of these three dimensions can involve positive and negative poles to signify engagement, where the continuum between poles would be characterized by non-

engagement. For example, a student who demonstrated positive behavioural engagement would attend classes and readily participate, whereas a student with negative behavioural engagement would actively boycott and/or disrupt classes, and a non-engaged student would skip classes without an excuse. Similarly, positive emotional engagement would involve interest, whereas negative emotional engagement would be denoted by rejection, and non-engagement would be characterized by boredom. If students demonstrated positive cognitive engagement, their work would meet or exceed assignment requirements. Cognitive non-engagement would be evident if students submitted their assignments late, rushed through their coursework, and/or were absent. A student that redefined the assignment parameters would display negative cognitive engagement. Based on these dimensions and their corresponding continua of student experiences and behaviours, it becomes clear that a student's level of engagement may be expressed in a variety of ways across academic contexts.

Why is student engagement relevant to career education? Trowler (2010) relates the work of Kuh (2009) to describe the benefits of student engagement, as increased engagement corresponds with an increased likelihood that students of all educational and social backgrounds will be able to attain their educational and personal goals, gain the skills and competencies demanded by the challenges of modern society, and experience intellectual and monetary advantages to attaining an education. For these reasons, student engagement is an important factor to consider within the context of career education, because increased student engagement has the potential to inform and direct the course of a student's subsequent career path.

Linking career education to student engagement. To engage students, learning tasks must: (a) require and encourage profound, critical thinking; (b) immerse the student in intellectual inquiry; (c) be relevant and authentic for students; (d) compel students to meaningfully interact and participate; and (e) possess intellectual rigour (Alberta Education, n.d.; Dunleavy & Milton, 2009). By this line of reasoning, career education activities may foster student engagement if students are encouraged to: (a) critically reflect on their experiences, abilities, and personal attributes; (b) conduct research to explore potential career options; (c) make meaningful connections between academic pursuits and the world of work; (d) interact with their peers and genuinely participate in career-related activities; and (e) participate in activities that are purposefully designed to foster self- and career exploration.

Career education programs can enhance student engagement. Orthner, Jones-Sanpei, Arkos, and Rose (2013) examined the effect of three years of career-relevant education on levels of school valuing and engagement of middle school students in a southern U.S. district. A career education intervention, CareerStart, was introduced in seven of 14 middle schools; this intervention is essentially a program that allows teachers to highlight the relevance of learning required course content by infusing career examples into education. Orthner et al. found that students in the schools that had incorporated CareerStart reported elevated levels of school valuing in comparison to students in the control schools, and students who reported greater career-relevant instruction scored higher on measures of school engagement. These findings support the need for career education at the junior high level, as students who participate in career education may be

more likely to connect academic learning with real-life situations and therefore continue with their education.

Kenny, Blustein, Haase, Jackson, and Perry (2006) used a longitudinal model to assess the relationship between career development and school engagement (feelings of belonging and valuing) with a sample of 416 urban ninth-grade students. Kenny et al. found that elevated levels of career planfulness and expectations at the start of the school year were linked to increased levels of school engagement throughout the year. Interestingly, the relationship between career development and school engagement was largely one-directional. Students who entered ninth grade with greater levels of career planfulness and positive expectations were more likely to develop feelings of valuing and belonging in school throughout the year, but students who reported higher levels of engagement at the beginning of the year were not likely to experience increased career planfulness and positive career expectations. These results were noted with a sample of predominantly non-White, low-income students, and this population typically experiences inequities in educational and career success. Therefore, this study suggests that assisting students in career development at the junior high level may help students to experience increased school engagement. If students are engaged with what they are learning, then they may be at an advantage to continue with their education and thereby experience enhanced career and life outcomes.

From a Canadian perspective, Sutherland, Levine, and Barth (2005) examined the effectiveness of career education on student engagement with a Grade 5 and 6 sample of 33 Career Trek participants and 10 control students. Career Trek is a program targeted towards inner-city Manitoban students with perceived barriers to post-secondary

education such as socio-economic status, gender, disability, lifestyle, or membership in a marginalized group. In this program, participants visit post secondary education institutions over a period of 20 weeks to learn more about various career fields and associated academic requirements, forge new peer relationships, and increase their self-confidence and problem-solving skills. When interviewed, students who had participated in Career Trek reported themes of persistence, increased self-esteem, and an increased ability to identify themselves as students. Sutherland et al. connected these findings to their significant associations with school retention and academic engagement in previous research (Evans & Burck, 1992).

However, despite the positive interview findings (Sutherland, Levine, & Barth, 2005), students involved in Career Trek reported significantly decreased perceptions of ability related to school tasks after participation. Sutherland et al. suggest that these findings may reflect the perceived disconnect between an out-of-school career program and the students' typical educational context. Therefore, it is critical to create career education programs that are directly integrated with classroom tasks, such as CareerStart (Orthner, Jones-Sanpei, Arkos, & Rose, 2013). CareerStart enables teachers to teach core academic subjects, such as English language arts, by incorporating lesson examples and illustrations from real-life occupations. The premise of this program is that using job examples in course content allows students to recognize how academic content is relevant to future applications in their own lives.

Career education needs to take place throughout students' academic development. For at-risk students, this would allow them to "experience connections between education, careers, meaningful employment, and not living in poverty" (Sutherland et al.,

p. 154). Like Kenny, Blustein, Haase, Jackson, and Perry (2006), Sutherland et al. highlight the importance of integrated career education to increase student engagement for all students, especially those that are disadvantaged by economic and/or social circumstances.

Conclusion. To summarize, it appears that specific career education outcomes may vary across age levels. For example, junior high or high school students would likely not benefit from dressing up as workers of various occupations and discussing what those occupations entail (Harkins, 2000). However, a number of studies at the elementary, junior high, and senior high level recommend that career education be implemented early on in students' academic careers for it to be most effective (Bardick, Bernes, Magnusson, & Witko, 2004; Gibbons, Borders, Wiles, Stephan, & Davis, 2006; Johnson, 2000; Orthner, Jones-Sanpei, Arkos, Rose, 2013). Career education has also been linked to student engagement (Kenny, Blustein, Haase, Jackson, & Perry, 2006; Orthner, Jones-Sanpei, Arkos, & Rose; Sutherland, Levine, & Barth, 2005), which underscores the importance of continuous career education throughout a student's academic career. In theory, integrating career education into mainstream education at all age levels will positively impact students (Bernes & Magnusson, 2004; Harkins, 2001; Hiebert, 1993; Johnson, 2000; Proctor, 2005; Schultheiss, 2005, 2008); however, teachers may not feel adequately prepared to do this. For this reason, career education needs to be introduced into teacher training (Bernes & Magnusson; Millar, 1995; Schultheiss, 2008; Super, 1975) for subsequent career education to be effectively implemented in classrooms.

Part III: Career Education for Intern Teachers

This literature review has gradually moved from the most general information to that which is most specific to the current project. The current section will describe the undergraduate career education courses that form the basis of this study. These courses will be described in terms of their learning objectives, the theoretical foundation of Magnusson's (1992) Five Processes Model, and the requirements for the culminating career education integration project that all intern teachers completed.

Description of career education courses. Career practitioners stress the need for the creation of a K-12 career education curriculum that is integrated across academic subjects, as well as career development training for intern teachers to promote career infusion (Bernes & Magnusson, 2004; Harkins, 2001; Hiebert, 1993; Millar, 1995; Schultheiss, 2005, 2008; Super, 1975). To that end, the two career education courses described in this study were developed and made available to intern teachers at a university in southern Alberta, Canada.

The first career education course outlines the core foundations for career planning, career planning theories, and basic counselling skills. The course then focuses on the teacher's role in career planning, describes career education interventions, and outlines models of career planning. After establishing this foundation for career planning, the course transitions to discussion and practice using Magnusson's (1992) Five Processes Model of career planning. Upon completion of this course, intern teachers are equipped to assess students' career planning needs, engage students in the process of career planning, help students to explore and critically evaluate their options, and enable students to find the support needed to implement their career decisions. Specifically,

intern teachers are expected to understand career education so that they can enable their future students to learn more about themselves, learn more about careers, become excited about what they can do with their lives, and motivate them to learn more about different careers.

Using Magnusson's Five Processes Model. In this course, intern teachers are exposed to a wide variety of specific interventions to engage future students in career and self-exploration and decision-making processes. According to Slomp, Bernes, and Gunn (2012), these interventions include initiation strategies, guided imagery exercises, the "99 Year Old Question," pride stories, past experiences, formal career assessments, semi-formal career assessments, informal career assessments, self-portrait exercises, decision-making processes, exploration strategies, decision-making strategies, preparation strategies, and implementation strategies. These interventions are mapped on to Magnusson's Five Processes Model of career counselling, and each set of interventions will be described in more detail in the following paragraphs.

Initiation strategies. Initiation strategies are designed to engage students in the career planning process, discuss their life situations, encourage them to dream, and review significant experiences (K. Bernes, personal communication, September 27, 2013). Examples of initiation strategies used in the career education course include dream exercises, guided imagery exercises, pride stories, and exploration of past experiences.

Dream exercises (Edelstein, 2003; Magnusson, 1992) can be used at any stage of Magnusson's career counselling process. The general purpose of dream exercises is to help students develop their dreams, thereby freeing their creative imagination, allowing them to create a vision, increasing their motivation, and increasing feelings of

encouragement and inspiration (Edelstein). In addition, dream exercises assist students in discovering and generating alternatives and identifying their characteristics, values, interests and skills. In dream exercises, students are encouraged to imagine what their ideal day, working environment, family situation, and general life situation would look like. Students are to imagine without placing restrictions on themselves and dream under the assumption that everything is possible (Edelstein). After the activity, students are typically asked to write down the details of their dreams so that they can look for recurring themes and areas of personal meaning. In the career education courses, the most common dream exercises used are “My Dream Day,” wherein students are involved in a guided imagery script to imagine what their ideal day would look like, and “The 99 Year Old Question,” in which students are asked to list the life accomplishments that they would want to have made by the time they were 99, had their lives gone perfectly according to plan.

Pride stories (Magnusson, 1992) are typically used during the initiation and exploration stages of Magnusson’s career planning model. Pride stories are used to identify areas and themes of personal meaning, increase motivation, and inspire students (Edelstein, 2003). In this exercise, students are asked to describe a personally significant life experience that stimulated a sense of pride or achievement. This description can involve orally presenting the pride story to others, or writing it down to promote self-reflection and expansion of detail. After the student shares the written or oral form of the pride story, the audience develops a list of characteristics, values, interests, and skills that they perceive to describe the student and his or her story. The student then examines this list and prioritizes the top 10 attributes and places a star beside the top five. These

prioritized and starred attributes are considered by the student to be central to his or her story, personality, and career development. This exercise is typically positive for students, as they are able to illustrate past successes and consider how their personal attributes can contribute to future success as well.

In the same vein as pride stories, it can be useful for students to explore their past experiences (K. Bernes, personal communication, September 27, 2013). Students may be asked to reflect on experiences from their past to identify experiences that were enjoyable and challenging in work-related and non-work related domains of their lives. Students can then consider what they liked and did not like about their selected experiences, and therefore use their past experiences to inform their future decision-making. It is possible to complete past experience activities independently, but it is preferable to have students discuss their experiences with others so that they can identify recurring themes and areas of personal meaning that connect their selected experiences (K. Bernes, personal communication, September 27, 2013).

Self-portraits (Redekopp, Day, & Magnusson, 1995) are career development tools that are designed to assess students' career development without formal testing. As an informal assessment tool, self-portraits are designed to help students understand themselves and encourage further self-exploration in a way that does not use labels or link self-exploration to a specific occupational role. Instead, creating self-portraits is a collaborative process between student and career coach that helps students to examine themselves from four domains: (a) meaning, including values, beliefs, and interests; (b) outcomes, which are the specific components of a dream or vision; (c) activities, including preferred, past, and needed; and (d) tools/techniques, which include skills,

knowledge, personal characteristics, and attitudes (Redekopp et al., 1995). Information for each of these domains is written down, typically in chart format, to enable the development of action plans based on the “needed activities” section. Self-portraits are useful in and of themselves, but they are also useful as summative activities to capture information from other initiation and exploration activities, such as dream exercises, that students have already completed.

Exploration strategies. According to Magnusson (1992), exploration involves an “analysis of who the [student] is and what the [student] has to offer, and the exploration of ways in which the [student’s] talents and interests can be maximized...[this] includes the creative exploration of the [student] and the [student’s] world” (p. 6). Three areas of interest during the exploration stage are: (a) identifying students’ attributes, assets and liabilities; (b) identifying potential career opportunities; and (c) identifying the opportunities that will best fit the students’ characteristics and needs (Magnusson). Examples of exploration strategies introduced in the Career education course include formal career assessments, semi-formal career assessments, informal career assessments, self-portrait exercises, and decision-making processes.

Formal career assessments are standardized assessment tools such as standardized interest inventories or aptitude tests (Magnusson, 1992). In contrast, informal and semi-formal career assessments are typically flexible, qualitative, and adapted to the student’s needs. Informal career assessments rely on interview strategies, self-portrait exercises, past experiences exercises, non-standardized skill/value/interest inventories, and the use of journals and diaries. This list is not exhaustive, and it is possible to see the overlap

between stages within Magnusson's model as several of these exercises could also be completed during the initiation stage (Magnusson).

Another important aspect of exploration strategies is that they typically involve identifying potential careers and opportunities (Magnusson, 1992). This can be achieved through print searches, accessing online career information websites, and conducting information interviews with individuals in that particular field. Likewise, determining the degree of personal fit for a potential career of interest can be initiated through print searches, the application of one's personal attributes to the career requirements, networking, informational interviewing, and job shadowing.

Decision-making strategies. During the decision-making phase, students use decision-making processes to identify their most appropriate options that were generated during initiation and exploration (Magnusson, 1992). Edelstein (2003) describes a specific decision-making strategy wherein clients are encouraged to examine their alternatives and make decisions based on a balance of logical, intuitive, and affective factors. In the career education context, teachers would discuss decision-making processes with the students and provide examples of decision-making charts that students could use to evaluate their options. One such chart guides students in a step-by-step sequence to gather information about themselves and generate a set of occupational criteria that potential options must meet. Students then research options that meet their occupational criteria and eventually select the option of best fit.

Preparation strategies. Strategies involved in the preparation stage include "goal specification, identification of steps needed to reach goals, contingency planning, seeking commitment, and developing access skills" (Magnusson, 1992, p. 107). Goal-setting is

important as it sets concrete targets for reaching the outcome(s) of the decision-making process. Edelstein (2003) describes the process of specifying long-term goals, short-term goals, and sub-steps. The career coach describes the five components of the preparation phase and emphasizes the need for goal specification and step/sub-step development. The identified goals must match the individual's characteristics and occupational criteria, and goals must be specific, measurable, achievable, and time-oriented. The individual develops a long-term career goal and then identifies short-term goals and sub-steps that would support achievement of the long-term goal.

To make this process more concrete, students may use timelines or action plans to visually represent each step (Magnusson, 1992). Magnusson also cautions that contingency plans are important to consider, so individuals may benefit from creating opportunity webs wherein they identify key decision points along their career planning timelines. At each point, individuals prepare an alternative strategy in case the planned strategy does not work. Magnusson emphasizes that contingency planning is designed to prevent individuals from having a single focus in their career planning that, if unachievable, derails the entire career planning process.

In the final preparation strategy, individuals develop access skills, which are “the skills that will be necessary to implement the plan” (Magnusson, 1992, p. 115). Examples of skills that students may need to develop include “job search skills, job maintenance skills, academic or study skills, financial planning skills, social interaction skills, personal skills, and social adjustment skills” (Magnusson, 1992, p. 115-116). For example, students who are transitioning from secondary school to post-secondary education would

require access skills such as applying for college acceptance and applying for funding to attend post-secondary education.

Implementation strategies. Put simply, implementation strategies provide ongoing support for the individual so that he or she is able to enact the action plan and reach the desired goals (Magnusson, 1992). To help individuals enact their plans, career coaches can monitor individuals' progress, provide feedback and encouragement, and offer consultation when barriers to the goal are encountered. In the school context, implementation strategies would likely focus on monitoring students' progress toward their goals and offering feedback and advice to facilitate the achievement of those goals. For example, if a student were applying for scholarships to gain funding for post-secondary education, the career coach might ask the student about the deadlines involved in the application process and offer constructive feedback on the quality of the student's application.

Culminating assignment. The pivotal assignment in the first career education course involves developing a lesson plan, unit plan, or school-wide intervention that will engage students in career education or help them to further their exploration of options. Intern teachers are required to submit a 10 to 15-page essay that details their proposed projects. Specifically, this essay must include: (a) an introduction; (b) a description of the context of the teaching environment, including the school environment, course curriculum, developmental level of students, and proposed learning outcomes; (c) a detailed description of the proposed career education project; (d) a description of how the project will be evaluated in terms of its effectiveness; and (e) a description of anticipated

problems, possible solutions, and implications for future research. This proposal is then used as intern teachers transition to the second career education course.

Implementation of career education projects. In the second career education course, intern teachers complete a Professional Semester practicum placement wherein they implement the career education project that they developed for the first course into their teaching area. This Professional Semester (PSIII) is the third and final practicum semester that intern teachers complete, and their responsibilities in this role are extensive. PSIII intern teachers are assigned as full-time staff to schools for a semester wherein they are responsible for teaching half of each school day. Therefore, compared to other teacher training programs that have less extensive practicum placements, intern teachers in this program are expected to deliver entire courses with minimal supervision, which closely reflects the work that graduated teachers are expected to complete. As such, it should be noted that the intern teachers described in this study gain extensive teaching experience and deliver course content in a competent manner. At the conclusion of their practicum placement, intern teachers submit a detailed report of their career education project. This report mirrors the assignment that was developed as a proposal in the original course, with the exception that actual data and results from the project are described in the final report. In addition, intern teachers administer a student evaluation survey to their classes at the conclusion of the project; these surveys are submitted along with the intern teachers' final reports.

Part IV: Rationale for the Present Study

The present study arises from previous research, as research has supported the need for the development of integrated career education curriculum at all levels (Bernes &

Magnusson, 2004; Harkins, 2001; Hiebert, 1993; Johnson, 2000; Proctor, 2005; Schultheiss, 2005, 2008). To be effective, career education needs to consider students' developmental abilities (Erikson, 1968; Gottfredson, 1981; Super, 1975), provide a variety of contextualized learning experiences (Krumboltz, 2009), and empower students with a sense of self-efficacy (Bandura, 1994; Lent, Brown, & Hackett, 1994) so that they feel equipped to make balanced, age-appropriate decisions regarding their future (Magnusson, 1992; Miller-Tiedeman & Tiedeman, 1990; Porfeli & Lee, 2012; Tiedeman & O'Hara, 1963).

Based on this need, the career education courses were developed for intern teachers, and intern teachers then implemented career education projects into their classrooms. As a result of this training program, 56 projects including 75 types of interventions have been implemented, and 1389 students have been exposed to career education within the context of mainstream academic curriculum. This pool of projects and student evaluation surveys provides a strong foundation for the research conducted in the present study.

Previous research (Beale, 2000, 2003; Gillies, McMahon, & Carroll, 1998; Harkins, 2000, 2001; Orthner, Jones-Sanpei, Arkos, & Rose, 2013; Proctor, 2005) has investigated the utility and application of integrated career education, but on a far smaller and/or grade-limited scale than the current study. Beale's (2000) research involved two classes of approximately 25 fifth grade students, and Beale's (2003) second career education intervention was delivered to approximately five classes of third and/or fourth grade students. In each of these cases, sufficient detail was provided to allow educators to replicate the interventions, but there were little to no data presented that pertained to the

students involved in the interventions. Gillies et al. reported on the results of a career education project that involved 107 Grade 6 students; half of the students received a career education intervention, and half did not. Other researchers (Harkins; Proctor) made strong arguments in favour of career education interventions at the elementary school level, but these articles described neither the number of students involved in these interventions nor the students' quantified responses to the interventions. Orthner, Jones-Sanpei, Akos, and Rose conducted an extensive research study that tracked 3493 middle school students over a period of three years as half of the students were involved in a career education program and half were not. This study had an excellent sample size and was able to provide longitudinal results for the impact of career education; however, this study was also limited in its scope, as it did not address elementary or senior high students.

Whereas earlier research has examined the influence of career education with few students and more limited grade-level and curricular brackets, the current study examines the efficacy of career education interventions with 1106 students across diverse grade levels and academic subjects. This research will inform future curriculum development and teaching strategies, thereby contextualizing students' learning and enhancing their future outcomes.

Chapter 3: Methods

This section is designed to provide an overview of the archival data sample, instruments and materials, data collection procedures, and methods of analysis that were used in this project. This study used a non-experimental, descriptive, cohort-style approach to examine archival data that were collected at the end of each intern teacher's practicum placement. Specifically, this study used content analysis to assess the career education projects that intern teachers completed in fulfillment of their career education course requirements and the student evaluation surveys that were collected upon completion of these projects. The current study used archival data that were collected following ethics approval for the original project.

As a research method, content analysis has several advantages (Prasad, 2008). It is an unobtrusive research technique, context-sensitive, capable of capturing both quantitative and qualitative data, and can be used to analyze large volumes of data (Prasad). Content analysis is especially useful for analyzing large bodies of text because it provides objective coding guidelines, which facilitate analysis (Prasad). For these reasons, content analysis is an especially appropriate method for studying the career education projects and their associated student survey data in this study. Although content analysis has several advantages as a research method, it has its share of challenges as well. For one, the analysis process does not transpire in a linear fashion and it may be more complex and difficult than quantitative analysis because of its less-defined structure (Elo & Kyngas, 2008). The process itself is time-consuming and requires an enormous amount of work on the part of the researcher due to the method's

flexibility and the lack of a simple, “right” way of conducting the analysis (Elo & Kyngas).

Sample

This study examined the career education projects that intern teachers were required to implement to fulfill their course requirements. Fifty-six projects, delivered by 54 intern teachers, consisting of approximately 75 types of career education interventions were completed between 2009 and 2014. Permission to access these projects and their corresponding student evaluation survey results was granted by the founder and instructor of the course. The purposive sample of projects was restricted to include projects that had attached student evaluation data, contained sufficient detail regarding their implementation for analysis purposes, and had not manipulated the standardized student evaluation form. Projects that did not report student evaluation data and/or information about how the project was implemented by the instructor and received by students, and/or modified the original student evaluation surveys, were excluded from this study. These inclusion criteria were used to ensure that the current study reports on career education projects that were of relatively high quality. In excluded cases where projects did not include final data, it would have been impossible for the researcher to assess whether the career planning unit had been effective.

Each included project and its associated student evaluation surveys were assigned a project identification (ID) number so that overall results could be traced back to each individual project. These ID numbers involved a combination of letters and numbers, where A refers to elementary school, B to junior high, and C to high school. Projects in a given letter category were assigned a number out of the total number of projects within

the category. For example, there were 10 high school projects, and their identification numbers ranged from C1 to C10.

Instruments

There are several coding frames involved in this study, although this section will focus on the two coding frames that were used in the first phase of data extraction. The first coding frame was researcher-generated and used to capture data from each project. The second coding frame was derived from the original student evaluation survey that was distributed at the conclusion of each career education project. Each instrument is described in more detail in the following paragraphs.

In this context, coding frames for content analysis are similar to survey questionnaires in that they contain various dimensions of the communication content that will be coded (Prasad, 2008). The main categories of the coding frame are the focal points of the analysis (Schreier, 2012), which are typically embedded in the research question(s). Coding frames can be developed deductively, based on what is already known about the research subject, or inductively, based on themes that emerge from the data (Schreier). Each of the coding frames that were designed for the current study were developed deductively based on existing data such as: (a) the general format and content of the career education project assignment; and (b) the structure of the original student evaluation surveys that were distributed at the completion of each career education project.

Project coding frame. To carefully examine the career education projects, a descriptive Project Coding Frame (see Appendix A) was developed to extract data from each intervention. An electronic format was selected to facilitate subsequent data transfer

to quantitative and/or qualitative analysis software. The coding frame was designed with 17 items to address several quantitative and qualitative features of each career education project.

The first section of the coding frame, items 1 through 14, captured the following information: (a) the context of the teaching environment in which the project was implemented, such as the grade level category, number of students, and the course in which career education was integrated; (b) the delivery methods of the project, such as the number of lessons completed, duration of lessons, and types of interventions involved; and (c) cumulative student survey data including the interventions that were rated most and least popular, overall participation rates, overall perceived helpfulness ratings, and overall perceived effectiveness ratings of the project on four learning outcome domains.

The learning outcomes of interest are those that were used on the original student evaluation surveys (see Appendix C): (a) “This [project] helped me to learn a lot about myself”; (b) “This [project] helped me to learn a lot about careers”; (c) “This [project] made me excited about what I could do with my life”; and (d) “This [project] made me want to learn more about different careers.” These four learning outcomes may be used to assess student engagement, as student engagement has been linked to teaching practices that involve clear learning targets, assessment criteria, and self-assessment (Alberta Education, n.d.). Examining the summative results of the four learning outcomes allows the researcher to assess each project’s overall level of student engagement, as engagement “can be measured by the extent to which students identify with and value schooling outcomes...participate in academic and non-academic activities, strive to meet

formal requirements of schooling and make personal investment in learning” (Alberta Education, n.d., para. 6). In this context, the learning outcomes assessed the extent to which students engaged with each career education project and its interventions to: (a) learn more about themselves and potential careers, (b) want to continue learning; and (c) recognize the relevance of their academic learning, as measured by their excitement about their futures.

The majority of the coding frame items (1, 3, 4-6, 9, 10, 12-14) were single-response items wherein the researcher entered the appropriate value. Several items (2, 7, 8) were categorical response items wherein the researcher selected the appropriate category. Items seven and eight were categorical with multiple responses, as the researcher selected all options that apply to the project. It should be noted that items nine through 14 refer to summative results from student evaluations; therefore, they were completed after student evaluation surveys were coded.

The second part of the coding frame, items 15 through 17, provides text boxes to capture complex written information, including: (a) strengths of the project; (b) challenges of the project; and (c) recommendations for future projects. The researcher recorded each of items 15 through 17 verbatim from each report in the appropriate section on the coding frame. These particular domains were selected for analysis because of their potential to inform the development of future career education projects.

Student evaluation coding frame. The second measure involved in this study is a Student Evaluation Coding Frame (see Appendix B) that was derived from the original mixed-methods student evaluation survey (see Appendix C) that students were asked to complete at the conclusion of each project.

The original survey includes several sections. In the first section, students are asked to check the appropriate box labelled “I did it” or “I didn’t do it” for each activity in the career education unit to indicate whether they participated in the activity. In the subsequent section, students use a three point Likert scale, which uses text and sad, neutral, and smiley faces, to circle the appropriate face and thereby indicate whether the perceived helpfulness of each career intervention was Not Good at All, Good, or Great. Students are then asked to respond to two open-ended questions: (a) “What did you like about this [project]?”; and (b) “How could this [project] be made better?” In the final section of the survey, students are asked to rate their agreement with several career education learning outcomes using the same Likert scale that was used to rate the perceived helpfulness of each intervention. The learning outcomes addressed in the final section of the survey include: (a) “This [project] helped me to learn a lot about myself”; (b) “This [project] helped me to learn a lot about careers”; (c) “This [project] made me excited about what I could do with my life”; and (d) “This [project] made me want to learn more about different careers.”

The adapted coding frame based on this survey used eight items to categorize students’ responses and collect overall participation and intervention-specific perceived helpfulness scores for each student. Participation scores were calculated as the number of interventions completed by the student divided by the total number of interventions involved in the project. For example, a student that completed five out of seven interventions received an overall participation score of (5/7), which was recorded as 71. The perceived helpfulness of each intervention was more difficult to gauge, as each project used a different combination of interventions. For this reason, the coding

categories in item two were refined after each project had already been coded and item seven on the Project Coding Frame had been fully developed. After all intervention categories had been established, the Student Evaluation Coding Frame was modified to include a list of all potential interventions. Therefore, item two included 75 categories; for each survey, the researcher selected the appropriate intervention categories and indicated whether the student perceived each intervention as Not Good at All, Good, or Great. The sections pertaining to areas that the students liked about each project, recommendations that students would make for project improvement, and the perceived effectiveness of the project in relation to the four learning outcomes were not changed on the modified version of the survey. These sections were not changed because they were assessed identically across projects, and could therefore be easily compared to one another.

The items on the Student Evaluation Coding Frame can be divided into single-response (1), three-point Likert-scale response (2-6), and open-ended qualitative response (7, 8) sections. For each student, the single response item is an overall participation score, which is an average rating of the student's reported participation in each activity of the career planning unit. The three-point Likert-scale on the second item assessed the perceived helpfulness of each intervention by collecting student ratings of whether each intervention Not Good at All, Good, or Great. The subsequent three-point Likert-scale responses (3-6) collected the student's responses of Disagree, I'm Not Sure, or Agree to indicate the perceived effectiveness of the project on the four learning outcomes. These outcomes include whether students learned a lot about themselves, whether students learned a lot about different careers, whether students felt excited about what they could

do with the rest of their lives, and whether students wanted to learn more about different careers. In terms of qualitative data, students' open-ended responses regarding what they liked most about the career education project and how the project could be improved in the future were recorded verbatim in items seven and eight.

Pilot-testing. The first version of each coding frame was pilot tested by the researcher on five career education projects and five student evaluation surveys from each grade level category (K-6, 7-9, 10-12). These projects informed each instrument's development. Based on this pilot test, the coding frames were modified to adjust the wording of coding categories that were inadequate, and/or add relevant coding categories. This pilot testing of the coding frames was crucial to reveal inconsistencies and inadequacies in the developed categories and inform subsequent coding frame development (Prasad, 2008; Schreier, 2012).

Data Collection

All potentially relevant projects were screened according to the aforementioned inclusion criteria. Data collection commenced after the study's approval. Because the coding frames were inter-related, data collection commenced with the Project Coding Frame to establish intervention categories. After project coding was complete, the Student Evaluation Coding Frame was modified to include all potential intervention categories (see Appendix D). Summative scores from the student evaluation surveys for each project were then entered into each Project Coding Frame on items nine through 14. This interplay between the two coding frames reflects the non-linear analysis process that is common within content analysis projects (Elo & Kyngas, 2008).

Project coding frame. The researcher extracted information from each career education project and electronically completed the coding frames. Single-response and categorical response items from the coding frames were then recorded in SPSS for analysis. Qualitative data from the items pertaining to each project's results and discussion sections were recorded electronically on the coding frame to be transferred to NVivo for analysis.

Student evaluation coding frame. Like the Project Coding Frame, data collection for the Student Evaluation Coding Frame involved both quantitative and qualitative data collection. Single-response and categorical data such as students' overall participation scores, perceived helpfulness scores for each intervention, and perceived effectiveness of the career education project were entered into SPSS. Students' open-ended responses regarding what they liked most about the career education project and how the project could be improved in the future were recorded verbatim for transfer into NVivo for subsequent analysis.

Analysis

Content analysis aims to describe a particular phenomenon in a conceptual form (Elo & Kyngas, 2008). The researcher uses deductive content analysis when the structure of the analysis is formed based on previous knowledge, and inductive content analysis to formulate categories based on the data (Elo & Kyngas; Mayring, 2000). In the current study, deductive and inductive content analysis were used. Using the coding frames that were developed, deductive content analysis was used to extract specific demographic information from each project. Inductive content analysis (Schreier, 2012) was used to generate themes within the open-ended categories; these categories involve each project's

strengths, challenges, and recommendations for future research, as well as students' open-ended responses on their evaluation surveys. These broad open-ended categories were generated deductively based on the original course assignment's instructions and their potential relevance to curriculum development. Codes and themes within these broad categories were generated inductively as the researcher became immersed in the data.

When using content analysis, the researcher must contend with four methodological issues. These issues include selecting the units of analysis, creating categories, choosing an appropriate sample, and assessing the reliability of coding (Prasad, 2008). In the present study, themes were selected as the unit of analysis. Berg (2008) asserts that themes are useful units of analysis because, in their simplest forms, themes are comprised of sentences related to a specific concept. Themes were selected as the units of analysis because other units, such as words or paragraphs, would not necessarily capture the concepts of interest relating to projects' strengths, challenges, and recommendations, and students' responses.

After the coding frame had been applied to extract data from each career education project, the researcher proceeded to the analysis phase. During this phase, the researcher reviewed the data and coded them for correspondence with and/or exemplification of the coding categories (Elo & Kyngas, 2008). Upon the researcher's completion of qualitative analysis, a trained graduate assistant independently coded data from 30% of the sample of projects and surveys (T. Gunn & S. Ross, personal communication, February 14, 2014). This coding was compared to the primary researcher's work to assess interrater reliability. Details of this process will be described in the qualitative analysis section.

Quantitative analysis. The career education projects were analyzed using frequency analysis and content analysis. As mentioned, quantitative and categorical information were entered into SPSS. This information included demographic information for each project such as the grade level, subject area, number of lessons completed, and types of career education interventions. Using descriptive statistics, frequency tables were generated to reflect frequency counts of categorical data and, in the case of numerical data, the mean, mode, and median results in each coding category.

Likewise, the Student Evaluation Coding Frame was used to collect quantitative data from each student survey. This quantitative information was analyzed using SPSS to produce frequency tables to reflect students' overall levels of participation, perceived helpfulness of each intervention, and perceptions of effectiveness within each project, across all projects, and within grade-level categories (K-6, 7-9, 10-12). Cross tabulations were used to reveal relationships between variables, and if frequencies were high enough within cells, chi-square tests of association were to be used to evaluate the statistical significance of these relationships.

Qualitative analysis. During data collection, the open-ended qualitative responses from the Project Coding Frame and Student Evaluation Coding Frame were imported into NVivo 10 for subsequent qualitative content analysis. NVivo is a comprehensive qualitative data analysis software package that can be used to complete qualitative content analysis (Leech & Onwuegbuzie, 2011; Schreier, 2012). Qualitative content analysis can be accomplished in three overlapping phases: *immersion*, *reduction*, and *interpretation* (Forman & Damschroder, 2008). During immersion, "the researcher engages with the data and obtains a sense of the whole before rearranging it into discrete

units for analysis” (Forman & Damschroder, p. 47). The subsequent reduction phase is the heart of the content analysis process and it includes several goals:

(1) reduce the amount of raw data to that which is relevant to answering the research question(s); (2) break the data (both transcripts and memos) into more manageable themes and thematic segments; and (3) reorganize the data into categories in a way that addresses the research question(s). (Forman & Damschroder, 2008, pp. 48).

When the data are reduced, they are converted into codes. According to Forman and Damschroder (2008), codes are developed by the researcher to organize data in a manner that facilitates interpretation and uses categories that are analytically relevant to the study. Codes may be deductive or inductive; in the current project, broad coding categories were generated deductively to reflect existing data collection categories from the career education project assignment criteria. Within these broad deductive codes, the researcher used an inductive approach to generate new codes based on the data (Forman & Damschroder).

Coding frame generation. As a result of inductive code generation, several new coding frames were developed and used to categorize emerging themes from each of the qualitative questions. These coding frames consisted of lists of codes into which themes were then sorted during reduction.

Project coding frame. On the Project Coding Frame qualitative data, coding frames were generated to categorize each project’s Strengths (see Appendix E), Challenges (see Appendix F), and Recommendations (see Appendix G). Just as the researcher pilot-tested the original Project Coding Frame to refine its categories, each of these three coding

frames was also pilot-tested on one randomly selected project from each grade level category. Through pilot-testing, coding categories were validated and/or modified as needed. The researcher then applied each coding frame to its respective sample of project data. Interrater reliability was established with a trained research assistant, using a randomly selected sample of 30% of the data available for each coding frame. Percentage agreement was selected as the measure of interrater reliability because the goal was to establish consensus estimates of reliability using nominal variables with qualitatively different categories (Stemler, 2004). Percentage agreement was manually calculated for each coding frame using the formula $\text{agreement (A)} = \frac{\text{observed agreement (O)}}{\text{possible agreement (P)}}$, or $A = O/P$ (Grayston & Rust, 2001).

On the Project Strengths coding frame, interrater reliability was found to be 92%. Reliability for the Project Challenges coding frame was established at 88%. Finally, reliability on the Project Recommendations coding frame was 88%. Each of these percentages fell within the acceptable range for estimates of interrater reliability, as they exceeded 70%, which is an accepted value for consensus agreement (Stemler, 2004).

Student evaluation coding frame. After the researcher became immersed in the data (Forman & Damschroder, 2008), two additional coding frames were generated to categorize the data that students reported in terms of what they liked most about each project (see Table 6) and how they felt each project could be improved (see Table 7). Pilot-testing of these frames was completed on a randomly generated, stratified sample of 5% of the student responses in each grade level category. This pilot-testing allowed the researcher to modify coding categories on an as-needed basis. The researcher then used each modified coding frame to categorize all students' responses. A trained research

assistant then coded a randomly selected sample of 30% of each coding frame's data to establish interrater reliability. The reliability percentage agreements for the Student Likes Coding Frame and Student Improvements Coding Frame were respectively established at 88%. As with the project coding frames described previously, these percentages were considered appropriate because they far exceeded the baseline recommendation of 70% interrater reliability (Stemler, 2004).

Interpretation. During the interpretation phase, the researcher used the codes that were generated during reduction to reassemble the data to “promote a coherent and revised understanding or explanation of it...the researcher [aimed to] identify patterns, test preliminary conclusions, attach significance to particular results, and place them within an analytic framework” (Forman & Damschroder, 2008, p. 56). Specifically, the researcher interpreted inductive and deductive codes generated through the previously described coding frames to describe the characteristics of successful projects, aspects of projects that students liked, areas of project improvement, and future recommendations for career education projects.

Summary

This chapter has outlined the general methods of data collection and analysis that were used in this study. The results of data collection and analysis will be presented in the following chapter, and the overarching discussion of these results and their implications for research and practice will be described in Chapter 5.

Chapter 4: Results

This chapter includes two sections. In Part I, the demographics of the completed projects and surveys are described in detail. The research questions and their corresponding findings are presented in Part II, and tables are included to facilitate the interpretation of these results.

Part I: Demographic Data

After applying the exclusion criteria described in the previous chapter, 46 projects completed by 46 intern teachers were included for analysis. Of the excluded projects, five had modified the student evaluation surveys, and five were missing student evaluation survey and/or project data that rendered them unusable for analysis. The projects that were included are described in greater detail in the following paragraphs.

Context of teaching environment.

Grade level category. The majority of projects ($n = 25$; 54.3%) were completed at the elementary school level, and the remaining projects were completed at the junior high ($n = 11$; 23.9%) or senior high ($n = 10$; 21.7%) level. The most recurring grades were Grade 6 ($n = 6$; 13.0%), Grade 8 ($n = 5$; 10.9%), and Grade 9 ($n = 4$; 8.7%). The remaining grades are presented Table 1.

Table 1

Distribution of Projects Across Grades and Grade Level Categories

Grade Level Category	Grade	Frequency*	Percentage**
Elementary (1-6)	1	3	6.5%
	1½	2	4.3%
	2	2	4.3%
	2/3	1	2.2%
	3	3	6.5%
	¾	2	4.3%
	4	3	6.5%
	4/5	2	4.3%
	5	1	2.2%
	6	6	13.0%
Junior High (7-9)	7	1	2.2%
	8	5	10.9%
	7/9	1	2.2%
	9	4	8.7%
Senior High (10-12)	10	3	6.5%
	10/11	1	2.2%
	11	3	6.5%
	12	2	4.3%
	10/12	1	2.2%

Note: Total number of projects = 46; Projects were divided into the mutually exclusive grade categories listed above.

*Frequency = The number of projects that were classified within this grade category.

**Percentage = The percentage of selected projects that were classified within this grade category.

Number of students. In total, 1106 students were involved in the included career education projects. Of these students, 1034 completed student evaluation surveys upon completion of the unit. Missing surveys are accounted for by student absence and/or intern teacher error. Class sizes ranged from six to 75 students, with a mean class size of 24 students, median of 22, and modes of 18 and 19. There were 598 students in elementary classes, of which 555 completed student surveys. In the junior high category, 325 students participated in career education and 309 completed surveys. Finally, in the high school category, 183 students were involved in the projects and 170 completed student evaluation surveys.

Course(s) of implementation. Across grades and grade level categories, a wide variety of courses were used for the implementation of career education. It should be noted that some projects incorporated multiple subject areas, and therefore the total number of courses exceeds 46. The vast majority of elementary projects implemented career education in conjunction with English Language Arts ($n = 19$; 76.0%) and/or Health and Life Skills ($n = 16$; 64.0%). In junior high classrooms, it was most common to integrate career education with Health and Life Skills ($n = 5$; 45.5%) and/or Information and Communication Technology (ICT) outcomes ($n = 4$; 36.4%). At the senior high level, ICT outcomes were most commonly addressed ($n = 3$; 30.0%). Across grade levels, it appears that integration with Health and Life Skills ($n = 23$; 43.2%) and ELA ($n = 21$; 31.7%) was most frequent. Each course category and its distribution across grade levels are presented in Table 2.

Table 2

Distribution of Projects Across Courses of Implementation and Grade Level

Curriculum	Elementary Projects* Frequency (%)	Junior High Projects** Frequency (%)	Senior High Projects*** Frequency (%)	Overall Distribution**** Total Frequency, Average (%)
English Language Arts (ELA)	19 (76.0%)	1 (9.1%)	1 (10.0%)	21 (31.7%)
Health and Life Skills	16 (64.0%)	5 (45.5%)	2 (20.0%)	23 (43.2%)
Social Studies (SS)	10 (40.0%)	1 (9.1%)	1 (10.0%)	12 (19.7%)
Science	2 (8.0%)	3 (27.3%)	2 (20.0%)	7 (18.4%)
Math	1 (4.0%)	1 (9.1%)	2 (20.0%)	4 (11.0%)
Information and Communications Technology (ICT)	2 (8.0%)	4 (36.4%)	3 (30.0%)	9 (24.8%)
Art	5 (20.0%)	--	--	5 (6.7%)
Second Language Studies	--	2 (18.2%)	2 (20.0%)	4 (12.7%)
Other (Physical Education, Music, Lunch Hour)	1 (4.0%)	--	2 (20.0%)	3 (8.0%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency and percentage of elementary projects that incorporated each academic subject category; Total of 25 elementary projects.

**Frequency and percentage of junior high projects that incorporated each academic subject category; Total of 11 junior high projects.

***Frequency and percentage of senior high projects that incorporated each academic subject category; Total of 10 senior high projects.

****Total frequency of projects that incorporated each academic subject, out of a possible total of 46, and average percentage of projects that incorporated each subject.

Average percentage weighted according to the total number of projects within a given grade level category.

Delivery of project.

Number and duration of lessons completed. Each project contained between two and 12 lessons, although most projects included 5 ($n = 10$; 21.7%) or 6 ($n = 12$; 26.1%) lessons. Lessons ranged in duration from 15 to 180 minutes in length. It should be noted that 15 projects (32.6%) did not report the duration of lessons, and three projects (6.5%) referred to a number of periods without specifying period length. Of the remaining projects, it was most common for lessons to take place over a 30-80 minute period ($n = 15$; 32.6%), although some exceeded 80 minutes ($n = 9$; 19.6%). It was less frequent for lessons to be under 30 minutes in length ($n = 4$; 8.7%).

Types of interventions included. Initial coding revealed that there were 75 distinct categories of career education interventions that were included across projects. A complete list of interventions is included in Appendix D. As evidenced below, the most common interventions across projects were to Research Careers ($n = 19$; 41.3%), imagine their Future Dream Day ($n = 16$; 34.8%), and share Pride Stories ($n = 15$; 32.6%). Table 3 highlights interventions that were included by more than 10% of projects, arranged in descending order of cumulative frequency.

Table 3

Interventions Included in >10% of Projects, Distributed Across Grade Levels

Intervention	Elementary Projects* Frequency (%)	Junior High Projects** Frequency (%)	Senior High Projects*** Frequency (%)	Overall Distribution **** Total Frequency, Average (%)
Research Careers	7 (28.0%)	6 (54.6%)	6 (60.0%)	19 (41.3%)
Dream Day – Future	4 (16.0%)	6 (54.6%)	6 (60.0%)	16 (34.8%)
Pride Stories	6 (24.0%)	6 (54.6%)	3 (30.0%)	15 (32.6%)
99 Year Old Question	4 (16.0%)	3 (27.3%)	4 (40.0%)	11 (23.9%)
Holland’s Codes (Worksheet/Quiz)	4 (16.0%)	4 (36.4%)	1 (10%)	9 (19.6%)
List of Future Accomplishments	4 (16.0%)	4 (36.4%)	--	8 (17.4%)
Class Discussion	3 (12.0%)	2 (18.2%)	3 (30.0%)	8 (17.4%)
Interests Inventory	2 (8.0%)	6 (54.6%)	--	8 (17.4%)
Description of Dream Job/Career	5 (20.0%)	2 (18.2%)	1 (10.0%)	8 (17.4%)
Description of Future Self	4 (16.0%)	1 (9.1%)	2 (20.0%)	7 (15.2%)
Career Planning Timeline	3 (12.0%)	2 (18.2%)	1 (10.0%)	6 (13.0%)
Personality Quiz	1 (4.0%)	3 (27.3%)	2 (20.0%)	6 (13.0%)
Dream Day – Weekend	3 (12.0%)	2 (18.2%)	--	5 (10.9%)
Self-Portrait	--	4 (36.4%)	1 (10.0%)	5 (10.9%)

List or Represent Meaning	5 (20.0%)	--	--	5 (10.9%)
Story with Questions (Worksheet/Journal)	5 (20.0%)	--	--	5 (10.9%)
Persuasive Writing	4 (16.0%)	--	1 (10.0%)	5 (10.9%)
Research Subject-Specific Careers	1 (4.0%)	1 (9.1%)	3 (30.0%)	5 (10.9%)

Note: Dashes (--) represent a lack of appropriate data for a given category.

*Frequency and percentage of elementary projects that incorporated each career education intervention; Total of 25 elementary projects.

**Frequency and percentage of junior high projects that incorporated each career education intervention; Total of 11 junior high projects.

***Frequency and percentage of senior high projects that incorporated each career education intervention; Total of 10 senior high projects.

****Total frequency of projects that incorporated each career education intervention, out of a possible total of 46, and average percentage of projects that incorporated each career education intervention. Average percentage weighted according to the total number of projects within a given grade level category.

Stages of Magnusson's Five Processes Model. As previously discussed,

Magnusson's (1992) Five Processes Model played a major role in the career education course. Correspondingly, all 46 projects contained various stages of Magnusson's model. All projects encompassed the first stage of Initiation, and 44 projects (95.7%) also included the stage of Exploration. Nineteen projects (41.3%) used Decision-Making strategies, and eight (17.4%) incorporated the Preparation stage. Arranged by grade level category, these results are presented in Table 4.

Table 4

Distribution of Magnusson's (1992) Model Across Projects, by Grade Level

Stage	Elementary Projects* Frequency (%)	Junior High Projects** Frequency (%)	Senior High Projects*** Frequency (%)	Overall Distribution**** Total Frequency, Average (%)
Initiation	25 (100.0%)	11 (100.0%)	10 (100.0%)	46 (100.0%)
Exploration	23 (92.0%)	11 (100.0%)	10 (100.0%)	44 (95.7%)
Decision- Making	3 (12.0%)	7 (63.6%)	9 (90.0%)	19 (41.3%)
Preparation	1 (4.0%)	4 (36.4%)	3 (30.0%)	8 (17.4%)
Implementation	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

*Frequency and percentage of elementary projects that incorporated each stage of Magnusson's model; Total of 25 elementary projects.

**Frequency and percentage of junior high projects that incorporated each stage of Magnusson's model; Total of 11 junior high projects.

***Frequency and percentage of senior high projects that incorporated each stage of Magnusson's model; Total of 10 senior high projects.

****Total frequency of projects that incorporated each stage of Magnusson's model, out of a possible total of 46, and average percentage of projects that incorporated each stage. Average percentage weighted according to the total number of projects within a given grade level category.

Part II: Research Questions

The research questions and their respective findings have been divided into three main categories: general effectiveness of projects, effectiveness of specific career education interventions, and future directions for curriculum development and teaching strategies. Each of these question categories and their findings will be described in greater detail within this section.

General effectiveness of projects. The results in this section pertain to research questions one through four, which investigated the general effectiveness of projects. This examination includes both Project Coding Frame and Student Evaluation Coding Frame data.

Research question 1: What are general characteristics of career education projects that are rated by students as being highly effective? To operationalize this question, “highly effective” was conceptualized as an overall effectiveness score that exceeded 75% (K. Bernes, personal communication, June 4, 2014). Seventeen projects (37.0%) met the criteria for inclusion in this question. Of these projects, 15 (88.2%) were completed at the elementary school level, and one project (5.9%) was completed at the junior and senior high level, respectively. The general characteristics of these projects are presented in Table 5.

Table 5

General Characteristics of Highly Effective Projects, Distributed Across Grade Levels

Characteristic	Elementary Projects*	Junior High Projects**	Senior High Projects***	Total Frequency (where applicable)****
Number of students in class	Total: 351 Range: 14-60 Mean: 23.4 Mode: 19	28	26	405
Curriculum	ELA: 11 Health: 11 SS: 6 Art: 4 ICT: 2 Other: 3	Health: 1	Health: 1 SS: 1	ELA: 11 Health: 13 SS: 7 Art: 4 ICT: 2 Other: 3
Number of Lessons	Range: 3-9 Mean: 5.7 Mode: 5	8	6	--
Duration of Lessons	<30 min: 2 30-80 min: 6 >80 min: 2 Not reported: 4 Period, no length: 1	30-80 min	>80 min	<30 min: 2 30-80 min: 7 >80 min: 3 Not reported: 4 Period, no length: 1
Stages of Magnusson's Model Included	Initiation: 15 Exploration: 15 Decision-Making: 2	Initiation: 1 Exploration: 1 Decision-Making: 1	Initiation: 1 Exploration: 1 Decision-Making: 1	Initiation: 17 Exploration: 17 Decision-Making: 4
Intervention Ranked Most Popular (Highest % rated Good/Great)	Guest Speaker	Research Careers	Research Careers	--
Intervention Ranked Least Popular	Description of Hero/Role Model	Description of Future Self	99 Year Old Question	--

(Highest %
rated Not Good
at All)

Cumulative Participation Rates	97	90	100	96
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Cumulative Ratings of Helpfulness (% of students who rated interventions as Good/Great)	96	97	98	97
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Note: Dashes (--) represent a lack of appropriate data for a given category.

*Frequency and percentage of elementary projects with overall effectiveness scores >75%; Total of 15 elementary projects in this category.

** Frequency and percentage of junior high projects with overall effectiveness scores >75%; Total of 1 junior high project in this category.

***Frequency and percentage of senior high projects with overall effectiveness scores >75%; Total of 1 senior high project in this category.

****Total frequency and/or average percentage, where applicable, of elementary, junior high, and senior high project characteristics in projects with overall effectiveness scores >75%.

Research question 2: What do students like most about career education projects?

This question is best answered through an examination of student responses on the Student Evaluation Coding Frame. Through the content analysis process described previously, a detailed coding frame was constructed and applied to determine the aspects of career education projects that students liked the most. It should be noted that the frequency of themes exceeds the number of students who completed the survey, as many students highlighted more than one theme that they liked about the unit. All themes and frequencies are reported in Table 6. It should be noted that general thematic categories, such as “Enjoyed specific activity,” were used to visually group discrete themes that fell within these categories, such as “99 year old question” and “Research careers.” However,

these discrete themes are not considered secondary or tertiary themes in comparison to the overall themes; rather, they are weighted the same as themes such as “Break from regular work” that could not be classified under more generic categories. Across grade levels, the most common responses typically involved: thinking about the future ($n = 117$; 9.2%) learning about careers ($n = 125$; 8.4%), the unit was helpful ($n = 98$; 7.8%), the unit was fun or enjoyable ($n = 125$; 7.7%), learning about self ($n = 80$; 5.9%), starting to plan for the future ($n = 60$; 5.5%), and conducting career research ($n = 75$; 4.7%).

Table 6

Frequencies of Themes: What Students Liked about the Projects

Response Theme	Elementary students* Frequency (%)	Junior High students** Frequency (%)	Senior High students*** Frequency (%)	Overall Distribution****: Total Frequency, Average (%)
Break from regular work	7 (0.9%)	10 (2.1%)	1 (0.4%)	18 (1.1%)
Creative thinking	4 (0.5%)	2 (0.4%)	--	6 (0.3%)
Doing activities (general)	7 (0.9%)	2 (0.4%)	2 (0.7%)	11 (0.7%)
Doing physical or hands-on activities	12 (1.6%)	2 (0.4%)	1 (0.4%)	15 (0.8%)
Easy	5 (0.7%)	3 (0.6%)	11 (3.9%)	19 (1.7%)
Enjoyed specific activity				
99 year old question	7 (0.9%)	1 (0.2%)	--	8 (0.4%)
Career planning timeline	6 (0.8%)	1 (0.2%)	--	7 (0.3%)
Compliments from peers	--	5 (1.0%)	--	5 (0.3%)
Research careers	28 (3.7%)	42 (8.7%)	5 (1.8%)	75 (4.7%)
Representing meaning	3 (0.4%)	--	--	3 (0.1%)
Dream day	16 (2.1%)	11 (2.3%)	1 (0.4%)	28 (1.6%)
Art activities				
Collage	7 (0.9%)	1 (0.2%)	--	8 (0.4%)
Decorate journal	10 (1.3%)	--	--	10 (0.4%)

Career/job cut-out	18 (2.4%)	--	--	18 (0.8%)
Title page, poster, or vision board	7 (0.9%)	4 (0.8%)	--	11 (0.6%)
Other art activities	20 (2.6%)	1 (0.2%)	1 (0.4%)	22 (1.1%)
Talking about family	6 (0.8%)	--	--	6 (0.3%)
Field trip	12 (1.6%)	--	--	12 (0.5%)
Games	13 (1.7%)	--	--	13 (0.6%)
Guest speakers	17 (2.2%)	--	5 (1.8%)	19 (1.3%)
Describe hero/role model	8 (1.0%)	--	--	8 (0.3%)
Holland's codes quiz	9 (1.2%)	3 (0.6%)	--	12 (0.6%)
Online tests	--	6 (1.2%)	--	6 (0.4%)
Other activity	22 (2.9%)	--	--	22 (1.0%)
PowerPoint or presentations	2 (0.3%)	41 (8.5%)	1 (0.4%)	44 (3.1%)
Pride story	8 (1.0%)	--	2 (0.7%)	10 (0.6%)
Reading stories	22 (2.9%)	--	--	22 (1.0%)
Researching post-secondary programs	--	3 (0.6%)	5 (1.8%)	8 (0.8%)
Watching a video	30 (3.9%)	2 (0.4%)	--	32 (1.4%)
Writing	22 (2.9%)	2 (0.4%)	--	24 (1.1%)
Everything about unit	31 (4.1%)	5 (1.0%)	3 (1.1%)	39 (2.1%)

Freedom of choice	5 (0.7%)	6 (1.2%)	1 (0.4%)	12 (0.8%)
Fun or enjoyable	72 (9.4%)	35 (7.3%)	18 (6.5%)	125 (7.7%)
Made class interesting	--	--	7 (2.5%)	7 (0.8%)
Good/interesting	12 (1.6%)	5 (1.0%)	13 (4.7%)	23 (2.4%)
Career knowledge				
Learned about careers	51 (6.7%)	54 (11.2%)	20 (7.2%)	125 (8.4%)
Connected personal attributes to job	3 (0.4%)	3 (0.6%)	7 (2.5%)	13 (1.2%)
Helpful	27 (3.5%)	36 (7.5%)	35 (12.5%)	98 (7.8%)
Interpersonal outcomes				
Learned about classmates	8 (1.0%)	3 (0.6%)	1 (0.4%)	12 (0.7%)
Told others about self	11 (1.4%)	10 (2.1%)	2 (0.7%)	23 (1.4%)
Worked with others	3 (0.4%)	9 (1.9%)	2 (0.7%)	14 (1.0%)
Learned about future				
Opened new possibilities	7 (0.9%)	11 (2.3%)	10 (3.6%)	28 (2.3%)
Started planning for future	5 (0.7%)	26 (5.4%)	29 (10.4%)	60 (5.5%)
Thought about future	41 (5.4%)	34 (7.1%)	42 (15.1%)	117 (9.2%)
Learned about self	28 (3.7%)	31 (6.4%)	21 (7.5%)	80 (5.9%)
Learned in general	21 (2.7%)	12 (2.5%)	3 (1.1%)	36 (2.1%)

Less stressed	1 (0.1%)	--	3 (1.1%)	4 (0.4%)
Organization or structure of unit	4 (0.5%)	--	4 (1.4%)	8 (0.6%)
Personally relevant	--	2 (0.4%)	3 (1.1%)	5 (0.5%)
Raised grades	--	1 (0.2%)	1 (0.4%)	2 (0.2%)
Intern teacher characteristics	6 (0.8%)	2 (0.4%)	3 (1.1%)	11 (0.8%)
Using the computer	7 (0.9%)	12 (2.5%)	--	19 (1.1%)
Other	2 (0.3%)	2 (0.4%)	--	4 (0.2%)
Don't know	2 (0.3%)	4 (0.8%)	--	6 (0.4%)
Didn't like it	12 (1.6%)	19 (4.0%)	16 (5.7%)	47 (3.8%)
No response	78 (10.2%)	17 (3.5%)	7 (2.5%)	102 (5.4%)
Total	765	481	279	1522

Note: Dashes (--) represent a lack of data for a given category.

*Frequency and percentage of elementary student responses that incorporated each theme; Total of 25 elementary projects.

**Frequency and percentage of junior high student responses that incorporated each theme; Total of 11 junior high projects.

***Frequency and percentage of senior high student responses that incorporated each theme; Total of 10 senior high projects.

****Total frequency of student responses, across grade levels, which incorporated each theme, and average percentage of students that described each theme. Average percentage weighted according to the total number of students within a given grade level category.

Research question 3: What do students feel could be improved in career education

projects? This question also relies on student responses on their original Student Evaluation Surveys. As described earlier, a coding frame was created and applied to categorize students' recommendations for project improvement. Once again, the frequencies of themes exceed the original number of students because some students provided more than one recommendation in their written responses. The full results of each theme and its frequency are presented in Table 7. Across grade levels, the most common recommendations involved: no changes to unit ($n = 187$; 14.9%), more time to spend on unit ($n = 71$; 8.0%), don't know ($n = 67$; 5.7%), make unit more fun and/or exciting ($n = 56$; 5.5%), learn more about careers ($n = 23$; 4.6%), less repetition in activities ($n = 24$; 3.6%), more opportunities for group work ($n = 44$; 3.4%), and get rid of a specific assignment ($n = 37$; 3.1%).

Table 7

Frequencies of Themes: Student Recommendations for Project Improvement

Response Theme	Elementary students* Frequency (%)	Junior High students** Frequency (%)	Senior High students*** Frequency (%)	Overall Distribution****: Total Frequency, Average (%)
Add in certain activities				
Do something from job	4 (0.7%)	3 (0.8%)	--	7 (0.5%)
Drama	3 (0.5%)	--	--	3 (0.2%)
Field trip	4 (0.7%)	2 (0.6%)	2 (1.0%)	8 (0.8%)
Games	15 (2.4%)	6 (1.7%)	--	21 (1.4%)
Group work	24 (3.9%)	17 (4.7%)	3 (1.5%)	44 (3.4%)
Guest speakers	7 (1.1%)	3 (0.8%)	1 (0.5%)	11 (0.8%)
More art	24 (3.9%)	4 (1.1%)	--	28 (1.7%)
More music	5 (0.8%)	--	--	5 (0.3%)
More quizzes	1 (0.2%)	2 (0.6%)	1 (0.5%)	4 (0.4%)
More reading or stories	10 (1.6%)	1 (0.3%)	--	11 (0.6%)
More research	15 (2.4%)	11 (3.1%)	5 (2.5%)	31 (2.7%)
More videos	8 (1.3%)	2 (0.6%)	2 (1.0%)	12 (1.0%)
More worksheets or writing	9 (1.5%)	4 (1.1%)	--	13 (0.9%)
Other activity	3 (0.5%)	1 (0.3%)	1 (0.5%)	5 (0.4%)
Presentation	--	4 (1.1%)	--	4 (0.4%)
Use computer	8 (1.3%)	3 (0.8%)	--	11 (0.7%)

Adjust classroom management	2 (0.3%)	6 (1.7%)	2 (1.0%)	10 (1.0%)
Get rid of specific assignment	15 (2.4%)	19 (5.3%)	3 (1.5%)	37 (3.1%)
Learn more about careers	4 (0.7%)	12 (3.3%)	7 (3.5%)	23 (4.6%)
More career options	3 (0.5%)	3 (0.8%)	2 (1.0%)	8 (0.8%)
Learn more about specific subject	2 (0.3%)	4 (1.1%)	1 (0.5%)	7 (0.6%)
Modify existing activities				
Easier	6 (1.0%)	4 (1.1%)	1 (0.5%)	11 (0.9%)
Fewer personal questions	1 (0.2%)	2 (0.6%)	2 (1.0%)	5 (0.6%)
Fewer questions	1 (0.2%)	--	1 (0.5%)	2 (0.2%)
Focus on near future	2 (0.3%)	--	--	2 (0.1%)
Less repetition	2 (0.3%)	2 (0.6%)	20 (9.9%)	24 (3.6%)
Less talking	1 (0.2%)	2 (0.6%)	--	3 (0.3%)
Less work and/or homework	--	10 (1.8%)	2 (1.0%)	12 (0.9%)
Less writing and/or reading	4 (0.7%)	12 (3.3%)	1 (0.5%)	17 (1.5%)
More activities	13 (2.1%)	11 (3.1%)	3 (1.5%)	27 (2.2%)
More activities about self	2 (0.3%)	1 (0.3%)	1 (0.5%)	4 (0.4%)
More direction on what to do with life	3 (0.5%)	6 (1.7%)	2 (1.0%)	11 (1.1%)
More freedom	4 (0.7%)	4 (1.1%)	4 (2.0%)	12 (1.3%)
More fun and/or exciting	17 (2.8%)	25 (6.9%)	14 (6.9%)	56 (5.5%)

More information	3 (0.5%)	2 (0.6%)	--	5 (0.4%)
More and/or better explanation	5 (0.8%)	13 (3.6%)	6 (3.0%)	24 (2.5%)
More physical or hands-on activities	16 (2.6%)	6 (1.7%)	--	22 (1.4%)
More specific and focused	1 (0.2%)	2 (0.6%)	6 (3.0%)	9 (1.3%)
More talking about self or jobs	5 (0.8%)	3 (0.8%)	2 (1.0%)	10 (0.9%)
More work and/or more questions	2 (0.3%)	2 (0.6%)	1 (0.5%)	5 (0.5%)
Other modification	4 (0.7%)	2 (0.6%)	--	6 (0.4%)
Student involvement	2 (0.3%)	--	1 (0.5%)	3 (0.3%)
Use more English	--	--	4 (2.0%)	4 (0.7%)
No changes to be made	112 (18.3%)	49 (13.6%)	26 (12.9%)	187 (14.9%)
Adjust evaluation survey	2 (0.3%)	1 (0.3%)	2 (1.0%)	5 (0.5%)
Timing of unit				
Introduce earlier	--	--	3 (1.5%)	3 (0.5%)
Less time	1 (0.2%)	4 (1.1%)	2 (1.0%)	7 (0.8%)
More time	18 (2.9%)	24 (6.7%)	29 (14.4%)	71 (8.0%)
Other recommendation	2 (0.3%)	1 (0.3%)	1 (0.5%)	4 (0.4%)
Don't know	28 (4.6%)	32 (8.9%)	7 (3.5%)	67 (5.7%)
Resistance to unit				
Don't need to think about future yet	6 (1.0%)	--	--	6 (0.3%)

Wouldn't want to do this unit	--	3 (0.8%)	6 (3.0%)	9 (1.3%)
No response	166 (27.1%)	28 (7.8%)	25 (12.4%)	219 (15.8%)
Unintelligible response	18 (2.9%)	2 (0.6%)	--	20 (1.2%)
Total	613	360	202	1175

Note: Dashes (--) represent a lack of data for a given category.

*Frequency and percentage of elementary student responses that incorporated each theme; Total of 25 elementary projects.

**Frequency and percentage of junior high student responses that incorporated each theme; Total of 11 junior high projects.

***Frequency and percentage of senior high student responses that incorporated each theme; Total of 10 senior high projects.

****Total frequency of student responses, across grade levels, which incorporated each theme, and average percentage of students that described each theme. Average percentage weighted according to the total number of students within a given grade level category.

Research question 4: How do student participation rates relate to each of the four standardized learning outcomes? To answer this question, Chi square tests of association were originally going to be used in conjunction with student participation rates. However, these tests could not be completed as planned because the counts within cells were inadequate. For example, for the matrix of Participation Scores and Outcome 1, seven of the 12 cells involved in the analysis had actual counts that did not meet the expected counts. Therefore, this question will be answered using cross-tabulations and descriptive statistics, as presented in Table 8. Student participation appears to be related to perceptions of effectiveness, as students who completed between 75 and 100% of a project's interventions tended to agree that each learning outcome had been met. Similarly, students who completed between 0 and 24% of a project's interventions were more likely to indicate that they disagreed or were unsure as to whether the unit met its objectives.

Table 8

Student Participation Rates and Agreement with Effectiveness Outcomes

Outcome		Student Participation Score				Overall
		0-24*	25-49**	50-74***	75-100****	Distribution: Total Frequency (%)
		Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	
Outcome 1: This [project] helped me to learn a lot about myself	Disagree	0 (0.0%)	1 (0.1%)	11 (1.1%)	67 (6.7%)	79 (7.8%)
	Not Sure	5 (0.5%)	1 (0.1%)	29 (2.9%)	269 (26.5%)	304 (29.9%)
	Agree	0 (0.0%)	4 (0.4%)	40 (3.9%)	589 (58.9%)	633 (62.3%)
	Total	5 (0.5%)	6 (0.6%)	80 (78.8%)	925 (91.0%)	1016 (100.0%)
Outcome 2: This [project] helped me to learn a lot about careers	Disagree	0 (0.0%)	0 (0.0%)	10 (1.0%)	52 (5.1%)	62 (6.1%)
	Not Sure	4 (0.4%)	0 (0.0%)	25 (2.5%)	197 (19.4%)	226 (22.3%)
	Agree	1 (0.1%)	6 (0.6%)	44 (4.3%)	674 (66.5%)	725 (71.6%)
	Total	5 (0.5%)	6 (0.6%)	79 (7.8%)	923 (91.1%)	1013 (100.0%)
Outcome 3: This [project] made me excited about what I could do with my life	Disagree	2 (0.2%)	0 (0.0%)	9 (0.9%)	53 (5.2%)	64 (6.3%)
	Not Sure	2 (0.2%)	0 (0.0%)	22 (2.2%)	189 (18.7%)	213 (21.1%)
	Agree	1 (0.1%)	6 (0.6%)	48 (4.7%)	679 (67.2%)	734 (72.6%)
	Total	5 (0.5%)	6 (0.6%)	79 (7.8%)	921 (91.1%)	1011 (100.0%)
Outcome 4: This [project] made me want to learn more about different careers	Disagree	0 (0.0%)	0 (0.0%)	7 (0.7%)	93 (9.2%)	100 (9.9%)
	Not Sure	5 (0.5%)	0 (0.0%)	28 (2.8%)	215 (21.2%)	248 (24.5%)
	Agree	0 (0.0%)	6 (0.6%)	44 (4.3%)	614 (60.7%)	664 (65.6%)
	Total	5 (0.5%)	6 (0.6%)	79 (7.8%)	922 (91.1%)	1012 (100.0%)

*Frequency of students with participation rates of 0-24% that agreed with each learning outcome.

**Frequency of students with participation rates of 25-49% that agreed with each learning outcome.

***Frequency of students with participation rates of 50-74% that agreed with each learning outcome.

****Frequency of students with participation rates of 75-100% that agreed with each learning outcome.

Effectiveness of specific career education interventions. The results in this section pertain to research questions five through seven, which examined the relative effectiveness of various interventions. Analysis therefore focuses on the perceived helpfulness and effectiveness ratings of interventions.

Research question 5: What interventions are most related to each of the four standardized learning outcomes? Chi square tests of association were originally going to be used to assess the relationships between intervention categories and the four learning outcomes. Unfortunately, there were insufficient frequencies within each cell to be able to perform these tests. Insufficient cell frequencies became an issue because of the wide variety of interventions used in each project; for example, Chi square tests with Outcome 1 and Pride Stories could not be computed because there was only one project that fell into this category. Therefore, this question will be examined from a more descriptive perspective. As previously used, 75% was established as the threshold for considering cumulative ratings of effectiveness as “high.” Each outcome will be addressed to describe how many projects had high cumulative ratings of effectiveness and which interventions were most common in these categories.

Outcome 1: This [project] helped me to learn a lot about myself. Nine projects (19.6%) had cumulative effectiveness ratings on Outcome 1 that met or exceeded 75%. Eight of these (88.9%) were completed at the elementary school level and one (11.1%) was completed at the junior high level. The interventions involved in these projects are presented in Table 9. It should be noted that Research Careers ($n = 3$; 33.3%) and Description of Future Self ($n = 3$; 33.3%) were the most frequent interventions in this category.

Outcome 2: This [project] helped me to learn a lot about careers. Twenty-five projects (54.3%) met or exceeded 75% on this cumulative rating of effectiveness. Four of these projects (16.0%) were completed at the junior high and senior high levels, respectively. The remaining 17 (68.0%) were implemented in elementary schools. The interventions used in these projects are presented in Table 9. The most recurring interventions in this category were Research Careers ($n = 13$; 53.0%) and Pride Stories ($n = 8$; 32.0%).

Outcome 3: This [project] made me excited about what I could do with my life. Twenty-six projects (56.5%) met or exceeded the threshold of 75% in this outcome category. Nineteen of these projects (73.1%) were completed in elementary school classrooms, three (11.5%) were at the junior high level, and four (15.4%) were completed in senior high schools. The most common interventions in this category were Research Careers ($n = 9$; 34.6%) and Pride Stories ($n = 8$; 30.8%). The remaining interventions included in these projects are described in Table 9.

Outcome 4: This [project] made me want to learn more about different careers. Seventeen projects (37.0%) had cumulative effectiveness values for Outcome 4 that exceeded 75%. Of these projects, 13 (76.5%) were in elementary grades, one (5.9%) was in junior high, and three (17.6%) were in senior high. The most frequent interventions in this category were Pride Stories ($n = 5$; 29.4%), Research Careers ($n = 4$; 23.5%), and Future Dream Day ($n = 4$; 23.5%). The distribution of interventions in this category is presented in Table 9.

Table 9

Frequency of Interventions in Projects with High Outcome Effectiveness Ratings

Intervention	Outcome 1* Frequency (%)	Outcome 2** Frequency (%)	Outcome 3*** Frequency (%)	Outcome 4**** Frequency (%)	Overall Distribution *****: Total Frequency, Average (%)
99 Year Old Question	--	5 (20.0%)	4 (15.4%)	2 (11.8%)	11 (11.8%)
List of Future Accomplishments	--	3 (12.0%)	5 (19.2%)	3 (17.6%)	11 (12.2%)
Dream Day – Future	--	5 (20.0%)	5 (19.2%)	4 (23.5%)	14 (15.7%)
Dream Day – Weekend	--	2 (8.0%)	3 (11.5%)	2 (11.8%)	7 (7.8%)
Pride Stories	1 (11.1%)	8 (32.0%)	8 (30.8%)	5 (29.4%)	22 (25.8%)
Self-Portrait	1 (11.1%)	1 (4.0%)	3 (11.5%)	--	5 (6.7%)
Journal Entry	--	--	1 (3.8%)	--	1 (1.0%)
Poem	--	1 (4.0%)	2 (7.7%)	2 (11.8%)	5 (5.9%)
Class Discussion	--	2 (8.0%)	4 (15.4%)	2 (11.8%)	8 (8.8%)
Video and Discussion	1 (11.1%)	4 (16.0%)	2 (7.7%)	2 (11.8%)	9 (11.7%)
Interests Inventory	--	3 (12.0%)	2 (7.7%)	2 (11.8%)	7 (7.9%)
Values Inventory	1 (11.1%)	--	1 (3.8%)	1 (5.9%)	3 (5.2%)
Skills Inventory	--	2 (8.0%)	--	1 (5.9%)	3 (3.5%)
Interests, Values, and Skills Inventory	--	2 (8.0%)	2 (7.7%)	2 (11.8%)	6 (6.9%)
Interests and Skills Organizer	--	--	--	1 (5.9%)	1 (1.5%)
Personal Characteristics	1 (11.1%)	1 (4.0%)	1 (3.8%)	1 (5.9%)	4 (6.2%)

Describe Ideal Book/Song/Movie	--	1 (4.0%)	1 (3.8%)	--	2 (2.0%)
Personal Definitions of Failure and Success	--	--	1 (3.8%)	--	1 (1.0%)
Tombstone Activity	--	--	1 (3.8%)	--	1 (1.0%)
Gratitude List	--	1 (4.0%)	--	--	1 (1.0%)
Pride List	--	--	--	1 (5.9%)	1 (1.5%)
List or Represent Meaning	2 (22.2%)	4 (16.0%)	4 (15.4%)	3 (17.6%)	13 (17.8%)
Describe Unique Traits	1 (11.1%)	1 (4.0%)	2 (7.7%)	--	4 (5.7%)
Personality Quiz	--	2 (8.0%)	--	--	2 (2.0%)
Time Chart	--	1 (4.0%)	--	--	1 (1.0%)
Career Bingo	--	1 (4.0%)	1 (3.8%)	1 (5.9%)	3 (3.4%)
Give/Get Compliments	1 (11.1%)	2 (8.0%)	2 (7.7%)	2 (11.8%)	7 (9.7%)
Guess the Job Game	--	2 (8.0%)	2 (7.7%)	2 (11.8%)	6 (6.9%)
Silent Card Game	--	--	--	1 (5.9%)	1 (1.5%)
Career Dress-Up	--	1 (4.0%)	1 (3.8%)	1 (5.9%)	3 (3.4%)
Poster	--	--	1 (3.8%)	1 (5.9%)	2 (2.4%)
Vision Board	1 (11.1%)	1 (4.0%)	1 (3.8%)	--	3 (4.7%)
Title Page	--	1 (4.0%)	2 (7.7%)	1 (5.9%)	4 (4.4%)
Collage	2 (22.2%)	3 (12.0%)	2 (7.7%)	1 (5.9%)	8 (12.0%)
Photo Essay	--	1 (4.0%)	--	--	1 (1.0%)
Career/Job Cut-Out	1 (11.1%)	3 (12.0%)	3 (11.5%)	3 (17.6%)	10 (13.1%)
Art with Description of Self	1 (11.1%)	2 (8.0%)	3 (11.5%)	3 (17.6%)	9 (12.1%)
Draw Self (Present/Future)	2 (22.2%)	2 (8.0%)	3 (11.5%)	1 (5.9%)	8 (11.9%)

Draw Parent at Work	1 (11.1%)	1 (4.0%)	1 (3.8%)	--	3 (4.7%)
Description of Present Self	--	2 (8.0%)	1 (3.8%)	2 (11.8%)	5 (5.9%)
Description of Future Self	3 (33.3%)	3 (12.0%)	1 (3.8%)	3 (17.6%)	10 (16.7%)
Description of Present Self and Future Goals	--	1 (4.0%)	1 (3.8%)	1 (5.9%)	3 (3.4%)
Description of Hero/Role Model	2 (22.2%)	3 (12.0%)	3 (11.5%)	3 (17.6%)	11 (15.8%)
Description of Dream Job/Career	2 (22.2%)	4 (16.0%)	3 (11.5%)	2 (11.8%)	11 (15.4%)
Brainstorm Jobs/Careers	--	2 (8.0%)	2 (7.7%)	2 (11.8%)	6 (6.9%)
Brainstorm How to Learn About Jobs	1 (11.1%)	1 (4.0%)	1 (3.8%)	--	3 (4.7%)
Story with Questions (Worksheet/Journal)	1 (11.1%)	3 (12.0%)	4 (15.4%)	2 (11.8%)	10 (12.6%)
Read Story as Class	1 (11.1%)	1 (4.0%)	2 (7.7%)	--	4 (5.7%)
Share/Talk with Classmates	--	--	2 (7.7%)	--	2 (1.9%)
Persuasive Writing	2 (22.2%)	4 (16.0%)	3 (11.5%)	3 (17.6%)	12 (16.8%)
Subject-Specific Activity	--	1 (4.0%)	1 (3.8%)	--	2 (2.0%)
Subject-Specific Lesson	1 (11.1%)	4 (16.0%)	3 (11.5%)	3 (17.6%)	11 (14.1%)
Holland's Codes (Worksheet/Quiz)	2 (22.2%)	4 (16.0%)	3 (11.5%)	3 (17.6%)	12 (16.8%)
Holland's Codes (Activity Stations)	1 (11.1%)	1 (4.0%)	1 (3.8%)	--	3 (4.7%)
Choose Holland's Codes Adventure	--	1 (4.0%)	1 (3.8%)	1 (5.9%)	3 (3.4%)
Career Family Tree	--	1 (4.0%)	1 (3.8%)	2 (11.8%)	4 (4.9%)

Ask Parents Questions	--	2 (8.0%)	2 (7.7%)	2 (11.8%)	6 (6.9%)
Classmate Job Suggestions	--	--	--	1 (5.9%)	1 (1.5%)
Research Careers	3 (33.3%)	13 (52.0%)	9 (34.6%)	4 (23.5%)	29 (35.9%)
Research Subject-Specific Careers	1 (11.1%)	3 (12.0%)	3 (11.5%)	1 (5.9%)	8 (10.1%)
Career Budget	--	1 (4.0%)	1 (3.8%)	--	2 (2.0%)
Simulated Day in Career	--	1 (4.0%)	1 (3.8%)	1 (5.9%)	3 (3.4%)
SMART Goals	--	1 (4.0%)	--	1 (5.9%)	2 (2.5%)
Goal Setting - Other	--	1 (4.0%)	--	1 (5.9%)	2 (2.5%)
Career Planning Timeline	--	3 (12.0%)	2 (7.7%)	3 (17.6%)	8 (9.3%)
Career Portfolio	--	1 (4.0%)	--	1 (5.9%)	2 (2.5%)
Guest Speaker	1 (11.1%)	3 (12.0%)	3 (11.5%)	2 (11.8%)	9 (11.6%)
Career Presentations	--	2 (8.0%)	1 (3.8%)	1 (5.9%)	4 (4.4%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency and percentage of elementary, junior high, and senior high projects with scores >75% on Outcome 1; Total projects in this category = 9; total elementary projects = 8; total junior high projects = 1, total senior high projects = 0.

** Frequency and percentage of elementary, junior high, and senior high projects with scores >75% on Outcome 2; Total projects in this category = 25; total elementary projects = 17; total junior high projects = 4, total senior high projects = 4.

*** Frequency and percentage of elementary, junior high, and senior high projects with scores >75% on Outcome 3; Total projects in this category = 26; total elementary projects = 19; total junior high projects = 3, total senior high projects = 4.

****Frequency and percentage of elementary, junior high, and senior high projects with scores >75% on Outcome 4; Total projects in this category = 17; total elementary projects = 13; total junior high projects = 1, total senior high projects = 3.

*****Total frequency of projects, across Outcome categories, which incorporated each intervention, and average percentage of projects that used each intervention. Average percentage weighted according to the total number of projects within a given outcome category.

Given the frequencies of interventions across outcomes, Research Careers and Pride Stories are most associated with elevated ratings of effectiveness on each of the four learning outcomes.

Research question 6: What interventions are rated most highly by students across grade levels? To answer this question, the Project Coding Frame data were used. On this instrument, each project's interventions were examined to identify the three most and least popular interventions in each project. Popularity was determined by the cumulative percentage of student ratings of "Good" or "Great" on a given intervention; those with the highest ratings of "Great" were considered more highly rated/popular than those with comparable ratings of "Good" or "Not Good at All." In several cases, student ratings on a given project were equally high for more than one intervention; in these cases, interventions tied for first place in popularity. Furthermore, not all projects contained enough interventions to rank six interventions; in those cases, the number of interventions was divided in half and interventions were then ranked in terms of four or two interventions. These differences between project outcomes account for the varying totals in each ranking category, as presented in Table 10. Across grade levels, the interventions that were most frequently ranked in the top three popularity categories were: Research Careers ($n = 13$; 8.6%), Pride Stories ($n = 10$; 9.3%), Future Dream Day ($n = 9$; 6.1%), 99 Year Old Question ($n = 7$; 5.8%), and List Future Accomplishments ($n = 5$; 4.2%).

Table 10

Frequency of Interventions Ranked Most Popular Across Grade Levels

Intervention	Ranked Most Popular* Frequency (%)	Ranked Second Most Popular** Frequency (%)	Ranked Third Most Popular*** Frequency (%)	Overall Distribution ****: Total Frequency, Average (%)
99 Year Old Question	1 (1.8%)	5 (12.5%)	1 (3.2%)	7 (5.8%)
List of Future Accomplishments	2 (3.6%)	1 (2.5%)	2 (6.4%)	5 (4.2%)
Dream Day – Future	6 (10.9%)	3 (7.5%)	--	9 (6.1%)
Dream Day – Weekend	1 (1.8%)	--	1 (3.2%)	2 (1.7%)
Pride Stories	2 (3.6%)	2 (5.0%)	6 (19.2%)	10 (9.3%)
Self-Portrait	--	1 (2.5%)	--	1 (0.8%)
Class Discussion	--	1 (2.5%)	2 (6.4%)	3 (3.0%)
Video and Discussion	3 (5.5%)	--	1 (3.2%)	4 (2.9%)
Interests Inventory	1 (1.8%)	3 (7.5%)	--	4 (3.1%)
Values Inventory	--	1 (2.5%)	--	1 (0.8%)
Interests, Values, and Skills Inventory	1 (1.8%)	--	--	1 (0.6%)
List or Represent Meaning	2 (3.6%)	1 (2.5%)	--	3 (2.0%)
Describe Unique Traits	2 (3.6%)	--	--	2 (1.2%)
Personality Quiz	--	--	1 (3.2%)	1 (1.1%)
Give/Get Compliments	--	--	1 (3.2%)	1 (1.1%)
Guess the Job Game	1 (1.8%)	1 (2.5%)	--	2 (1.4%)
Career Dress-Up	1 (1.8%)	--	--	1 (0.6%)

Poster	1 (1.8%)	1 (2.5%)	--	2 (1.4%)
Vision Board	--	1 (2.5%)	--	1 (0.8%)
Title Page	--	1 (2.5%)	1 (3.2%)	2 (1.9%)
Collage	--	1 (2.5%)	--	1 (0.8%)
Photo Essay	1 (1.8%)	--	--	1 (0.6%)
Career/Job Cut-Out	1 (1.8%)	1 (2.5%)	--	2 (1.4%)
Art with Description of Self	1 (1.8%)	--	--	1 (0.6%)
Draw Self (Present/Future)	--	1 (2.5%)	2 (6.4%)	3 (3.0%)
Description of Present Self	--	2 (5.0%)	--	2 (1.7%)
Description of Future Self	1 (1.8%)	2 (5.0%)	1 (3.2%)	4 (3.3%)
Description of Dream Job/Career	2 (3.6%)	--	1 (3.2%)	3 (2.3%)
Brainstorm How to Learn About Jobs	--	--	1 (3.2%)	1 (1.1%)
Read Story as Class	1 (1.8%)	--	2 (6.4%)	3 (2.7%)
Share/Talk with Classmates	1 (1.8%)	1 (2.5%)	--	2 (1.4%)
Persuasive Writing	2 (3.6%)	--	--	2 (1.2%)
Subject-Specific Lesson	--	--	1 (3.2%)	1 (1.1%)
Holland's Codes (Worksheet/Quiz)	1 (1.8%)	1 (2.5%)	--	2 (1.4%)
Holland's Codes (Activity Stations)	1 (1.8%)	1 (2.5%)	--	2 (1.4%)
Classmate Job Suggestions	--	--	1 (3.2%)	1 (1.1%)
Research Careers	11 (20.0%)	1 (2.5%)	1 (3.2%)	13 (8.6%)

Research Subject-Specific Careers	1 (1.8%)	--	1 (3.2%)	2 (1.7%)
Career Budget	1 (1.8%)	--	--	1 (0.6%)
Simulated Day in Career	--	1 (2.5%)	--	1 (2.8%)
SMART Goals	--	1 (2.5%)	1 (3.2%)	2 (1.9%)
Goal Setting - Other	1 (1.8%)	--	1 (3.2%)	2 (1.7%)
Top 3 Post-Secondary Programs		1 (2.5%)		1 (0.8%)
Top 5 Needs and Wants	--	--	1 (3.2%)	1 (1.1%)
Career Planning Timeline	--	3 (7.5%)	--	3 (2.5%)
Career Portfolio	--	--	1 (3.2%)	1 (1.1%)
Guest Speaker	4 (7.3%)	--	--	4 (2.4%)
Career Presentations	1 (1.8%)	1 (2.5%)	--	2 (1.4%)
Total Ratings	55	40	31	126

Note: Dashes (--) represent a lack of data for a given category.

*Frequency of each intervention being ranked most popular within a given project; Total ratings = 55.

**Frequency of each intervention being ranked second most popular within a given project; Total ratings = 40.

***Frequency of each intervention being ranked third most popular within a given project; Total ratings = 31.

**** Total frequency of ratings, across popularity categories, which incorporated each intervention, and average percentage of projects that ranked each intervention. Average percentage weighted according to the total number of ratings within a given ranking category.

Research question 7: What interventions are most popular amongst students in elementary, junior high, and senior high school, respectively? To answer this question, the Project Coding Frame data used in the previous question was examined again. This time, projects were filtered by grade level category to determine which projects were most popular in each category. These results are presented in Tables 11, 12, and 13.

Elementary school projects. In elementary projects, many interventions had a combined rating of 100% Good or Great from all students. The top five interventions that had the highest ratings of Great included Research Subject-Specific Careers ($n = 10$; 100.0%), Guest Speaker ($n = 63$; 94.0%) Guess the Job ($n = 28$; 93.3%), Career Dress-Up ($n = 15$; 93.8%), and Career/Job Cut-out ($n = 49$; 89.1%). The remaining frequencies and percentages are presented in Table 11.

Table 11

Student Ratings of Intervention Helpfulness in Elementary School Projects

Intervention	Rated Good* Frequency (%)	Rated Great** Frequency (%)	Overall Distribution***: Total Frequency, Average (%)
99 Year Old Question	40 (32.0%)	77 (61.6%)	117 (93.6%)
List of Future Accomplishments	17 (30.4%)	36 (64.3%)	53 (94.7%)
Dream Day – Future	19 (26.8%)	49 (69.0%)	68 (95.8%)
Dream Day – Weekend	9 (20.9%)	33 (76.7%)	42 (97.6%)
Pride Stories	31 (27.9%)	73 (65.8%)	104 (93.7%)
Class Discussion	22 (31.9%)	46 (66.7%)	68 (98.6%)
Video and Discussion	8 (14.3%)	48 (85.7%)	56 (100.0%)
Interests Inventory	28 (40.6%)	36 (52.2%)	64 (92.8%)
Values Inventory	11 (47.8%)	7 (30.4%)	18 (78.2%)
Interests, Values, and Skills Inventory	33 (37.9%)	44 (50.6%)	77 (88.5%)
List or Represent Meaning	19 (17.9%)	83 (78.3%)	102 (96.2%)
Describe Unique Traits	7 (13.2%)	45 (84.9%)	52 (98.1%)
Personality Quiz	7 (38.9%)	11 (61.1%)	18 (100.0%)
Give/Get Compliments	5 (13.9%)	29 (80.6%)	34 (94.5%)
Guess the Job Game	2 (6.7%)	28 (93.3%)	30 (100.0%)
Career Dress-Up	1 (6.3%)	15 (93.8%)	16 (100.0%)
Poster	3 (17.6%)	14 (82.4%)	17 (100.0%)
Title Page	14 (31.1%)	31 (68.9%)	45 (100.0%)

Collage	44 (47.3%)	42 (45.2%)	86 (92.5%)
Career/Job Cut-Out	5 (9.1%)	49 (89.1%)	54 (98.2%)
Art with Description of Self	16 (29.6%)	35 (64.8%)	51 (94.4%)
Draw Self (Present/Future)	22 (23.2%)	70 (73.7%)	92 (96.9%)
Description of Present Self	5 (33.3%)	9 (60.0%)	14 (93.3%)
Description of Future Self	17 (21.8%)	58 (74.4%)	75 (96.2%)
Description of Dream Job/Career	58 (47.9%)	53 (43.8%)	111 (91.7%)
Brainstorm How to Learn About Jobs	8 (36.4%)	9 (40.9%)	17 (77.3%)
Read Story as Class	12 (14.6%)	68 (82.9%)	80 (97.5%)
Share/Talk with Classmates	12 (21.8%)	42 (76.4%)	54 (98.2%)
Persuasive Writing	23 (27.4%)	59 (70.2%)	82 (97.6%)
Subject-Specific Lesson	8 (27.6%)	21 (72.4%)	29 (100.0%)
Holland's Codes (Worksheet/Quiz)	26 (31.3%)	52 (62.7%)	78 (94.0%)
Holland's Codes (Activity Stations)	11 (32.4%)	20 (58.8%)	31 (91.2%)
Research Careers	55 (32.0%)	109 (63.4%)	164 (95.4%)
Research Subject-Specific Careers	--	10 (100.0%)	10 (100.0%)
Career Planning Timeline	8 (18.6%)	35 (81.4%)	43 (100.0%)
Guest Speaker	4 (6.0%)	63 (94.0%)	67 (100.0%)
Career Presentations	2 (12.5%)	14 (87.5%)	16 (100.0%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency of elementary student ratings of each intervention as “Good.” Total ratings vary per intervention, as not all interventions were included in each project.

**Frequency of elementary student ratings of each intervention as “Great.” Total ratings vary per intervention, as not all interventions were included in each project.

***Frequency and overall percentage of elementary student ratings of each intervention as “Good” or “Great.” Total ratings vary per intervention, as not all interventions were included in each project.

Junior high projects. At the junior high level, two interventions were rated as 100% Good or Great: Values Inventory and Vision Board. The top five interventions that had the highest Great ratings included: Career Presentations ($n = 78$; 67.8%), Research Careers ($n = 131$; 65.2%), Vision Board ($n = 15$; 62.5%), Research Subject-Specific Careers ($n = 43$, 61.4%) and Values Inventory ($n = 13$; 59.1%). Each intervention and its ratings of Good or Great are presented in Table 12.

Table 12

Student Ratings of Intervention Helpfulness in Junior High Projects

Intervention	Rated Good* Frequency (%)	Rated Great** Frequency (%)	Overall Distribution***: Total Frequency, Average (%)
99 Year Old Question	28 (35.4%)	39 (49.4%)	67 (84.8%)
List of Future Accomplishments	40 (48.2%)	41 (49.4%)	81 (97.6%)
Dream Day – Future	81 (42.9%)	89 (47.1%)	170 (90.0%)
Dream Day – Weekend	19 (57.6%)	9 (27.3%)	28 (84.9%)
Pride Stories	67 (50.0%)	55 (41.0%)	122 (91.0%)
Self-Portrait	45 (61.6%)	22 (30.1%)	67 (91.7%)
Class Discussion	51 (58.0%)	32 (36.4%)	83 (94.4%)
Video and Discussion	13 (54.2%)	10 (41.7%)	23 (95.9%)
Interests Inventory	72 (53.3%)	49 (36.3%)	121 (89.6%)
Values Inventory	9 (40.9%)	13 (59.1%)	22 (100.0%)
Interests, Values, and Skills Inventory	30 (50.8%)	15 (25.4%)	45 (76.2%)
Personality Quiz	53 (42.1%)	56 (44.4%)	109 (86.5%)
Vision Board	9 (37.5%)	15 (62.5%)	24 (100.0%)
Title Page	21 (77.8%)	4 (14.8%)	25 (92.6%)
Collage	15 (48.4%)	6 (19.4%)	21 (67.8%)
Description of Future Self	14 (53.8%)	11 (42.3%)	25 (96.1%)
Description of Dream Job/Career	27 (47.4%)	24 (42.1%)	51 (89.5%)

Subject-Specific Lesson	41 (56.2%)	27 (37.0%)	68 (93.2%)
Holland's Codes (Worksheet/Quiz)	39 (60.0%)	18 (27.7%)	57 (87.7%)
Research Careers	60 (29.9%)	131 (65.2%)	191 (95.1%)
Research Subject-Specific Careers	24 (34.3%)	43 (61.4%)	67 (95.7%)
SMART Goals	17 (50.0%)	12 (35.3%)	29 (85.3%)
Career Planning Timeline	18 (41.9%)	20 (46.5%)	38 (88.4%)
Career Portfolio	9 (39.1%)	6 (26.1%)	15 (65.2%)
Career Presentations	30 (26.1%)	78 (67.8%)	108 (93.9%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency of junior high student ratings of each intervention as "Good." Total ratings vary per intervention, as not all interventions were included in each project.

**Frequency of junior high student ratings of each intervention as "Great." Total ratings vary per intervention, as not all interventions were included in each project.

***Frequency and overall percentage of junior high student ratings of each intervention as "Good" or "Great." Total ratings vary per intervention, as not all interventions were included in each project.

Senior high projects. In senior high projects, many interventions had a combined rating of 100% Good or Great: Self-Portrait, Describe Unique Traits, Poster, Description of Present Self, Subject-Specific Lesson, Classmate Job Suggestion, Classmate Job Suggestions, Career Budget, Simulated Day in Career, and Career Portfolio. The top five interventions with high student ratings of Great included: Simulated Day in Career ($n = 21$; 80.8%), Self-Portrait ($n = 12$; 80.0%), Subject-Specific Lesson ($n = 19$; 73.1%), Career Budget ($n = 8$; 72.7%), and Poster ($n = 5$; 71.4%). Each intervention and its associated ratings are presented in Table 13.

Table 13

Student Ratings of Intervention Helpfulness in Senior High Projects

Intervention	Rated Good* Frequency (%)	Rated Great** Frequency (%)	Overall Distribution***: Total Frequency, Average (%)
99 Year Old Question	19 (30.2%)	41 (65.1%)	60 (95.3%)
Dream Day – Future	22 (31.9%)	44 (63.8%)	66 (95.7%)
Pride Stories	16 (30.2%)	36 (67.9%)	52 (98.1%)
Self-Portrait	3 (20.0%)	12 (80.0%)	15 (100.0%)
Class Discussion	11 (52.4%)	6 (28.6%)	17 (81.0%)
Describe Unique Traits	5 (83.3%)	1 (16.7%)	6 (100.0%)
Poster	2 (28.6%)	5 (71.4%)	7 (100.0%)
Photo Essay	3 (27.3%)	7 (63.6%)	10 (90.9%)
Description of Present Self	21 (67.7%)	10 (32.3%)	31 (100.0%)
Description of Future Self	38 (59.4%)	21 (32.8%)	59 (92.2%)
Description of Dream Job/Career	17 (37.8%)	24 (53.3%)	41 (91.1%)
Share/Talk with Classmates	8 (61.5%)	2 (15.4%)	10 (76.9%)
Subject-Specific Lesson	7 (26.9%)	19 (73.1%)	26 (100.0%)
Holland's Codes (Worksheet/Quiz)	4 (50.0%)	3 (37.5%)	7 (87.5%)
Classmate Job Suggestions	3 (37.5%)	5 (62.5%)	8 (100.0%)
Research Careers	39 (32.8%)	71 (59.7%)	110 (92.5%)
Research Subject-Specific Careers	20 (62.5%)	8 (25.0%)	28 (87.5%)
Career Budget	3 (27.3%)	8 (72.7%)	11 (100.0%)

Top 5 Needs and Wants	24 (51.1%)	19 (40.4%)	43 (91.5%)
Top 3 Education Programs	17 (42.5%)	20 (50.0%)	37 (92.5%)
SMART Goals	6 (50.0%)	5 (41.7%)	11 (91.7%)
Simulated Day in Career	5 (19.2%)	21 (80.8%)	26 (100.0%)
Career Planning Timeline	4 (50.0%)	3 (37.5%)	7 (87.5%)
Career Portfolio	6 (75.0%)	2 (25.0%)	8 (100.0%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency of senior high student ratings of each intervention as “Good.” Total ratings vary per intervention, as not all interventions were included in each project.

**Frequency of senior high student ratings of each intervention as “Great.” Total ratings vary per intervention, as not all interventions were included in each project.

***Frequency and overall percentage of senior high student ratings of each intervention as “Good” or “Great.” Total ratings vary per intervention, as not all interventions were included in each project.

Future directions: Curriculum development and teaching strategies. This

section examines the research questions pertaining to the future implementation of career education projects. This includes research questions eight through 11. Analysis focuses on the Project Coding Frame data to describe overall trends in terms of project strengths, challenges, and recommendations.

Research question 8: How do projects at the elementary, junior high, and senior high level typically differ from one another? Results distributed across each grade level category have been previously presented (see Tables 1, 2, 3, 4, 9, 10, 11, 12, 13). Upon reviewing these results, as well as student responses to the open-ended questions, several trends emerge as to general differences across grade levels.

- Elementary level projects were more likely to incorporate art-based activities (i.e., Collage, Poster, Art with Name and Description of Self) than junior or senior high projects.
- Projects in elementary classes generally included more hands-on activities (i.e., Holland's Codes Activity Stations), games (i.e., Guess the Job), and guest speakers than projects implemented in junior or senior high classes.
- Elementary level projects were also more likely to include ELA integration that connected career education to reading stories and/or answering questions as a class. In junior high and senior high level projects that incorporated ELA, the interventions typically involved more advanced writing strategies and outcomes than those at earlier grade levels.
- It was more common for elementary level projects to integrate career education across multiple subject areas (i.e., ELA, Health and Life Skills, Art, AND SS), whereas in older grades it was more common to integrate career education into a single course at a time (i.e., Health and Life Skills OR SS).
- Although interventions involving researching careers were undertaken at the elementary level, they were more frequently completed (and in greater depth) at the junior high and senior high levels. Elementary level projects appeared to place greater emphasis on initiation and exploration strategies, whereas it becomes more common in junior and senior high to incorporate decision-making strategies as well.
- Interventions completed at the junior and senior high level frequently incorporated technology, such as creating PowerPoint presentations and/or

conducting career research on websites. Elementary level projects also incorporated technology, but generally not to the same advanced extent as the projects at older grade levels.

Research question 9: What are common strengths across career education projects? To answer this question, the results from the Project Strengths Coding Frame (see Appendix E) were examined. It should be noted that this coding frame was applied to verbatim sections of each project report; therefore, each project may have incorporated additional strengths that were not explicitly stated within the report and subsequently not recorded during analysis.

Across grade levels, the most common strengths were: students became excited about what they could do with their lives ($n = 41$; 84.2%), students wanted to learn more about different careers ($n = 40$; 82.9%), students learned a lot about careers ($n = 40$; 82.6%), students enjoyed the unit ($n = 40$, 82.6%), and students learned a lot about themselves ($n = 36$; 72.2%). Each strength category and its recorded frequency across grade levels are presented in Table 14.

Table 14

Project Strengths Across Grade Level Categories

Strength Category	Elementary Projects* Frequency (%)	Junior High Projects** Frequency (%)	Senior High Projects*** Frequency (%)	Overall Distribution****: Total Frequency, Average (%)
General Unit Characteristics				
Variety of activities	3 (12.0%)	3 (27.3%)	1 (10.0%)	7 (16.4%)
Brief, focused exercises	--	--	2 (20.0%)	2 (6.7%)
Unit incorporated technology	2 (8.0%)	1 (9.1%)	1 (10.0%)	4 (9.0%)
Use of media increased student interest	3 (12.0%)	1 (9.1%)	2 (20.0%)	6 (13.7%)
Activities were thoroughly explained	1 (4.0%)	--	--	1 (1.3%)
Teacher-student collaboration on designing rubric	1 (4.0%)	--	--	1 (1.3%)
Intern teacher had one-on-one discussions with students	2 (8.0%)	2 (18.2%)	4 (40.0%)	8 (66.2%)
Taught career planning skills (researching, decision-making)	10 (40.0%)	10 (90.9%)	7 (70.0%)	27 (67.0%)
Taught academic skills (reading, writing, math, second language)	7 (28.0%)	5 (45.5%)	4 (40.0%)	16 (37.8%)
Taught general life skills (conflict	5 (20.0%)	2 (18.2%)	--	7 (12.7%)

resolution,
relationship-building)

Positive role models inspired students	--	1 (9.1%)	--	1 (3.0%)
Organization/structure of unit was helpful	5 (20.0%)	1 (9.1%)	1 (10.0%)	7 (13.0%)
Lessons were engaging	19 (76.0%)	7 (63.6%)	5 (50.0%)	31 (63.2%)
Lessons went smoothly	5 (20.0%)	1 (9.1%)	2 (20.0%)	8 (16.4%)
Effective use of literature	5 (20.0%)	1 (9.1%)	--	6 (9.7%)
Reading the text aloud to the students was helpful	1 (4.0%)	--	--	1 (1.3%)
Effective use of art	9 (36.0%)	3 (27.3%)	2 (20.0%)	14 (27.8%)
Developmentally appropriate activities	8 (32.0%)	4 (36.4%)	1 (10.0%)	13 (26.1%)
Unit capitalized on students' curiosity	4 (16.0%)	--	2 (20.0%)	6 (12.0%)
Unit incorporated hands-on experience	2 (8.0%)	1 (9.1%)	--	3 (5.7%)
Guest speakers were effective	3 (12.0%)	--	--	3 (4.0%)
Unit was flexible and could be easily adapted	3 (12.0%)	2 (18.2%)	2 (20.0%)	7 (16.7%)
Unit fit well with curricular objectives	11 (44.0%)	4 (36.4%)	5 (50.0%)	20 (43.5%)

Students' Personal Outcomes

Students thought about personal values	2 (8.0%)	4 (36.4%)	2 (20.0%)	8 (21.5%)
Students were given freedom and/or independence	4 (16.0%)	4 (36.4%)	1 (10.0%)	9 (20.8%)
Students were creative and/or imaginative	8 (32.0%)	4 (36.4%)	1 (10.0%)	13 (26.1%)
Students were able to think critically	3 (12.0%)	--	2 (20.0%)	5 (10.7%)
Students learned to think for themselves (less peer input)	3 (12.0%)	1 (9.1%)	5 (50.0%)	9 (23.7%)
Students had fun/enjoyed unit	24 (96.0%)	9 (81.8%)	7 (70.0%)	40 (82.6%)
Students became aware of their unique traits, skills, abilities	23 (92.0%)	10 (90.9%)	10 (100.0%)	43 (64.3%)
Students liked that the activities were all about them	3 (12.0%)	1 (9.1%)	--	4 (7.0%)
Students enjoyed personalizing their activities	2 (8.0%)	--	1 (10.0%)	3 (6.0%)
Students became more confident	5 (20.0%)	3 (27.3%)	1 (10.0%)	9 (19.1%)

Students' Work Outcomes

Students put lots of effort into work	5 (20.0%)	3 (27.3%)	2 (20.0%)	10 (22.4%)
Students talked about unit in other classes	1 (4.0%)	--	--	1 (1.3%)
Students were more engaged at school	5 (20.0%)	3 (27.3%)	3 (30.0%)	11 (25.8%)

Students became more motivated to apply themselves	1 (4.0%)	2 (18.2%)	3 (30.0%)	6 (17.4%)
Student achievement increased	--	2 (18.2%)	3 (30.0%)	5 (19.4%)
Student attendance increased	--	2 (18.2%)	1 (10.0%)	3 (9.4%)
School became more relevant	7 (28.0%)	6 (54.5%)	4 (40.0%)	17 (40.8%)

Students' Interpersonal Outcomes

Students were able to work together	5 (20.0%)	4 (36.4%)	3 (30.0%)	12 (28.8%)
Students were engaged in class discussion	13 (52.0%)	4 (36.4%)	4 (40.0%)	21 (42.8%)
Quiet students were more likely to share in unit	1 (4.0%)	1 (9.1%)	1 (10.0%)	3 (7.7%)
Students enjoyed sharing stories with classmates	9 (36.0%)	6 (54.5%)	4 (40.0%)	19 (43.5%)
Students learned about their classmates	12 (48.0%)	3 (27.3%)	1 (10.0%)	16 (28.4%)
Students were able to express themselves through art, even if writing was difficult	3 (12.0%)	--	1 (10.0%)	4 (7.3%)
Class community was strengthened	8 (32.0%)	4 (36.4%)	2 (20.0%)	14 (29.5%)
Students recognized the importance of support systems	1 (4.0%)	1 (9.1%)	--	2 (4.4%)

Unit facilitated respect for diversity	3 (12.0%)	3 (27.3%)	--	6 (13.1%)
Students' Career Outcomes				
Students connected self-knowledge to career opportunities	3 (12.0%)	7 (63.6%)	5 (50.0%)	15 (41.9%)
Students broadened their career expectations and/or aspirations	9 (36.0%)	10 (90.9%)	7 (70.0%)	26 (65.6%)
Students were able to validate and/or justify their career decisions	--	--	4 (40.0%)	4 (13.3%)
Students wanted to continue with career planning	4 (16.0%)	1 (9.1%)	2 (20.0%)	7 (15.0%)
Students recognized their role in the community	2 (8.0%)	--	--	2 (2.7%)
Students became aware of the jobs around them	4 (16.0%)	1 (9.1%)	--	5 (8.4%)
Students learned more about their parents' jobs	2 (8.0%)	--	--	2 (2.7%)
Students learned work can be meaningful	1 (4.0%)	1 (9.1%)	2 (20.0%)	4 (11.0%)
Standardized Learning Objectives				
Students learned about selves	23 (92.0%)	6 (54.5%)	7 (70.0%)	36 (72.2%)
Students learned a lot about careers	24 (96.0%)	9 (81.8%)	7 (70.0%)	40 (82.6%)

Students became excited about what they could do with their lives	25 (100.0%)	8 (72.7%)	8 (80.0%)	41 (84.2%)
Students wanted to learn more about different careers	24 (96.0%)	8 (72.7%)	8 (80.0%)	40 (82.9%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency of elementary projects that reported each strength category; Total of 25 elementary projects.

**Frequency of junior high projects that reported each strength category; Total of 11 junior high projects.

***Frequency of senior high projects that reported each strength category; Total of 10 senior high projects.

**** Total frequency of projects, across grade level categories, which reported each strength category, and average percentage of projects that reported each strength category. Average percentage weighted according to the total number of projects within a given strength category.

Research question 10: What are common challenges across career education

projects? The results from the Project Challenges Coding Frame (see Appendix F) were examined to answer this question. As with the Project Strengths Coding Frame, this coding frame was used with verbatim extracts from each project's report. Consequently, for each project there may have been additional challenges that were not explicitly reported and thereby not recorded during analysis.

The most common challenges across projects were: insufficient time ($n = 27$; 59.3%), boring or unexciting activities ($n = 8$; 19.8%), unable to complete planned activities ($n = 10$; 19.0%), unit did not help students to learn more about careers ($n = 7$, 18.7%), and unit did not make students excited to learn more about different careers ($n = 7$; 18.4%). Each challenge category and the frequency of its occurrence across grade levels are presented in Table 15.

Table 15

Project Challenges Across Grade Level Categories

Challenge Category	Elementary Projects* Frequency (%)	Junior High Projects** Frequency (%)	Senior High Projects*** Frequency (%)	Overall Distribution****: Total Frequency, Average (%)
Activities				
Insufficient opportunities to explore career information	--	2 (18.2%)	3 (30.0%)	5 (16.1%)
Too much writing and/or homework	1 (4.0%)	3 (27.3%)	--	4 (10.4%)
Repetitive activities	2 (8.0%)	--	1 (10.0%)	3 (6.0%)
Activities were not grade-level or developmentally appropriate	8 (32.0%)	--	1 (10.0%)	9 (14.0%)
Boring or unexciting activities	3 (12.0%)	3 (27.3%)	2 (20.0%)	8 (19.8%)
Not enough structure in unit	--	1 (9.1%)	--	1 (3.0%)
Poor transition between activities	1 (4.0%)	--	--	1 (1.3%)
Timing				
Poor timing of unit (i.e., time of year)	2 (8.0%)	--	--	2 (2.6%)
New relationship between intern teacher and students (lack of trust and safety)	--	--	1 (10.0%)	1 (3.3%)
Insufficient time	14 (56.0%)	9 (81.8%)	4 (40.0%)	27 (59.3%)
Unable to complete planned activities	7 (28.0%)	1 (9.1%)	2 (20.0%)	10 (19.0%)
Design				

Flaw in assessment design	4 (16.0%)	--	1 (10.0%)	5 (8.7%)
Evaluation survey issues	3 (12.0%)	--	--	3 (4.0%)
Minimal amount of second language used in activity	--	1 (9.1%)	--	1 (3.0%)
Language barriers	2 (8.0%)	2 (18.2%)	1 (10.0%)	5 (12.1%)
Differences in career education across cultures	1 (4.0%)	1 (9.1%)	1 (10.0%)	3 (7.7%)
Content-heavy curriculum	--	1 (9.1%)	1 (10.0%)	2 (6.4%)
Classroom dynamics				
Classroom disturbances (i.e., behavioural issues)	--	1 (9.1%)	1 (10.0%)	2 (6.4%)
Attendance issues	--	2 (18.2%)	1 (10.0%)	3 (9.4%)
Student participation issues	3 (12.0%)	1 (9.1%)	2 (20.0%)	6 (13.7%)
Lack of student engagement	2 (8.0%)	4 (36.4%)	1 (10.0%)	7 (18.1%)
Students needed additional assistance	5 (20.0%)	2 (18.2%)	--	7 (12.7%)
Other				
Scheduling conflicts with guest speakers	1 (4.0%)	--	--	1 (1.3%)
Parents did not see how unit fit into curriculum	--	1 (9.1%)	--	1 (3.0%)
Sample (size and/or demographics) limits generalizability of results	--	--	4 (40.0%)	4 (13.3%)
Interpersonal issues				
Students were too familiar with one another	1 (4.0%)	1 (9.1%)	1 (10.0%)	3 (7.7%)

Students were shy/unwilling to reveal information	1 (4.0%)	1 (9.1%)	1 (10.0%)	3 (7.7%)
Students wanted to work in groups	1 (4.0%)	1 (9.1%)	--	2 (4.4%)
Students got off-track with friends	1 (4.0%)	2 (18.2%)	--	3 (7.4%)
Students had difficulties in class discussion	3 (12.0%)	--	--	3 (4.0%)
Skill/Comprehension issues				
Students unable to grasp abstract nature of unit	2 (8.0%)	1 (9.1%)	--	3 (5.7%)
Students rushed through their activities	1 (4.0%)	--	--	1 (1.3%)
Students had trouble generating pride stories	2 (8.0%)	2 (18.2%)	--	4 (8.7%)
Students had trouble with writing	3 (12.0%)	2 (18.2%)	--	5 (10.1%)
Students had underdeveloped/insufficient research abilities	1 (4.0%)	1 (9.1%)	--	2 (4.4%)
Students overwhelmed by career choices	1 (4.0%)	--	--	1 (1.3%)
Students had difficulties with visualization	2 (8.0%)	1 (9.1%)	--	3 (5.7%)
Students became restless	2 (8.0%)	1 (9.1%)	--	3 (5.7%)
Career education issues				
Students had already decided on future careers	--	1 (9.1%)	3 (30.0%)	4 (13.0%)
Students did not see relevance of unit	--	3 (27.3%)	2 (20.0%)	5 (15.8%)

Students became uncertain about their identities	--	1 (9.1%)	--	1 (3.0%)
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Standardized learning outcomes

Unit did not make students excited to learn about careers	2 (8.0%)	3 (27.3%)	2 (20.0%)	7 (18.4%)
Unit did not make students excited about what they could do with their lives	2 (8.0%)	--	1 (10.0%)	3 (6.0%)
Unit did not help students to learn more about themselves	--	2 (18.2%)	2 (20.0%)	4 (12.7%)
Unit did not help students to learn more about careers	2 (8.0%)	2 (18.2%)	3 (30.0%)	7 (18.7%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency of elementary projects that reported each challenge category; Total of 25 elementary projects.

**Frequency of junior high projects that reported each challenge category; Total of 11 junior high projects.

***Frequency of senior high projects that reported each challenge category; Total of 10 senior high projects.

**** Total frequency of projects, across grade level categories, which reported each challenge category, and average percentage of projects that reported each strength category. Average percentage weighted according to the total number of projects within a given strength category.

Research question 11: What are common recommendations for improvement that are made for the future implementation of career education projects? The results from the Project Recommendations Coding Frame (see Appendix G) were used to respond to this question. As with the other coding frames, the Project Recommendations Coding Frame analyzed verbatim sections from project reports. As a result, each project may have had additional recommendations that were not captured within the report.

Across projects and grade level categories, several recurring themes emerged. These included: provide more time for students to work on activities ($n = 27$; 59.2%), integrate career education into other subjects ($n = 19$; 40.1%), include more career planning activities ($n = 15$; 36.5%), include career research activity ($n = 12$; 28.8%), provide more opportunities for students to discuss their ideas with peers ($n = 12$; 24.8%), and match activities to grade level, ability, or interest ($n = 9$; 20.0%). The recommendation categories and their captured frequencies of occurrence are listed in Table 16.

Table 16

Project Recommendations Across Grade Level Categories

Recommendation Category	Elementary Projects* Frequency (%)	Junior High Projects** Frequency (%)	Senior High Projects*** Frequency (%)	Overall Distribution****: Total Frequency, Average (%)
Project Design				
Incorporate career education throughout the year	3 (12.0%)	1 (9.1%)	1 (10.0%)	5 (10.4%)
Integrate career education into other subjects	11 (44.0%)	4 (36.4%)	4 (40.0%)	19 (40.1%)
Gain more experience with teaching career education	1 (4.0%)	--	--	1 (1.3%)
Include variety of activities	1 (4.0%)	--	1 (10.0%)	2 (4.7%)
Make activities more engaging	6 (24.0%)	1 (9.1%)	2 (20.0%)	9 (17.7%)
Expose students to more career options	5 (20.0%)	3 (27.3%)	1 (10.0%)	9 (19.1%)
Be culturally sensitive	--	--	1 (10.0%)	1 (3.3%)
Include more activities in target language	--	1 (9.1%)	--	1 (3.0%)
Add more structure to lessons	--	--	1 (10.0%)	1 (3.3%)
Better preparation (i.e., worksheet creation)	3 (12.0%)	1 (9.1%)	--	4 (7.0%)

Include exemplars for students to follow	1 (4.0%)	2 (18.2%)	1 (10.0%)	4 (10.7%)
Reword questions for better comprehension	1 (4.0%)	--	--	1 (1.3%)
Count career planning assignments for course credit	--	--	1 (10.0%)	1 (3.3%)
Adjust student survey to provide clearer results	1 (4.0%)	--	1 (10.0%)	2 (4.7%)
More independent learning opportunities	2 (8.0%)	1 (9.1%)	--	3 (5.7%)
More opportunities for students to discuss their ideas with peers	7 (28.0%)	4 (36.4%)	1 (10.0%)	12 (24.8%)
Provide more time to work on activities	14 (56.0%)	9 (81.8%)	4 (40.0%)	27 (59.2%)
Complete all planned activities	3 (12.0%)	1 (9.1%)	--	4 (7.0%)
Condense unit	2 (8.0%)	--	--	2 (2.7%)
Allow students more avenues for expression (i.e., art, comics)	1 (4.0%)	--	1 (10.0%)	2 (4.7%)
Assign less homework	--	1 (9.1%)	--	1 (3.0%)

Specific Activities

Create class display wall	1 (4.0%)	--	--	1 (1.3%)
Create Wordles for students	--	1 (9.1%)	--	1 (3.0%)
More career planning activities	6 (24.0%)	5 (45.5%)	4 (40.0%)	15 (36.5%)
Include career research activity	5 (20.0%)	4 (36.4%)	3 (30.0%)	12 (28.8%)
More field trips	3 (12.0%)	--	--	3 (4.0%)
More games	4 (16.0%)	1 (9.1%)	--	5 (8.4%)
More hands-on activities	5 (20.0%)	1 (9.1%)	--	6 (9.7%)
Arrange for guest speakers	7 (28.0%)	2 (18.2%)	1 (10.0%)	10 (18.7%)
More one-on-one discussions with students	1 (4.0%)	1 (9.1%)	--	2 (4.4%)
Allow students to present to classmates	2 (8.0%)	2 (18.2%)	2 (20.0%)	6 (15.4%)
Have students create final summative project	--	--	2 (20.0%)	2 (6.7%)
Have students create personalized workbooks or journal entries	2 (12.0%)	1 (9.1%)	--	3 (7.0%)
Read stories to class	3 (12.0%)	--	--	3 (4.0%)
Provide opportunity for students to spend day with mentor	2 (8.0%)	--	--	2 (2.7%)

Incorporate more art-based activities	7 (28.0%)	--	--	7 (9.3%)
Host career fair	2 (8.0%)	--	--	2 (2.7%)
More music	1 (4.0%)	--	--	1 (1.3%)
More movies/videos	4 (16.0%)	--	--	4 (5.3%)

Prior to Unit

Develop stronger student-teacher relationships	--	--	1 (10.0%)	1 (3.3%)
Send letter home to parents	3 (12.0%)	--	--	3 (4.0%)
Provide clear explanation of unit and its importance	--	2 (18.2%)	--	2 (6.1%)
Integrate unit with school counselling and/or outreach resources	--	--	2 (20.0%)	2 (6.7%)
Coordinate career education with other events with CALM and guidance counselling	--	--	1 (10.0%)	1 (3.3%)

Ongoing Processes

Match activities to grade level, ability, and/or interest	5 (20.0%)	--	4 (40.0%)	9 (20.0%)
Poll students to determine career interests and shape lessons	1 (4.0%)	1 (9.1%)	1 (10.0%)	3 (7.7%)
Focus on building a sense of community	1 (4.0%)	--	1 (10.0%)	2 (4.7%)

Proofread student work to ensure sufficient detail	1 (4.0%)	--	--	1 (1.3%)
Provide optional career-related homework and/or allow students to take projects home to complete	--	--	2 (20.0%)	2 (6.7%)
Encourage students to discuss ideas with parents to foster buy-in	1 (4.0%)	--	--	1 (1.3%)
Remind students to respect diversity	1 (4.0%)	--	--	1 (1.3%)
Teach students about technology	1 (4.0%)	1 (9.1%)	--	2 (4.4%)
Present students with certificate of participation	1 (4.0%)	--	--	1 (1.3%)
Better cohesiveness of lessons	1 (4.0%)	--	--	1 (1.3%)
General objectives				
Make students excited about what they can do with their lives	2 (8.0%)	1 (9.1%)	--	3 (5.7%)
Help students connect their energy and excitement with career goals	1 (4.0%)	1 (9.1%)	--	2 (4.4%)
Help students to gain self-awareness	6 (24.0%)	--	--	6 (8.0%)

Teach students to connect self-awareness with career options	4 (16.0%)	2 (18.2%)	2 (20.0%)	8 (18.1%)
Introduce idea of career education early to build student interest	--	1 (9.1%)	2 (20.0%)	3 (9.7%)
Link academic learning to real world	3 (12.0%)	1 (9.1%)	1 (10.0%)	5 (10.4%)
Future Research				
Examine whether career education impacts school commitment and graduation	--	1 (9.1%)	--	1 (3.0%)
Investigate success of project with other groups	--	1 (9.1%)	3 (30.0%)	4 (13.0%)

Note: Dashes (--) represent a lack of data for a given category.

*Frequency of elementary projects that reported each recommendation category; Total of 25 elementary projects.

**Frequency of junior high projects that reported each recommendation category; Total of 11 junior high projects.

***Frequency of senior high projects that reported each recommendation category; Total of 10 senior high projects.

**** Total frequency of projects, across grade level categories, which reported each recommendation category, and average percentage of projects that reported each recommendation category. Average percentage weighted according to the total number of projects within a given strength category.

Summary

This chapter aimed to provide an overview of the results of the study's data collection and analysis. The research questions established earlier in the thesis were addressed, and data from the Student Evaluation Coding Frame, Project Coding Frame, and extended coding frames were described in detail. In the next chapter, the implications of these results will be discussed to highlight this study's strengths, limitations, and directions for future research.

Chapter 5: Discussion

The overall goal of this research study was to gain a deeper understanding of career education projects that had been implemented by intern teachers, thereby recognizing aspects of projects that were especially useful, and those that were less useful. This chapter is intended to discuss the study's principle findings, and it is structured to correspond with the topics presented in Parts I and II of Chapter 2, the Literature Review. After this discussion, the remainder of the chapter will be devoted to describing the study's limitations, implications for practice, and recommendations for future research (Docherty & Smith, 1999).

Theoretical Overview of Students' Career Development: Connections to Results

In this section, the results of this study will be connected to the theoretical overview of career development that was outlined in Chapter 2. Super's (1975) definition of career education was exemplified in the projects described in this study, as in accordance with standardized learning objectives, projects sought to inform students about potential career options and equip them with career planning skills. According to the project reports, 40 projects (82.6%) helped students to learn more about careers, and 40 (82.9%) made them want to learn more about different careers. Furthermore, 27 (67.0%) projects succeeded in teaching students career planning skills, 15 (41.9%) helped students to connect their personal attributes with careers of interest, and 26 (65.6%) helped them to broaden their career expectations and/or aspirations. From students' perspectives, many indicated in their open-ended responses that they liked that the unit helped them to learn more about careers ($n = 125$; 8.4%), helped them plan for their future ($n = 60$; 5.5%), and encouraged them to start thinking about their future ($n = 117$;

9.2%). Taken together, these results suggest that many of the projects involved in this study prioritized and succeeded at teaching students about careers and imparting career planning skills.

In addition, the vast majority of projects ($n = 45$; 97.8%) in this study used career infusion (Millar, 1995) to incorporate career education into the context of mainstream academic content. In the one project that did not use career infusion, career education sessions were conducted during lunch hours. The remainder of projects incorporated career education into one or more subject areas, although it was most common for elementary school projects to incorporate career planning into multiple subject areas, particularly ELA and Health.

Developmental theories of career development. The self-exploration element inherent in all 46 projects complemented several of the developmental theories of career development (Erikson, 1968; Gottfredson, 1981, 1996, 2002, 2005; Super, 1975). After all, 36 projects (72.2%) successfully helped students to learn more about themselves, 43 (64.3%) helped students to become aware of their unique traits, skills, and abilities, and 80 students (5.9%) commented that they liked that their career planning project had helped them to learn about themselves. This corresponds with Super's (1975) contention that children begin to develop concepts of self and occupational goals at an early age, and that this ongoing exploration continues throughout adolescence. These results also reinforce Gottfredson's recommendation that career education seek to expand children's career knowledge and develop their self-concept.

The results described above were obtained across grade levels, which suggests that self-exploration is, and should be, an essential part of career development at any

grade level. In many of the projects described in this study, students were encouraged to imagine and dream about their futures in a way that they may never have experienced before, particularly through activities such as My Dream Day and the 99 Year Old Question. This focus on identity was also developmentally appropriate, as children and adolescents are typically egocentric and therefore enjoy completing activities that are all about them and may have difficulty taking the perspective of others (Elkind, 1968; Snowman & McCown, 2012).

Although self-exploration at the elementary level may be more novel than self-exploration in later grades, ongoing assessments of personal interests, skills, values, and goals would allow students to gain a deeper awareness of themselves over a more extended period of time. This could then result in a sufficient knowledge of one's roles, skills, and personal attributes (Erikson, 1968) to facilitate the development of career objectives that are linked towards stable, rather than temporary, personal attributes, and are thereby more fulfilling over time. Furthermore, ongoing self-exploration, if coupled with exposure to a wide variety of career options, could potentially negate some of the dangers of circumscription and compromise that were described by Gottfredson (1981).

Learning theories of career development. With respect to the learning theories described in the literature review (Bandura, 1994; Krumboltz, 2009; Lent, Brown, & Hackett, 1994), a strength of several projects involved in this study is that they incorporated a broad range of activities for students to complete. For example, three hundred and seven students (16.2%) commented that they enjoyed specific activities that were completed during their projects. When students made recommendations for project improvement, these recommendations often involved adding additional activities ($n =$

245; 18.1%) and making activities more fun and/or exciting ($n = 56$; 5.5%). Taken together, these results highlight the importance of including a variety of stimulating activities in a career project, regardless of student grade level. According to numerous authors (Krumboltz; Lent, Brown, & Hackett), including a variety of career development activities is essential for exposing students to a wide range of learning experiences that can incrementally influence their career development, rather than a single career decision that only reflects the student's immediate career interests.

In projects where students were able to engage in one-on-one discussions with their intern teachers ($n = 8$; 66.2%), this may have facilitated the appropriate social persuasion that Bandura (1994) emphasized as a critical element of career development, as the intern teacher was able to support students' career development, perceptions of their capabilities, and thereby their career planning self-efficacy. In addition, Pride Story exercises were commonly included in projects that had high cumulative outcome effectiveness ratings ($n = 22$; 25.8%), and this intervention was designed to help students recognize their strengths and validate those strengths through peer and intern teacher feedback. This is but one example of an intervention that successfully targeted students' self-perceptions of ability to enhance those perceptions and expand their career options. If students are able to have positive experiences with career exploration and planning activities early in their academic development, then they may be at an advantage to confidently and appropriately use these strategies later in their development when career decisions become more immediate.

Process models of career development. This section pertains best to the overall career planning skills that students gained as a result of participation in each project. According to several theorists (Magnusson, 1992; Miller-Tiedeman & Tiedeman, 1990; Porfeli & Lee, 2012; Tiedeman & O'Hara, 1963), career planning skills can be used to assist in decision-making processes across multiple life domains. Therefore, it is interesting that 27 (67.0%) projects reported that career planning skills were successfully taught to students. One such skill was conducting career research, as 29 (35.9%) of projects with high cumulative outcome effectiveness ratings incorporated career research interventions. Furthermore, career research interventions were highly popular with students, as 164 (95.4%) elementary students, 191 (95.1%) junior high students, and 110 (92.5%) senior high students rated Research Careers as a Good or Great intervention in terms of helpfulness.

The success of self-exploratory exercises across projects has been previously discussed; however, it is worth mentioning that self-exploration provides a foundation for career and life planning in several process models (Magnusson, 1992; Miller-Tiedeman & Tiedeman, 1990; Porfeli & Lee, 2012; Tiedeman & O'Hara, 1963). With these foundations in place, students are better equipped to start identifying potential career paths and developing the resources needed to reach their goals. One important extension of self-exploration is the idea of separating one's personal reality from society's realities (Miller-Tiedeman & Tiedeman); therefore, it is interesting that at least eight projects (21.5%) required students to consider their personal values, five (10.7%) inspired students to think critically, and nine (23.7%) sought to teach students to think for themselves, rather than relying on career advice from others. These outcomes align with

Porfeli and Lee's recommendation that students gain a deep understanding of who they are so that they can then find personally congruent career options. If students are able to grasp their personal desires and recognize that these may differ from the expectations of others, then they may be better able to strive towards their own desires and attain personally meaningful career and life outcomes.

Magnusson's (1992) Five Processes Model was an important part of the career education course and its ensuing projects, and it has been discussed at length throughout this study. As mentioned previously, all projects involved the first stage of Magnusson's model, Initiation, wherein students gained a greater sense of self-awareness. Thereafter, decreasing numbers of projects included Exploration ($n = 44$; 95.7%), Decision-Making ($n = 19$; 41.3%), Preparation ($n = 8$; 17.4%), and Implementation ($n = 0$; 0.0%). These results may reflect several factors. First, the majority of projects were completed at the elementary level, and the focus in these projects was primarily on self-exploration and career exposure, which correspond with the first two stages of Magnusson's model. In elementary projects, students were not being coached to select a specific career, as their interests could change over time. Instead, the primary objective in these projects was to teach students to recognize their unique identities and gain exposure to a wide variety of career options. Therefore, Initiation and Exploration were the most appropriate stages to include at this level.

Projects implemented in junior high and senior high were more likely to include Magnusson's (1992) third and fourth stages, and this may be because career decision-making was more relevant to students at that point in their lives. Students at these levels were rapidly approaching graduation and subsequent transition into further education

and/or work, so incorporating Decision-Making and Preparation was appropriate.

Implementation may not have been incorporated into any projects due to time constraints and/or a more immediate focus on identifying potential career options rather than developing concrete goals to reach those options.

Summary. Overall, it appears as though the projects described in this study managed to integrate elements of developmental, learning, and process-model theories of career development. This is likely a reflection of the four standardized learning objectives, which sought to encourage students to engage in self- and career exploration. Furthermore, this integration may be attributed to the combination of career development theories that were taught within the original career education course, as intern teachers would have learned about the necessity of targeting interventions to students' developmental needs, fostering self-exploration, supporting students' career aspirations, and helping students to develop career decision-making strategies.

Career Education Research: Connections to Results

Elementary school. Recommendations for the implementation of elementary school projects, such as fostering self-awareness (Harkins, 2001; Herr & Cramer, 1996; Schultheiss, 2008), establishing connections between academic learning and the real world (Herr & Cramer; Schultheiss), teaching relationship skills (Schultheiss), and using developmentally appropriate activities (Herr & Cramer), were clearly addressed in many of the projects described in this study. Self-awareness has been previously discussed, but in seven projects (28.0%), school became more relevant for students, and in five projects (20.0%) students were notably more engaged in school as a result of the career education

unit. These results suggest that linking academic learning and career education may facilitate perceptions of school relevance and school engagement.

A number of interpersonal skills were also emphasized through career education. For example, in a number of projects, students: engaged in class discussion ($n = 13$; 52.0%), learned about their classmates ($n = 12$; 48.0%), enjoyed sharing stories with their classmates ($n = 9$; 36.0%), and class community was strengthened ($n = 8$; 32.0%). Furthermore, in three projects (12.0%) the unit served to facilitate students' respect for diversity of opinion and/or culture. Each of these project strengths exemplifies ways in which career education can help students to achieve relational outcomes, which extend beyond the walls of the classroom and may enhance students' social abilities.

In terms of developmentally targeted activities, eight projects (32.0%) reported the use of developmentally appropriate activities. Examples of developmentally appropriate activities that were rated highly by students include Guest Speakers ($n = 67$; 100% rated Good or Great), Career Dress-Up ($n = 16$; 100.0% rated Good or Great), Guess the Job Game ($n = 30$; 100.0% rated Good or Great) and art-related activities such as Career/Job Cut-Out ($n = 54$; 98.2% rated Good or Great). On their open-ended comments, students often reported that they liked the art-related activities ($n = 62$; 8.1%) and guest speakers ($n = 17$; 2.2%). In each of these activities, students had opportunities to learn about themselves and/or careers in a manner that suited their academic abilities and engaged their curiosity. Conversely, a number of projects reported that there were challenges when students had difficulties with writing ($n = 3$; 12.0%), difficulties with visualization ($n = 2$; 8.0%), or issues with becoming restless during lengthy, sedentary activities ($n = 2$; 8.0%). These results highlight the importance of matching activities to

students' developmental abilities and interests to allow students to succeed in the unit and enjoy the career planning process.

Another aspect of career education at the elementary level that was evidenced in this study is that the integration of career education into literature can be particularly effective (Harkins, 2001). Eighty students (97.5%) indicated that reading stories as a class was a Good or Great intervention, and 22 (2.2%) commented that reading as a class was their favourite part of the career planning project. Given the fact that 19 projects (76.0%) integrated career education into ELA, it appears that career education can be incorporated into ELA and have numerous benefits for students, as they simultaneously improve their literacy skills and engage in career development.

Junior high school. Of Herr and Cramer's (1996) recommendations for junior high career education, two points seem especially pertinent to the results of this study. According to Herr and Cramer, students at this level should engage in exploration and planning, and gain access to relevant career planning information so that they can create informed career planning goals. Self-exploration has been discussed at length in previous sections, and it was a central element of the junior high projects in this study. An important element of career exploration and planning is career research, and this intervention was used in six (54.6%) of the eleven junior high projects. One hundred and ninety-one junior high students (95.1%) rated Research Careers as Good or Great, and 67 (95.7%) rated Research Subject-Specific Careers as Good or Great. These results highlight students' high ratings of these interventions, and on their open-ended responses 42 students (8.7%) commented that they especially liked the career research interventions.

Self-exploration and career research are essential parts of career development, but they are not enough – students must also have opportunities to connect self-knowledge with careers of interest to develop meaningful career goals (Herr & Cramer, 1996). Seven junior high projects (63.6%) enabled students to connect self-knowledge with career opportunities, and 10 (90.9%) helped students to broaden their career expectations and/or aspirations. Bardick, Bernes, Magnusson, and Witko (2004) found that junior high students were thinking about their futures, and perceived career planning as relevant. Similarly, junior high students in this study reported that they liked learning about careers ($n = 54$; 11.2%), starting to plan for their future ($n = 26$; 5.4%), and thinking about their futures ($n = 34$; 7.1%). Therefore, this study's findings with junior high students and their interest in researching potential careers and developing career goals are supported by existing research.

High school. According to Herr and Cramer (1996), career planning at this level should account for wide variations in students' career development needs and assist them in developing their plans for post-high school education and/or work. Consistent with this assertion, the 10 projects at this level included Magnusson's (1992) stages of Initiation ($n = 10$; 100.0%), Exploration ($n = 10$; 100.0%), Decision-Making ($n = 9$ (90.0%)), and Preparation ($n = 3$; 30.0%). Additional projects had intended to complete activities within the Preparation and Implementation stages, but due to time constraints this was not feasible.

Career education can be difficult to integrate into content-heavy senior high courses (Super, 1975), and consequently one intern teacher was directed by her supervisor to conduct lunch-hour career education sessions rather than integrating career

education into a Biology 20 course. Consequently, these sessions had low student attendance due to conflicts with other extracurricular activities. However, other intern teachers were able to incorporate career education into content-heavy courses such as Chemistry 30 and Physics 30. Therefore, this study provides support for Hutchinson's (2012) contention that educators, particularly science educators, can integrate career education into the delivery of course content if they are provided with adequate training. A caveat to this finding is that teachers need to tailor their career planning activities to the needs of their students. In one case, career education was integrated into a senior high science course and students were asked to complete worksheets that they had already completed in a different course, Career and Life Management (CALM). Consequently, a common complaint amongst these students was that the career planning activities were highly repetitive ($n = 20$; 9.9%). If the career planning activities had been developed and targeted towards the needs of the students, this could have been avoided.

Witko, Bernes, Magnusson, and Bardick (2006) found that senior high students may delay their career decision-making processes, and Bloxom et al. (2008) discovered that Grade 12 students wanted more access to career development resources to assist in their career planning processes. Consistent with these findings, senior high students in this study reported that they liked the career education projects because they were able to start planning for the future ($n = 29$; 10.4%) and think about their futures ($n = 42$; 15.1%). A number of students mentioned that they had no idea what they wanted to do prior to the career planning unit, and that involvement in the unit provided them with a sense of direction for their futures. These results highlight the importance of ongoing career education and development opportunities as senior high students proceed through

high school. With integrated career education opportunities, students may be less likely to slip through the cracks and procrastinate making career-related decisions. Instead, students would then gain a greater sense of purpose and direction as they approached graduation and the world of work.

Career education and engagement. The students involved in this study appeared to develop behavioural, emotional, and/or cognitive engagement through the career education projects. Eleven projects (25.8%) reported that student engagement in general increased as a result of the career education interventions. Fredricks, Blumenfeld, and Paris (2004) contend that behavioural engagement can be demonstrated through increased attendance and participation; in three projects (9.4%), student attendance increased throughout the unit. Emotional engagement, which is denoted by students' affective reactions such as interest and enjoyment (Fredricks et al.), was demonstrated by a number of students in this study. For example, on their open-ended comments, 125 students (7.7%) commented that they found the unit fun and/or enjoyable. Finally, students who become actively invested in their learning may demonstrate cognitive engagement (Fredricks et al.). Students display enhanced cognitive engagement when they show an increased investment in what they are learning and an inclination to exceed basic learning requirements (Trowler, 2010). Accordingly, 10 projects (22.4%) reported that students' efforts into their work increased throughout the unit, six (17.4%) indicated that students became more motivated to apply themselves at school, and 17 (40.8%) reported that school became more relevant for students through the connections they were able to make between academic learning and future life goals.

The standardized learning outcomes also reflect student engagement, as the outcomes measure the extent to which students were able to: (a) engage with career education to learn about themselves and potential careers; (b) want to learn more about careers; and (c) become excited about their futures through the perceived relevance of school to future life and career outcomes. Following this line of reasoning, the majority of projects succeeded at promoting student engagement, as 633 students (62.5%) agreed that the unit had helped them to learn a lot about themselves, 725 (71.6%) felt that the unit had helped them to learn a lot about careers, 734 (72.6%) agreed that the unit made them excited about what they could do with their lives, and 664 (65.6%) indicated that the unit had made them want to learn more about different careers. On average, 68.1% of students agreed that all four learning outcomes had been met. Based on these results, it appears that the career education projects and interventions involved in this study were successful at fostering increased student engagement across grade levels.

Summary. Across grade levels, it appears that the results of this study corroborated the recommendations and conclusions of previous research. At the elementary level, interventions often incorporated art, games, and/or other hands-on activities to target students' developmental and academic abilities. In each project, self-exploration and career exploration were key elements, and career decision-making became more important as students reached junior and senior high. Career research interventions were incorporated into many projects across grade levels, and these interventions were typically well received by students.

There was a trend towards integrating career education into multiple subject areas, especially ELA, in elementary projects, and in older grades it was more common to

integrate career education into one or two main subject areas. Despite having content-heavy courses such as high school science, it was typically possible to integrate career education into these courses. Finally, it appears that the majority of projects involved in this study were successful in fostering enhanced student engagement through career education. As a result of participating in career education, students reported that they had learned about themselves, had learned more about careers, were excited about what they could do with their lives, and wanted to learn more about different careers. Overall, these findings suggest that career education can have positive results for students of all grade levels, and that it can be successfully integrated into course subjects by intern teachers upon completion of training in career education and development.

Strengths

The current study offers a number of valuable contributions to the body of literature on career education and development. As evidenced in the previous section, this study and its findings corroborated extant research with respect to theories of career development and career development strategies at each grade level.

In addition, a significant strength of this study is that the career education projects involved encompassed a wide variety of grade levels and academic subjects. Therefore, the results from this study are applicable to a variety of academic contexts, as it is possible to determine which interventions were popular and/or effective at the elementary, junior, and senior high level, respectively.

Another useful aspect of this study is that the sample of projects was primarily composed of elementary school projects. Numerous researchers (Gallavan, 2003; Gillies, McMahon, & Carroll, 1998; Harkins, 2001; Magnuson & Starr, 2000; Porfeli & Lee,

2012; Schultheiss, 2008) have emphasized that career education should start at the elementary school level to best prepare students for their futures. This study and its findings regarding popular and/or effective interventions at the elementary level are useful for researchers and practitioners. This study is useful from a practical standpoint because it provides significant insight into aspects of career education projects that worked, and/or did not work, for a vast group of students and intern teachers.

This study is also significant because it incorporated both intern teacher and student voices into the analysis process; that is, analysis used project reports, as written by intern teachers, and also the ratings and open-ended comments offered by students upon completion of each project. Therefore, when consensus between these two sources is reached on topics such as which interventions were most popular and what aspects of the unit worked well, the reader can appreciate that these insights came both from the project creators and their participants. Furthermore, the combination of quantitative and qualitative data throughout analysis and interpretation provides a fuller picture of each project's effectiveness, strengths, challenges, and recommendations. Quantitative measures, such as overall effectiveness ratings, were balanced with students' and intern teachers' qualitative accounts of what they liked about each project and how it could be improved for the future.

Another significant strength of this study is that it was able to examine the effectiveness of intern teachers' career education projects, and by extension the impact that their career education had on their teaching strategies. Based on the results in this study, it appears that career education training for intern teachers can have significant impacts in the classroom, as intern teachers are able to gain the confidence and

competence that enables them to incorporate career education into their mainstream subjects.

Finally, a notable strength of the current study is that a set of recommendations for future career education implementation were developed through an analysis and interpretation of the career education projects and their associated Student Evaluation Surveys. These recommendations are presented near the conclusion of this chapter.

Limitations

This study was significant in its practical and research contributions to the literature; however, several limitations warrant mention. First, the study's strength of examining a diverse sample of projects also poses some limitations. This study was able to examine a broad range of career education interventions, but the diversity of interventions rendered advanced statistical analyses impossible, as there were insufficient counts within each cell. Therefore, the study's results and interpretations were limited to descriptive statistics of frequencies across grade level categories. This prevented the researcher from using inferential statistics to compare the relative effectiveness and statistical significance of each career education intervention and outcome measure. Furthermore, some projects involved extremely small sample sizes that were as low as six students in a given class, whereas others included class sizes of 75 students. This variation may be problematic for the uniform generalizability of results. Similarly, this study could not account for the variety of additional factors that could have influenced each project's overall effectiveness. For example, a number of students commented that they liked their intern teacher's teaching style during the career education project. This is one factor that would likely determine the overall success of the unit, and one that could

not be taken into consideration within the current study's design. A host of other factors, such as school size, socioeconomic status, mentor teacher influences, and unique classroom dynamics, would undoubtedly influence the effectiveness of each career education project, but again they could not be fully appreciated and examined within the context of the current study.

Another problematic aspect of this study involves the Student Evaluation Surveys that were distributed upon completion of each project. As mentioned, several projects were excluded from analysis because the intern teachers had modified the surveys and thereby eliminated their potential for standardized comparisons across projects. In some of the projects that were included for analysis, intern teachers developed evaluations that did not ask students to rate each intervention that had been completed. In actuality, many of the projects had more interventions than were listed on their evaluation surveys. Unfortunately, as these interventions were not listed and thereby rated by students, they could not be included in the current study. In addition, a number of students failed to fully complete their surveys, and so this may have impacted the overall results. Furthermore, it must be considered that some students may have completed their surveys in a manner that would please the intern teacher, and this could have also influenced the results of this study.

Finally, an important limitation to consider is that interpreting intern teachers' reports added an extra level of interpretation to this study. The current researcher was not directly involved in any of the career education projects, and so there were likely issues and strengths that occurred but were left out of intern teachers' final reports. Furthermore, as these projects were submitted for evaluation in completion of intern

teachers' courses, it is possible that the results were presented in a way that emphasized each project's strengths and placed less focus on its challenges.

Implications for Future Research

To mitigate the limitations described above, future researchers may wish to examine career education projects that are completed in similar teaching environments, in terms of characteristics such as class size, socioeconomic status, and subject matter. This would provide a more focused examination of interventions that are effective and/or ineffective in particular academic contexts. In addition, researchers may ask participating teachers to develop and administer standardized evaluation surveys that accurately represent the interventions that were completed within each project. This would enhance the possibilities of analysis and interpretation for each of these interventions, and could potentially also make it easier for students to accurately complete their surveys.

In future research, it would be interesting to examine the longitudinal effects of the original career education course and examine whether intern teachers who participated in the course still integrate career education into their course subjects. This examination could highlight the factors that facilitate and impede career infusion, and provide insight into the aspects of the career education course that intern teachers found most useful in the long-term.

Another potential area of research interest would be to longitudinally track students who participated in these career education projects and determine the cumulative impact of these interventions on their overall career development. If students were exposed to infused career education across multiple subject areas and grade levels, then it

would be useful to examine the effects of this integration on students' self-awareness, career planning skills, and career and life goals.

Implications for Practice

A primary goal of this study was to reveal implications for educators and practitioners to deliver integrated career education. Therefore, this study will conclude with a list of recommendations to facilitate and enhance integrated career education.

Career education training. Overall, it appears that the career education courses were able to facilitate the integration of career education into intern teachers' courses. There appear to be two recommendations for future versions of similar career education courses. First, it may be useful to underscore the importance of developing standardized Student Evaluation Surveys that accurately capture all of the interventions that were used in a given project. This would enhance the validity and accuracy of each project's results and expedite subsequent analysis and interpretation on a larger scale. Second, it may be worthwhile to emphasize the importance of time management strategies, as a common challenge within projects was that there was insufficient time for students to complete all of the planned activities to a meaningful level of depth. Therefore, it may be helpful for intern teachers to appreciate that it is better to include fewer carefully planned activities, to a greater level of depth, than to attempt to incorporate a greater number of activities that may not be completed within the allotted amount of time.

Delivering integrated career education. In terms of practical recommendations for educators who are delivering integrated career education, a number of suggestions have been developed based on the results of this study. Each of these suggestions is listed and described below, and is qualified by grade level category where appropriate.

Integrate career education into other subjects. The results of this study highlight that cross-curricular career integration is possible and desirable, as 19 (40.1%) of projects recommended that future implementation of career education incorporate additional courses wherever possible. At the elementary school level, there is considerable overlap between courses, and so it may be possible and desirable to integrate career education across several courses at once. In this study, this integration was successfully completed in projects that incorporated career education into multiple subject areas such as English Language Arts, Social Studies, and Health and Life Skills. However, at the junior and senior high levels, there tends to be less of an overlap between courses. Therefore, at these levels, it is more likely that successful career education integration would occur across one subject area at a time, such as Biology *or* Social Studies. If students are able to engage in career planning processes throughout the course of their education, then they may be able to form more meaningful, personally relevant career and life goals that could translate to personally fulfilling lives.

Provide students with wide exposure to multiple career options. To help expand students' career awareness, nine projects (19.1%) highlighted the importance of including a wide variety of career options within classroom activities. Students who are exposed to a broader selection of careers from a young age may be at an advantage to broaden their career expectations and aspirations, so that they are not constricted by societal and/or familial pressures and thereby directed into careers that are not personally significant. In light of Gottfredson's (1981, 1996, 2002, 2005) theory of circumscription, this recommendation seems especially important for career education at the elementary school level. However, even at the junior and senior high level, it may be beneficial to

include a variety of career options. This would allow students to gain exposure to a greater variety of careers and thereby explore careers of personal significance, rather than relying solely on the career-related opinions of their parents and friends.

Use exciting, engaging interventions that are tailored to each class. Nine projects (17.7%) recommended that interventions be exciting and engaging to catch and maintain student interest. Many students ($n = 125$; 7.7%) commented that they found the interventions to be fun and/or enjoyable, and 56 (5.5%) asked that future projects involve more fun and/or exciting interventions. These exciting and enjoyable career education interventions may help to spark student interest and engagement in the unit and with school in general. To ensure that students' interests are targeted, it may be useful to poll students prior to the unit and partway through the unit to assess their career planning needs, determine what is working well, and gain an understanding of what they would like to cover in future classes. In addition, this would help to mitigate issues of repetition of activities and subsequent disengagement.

Based on the projects in this study, it is recommended that future projects invite guest speakers ($n = 10$; 18.7%) to visit the class and describe their career experiences to the students, and/or have students present to their classmates about careers of their choice ($n = 6$; 15.4%). These interventions may be used at any grade level. In elementary classrooms, guest speakers may wish to provide more of a general, interactive presentation about their careers to foster student interest. In contrast, guest speakers with junior and senior high students may provide more extensive information about practical aspects of their careers, such as educational requirements, that would assist in career planning. If students are able to provide input into the types of career guests that they

would find most useful, then this would likely have a positive impact on the interest and attention that they showed towards these guests. Likewise, student presentations at the elementary level could be more simplistic and art-based than presentations at the junior and senior high level, which would likely be more research-based and targeted toward career goal attainment. If students were able to create and deliver career presentations that focused on personally meaningful career options, then this may enhance their interest and engagement with the career education unit and career planning in general.

Provide opportunities for students to work with one another. A common recommendation across projects was that students should have more opportunities to discuss their ideas with their peers ($n = 12$; 24.8%). Intern teachers observed that students enjoyed telling others about themselves and/or working with their classmates. These types of opportunities may also help to build a sense of community within the classroom, as was reported in 14 projects (29.5%). Through the development of a sense of community and respect for one another, students may feel more safe and at ease in expressing their dreams and goals with their teacher and classmates. Allowing students to work with one another on aspects of career interventions can help students to forge better relationships with one another and gain alternate perspectives on their own career planning processes.

Even as there are many advantages to having peers collaborate and assist one another in career planning, it is important to ensure that students are still able to choose personally meaningful career and life goals rather than simply adopting those prescribed by their peers. To avoid this, career educators should emphasize the importance of personal meaning and critical thinking skills so that students are encouraged to take other

perspectives into account, weigh those ideas against their own, and then ultimately make decisions that are personally significant. This encouragement would be especially important at the junior and senior high levels, as students may be highly influenced by their peers' opinions at this stage in their career development.

Use developmentally appropriate interventions whenever possible: Match activities to grade level, ability, and/or interest. This recommendation is especially pertinent to elementary level projects ($n = 5$; 20.0%), wherein it can be highly useful to incorporate art activities, stories, and hands-on activities to make interventions fun and exciting for students. Similarly, senior high projects ($n = 4$; 40.0%) also indicated that matching interventions to student interest and ability is important, especially to reduce repetition and redundancy. Students in junior and senior high may benefit more from self-exploratory and targeted research activities that can utilize their critical thinking abilities and existing academic skills, and build on previous career education experiences rather than replicate them.

Use technology, where possible, to help integrate ICT outcomes. Intern teachers reported that, across grade levels, students often enjoyed engaging in technology-based activities such as using the computer, watching videos, creating PowerPoint presentations, and researching careers with Internet resources. Taken together, these reports highlight the utility of incorporating ICT outcomes into career education. Furthermore, teaching students about various career planning resources that are available to them online will help them to be able to locate career-relevant information that they can return to, as needed, in the future. It is not expected that elementary level students would be as fluent with technology and researching as older students; therefore, it is

recommended that teachers at the elementary level provide greater support to students in their research endeavours by providing a list of internet resources and assisting them to access these resources, as needed. The expectations for the quality and quantity of research would likely increase as students became more familiar and proficient with their research skills, and as such junior and senior high students would be expected to create more detail-oriented, research-laden presentations than elementary students.

Provide sufficient time for students to complete interventions. This was a common recommendation from project ($n = 27$; 59.2%) and student ($n = 71$; 8.0%) perspectives across all grade level categories. If students are given sufficient time to complete their interventions, they may be able to do so to a greater and more meaningful depth than would otherwise be possible.

Ensure that interventions are adequately explained. Twenty-four students (2.4%) expressed that future projects would benefit from having better explanations of the tasks involved. In theory, this is a fairly easy task for educators to accomplish: Ensure that directions are articulated clearly, both orally and on worksheets, so that students understand what they are expected to do and avoid becoming unduly frustrated.

Capitalize on students' egocentrism and self-interest. As mentioned previously, students tended to enjoy talking about themselves and dreaming about their future possibilities. Adolescents may be especially preoccupied with their personal views of the world and assume that others are equally interested in their thoughts and actions (Elkind, 1968). Forty-three projects (64.3%) enabled students to become aware of their unique traits, skills, and abilities. Therefore, career education interventions should capitalize on this sense of self-interest and egocentrism to encourage students to imagine their future

goals through activities such as My Dream Day and the 99 Year Old Question. If students can imagine their futures and become excited about these possibilities, then they may be more interested in learning how they can attain their future life and career goals.

Connect self-awareness with career options. When asked what they liked about their career education projects, 80 students (5.9%) reported that they liked that they had learned about themselves. Similarly, on the standardized learning outcome pertaining to increased self-knowledge, 633 students (62.5%) indicated that they had learned more about themselves. One hundred and twenty-five (8.4%) of students wrote that they liked learning about careers, and on the standardized learning outcome, the majority of students ($n = 725$; 71.6%) indicated that they had learned more about careers. Self-exploration and career exploration are highly useful interventions for students to learn, but they need to also learn how to take the next step in their career development, and connect the two processes. Eight projects (18.1%) recommended that future projects endeavour to teach students to make these connections and link their self-awareness with career options. In doing so, students in all grade levels would be more equipped to find personally meaningful career options, and thereafter take the next steps in their career development to make their career aspirations a reality.

Use career education as a tool to enhance student engagement. As shown in this study, career education interventions can be used to help elementary, junior high, and senior high students learn more about themselves, learn about careers, gain excitement for their future opportunities, and want to learn more about different careers. These processes can help students to become more engaged with their schoolwork in general. Eleven projects (25.8%) found that students were more engaged at school, and 17

(40.8%) reported that school became more relevant to the students through career education. If interventions can assist students to gain a sense of behavioural, emotional, and cognitive engagement with what they are learning (Fredricks, Blumenfeld, & Paris, 2004), then students may be at an advantage to become more invested in their academic learning and its outcomes.

Conclusion

This study sought to examine the effectiveness of career education, as implemented by intern teachers and integrated into mainstream courses. It is hoped that, through careful analysis and interpretation of the data gained from a variety of career education projects, this research will have positive outcomes for future teachers and students, thereby helping teachers to “teach for the future” by supporting students to identify and achieve their career and life aspirations.

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Appendix A

Career Education Project Coding Frame

1. Project ID: ____

Context of the Teaching Environment

2. Grade level: ____

3. Grade level category:

☐ K-6

☐ 7-9

☐ 10-12

4. Number of students in class: ____

5. Number of students that completed surveys: ____

6. Targeted curriculum: _____

Detailed Description of Lesson Plan

7. Number of lessons: ____

8. Duration of lessons: ____

9. Interventions included

(select all that apply, interventions listed in Appendix D).

10. Stages of Magnusson's Model included (select all that apply)

☐ Initiation

☐ Exploration

☐ Decision-making

☐ Preparation

☐ Implementation

Summative Evaluation Results

11. Most popular interventions: (Highest % Rated "Great," Top 3 Ranked, A=most popular)

a. _____

b. _____

c. _____

12. Least popular interventions: (Highest % Rated "Not Good at All," Bottom 3 Ranked, A=least popular)

a. _____

b. _____

c. _____

13. Overall student participation: _____ (% Completed all Interventions)

14. Overall perceived helpfulness of activities: _____ (% Rated "Good" or "Great")

15. Overall perceived effectiveness of unit: _____ (% Agree)

16. Specific outcomes:

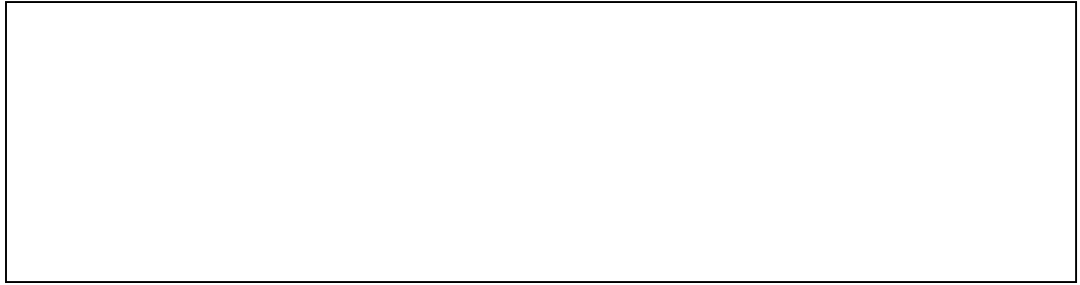
a. Outcome 1: Helped me to learn a lot about myself ____ (% Agree)

b. Outcome 2: Helped me to learn a lot about careers ____ (% Agree)

c. Outcome 3: Made me excited about what I could do with my life ____ (% Agree)

d. Outcome 4: Made me want to learn more about different careers ____ (% Agree)

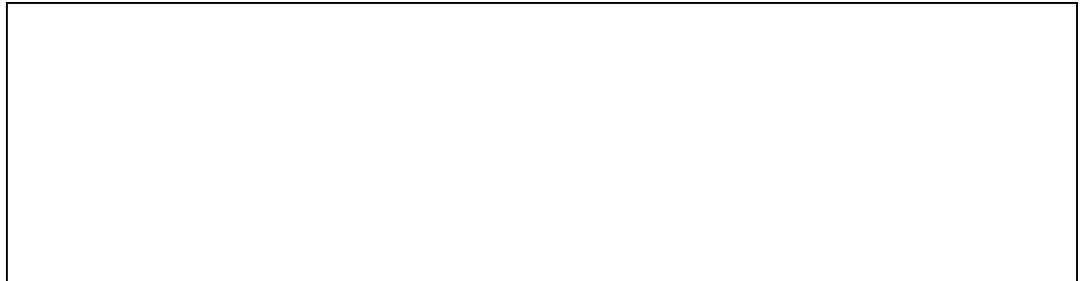
17. Strengths

A large, empty rectangular box with a thin black border, intended for writing the strengths of the organization.

18. Challenges

A large, empty rectangular box with a thin black border, intended for writing the challenges the organization faces.

19. Recommendations

A large, empty rectangular box with a thin black border, intended for writing recommendations for the organization.

Appendix B

Student Evaluation Coding Frame

1. Intervention ID: ____
2. Overall Participation Score: ____ (Number of interventions completed/total number of interventions)
3. Perceived Helpfulness of Each Intervention (Interventions listed in Appendix D).
 - ☐ Not Good at All
 - ☐ Good
 - ☐ Great

Perceived Effectiveness of Unit

4. Outcome 1: This [project] helped me to learn a lot about myself
 - ☐ Agree
 - ☐ Not Sure
 - ☐ Disagree
5. Outcome 2: This [project] helped me to learn a lot about careers
 - ☐ Agree
 - ☐ Not Sure
 - ☐ Disagree
6. Outcome 3: This [project] made me excited about what I could do with my life
 - ☐ Agree
 - ☐ Not Sure
 - ☐ Disagree
7. Outcome 4: This [project] made me want to learn more about different careers
 - ☐ Agree
 - ☐ Not Sure
 - ☐ Disagree

Open-Ended Responses

8. What I liked about this project:

9. How this project could be made better:

Appendix C










Career Coaching Across the Curriculum: Student Evaluation Survey

Thank you for participating in this lesson/unit plan/school-wide intervention! I would like to know if it was helpful and how it could be made better. Please answer the questions on this sheet to help me with this.

Part 1: Please let me know if you did the interventions.

Activity	I didn't do it	I did it
*Each intervention has its own category	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

Part 2: Please let me know if you thought the intervention was helpful by circling whether you thought it was “Not good at all,” “Good” or “Great.”

Intervention	Not good at all	Good	Great
*Each intervention has its own category			
			
			

What did you like about this lesson, unit plan or school wide intervention?

How could this lesson, unit plan or school wide intervention be made better?

Part 3: Please tell me how much you agree with the following statements by putting a checkmark in the box that best tells me how you feel:

	I Don't Agree	I'm Not Sure	I Agree
This lesson, unit plan or school wide intervention helped me to learn a lot about myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This lesson, unit plan or school wide intervention helped me to learn a lot about careers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This lesson, unit plan or school wide intervention made me excited about what I could do with my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This lesson, unit plan or school wide intervention made me want to learn more about different careers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you very much for your help!!

Appendix D

List of All Interventions, Descriptions, and Frequencies of Occurrence

Intervention	Description	Total Frequency* (Percentage)
1. 99 Year Old Question	Create a list of accomplishments that were completed by age 99 if everything went perfectly according to plan	11 (23.9%)
2. List of Future Accomplishments	Create a list of accomplishments that will be completed during lifetime or at a specific age (i.e., 25)	8 (17.4%)
3. Dream Day – Future	Describe detailed aspects of a dream day in future career, 10+ years in future	16 (34.8%)
4. Dream Day – Weekend	Describe detailed aspects of a dream day in current situation (no school, left to own devices for day)	5 (10.9%)
5. Pride Stories	Share an experience that generates pride, receive list of descriptive words from peers	15 (32.6%)
6. Self-Portrait	Detailed description of personal meaning, activities/tools, and desired outcomes	5 (10.9%)
7. Journal Entry	Write journal entry related to career education	2 (4.3%)
8. Poem	Write poem to describe potential occupations, goals, or aspects of self	3 (6.5%)
9. Class Discussion	Class discussion related to career education	8 (17.4%)
10. Video and Discussion	Video clip/movie file and class discussion	4 (8.7%)
11. Interests Inventory	Complete list/inventory of personal interests	8 (17.4%)

12. Values Inventory	Complete list/inventory of personal values	2 (4.3%)
13. Skills Inventory	Complete list/inventory of skills and/or abilities	4 (8.7%)
14. Interests, Values, and Skills Inventory	Complete list/inventory that describes interests, values, and skills	3 (6.5%)
15. Interests and Skills Organizer	Graphically represent interests and associated skills	2 (4.3%)
16. Personal Characteristics	Describe personal characteristics other than interests, values, and/or skills	3 (6.5%)
17. Describe Ideal Book	Describe what ideal book would be like	1 (2.2%)
18. Describe Ideal Song	Describe what ideal song would be like	1 (2.2%)
19. Describe Ideal Movie	Describe what ideal movie would be like	1 (2.2%)
20. Personal Definitions of Failure and Success	Describe personal definition of failure and success	1 (2.2%)
21. Tombstone Activity	Select tombstone that applies most to personal goals and characteristics	1 (2.2%)
22. Gratitude List	Generate list of items/ideas/people for which one is grateful	1 (2.2%)
23. Pride List	Generate list of items/ideas/people/accomplishments for which one is proud	1 (2.2%)
24. List or Represent Meaning	Generate list or artistic representation of items/ideas/people/accomplishments that represent meaning in one's life	5 (10.9%)
25. Describe Unique Traits	Describe one's unique traits and attempt to guess peer identities through examining unnamed lists of unique traits	3 (6.5%)
26. Personality Quiz	Personality quiz, other than Holland's Codes, that describes personality traits	6 (13.0%)

27. Time Chart	Draw a time chart to graphically represent how one spends one's time (time devoted to school/leisure/sleep etc.)	3 (6.5%)
28. Career Bingo	Play Bingo with various careers on the scorecard	2 (4.3%)
29. Give/Get Compliments	Give compliments to peers and receive compliments in return	2 (4.3%)
30. Guess the Job Game	Guess a surprise job based on a series of clues about the job's characteristics	2 (4.3%)
31. Silent Card Game	Silent game where students are to try and play a card game with their peers, only to find out afterwards that each person was playing by a different set of rules. Completed to facilitate respect for diversity.	2 (4.3%)
32. Career Dress-Up	Opportunity to dress up as career of one's choice	1 (2.2%)
33. Poster	Create a poster to represent self and/or career aspirations	2 (4.3%)
34. Vision Board	Goal-oriented poster that highlights areas of personal significance and overarching life goals	1 (2.2%)
35. Title Page	Title page to describe self and/or career aspirations	3 (6.5%)
36. Collage	Collage, using cut-out materials such as magazines, to describe self and/or career aspirations	4 (8.7%)
37. Photo Essay	Presentation of personal and/or public domain photos that represent one's identity and/or career aspirations	1 (2.2%)
38. Career/Job Cut-Out	Draw and/or colour a person-shaped cut-out to represent a career of interest	3 (6.5%)

39. Art with Name and Description of Self	Art, other than poster/collage/title page, that incorporates student's name and a description of identity and/or career aspirations	3 (6.5%)
40. Draw Self (Present/Future)	Drawing of self in present or future context	4 (8.7%)
41. Draw Parent at Work	Drawing of parent at his or her work	1 (2.2%)
42. Description of Present Self	Written description of one's present self (sentence stems, questionnaire, journal entry)	3 (6.5%)
43. Description of Future Self	Written description of one's future self (sentence stems, questionnaire, journal entry)	7 (15.2%)
44. Description of Present Self and Future Goals	Written description of present AND future self with life goals	1 (2.2%)
45. Description of Hero/Role Model	Written/artistic description of hero or role model	3 (6.5%)
46. Description of Dream Job/Career	Written/artistic description of one's dream job and/or career	8 (17.4%)
47. Brainstorm Jobs/Careers	Work as a class to generate a list of jobs and/or careers	2 (4.3%)
48. Brainstorm How to Learn About Jobs	Work as a class to generate a list of ways to learn about jobs	1 (2.2%)
49. Story with Questions (Worksheet/Journal)	Read a text and then respond to questions and/or journal entries that pertain to the text	5 (10.9%)
50. Read Story as Class	Read a text/story as a class	3 (6.5%)
51. Share/Talk with Classmates	Share or talk with classmates about career development processes and/or interventions	3 (6.5%)
52. Persuasive Writing	Persuasive writing activity where student has to "sell" personal characteristics (i.e., resume, cover letter)	5 (10.9%)

53. Subject-Specific Activity	Activity within career education project that corresponded with specific activity in academic course (i.e., career web based on theories of species dynamics)	2 (4.3%)
54. Subject-Specific Lesson	Lesson within career education project that corresponded with specific academic content (i.e., description of transnational companies and global development)	4 (8.7%)
55. Holland's Codes (Worksheet/Quiz)	Worksheet or quiz pertaining to Holland's codes	9 (19.6%)
56. Holland's Codes (Activity Stations)	Activity stations based on each of Holland's codes	2 (4.3%)
57. Choose Holland's Codes Adventure	Written activity based on Holland's codes	1 (2.2%)
58. Career Family Tree	Career family genogram	3 (6.5%)
59. Ask Parents Questions	Asked to interview parents about life and/or career factors	2 (4.3%)
60. Classmate Job Suggestions	Provide job suggestions to classmates based on their personal characteristics	1 (2.2%)
61. Research Careers	Conduct research using websites and/or books to learn more about one or more careers of interest	19 (41.3%)
62. Research Subject-Specific Careers	Conduct research using websites and/or books to learn more about one or more careers of interest that are directly related to an academic course (i.e., careers related to math)	5 (10.9%)
63. Career Budget	Create a future budget based on expected earnings and expenses	1 (2.2%)
64. Top 5 Needs and Wants	Description of Top 5 Needs and Wants within life and career	1 (2.2%)

65. Top 3 Education Programs	Description of Top 3 Education Programs for post-secondary education/training	1 (2.2%)
66. Simulated Day in Career	Interactive activity wherein students pretend that they are working in their careers of interest and must work with peers	1 (2.2%)
67. SMART Goals	Development of Specific, Measurable, Attainable, Realistic, and Timely goals	3 (6.5%)
68. Goal Setting – Barriers	Consideration of factors that may pose as barriers to life and career goals	2 (4.3%)
69. Goal Setting – Long and Short Term	Development of long-term and short-term life and career goals	1 (2.2%)
70. Goal Setting – Planning Sheet	List of factors to consider when developing goals	1 (2.2%)
71. Goal Setting – Travel Guide	Student-generated guidebook that includes list of career and life goals	1 (2.2%)
72. Career Planning Timeline	Graphic representation of goals and steps required to reach goals	6 (13.0%)
73. Career Portfolio	Portfolio to showcase student work and career development activities	2 (4.3%)
74. Guest Speaker	Presentation by guest speaker who works in a given career	4 (8.7%)
75. Career Presentations	Presentations by students to their classmates pertaining to their identities and/or career aspirations	4 (8.7%)

*Frequency calculated out of total of 46 projects.

Appendix E

Project Strengths Coding Frame

General Unit Characteristics

- Variety of activities
- Brief, focused exercises
- Unit incorporated technology
- Use of media increased student interest
- Activities were thoroughly explained
- Teacher-student collaboration on designing rubric
- Intern teacher had one-on-one discussions with students
- Taught career planning skills (researching, decision-making)
- Taught academic skills (reading, writing, math, second language)
- Taught general life skills (conflict resolution, relationship-building)
- Positive role models inspired students
- Organization/structure of unit was helpful
- Lessons were engaging
- Lessons went smoothly
- Effective use of literature
- Reading the text aloud to the students was helpful
- Effective use of art
- Developmentally appropriate activities
- Unit capitalized on students' curiosity
- Unit incorporated hands-on experience
- Guest speakers were effective
- Unit was flexible and could be easily adapted
- Unit fit well with curricular objectives

Students' Work Outcomes

- Students put lots of effort into work
- Students talked about unit in other classes
- Students were more engaged at school
- Students became more motivated to apply themselves
- Student achievement increased
- Student attendance increased
- School became more relevant

Students' Interpersonal Outcomes

- Students were able to work together
- Students were engaged in class discussion
- Quiet students were more likely to share in unit
- Students enjoyed sharing stories with classmates
- Students learned about their classmates
- Students were able to express themselves through art, even if writing was difficult
- Class community was strengthened
- Students recognized the importance of support systems
- Unit facilitated respect for diversity

Students' Personal Outcomes

- Students thought about personal values
- Students were given freedom and/or independence
- Students were creative and/or imaginative
- Students were able to think critically
- Students learned to think for themselves (less peer input)
- Students had fun/enjoyed unit
- Students became aware of their unique traits, skills, abilities
- Students liked that the activities were all about them
- Students enjoyed personalizing their activities
- Students became more confident

Students' Career Outcomes

- Students connected self-knowledge to career opportunities
- Students broadened their career expectations and/or aspirations
- Students were able to validate and/or justify their career decisions
- Students wanted to continue with career planning
- Students recognized their role in the community
- Students became aware of the jobs around them
- Students learned more about their parents' jobs
- Students learned work can be meaningful
- Students learned about post-secondary requirements

Standardized Learning Objectives

- Students learned about selves
- Students learned a lot about careers
- Students became excited about what they could do with their lives
- Students wanted to learn more about different careers

Appendix F

Project Challenges Coding Frame

General Unit Characteristics

Activities

- Insufficient opportunities to explore career information
- Too much writing and/or homework
- Repetitive activities
- Activities were not grade-level or developmentally appropriate
- Boring or unexciting activities
- Not enough structure in unit
- Poor transition between activities

Timing

- Poor timing of unit (i.e., time of year)
- New relationship between intern teacher and students (lack of trust and safety)
- Insufficient time
- Unable to complete planned activities

Design

- Flaw in assessment design
- Evaluation survey issues
- Minimal amount of second language used in activity
- Language barriers
- Differences in career education across cultures
- Content-heavy curriculum

Classroom Dynamics

- Classroom disturbances (i.e., behavioural issues, immaturity)
- Attendance issues
- Student participation issues
- Lack of student engagement
- Students needed additional assistance

Students' Challenges

Interpersonal

- Students were too familiar with one another
- Students were shy/unwilling to reveal information
- Students wanted to work in groups
- Students got off-track with friends
- Students had difficulties in class discussion

Skill/Comprehension Issues

- Students unable to grasp abstract nature of unit
- Students rushed through their activities
- Students had trouble generating pride stories
- Students had trouble with writing
- Students had underdeveloped/insufficient research abilities
- Students overwhelmed by career choices
- Students had difficulties with visualization
- Students became restless

Career Education Issues

- Students had already decided on future careers
- Students did not see relevance of unit
- Students became uncertain about their identities

Other

- Scheduling conflicts with guest speakers
- Parents did not see how unit fit into curriculum
- Sample (size and/or demographics) limits generalizability of results

Standardized Learning Outcomes

- Unit did not make students excited to learn about careers
- Unit did not make students excited about what they could do with their lives
- Unit did not help students to learn more about themselves
- Unit did not help students to learn more about careers

Appendix G

Project Recommendations Coding Frame

Project Design

- Incorporate career education throughout year
- Integrate career education into other subjects
- Gain more experience with teaching career education
- Include variety of activities
- Make activities more engaging
- Expose students to more career options
- Be cross-culturally sensitive
- Include more activities in target language
- Add more structure to lessons
- Better preparation (i.e., worksheet creation)
- Include exemplars for students to follow
- Reword questions for better comprehension
- Count career planning assignments for course credit
- Adjust student survey to provide clearer results
- More independent learning opportunities (i.e., self-reflection, research)
- More opportunities for students to discuss their ideas with their peers
- Provide more time to work on activities
- Complete all planned activities
- Condense unit
- Allow students more avenues for expression (i.e., art, comics)
- Assign less homework

Prior to Unit

- Develop stronger student-teacher relationships prior to unit
- Send letter home to parents
- Provide clear explanation of unit and its importance
- Integrate unit with school counselling and/or outreach resources
- Coordinate career education with other events with CALM and guidance counselling

Ongoing Processes

- Match activities to grade level, ability, and/or interest
- Poll students to determine career interests and shape lessons
- Focus on building a sense of community
- Proofread student work to ensure sufficient detail
- Provide optional career-related homework and/or allow students to take projects home to complete
- Encourage students to discuss ideas with parents to foster buy-in
- Remind students to respect diversity
- Teach students about technology
- Present students with certificate of participation

Specific Activities

- Create class display wall to showcase student work
- Create Wordles for students
- More career planning activities
- Include career research activity
- More field trips
- More games
- More hands-on activities
- Arrange for guest speakers
- More one-on-one discussions with students
- Allow students to present to classmates
- Have students create final summative project
- Have students create personalized workbooks or journal entries
- Read stories to class
- Provide opportunity for students to spend day with mentor
- Incorporate more art-based activities

General Objectives

- Make students excited about what they can do with their lives
- Help students connect their energy and excitement with career goals
- Help students to gain self-awareness
- Teach students to connect self-awareness with career options
- Introduce idea of career education early to build student interest
- Link academic learning to real world

Future Research

- Examine whether career education impacts school commitment and graduation
- Investigate success of project with other groups