Protective Factors that Influence Resilience among College Students

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We accept the Thesis as conforming to the required standard.

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Abstract
This thesis explores the level of resiliency of Vancouver Island University (VIU) students and examines the effects of protective factors on students’ resiliency. The study aims to provide college counsellors a more effective approach in designing crisis intervention and prevention programs that help promote students’ mental and emotional health on VIU campuses. The five main protective factors investigated in the study are: (1) Personal Competence, 2) Social Competence, (3) Family Cohesion, (4) Social Support, and (5) Personal Structure. The primary goal of this study was to thoroughly explore the most common protective factors experienced by students of all age groups. A sample of VIU students (N=101) participated in the research. Participants’ responses to the survey items were captured using a 15-item, five-point Likert attitude rating scale. The 15-item scale used in the present study was adapted from the 37-item Resilience Scale for Adult (RSA) that was originally designed to measure the full construct of resiliency (Frigborg et al., 2003). This scale helps measure students’ resilience by examining how much the five sub-constructs of resilience mentioned above are present in their lives. The self-reported data was gathered anonymously via an online survey tool called Survey Monkey. The data was then imported to the Statistical Package for the Social Science (SPSS) to analyze. Five statistical analyses (Descriptive Statistic, Paired-Sample T-test, Cronbach’s alpha, One-way ANOVA, and Box plots) were carried out to analyze and illustrate the data. The results of this study are expected to contribute to the resilience literature and offer more effective intervention and counselling programs for students on VIU campuses.

Keywords: resilience, protective factors, statistical analysis.
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Chapter One: Problem to be Investigated

Purpose of the Study

The problem investigated in the present study is the variety of factors that influence the resilience of students at Vancouver Island University (VIU). Resilience is often defined as “good outcomes in spite of serious threats to adaptation and development” (Masten, 2001, p. 228) or personal qualities that enable one to recover from setbacks, adapt well to change, and thrive in the face of adversity (Connor & Davidson, 2003). In other words, resilient people refuse to be knocked down, to succumb to negative impacts of stress, adversity, trauma or tragedy. Resilience in the present study does not necessarily mean an exceptional characteristic that enables students to overcome extraordinary adversity. Resilience in this study is defined as “a personality characteristic that moderates the negative effects of stress and promotes adaptation” (Wagnild & Young, 1993, p. 165).

It is hard to deny that college students deal with various challenges and pressures when they leave their home to start a new independent life at university. There is an alarming increase in the level of anxiety, depression, and suicidal ideation in student populations (Mercer, 2010), and college students of recent times are believed to be more susceptible to mental health problems compared to previous generations (Howe & Strauss, 2003). This phenomenon may be evidence of an absence or lack of resilience that helps students to be more emotionally strong and determined to overcome obstacles thrown at them daily. Rausenbaum and Weatherford (2017) attribute this phenomenon to “a culture that offers immediate gratification via social media, constant contact and communication, and parents who hover, helicopter, or bulldoze, removing obstacles and limiting chances for learning to deal with stress” (p. 92). If schools fail to give adequate attention to help students become more resilient and emotionally strong,
vulnerable college students are believed to be more likely to succumb to various negative impacts of emotional imbalance and unable to make a safe transition into their adulthood.

The purpose of the present study is: (1) to examine the relationship between the psychological trait of resilience and the protective factors that help strengthen this quality among VIU students, (2) to identify the factor that plays the most important role in determining students’ resilience; and (3) to find out if the protective factors will have a similar influence on students’ resilience regardless of their age. This study also endeavors to provide college counsellors a more holistic approach in designing crisis intervention and prevention programs that may help increase mental and emotional health among students on campus.

Justification of the Study

According to Gallagher (2009), college students are arriving on campus with increasing severity of psychological issues. Psychological distress among the college population is often caused by changes in sleeping and eating habits, increasing workload, changes in social activities, new responsibilities, technology problems, etc. (Steinhardt & Dolbier, 2008). The beginning of college life brings new adventures, both inspiring and disconcerting, as students leave behind established family ties, friendships, and community involvement and moves into new circumstances with relatively few immediate supports (Mercer, 2010, p. 5). The heightened anxiety and depression among students might also stem from the fact that students must deal with various pressures, such as personal transition and adaptation to college, academic success, financial concerns, interpersonal relationship concerns, and racial and cultural differences that affect self-worth (Bishop, Gallagher, & Cohen, 2000; Kadison & DiGeronimo, 2004). Not dealing with these problems effectively can lead to depression, anxiety, and increased risk for dropping out (McCarthy, Fouladi, Juncker, & Matheny, 2006).
Students endeavor to deal with these stressful obstacles in different ways. Grayson and Meilman (2006) noted that some students demonstrate resilience by managing stress effectively, whereas others lack knowledge, skills, or motivation to deal with existing pressure, and therefore turn to self-defeating behaviors to deal with stressful situations. As a result, the latter group is more likely to suffer from depression, sleep disorders, substance abuse, anxiety disorders, eating disorders, impulsive behaviors, and suicide (Bellenir, 2006). It is commonly believed that all students may struggle and overcome different obstacles at some points; however, whether students are crushed or strengthened by adverse situations depends on their level of resilience (Grotberg, 1995). Resilience not only allows individuals to gain more mental and emotional strength to effectively deal with stressful events, it also has the potential to boost individuals’ coping and adaptation abilities when they encounter loss, hardship, and adversity on a daily basis (Lazarus, 1993).

Resilience, however, is not merely a positive trait that is imbedded in the genes of a person. In other words, resilience is not a rigid quality but rather a dynamic developmental process that involves protective qualities associated with individual students (intrinsic protective factors) and their environments (extrinsic protective factors) (Luthar, Cicchetti, & Becker, 2000). There is a strong link between intrinsic and extrinsic factors, both of which intertwine and interact, impacting the development of resilience. The most consistent external protective factors include things such as supportive family members and teachers, peers, and other members of the community (Wasonga et al., 2003; Wolkow & Ferguson, 2001). The most consistent internal protective factors include things such as competence, motivation, self-regulation, and locus of control (Alvord & Grados, 2005; Reis et al., 2005; Wasonga et al., 2003).
The present study offers an insight into the complexity of resilience and the significance of various protective factors that help strengthen this quality. As a result, this study could also offer college counsellors, faculty, and staff a more holistic approach in designing crisis intervention and prevention programs in effort to increase mental and emotional health among students.

**Research Question and Hypothesis**

The following research questions are proposed for the present study:

**Research question 1.** How influential do college students (age 18-30+) in British Columbia, Canada rate each of the top five purported protective factors, namely: (1) Personal Competence; (2) Social Competence; (3) Family Cohesion; (4) Social Support; and (5) Personal structure in manifesting a high degree of resilience, as examined across participants’ calculated degree of resiliency?

**Hypothesis 1.** Social Support is the most influential factor that promotes college students’ elasticity and leads to higher degrees of resilience.

**Research question 2.** How differently do intrinsic factors (Personal Competence, Social Competence, and Personal Structure) and extrinsic factors (Family Cohesion and Social Support) affect students’ resilience?

**Hypothesis 2.** Extrinsic factors have more influence on student’s resilience than do intrinsic factors.

**Research question 3.** How do students’ resilience scores differ among the four age groups?

**Hypothesis 3.** There is no significant difference in students’ resilience between four age groups.
**Research question 4.** How does each of the five main protective factors, namely (1) Personal Competence; (2) Social Competence; (3) Family Cohesion; (4) Social Support; and (5) Personal Structure affect students’ resilience between four age groups: 18-22, 23-25, 26-29, and 30+?

**Hypothesis 4.** There are no significant differences in the influence of five main protective factors on students’ resilience between age groups.

**Definition of Terms**

The following definitions are pertinent to the present study:

*Protective factors* are positive conditions or attributes that help people deal more effectively with traumatic events and mitigate the negative impacts that such events impose on them (Masten & Reed, 2002). Protective factors can be intrinsic (intrapersonal) or extrinsic (interpersonal).

*Intrinsic protective factors* or intrapersonal factors are individual qualities or positive characteristics that help boost the overall degree of resilience and coping ability of an individual (Johnson, 2011). Intrinsic protective factors in this study include three subconstructs: Personal Competence, Personal Structure, and Social Competence.

*Personal Competence* is composed of perception of self or confidence in personal strengths, including the ability to solve problems, make decisions, and approach challenges (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003). A positive perception of self-coincides with coping with a difficult situation and feeling in control of life’s outcomes (Gerber et al., 1992; Werner, 1993). A second component of personal competence is positive perceptions of the future (Friborg et al., 2003).
**Personal Structure** refers to one’s ability to organize, plan, and uphold daily routines (Friborg et al., 2003). Compared to people at risk for depression, those not at risk planned their days more carefully and carried out their social and academic plans more fully, which in turn made them feel better about themselves, less anxious, and more optimistic about how their life would play out the following day (Nezlek, 2001).

**Social Competence** is “levels of social warmth and flexibility, ability to establish friendships, and the positive use of humor” (Hjemdal et al., 2011, p. 59). Social competence describes skills relevant for initiating and maintaining social relationships, including cooperation, trust, and communication (Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005).

**Extrinsic protective factors** or interpersonal protective factors are “those features of the environment that assist students to become resilient, valuable and worthwhile individuals” (Molepli, 2003, p.18). Extrinsic protective factors in this study includes two sub-constructs: Family Cohesion and Social Support.

**Family Cohesion** is originally perceived as “the emotional bonding that family members have toward one another” (Olson, 1993, p. 105). Family cohesion in this study is understood as whether “values are shared or discordant in the family and whether family members enjoy spending time with each other, have an optimistic view of the future, have loyalty toward each other, and have the feeling of mutual appreciation and support” (Hjemdal et al., 2011, p. 59). Families are likely to be cohesive when family members have an emotional closeness (Crush, 2018). Openness, warmth, flexibility, and emotional connectedness characterize cohesive families (Richmond & Stocker, 2006).

**Social Support** is often defined as an individual’s perception that he or she is loved and valued by people in his or her social network (Demaray, 2005). In this study, Social Support is
defined as the social resources including friends or family members available to discuss personal issues, provide encouragement, and offer general support (Johnson, 2011).

**Brief Overview of Study**

The present study examines the reported influence of various intrinsic and extrinsic factors on the levels of resilience of students at Vancouver Island University (VIU). Participants are full-time or part-time students from the ages of 18-30+ at Vancouver Island University. Participants are expected to complete an online survey designed to find out their levels of resilience and the protective factors that they have reported as the most influential on this quality.

The following chapter provides a review of literature that is relevant to this study, the study methodology, results, and a discussion of the findings. The areas covered include definitions of resilience, a presentation on waves of resilience research, and a look at resilience studies in college populations. Subsequently, the third chapter presents the procedures and methods for the study. Chapter Three includes a description of research design, a description of participants, a description of the instruments used, a presentation of the validity, and the justification of the techniques used. The fourth chapter includes a thorough review the results and data analysis of the study. Finally, Chapter Five is the discussion section, which includes the summary, implications, and limitations of the study.
Chapter Two: Literature Review

Introduction

The construct of resilience has been researched extensively in recent years at the individual, group, and organizational levels and continues to be an area of increasing interest (McCarthy, 2014). The study of resilience provides several challenges for researchers due to differing definitions and terminology (Reicherzer & Spillman, 2011). Smith et al. (2008) defined resilience as the “ability to bounce back or recover from stress, to adapt to stressful circumstances, to not become ill despite significant adversity, and to function above the norm in spite of stress or adversity” (p. 194). According to Masten (2014), resilience is “the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development” (p. 10). Resilience is also understood as “the ability of individuals to adapt successfully in the face of acute stress, trauma, or chronic adversity, maintaining or rapidly regaining psychological well-being and physiological homeostasis” (Rose et al., 2013, p. 107).

However, there are several consensuses reached on resilience. Firstly, resilient people are generally more flexible than vulnerable people and cope by using several protective resources either within themselves or in their environment (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003). In other words, the degrees of resilience are influenced by both individuals’ personality characteristic (intrinsic/internal/intrapersonal factors) and environmental factors (extrinsic/external/interpersonal factors). Secondly, becoming resilient is the result of a dynamic process, and an individual’s level of resilience is not static or inherent but can be developed and change variably during life stages (Werner, 1989). Thirdly, resilience is believed to be multifaceted and varies with developmental stages, and life circumstances (Bolton, 2013).
According to Wright, Masten, and Narayan (2013), the study of resilience has occurred in four major waves. The first wave of research identifies resilience as a set of characteristics a person could possess such as hardiness, coping, and self-efficacy. In this wave of study, researchers examined the effects of major trauma or adversity on an individual’s ability to cope and recover (Baron, Eisman, Scuello, Veyzer, & Lieberman, 1996; Wagnild & Young, 1993). The second wave of resilience research considers resilience a dynamic process in which someone experiences adversity followed by positive integration and learning from that experience (Gillespie, Chaboyer, & Wallis, 2007; Luther & Cicchetti, 2000; Rutter, 1999). The third wave of resilience inquiry placed emphasis on preventative interventions and policy shifts regarding resilience (Luthar et al., 2000; Rutter, 2000). The latest wave of inquiry focuses on a multilevel analysis. Researchers start paying attention to “epigenetic and neurobiological processes, brain development, and the ways that systems interact to shape development” (Wright et al., 2013, p. 16).

Three of the most recent studies related to the present study are (a) Protective Factors and Levels of Resilience Among College Students (Johnson, 2011); (b) Resilience Levels among 19-26-year-old College Students in Alabama and Tennessee: A Comparative Study (Anthony, 2017); and (c) Understanding Resilience and Happiness Among College Students (Lower, 2014).

**Protective Factors and Levels of Resilience Among College Students**

Johnson’s study (2011) aimed to examine the impact of internal and external protective factors on resilience among college students. The study’s main objective was to examine the internal protective factors of optimism, self-efficacy, and psychological well-being and the ways in which they predict resilience levels. However, external factors such as positive and caring relationships in the home, school, among peers, and in the community were also taken into
consideration (Johnson, 2011). Another objective was to explore whether race and gender moderate the effects of optimism, self-efficacy, and psychological well-being on resilience levels among college students.

The index for resilience came from the Resilience Scale (RS), which was composed of 26 items (Wagnild & Young, 1993) and examined participants’ individual levels of resilience. Questions on this index included responses ranging from (1) strongly disagree to (7) strongly agree (Johnson, 2011). The average of the sum of the scores of all items was used to indicate the resilience index—the higher the score, the higher the resilience (Johnson, 2011, p. 40).

Johnson (2011) also used Life Orientation Test-41 Revised (LOT-R) to measure optimism. This 10-item index included questions about enjoying friends, expecting good things to happen, expecting things to go one’s way, and offered responses ranged from (1) strongly disagree to (5) strongly agree (Johnson, 2011).

The index measuring self-efficacy was assessed through the General Self-Efficacy Scale. This 10-item index assessed optimistic self-beliefs and the belief that one can perform difficult tasks or cope with adversity (Johnson, 2011, p. 42). The index offered responses ranging from (1) not at all true to (4) exactly true (Johnson, 2011).

To measure psychological well-being (PWB), Johnson (2011) used the Scale of Psychological Well-being. This 54-item, six-point Likert scale measured one’s opinion, managing responsibilities, encountering new and challenging experiences, maintaining close relationships, living one day at a time, and feeling confident and positive (Johnson, 2011).

Twenty items from the Resilience & Youth Development Module (RYDM) of the California Healthy Kids Survey (California Department of Education, 2008) were used to measure the external protective factors (Johnson, 2011). This was a five-point Likert scale
including questions about “feeling like one is a part of the university environment and having a relationship with a parent or adult in the home” (Johnson, 2011, p. 43).

The study only sought to examine resilience among Whites and Blacks; therefore, all other races/ethnicities, such as Native American, Asian, and Native Hawaiian, were excluded from the study (Johnson, 2011). Data was collected via an online survey. The study was considered large scale, involving 658 students in seven departments and five colleges (Johnson, 2011).

Johnson (2011) concluded that:

(a) external protective factors, self-efficacy, and two of the dimensions of psychological wellbeing, environmental mastery, and autonomy were all significantly related to resilience; (b) race moderated the impact of one of the dimensions of psychological well-being, autonomy, on resilience; (c) internal protective factors were found to operate differently for different gender and racial groups in affecting levels of resilience; (d) stressful life events affected males and females differently, with a stronger negative impact of stressful life events on resilience found in males as compared to females; (e) age affected Whites and Blacks differently, with a stronger impact of age on resilience found among Whites as compared to Blacks; and (f) overall, race and gender were not found to be moderating effects of internal and external protective factors on resilience in this study. (Johnson, 2011, p. 67)

Johnson (2011) conducted a large-scale research that involved the examination of a wide range of internal and external protective factors contributing to students’ resilience. The study yielded numerous significant findings by using multiple scales to answer the research questions. However, there were still several limitations that should be noted. The most noticeable limitation
is that despite a considerable number of participants (N=658), the study used convenience sampling techniques, which ended up “consisting a limited number of male and Black participants” (Johnson, 2011, p. 77). As a result, this might limit the generalizability of the study. Besides, using cross-sectional design also makes the study fail to demonstrate the cause-effect relationships between the protective factors and students’ resilience. Studying the causal relationships among variables could offer a deeper understanding about the concept of resilience and how to strengthen this quality.

**Resilience Levels among 19-26-year-old College Students in Alabama and Tennessee: A Comparative Study**

In this study, Anthony (2017) aimed to:

1) examine the levels of resilience among students in Alabama and Tennessee; 2) examine the comparison of male and female resilience levels; and 3) examine the specific individual, caregiver, and context factors contributing to resilience levels among students residing in Alabama and Tennessee. (Anthony, 2017, p. 8)

The study involved 100 students (66 were male and 34 were female) from various universities in Tennessee and Alabama. All students were 18-26 years old. Concerning racial group and ethnicity, “50 young adults identified themselves as Black, 33 identified themselves as White/European, 6 identified themselves as Asian, 6 identified themselves as other, 1 identified his/herself as South East Asian, and 1 identified his/herself as Filipino” (Anthony, 2017, p. 37).

Anthony used the Adult Resilience Measure (RRC-ARM) as an instrument for the study. This instrument is a three-point Likert-scale with 28 questions. The questionnaire was anonymous and administered using paper and pencil style methods. The instrument was broken
down into subscales: individual capacities/resources, relationships with primary caregivers, and contextual factors that suggest a sense of belonging (Anthony, 2017).

Anthony (2017) came to several important conclusions. Firstly, Anthony found that there was no significant difference in levels of resilience between young adults from Alabama and Tennessee. Secondly, the study’s results indicated that females have higher resilience levels than males (Anthony, 2017, p. 46). Lastly, the study suggested that protective factors consisting of individual factors, caregiving factors, and context factors are active contributors to resilience (Anthony, 2017).

Several limitations of Anthony (2017) are worth noting. Firstly, the instrument used in the study was a three-point Likert, self-reported scale which would limit the upper-end response options. This could consequently increase the chance of inaccuracy and bias of the responses. Secondly, the sample size of the study was considered small concerning a large geographical region of two states, Alabama and Tennessee. Therefore, caution should be taken in generalizing the findings.

**Understanding Resilience and Happiness Among College Students**

Lower (2014) attempted to determine relationships between several constructs related to positive psychology, including resilience and happiness. The study involved 299 undergraduate college students of Middle Tennessee State University (Lower, 2014). Among these, 76 participants (25.4%) were male and 223 (74.6%) were female. The racial proportions were as follows: White (62.2%), Black (28.1%), Asian (4%), Hispanic (4.3%), and others (1%). Data was collected via an online survey software of Sona System (Lower, 2014).

Lower (2014) utilized multiple scales to measure students’ levels of resilience, happiness, social support, optimism, spiritual experiences, and social-economic status. These scales
included: Life Orientation Test-Revised (LOT-R), Interpersonal Support Evaluation List-12 (ISEL), Subjective Happiness Scale (SHS), Connor-Davidson Resilience Scale (CD-RISC), and Daily Spiritual Experiences Scale (DSES) (Lower, 2014).

Lower’s study had several important findings. Firstly, the study found that happiness and spirituality were the best predictors of resilience. Secondly, the study’s results suggested that adverse childhood experiences were positively correlated with both happiness and resilience. Thirdly, the study’s results indicated that the age factor was not related to students’ resilience and happiness. Lastly, the study found that there was no difference in resilience levels between male and female participants.

Despite various significant findings, Lower’s study still contained several limitations that merit acknowledgement. Firstly, the sample in the study was mostly female (74.6%), White (62.2%), and high SES (40.8%). This might limit the generalizability of the results. Secondly, the study used self-reported scales to collect data so that the results were primarily correlational. The study was unable to determine the causation in relation to students’ happiness and resilience (Lower, 2014). Finally, the study did not take into consideration important factors such as education levels, or culture differences that significantly impact the happiness and resilience of college students.

In summary, all these studies utilized quantitative methods to examine students’ resilience and protective factors that influenced this quality. It is also noticeable that the authors tend to be interested in examining the relationship of resilience to such demographic variables as gender, race, age, or socioeconomic status. Further, while resilience was defined slightly differently in each of these studies, resilience was perceived as a complex component of both internal and external protective factors by all authors. In other words, two main protective factors
that help students overcome adversity were individual personal characteristics (self-esteem, social competence, spirituality) and environmental characteristics (caring relationships with friends, family and community) (Henderson, 2007).

The most significant findings drawn from all these three studies was that while both internal and external protective factors play a part in determining students’ resilience, external factors such as social support from peers, family, and faculty were found to be more significantly related to students’ resilience and their success (Johnson, 2011; Anthony, 2017). In addition, most studies concluded that there were no connections between demographic factors such as age, race, or gender and students’ resilience (Johnson, 2011; Lower, 2014).

The findings of three studies conducted by Johnson (2011), Lower (2014), and Anthony (2017) reinforced the hypothesis stated in Chapter One of this study. The author of the present study predicted that there was no difference in students’ resilience between four age groups and that age was not the determinant of students’ resilience scores. In Chapter Three, the procedures, methods, and research design will be presented in detail.
Chapter Three: Procedures and Methods

Description of the Research Design

This exploratory study’s main goal was to examine the effects of intrinsic and extrinsic protective factors on resilience among college students at VIU. The five main intrinsic and extrinsic protective factors investigated are: (1) Personal Competence, (2) Social Competence, (3) Family Cohesion, (4) Social Support, and (5) Personal Structure. Each of the five protective factors have three corresponding items in the 15-item scale. The 15 item-scale used in the present study was adapted from the 37-item Resilience Scale for Adult (RSA) that was originally designed to measure the full construct of Resiliency (Frigborg, et al., 2003).

This study used survey methodology to assess various intrinsic (personal/social competence) and extrinsic factors (family/social resources) that relate to students’ degree of resilience. Participants completed a survey which was designed to capture, in an efficient manner, their overall degree of resilience. Using survey methodology not only helps measure students’ general resilience but also enables the researcher to examine participants’ responses to interpret their strengths regarding each of the five protective factors. A summary of these strengths indicated their full resilience capacity in rich detail.

Employing a cross-sectional design, the author of the present study collected data from January 23rd-30, 2019 on the Nanaimo Campus of VIU. The online survey was used because of its advantageous features, including questionnaire design principles, higher response rates, lower costs, reduced implementation time, greater access to technology across campus, etc. (Evans & Mathur, 2005; Wright, 2005).

The participants’ responses to the survey items were captured using a 15-item, five-point Likert attitude rating scale to measure participants’ agreement statements regarding their
resilience to each of the five sub-constructs: (1) Personal Competence, (2) Social Competence, (3) Family Cohesion, (4) Social Support, and (5) Personal Structure. Questions in the survey offered responses ranged from (1) strongly disagree to (5) strongly agree. The sum of the scores of all items was used to indicate the resilience index—the higher the score, the higher the resilience.

This study utilized a quantitative analysis to assess five protective factors of resilience among VIU students. Firstly, descriptive statistics were used to detail five protective factors scores. Secondly, the effects of intrinsic and extrinsic factors on students’ resilience were compared using a Paired-Sample t-test. Thirdly, the internal consistency of the resilience scale used in the study was tested by using Cronbach’s alpha (Field, 2014). Fourthly, students’ resilience was compared between four age groups by using one-way ANOVA. Finally, the scores of each protective factor between four different age groups (18-21, 22-24, 25-29, and 30+) were compared using side-by-side boxplots.

Description of the Sample

The sampling criteria for the study required that the participants: (a) enrolled in a full-time or part-time program at VIU, (b) were at least 18 years of age, (d) agreed to the online consent form, and (e) were willing to complete the online survey.

Upon receiving VIU Ethics Board Approval (Appendix A), participants were recruited via distribution of flyers (Appendix B) at a survey Table set up in front of the cafeteria on the Nanaimo Campus. The recruitment yielded 107 participants. Of these, a convenient sample \(N=101\) completed all survey questions. Participants who consented to participate yet did not complete all the survey questions were removed from the sample \(N=7\). Most of the participants, at 33.7\%, were from the 25-29 age group. The second and third common participant groups
belonged to the 18-21 (24.8%) and 22-24 (21.8%) age groups. The smallest participant group was in the 30+ years of age (19.8%).

Table 1

*Descriptive statistics of participants’ age range*

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21</td>
<td>25</td>
<td>24.8</td>
<td>24.8</td>
<td>24.8</td>
</tr>
<tr>
<td>22-24</td>
<td>22</td>
<td>21.8</td>
<td>21.8</td>
<td>46.5</td>
</tr>
<tr>
<td>25-29</td>
<td>34</td>
<td>33.7</td>
<td>33.7</td>
<td>80.2</td>
</tr>
<tr>
<td>30+</td>
<td>20</td>
<td>19.8</td>
<td>19.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Description of the Instruments Used**

Participants joined an online survey that was designed to find out their overall degree of resilience and their strengths regarding each of the five protective factors. The instrument of the recent study was a mini 15-item, five-point Likert scale adapted from the original 37-item Resilience Scale for Adults (RSA) (Frigborg, et al., 2003). The RSA is highly regarded since it measures the full construct of resilience in terms of social, psychological, and environmental factors related to community, family, and individual factors (Bolton, 2013).

The adapted 15-item RSA scale used in the present study has five subscales that reflect five protective factors, three of which are intrapersonal factors: Personal Competence, Social Competence, and Personal Structure, two of which are interpersonal factors: Social Resources and Family Cohesion. Each of the five protective factors have two corresponding items in the 10-item scale.
The adapted 15-item RSA scale is a five-point Likert scale, with response options ranging from 1 = strongly disagree to 5 = strongly agree. The overall degree of resilience was determined by summing all responses, with higher scores reflecting greater overall degree of resilience. The strengths of the participants regarding each of five protective factors accordingly reflect the level of influence of each factor on their overall degree of resilience.

**Explanation of the Procedures followed**

The survey was carried out from January 23 to January 30, 2019. After obtaining the ethics research approval from the ethics board, the author of the present study set up a survey table at the cafeteria on Vancouver Island University Campus. Participants had a chance to treat themselves to some coffee, fruit, and tea while the author of the present study explained briefly the topic of resilience and the purpose of the study. Participants were informed that their involvement was totally voluntary and that their responses would be strictly anonymous. Data was collected by means of SurveyMonkey, an online survey software tool (http://surveymonkey.com). Participants could choose to participate in the survey at the survey table by clicking on a link made ready to access through a laptop provided by the investigator. The link directed them to the consent form, demographic questionnaire, and finally the mini Resilience Scale for Adults. Participants who wished to do the survey at their leisure could take a flyer with the survey link so that they could complete it on their own computer or device.

The data were statistically analyzed and presented in a descriptive-statistical table. In addition, side-by-side boxplots were used to compare the levels of influence of each of the five factors across four age groups (18-21, 22-24, 25-29, 30+).

Box-and-whisker plots or box plots were invented by Tukey (1977) as a tool for displaying the distribution of data based on the five-number summary: minimum, first quartile,
median, third quartile, and maximum (Bakker, 2004). Boxplots are considered particularly useful for identifying outliers and for comparing distributions (Lane, n. d.).

Side-by-side boxplots are considered “very effective and have become a standard graphical tool in many sciences since they indicate both the general magnitude of the observations in each set and permit rough comparisons between the sets” (Warren & Jeffrey, 2003). Besides, the typical values and the general differences in the distribution of the values from set to set are easy to see by side-by-side boxplots (Goldberg, 1991). As a result, boxplots were chosen as a statistic tool to compare the effects of five protective factors among four age groups.

Discussion of Validity, Reliability, Generalizability and Triangulation

Validity is an important aspect of all research designs and measurement techniques (Vogt, 2007). Drummond and Jones (2006) stated that validity refers to whether a test measures what it is supposed to measure. Internal validity describes the ability of the researcher to accurately draw conclusions from the data about the participants of the study, while external validity refers to the degree to which the results can be generalized to different populations or situations (Creswell, 2014).

Internal validity. The survey used in the present study measured six scores. One score reflects the overall degree of resilience, and five scores reflect the level of influence of each of the five protective factors on the overall degree of resilience. All scores were attained based on a 10-item scale adapted from the 37-item attitude RSA. The RSA scale was chosen for its well-proven internal validity and reliability (Hjemdal et al., 2011).

The RSA was specifically designed to measure young adults’ level of resilience and the intrinsic and extrinsic factors that promote this quality (Hjemdal et al., 2011). The Resilience
Scale for Adults (RSA) is a multidimensional scale created to measure the general characteristics of resilience, which include the protective factors believed to enhance resilience (Jowkar et al., 2010). The factor structure of the RSA is consistent with resilience theory of protective factors, for it includes assessment of environmental, familial, and individual resources (Bolton, 2013).

Five separate studies were conducted by the authors of the RSA to investigate the reliability and validity of the scale (Friborg, et al., 2005). All five studies provided good support for the reliability as well as the convergent and discriminative validity of the scores provided by the scale, and thus supported the inference that individuals scoring high on this scale are psychologically healthier, better adjusted, more resourceful, and thus more resilient (Friborg, et al., 2005, p. 29). Reliability of the scale was measured based on a structural equation modelling approach, LISREL v8.53 (Joreskog & Sorbom, 1996), instead of the Cronbach’s alpha statistic (Cronbach, 1951) to provide more precise coefficient estimations. Using structural equations for estimating reliability of the scale, the authors proved that the internal consistency is adequate for all factors (a = 0.76 to 0.87) (Friborg, et al., 2005, p. 34). Friborg et al. (2005) also stated that the internal consistency of the RSA subscales and the test-retest reliability was high, demonstrating that the RSA is a highly reliable multilevel resiliency scale. The RMSEA-index, which indicates in what degree a model is a reasonable approximation to the observed data, was used for the evaluation of the complete measurement model (Friborge et al., 2005). The RMSEA-index was inspected, “revealing reasonably small degrees of misspecifications (RMSEA = 0.045), thus indicating a promising model” (Friborge, et al., 2005, p. 33).

**External validity.** The sample of the present study was a convenience sample and not significantly large enough (N=101) to produce more significant results. Further, important demographic factors such as ethnicity and gender were not put into consideration, thus caution
must be taken when generalizing the results of the study. Also, the study was a cross-sectional study, which only allowed the researcher to examine the correlations between the variables, but not the causal association between them. Another limitation was the self-report nature of the variables. When using self-report, researchers cannot know how truthfully respondents answer since participants tend to respond to self-report items in a way that is socially normative (Sarah, 2015). These factors limit the generalizability of the results.

**Description and Justification of the Statistical Techniques Used**

The online data from Survey Monkey was exported into Excel Spreadsheet and then imported into the IBM Statistical Package for the Social Sciences (SPSS) to be statistically analyzed (Field, 2014). Descriptive statistics were used to summarize and organize the data (Heiberger & Neuwirth, 2009). Specifically, the mean, median, and standard deviation of all variables were reported. Cronbach’s alpha (α) (Cronbach, 1951) was conducted to measure the internal consistency of the scales based on raw score (Reynaldo and Santos, 1999). Box plots and means plots were used to demonstrate the differences of resilience score between four age groups and to illustrate how each protective factor had an influence on the resilience of students from four different age groups.

This chapter provided a review of the methodology for the current study, including detailed descriptions about the research design, sample, instruments used, and procedure followed and the validity, reliability, generalizability, and triangulation of the study. Chapter Four will provide a detailed description of the data analysis and statistic results.
Chapter Four: Results and Analysis

Introduction

The primary purposes of the recent study were: (1) to examine the relationship between resilience and five main protective factors (Personal Competence, Social Competence, Family Cohesion, Social Support, and Personal Structure); (2) to identify the factor that plays the most important role in determining students’ resilience; and (3) to find out if the protective factors will have a similar influence on students’ resilience regardless of their age.

There were four overarching research questions.

Research question 1. How influential do college students (age 18-30+) in British Columbia, Canada rate each of the top five purported protective factors, namely: (1) Personal Competence; (2) Social Competence; (3) Family Cohesion; (4) Social Support; and (5) Personal structure in manifesting a high degree of resilience, as examined across participants’ calculated degree of resiliency?

Research question 2. How differently do intrinsic factors (Personal Competence, Social Competence, and Personal Structure) and extrinsic factors (Family Cohesion and Social Support) affect students’ resilience?

Research question 3. How do students’ resilience scores differ among the four age groups?

Research question 4. How does each of the five main protective factors, namely (1) Personal Competence; (2) Social Competence; (3) Family Cohesion; (4) Social Support; and (5) Personal Structure affect students’ resilience between four age groups: 18-22, 23-25, 26-29, and 30+?
The raw data gathered from the online survey was exported from the website of Survey Monkey (http://surveymonkey.com) and then imported to IBM SPSS statistic processor for analysis purposes (Field, 2014). Five main statistical analyses were carried out to fully answer the research questions.

Firstly, Cronbach’s alpha (Cronbach, 1951) was computed to examine the internal consistency of the resilience scale used in the study (Reynaldo & Santos, 1999). Secondly, the data was examined using quantitative procedures and presented in a descriptive-statistical table. Thirdly, a Paired-Sample t-test was executed to find out if there was any statistically significant difference between the mean scores of intrinsic and extrinsic factors. Fourthly, one-way ANOVA was carried out to determine if there was any statistically significant difference between students of four age groups (18-21, 22-24, 25-29, and 30+) regarding their resilience score. Finally, boxplots and means plots were used to demonstrate the difference of resilience scores between the four age groups and to compare the levels of influence of each of five factors on resilience score between these four age groups.

**Cronbach’s alpha.** Cronbach’s alpha ($\alpha$) was executed to measure the internal consistency of the mini resilience scale used in this study. This statistic measure helps assess the reliability of the scale based on raw scores. Cronbach’s alpha shown in the Table was $\alpha = 0.905$, indicating a high level of internal consistency of the 15-item mini resilience scale used in this study.
Table 2

Case Processing Summary

<table>
<thead>
<tr>
<th>Case Processing Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Cases Valid</td>
</tr>
<tr>
<td>Excludeda</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.905</td>
<td>.908</td>
</tr>
</tbody>
</table>

Findings

Research question 1. How influential do college students (age 18-30+) in British Columbia, Canada rate each of the top five purported protective factors, namely: (1) Personal Competence; (2) Social Competence; (3) Family Cohesion; (4) Social Support; and (5) Personal Structure in manifesting a high degree of resilience, as examined across participants’ calculated degree of resiliency?
**Descriptive statistics.** To answer research question 1, descriptive statistics were conducted to find out the means and standard deviations of all variables.

Table 3

*Descriptive Statistics*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Competence</td>
<td>101</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>4.0363</td>
<td>.77589</td>
<td>.602</td>
</tr>
<tr>
<td>Social Competence</td>
<td>101</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>3.9010</td>
<td>.85446</td>
<td>.730</td>
</tr>
<tr>
<td>Family Cohesion</td>
<td>101</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>4.0990</td>
<td>.91110</td>
<td>.830</td>
</tr>
<tr>
<td>Social Support</td>
<td>101</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>4.3663</td>
<td>.73561</td>
<td>.541</td>
</tr>
<tr>
<td>Personal Structure</td>
<td>101</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>3.8020</td>
<td>.77914</td>
<td>.607</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The statistics result (see Appendix: Table 3) indicated that of all five main protective factors, Social Support had the most influence on students’ resilience ($M=4.3663$, $SD=.73561$). Family Cohesion ($M=4.099$, $SD=.9111$) and Personal competence ($M=4.0363$, $SD=.77589$) respectively played the second and third most important roles in fostering students’ resilience. The factors that played the least important role in affecting students’ resiliency are Social Competence and Personal Structure ($M=3.9010$, $SD=.85446$) and $M=3.8020$, $SD=.77914$ respectively).

The mean response rate for the Personal Competence factor was ($M=4.0363$, $SD=.77589$). The highest mean response rate for the items comprising the Personal Competence factor was item 3. “At hard times, I know that better times will come” ($M=4.20$, $SD=0.917$). The lowest mean response rate was item two: “I am pleased with myself” ($M=3.81$, $SD=0.967$).
The mean response rate for the Social Competence factor was \(M = 3.9010, SD = .85446\). The highest mean response rate was for item four, “I enjoy being with other people” \((M = 4.11; SD = .904)\). The lowest mean response rate was item five, “I can easily establish new friendships \((M = 3.74, SD = 1.036)\).

The mean response rate for the Family Cohesion factor was \(M = 4.99, SD = .9111\). The highest mean response rate was for item eight: “I enjoy being with my family” \((M = 4.32, SD = .999)\). The lowest mean response rate was item seven: “In my family, we enjoy finding common activities” \((M = 3.84, SD = .997)\).

The mean response rate for the Social Support factor was \(M = 4.3663, SD = .73561\). The highest mean response rate was for item 12, “I have some friends/family members who value my abilities” \((M = 4.42, SD = .816)\). The lowest mean response rate was item 11, “I can discuss personal matters with some friends/family members” \((M = 4.31, SD = .946)\).

The mean response rate for the Personal Structure was \(M = 3.8020, SD = .77914\). The highest mean response rate was for item 15, “I work best when I reach for a goal” \((M = 4.23, SD = .823)\). The lowest mean response rate was for item 14, “I keep up with my daily routines even at difficult times” \((M = 3.25, SD = 1.170)\).

**Research question 2.** How different do intrinsic factors (Personal Competence, Social Competence, and Personal Structure) and extrinsic factors (Family Cohesion and Social Support) affect students’ resilience?
**Paired sample T-test.** To answer research question 2, a paired sample t-test was conducted to compare the aggregate mean score of Intrinsic factors (Personal Competence, Social Competence, and Personal Structure) and the mean score of Extrinsic factors (Family Cohesion and Social Support).

There is very strong evidence that the extrinsic factors ($M = 4.2327, SD = .73563$) significantly have more influence on students’ resilience than the intrinsic factors ($M = 3.9131, SD = .66585, t = -5.613, df = 100, p < 0.001, 1-tailed$) do. Since $p < .05$, we rejected the null hypothesis that there was no difference between intrinsic and extrinsic factors.

Further, to examine the effect size of this analysis, the author of the present study executed Cohen’s effect size value ($d$).

$$d = \text{Mean} \div \text{SD} = -.31958 \div .57216 = -0.5585.$$  

Cohen’s effect size value ($d = .5585$) was found to exceed Cohen’s (1988) convention for a medium effect ($d = .50$). In other words, Cohen’s effect size value ($d = .5585$) suggested a moderate to high practical significance.

Table 4

**Paired Samples Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>INTRINSIC FACTORS</td>
<td>3.9131</td>
<td>101</td>
<td>.66585</td>
</tr>
<tr>
<td></td>
<td>EXTRINSIC FACTORS</td>
<td>4.2327</td>
<td>101</td>
<td>.73563</td>
</tr>
</tbody>
</table>
Table 5

*Paired Samples Correlations*

<table>
<thead>
<tr>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>.671</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 6

*Paired Samples Test*

<table>
<thead>
<tr>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.31958</td>
<td>.57216</td>
<td>.05693</td>
<td>-.43253</td>
<td>-.20663</td>
<td>-5.613</td>
<td>100</td>
<td>.000</td>
</tr>
</tbody>
</table>

Research question 3. How do students’ resilience scores differ among the four age groups? Three statistic analysis, namely boxplots, means plots, and one-way ANOVA were utilized to answer research question 3.
**Box plots and means plots.** In this study, box plots and means plots were used to compare the resilience levels between four age groups. A box plot summarizes a data set, locates the median, displays the spread and skewness of the data, as well as identifies the outliers, but does not display the overall distribution of the data (Friel, Curcio, & Bright, 2001). Mean plots are used to see if the mean varies between different groups of the data.

*Figure 1. Resilience levels.*

It can be seen from the box and whisker plot summarizing the data that the age group 25-29 had the highest median score, followed by age group 22-24, 30+, and 18-21. However, the medians of all four groups were not significantly different in magnitude. The interquartile ranges and overall range of the data set were reasonably similar for all four age groups. Although all batches of data appear to be skewed, and the batch for students age 18-21 and 22-24 were slightly more skewed than that of those who belong to the other three age groups, the skewness was not particularly marked in all cases. Two outliers were detected, which prompted the author of the present study to re-examine the original data used to produce the results. However, no errors were found. These two occurrences may not be remarkable. Based on the box plots and
means plots, the overall conclusion deducted was that the resilience scores did vary among different age groups, with those who belong to older groups, on average, having higher resilience scores than those who belong to younger groups.

![Figure 2. Mean of resilience levels.](image)

**One-way ANOVA.**

**Table 8**

*Descriptives*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval for Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESILIENCE SCORE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22-24</td>
<td>22</td>
<td>4.0727</td>
<td>.59979</td>
<td>.12788</td>
<td>3.8068 – 4.3387</td>
<td>3.20</td>
<td>5.00</td>
</tr>
<tr>
<td>25-29</td>
<td>34</td>
<td>4.1922</td>
<td>.74051</td>
<td>.12700</td>
<td>3.9338 – 4.4505</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>30+</td>
<td>20</td>
<td>4.1433</td>
<td>.53038</td>
<td>.11860</td>
<td>3.8951 – 4.3916</td>
<td>2.67</td>
<td>5.00</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>4.0409</td>
<td>.63554</td>
<td>.06324</td>
<td>3.9155 – 4.1664</td>
<td>1.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>
The descriptive statistics associated with resilience score across four age ranges are reported in Table 8. It can be seen from the Table that the younger age groups were associated with the numerically smaller mean level of students’ resilience.

However, in order to examine whether there was a statistically significant difference between means of four age groups, a between-groups ANOVA (one-way ANOVA or non-parametric Kruskal-Wallis test) was performed (Field, 2014).

Prior to conducting the ANOVA, the assumption of homogeneity of variances was tested and satisfied based on Levene’s t-test, $F(3, 97) = .517, p = .671$ (Field, 2014). The independent between groups ANOVA yielded a statistically significant effect $F(3, 97) = 3.067, p = .032, \eta^2 = .087$ (see Table 8). Thus, the null hypothesis of no differences between the means of four age groups was rejected. To evaluate the nature of the differences between the means further, the statistically significant ANOVA was followed up with the Tukey post hoc test (Field, 2014). This test was designed to compare each of age group to every other age groups in terms of resilience score.

As can be seen in the Table below, two of the eight comparisons were statistically significant ($p < .05$). Specifically, the resilience scores of students from 18-21 years old was statistically different from that of those belong to the 25-29 age group ($p = .025$). However, there were no significant differences between the resilience scores of the other three groups.
Table 9

Test of Homogeneity of Variances

<table>
<thead>
<tr>
<th>RESILIENCE LEVEL</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on Mean</td>
<td>.517</td>
<td>3</td>
<td>97</td>
<td>.671</td>
</tr>
<tr>
<td>Based on Median</td>
<td>.441</td>
<td>3</td>
<td>97</td>
<td>.725</td>
</tr>
<tr>
<td>Based on Median and with adjusted df</td>
<td>.441</td>
<td>3</td>
<td>70.269</td>
<td>.725</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>.475</td>
<td>3</td>
<td>97</td>
<td>.701</td>
</tr>
</tbody>
</table>

Table 10

Resilience levels

ANOVA

<table>
<thead>
<tr>
<th>RESILIENCE LEVEL</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3.500</td>
<td>3</td>
<td>1.167</td>
<td>3.067</td>
<td>.032</td>
</tr>
<tr>
<td>Within Groups</td>
<td>36.891</td>
<td>97</td>
<td>.380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>40.391</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 11

Multiple Comparisons

Table 11 shows multiple comparisons for the dependent variable RESILIENCE SCORE using Tukey HSD. The table compares age groups 18-21, 22-24, 25-29, and 30+.

<table>
<thead>
<tr>
<th>(I) Age</th>
<th>(J) Age</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21</td>
<td>22-24</td>
<td>-.34739</td>
<td>.18028</td>
<td>.224</td>
<td>-.8187, .1239</td>
</tr>
<tr>
<td>18-21</td>
<td>25-29</td>
<td>-.46682*</td>
<td>.16248</td>
<td>.025</td>
<td>-.8916, -.0421</td>
</tr>
<tr>
<td>18-21</td>
<td>30+</td>
<td>-.41800</td>
<td>.18501</td>
<td>.115</td>
<td>-.9016, .0656</td>
</tr>
<tr>
<td>22-24</td>
<td>18-21</td>
<td>.34739</td>
<td>.18028</td>
<td>.224</td>
<td>-.1239, .8187</td>
</tr>
<tr>
<td>22-24</td>
<td>25-29</td>
<td>-.11943</td>
<td>.16874</td>
<td>.894</td>
<td>-.5605, .3217</td>
</tr>
<tr>
<td>22-24</td>
<td>30+</td>
<td>-.07061</td>
<td>.19053</td>
<td>.983</td>
<td>-.5687, .4275</td>
</tr>
<tr>
<td>25-29</td>
<td>18-21</td>
<td>.46682*</td>
<td>.16248</td>
<td>.025</td>
<td>.0421, .8916</td>
</tr>
<tr>
<td>25-29</td>
<td>22-24</td>
<td>.11943</td>
<td>.16874</td>
<td>.894</td>
<td>-.3217, .5605</td>
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<tr>
<td>25-29</td>
<td>30+</td>
<td>.04882</td>
<td>.17379</td>
<td>.992</td>
<td>-.4055, .5031</td>
</tr>
<tr>
<td>30+</td>
<td>18-21</td>
<td>.41800</td>
<td>.18501</td>
<td>.115</td>
<td>-.0656, .9016</td>
</tr>
<tr>
<td>30+</td>
<td>22-24</td>
<td>.07061</td>
<td>.19053</td>
<td>.983</td>
<td>-.4275, .5687</td>
</tr>
<tr>
<td>30+</td>
<td>25-29</td>
<td>-.04882</td>
<td>.17379</td>
<td>.992</td>
<td>-.5031, .4055</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the 0.05 level.

**Research question 4.** How differently does each of the five main protective factors, (1) Personal Competence; (2) Social Competence; (3) Family Cohesion; (4) Social Support; and (5) Personal Structure affect students’ resilience between four age groups: 18-22, 23-25, 26-29, and 30+?

To answer research question 4, side-by-side boxplots were used to demonstrate how differently each protective factor affects students’ resilience.
Figure 3. Boxplot of personal competence by age.

It can be seen from Figure 3 that the median personal competence of students aged 18-21 was noticeably lower than that of those belonging to the other three age groups. The interquartile range were overall similar, with the exception of age group 22-24, showing a greater interquartile range. This age group also proved to be more skewed than that of the other three groups. Overall, personal competence could be seen to have the least influence on the resilience scores of students from 18-21 years old.
The most obvious feature shown in Figure 4 was that the median of all four age groups were at the same magnitude, indicating that Social Competence had the same impact on resilience score of all four age groups. The interquartile range were almost similar and the batches of all four data sets were symetric. By examining the position of the median score in the box, it can be seen that all medians of four data batches were in the center of the box, indicating equal dispersion of scores on either side of the median.
Figure 5. Boxplot of family cohesion by age.

Figure 5 illustrates that the median Family Cohesion of students age 22-24 and 25-29 was slightly higher than that of students of more than 30 years of age and significantly higher than that of students belonging to the youngest age group (18-21). The interquartile range and the overall range of the data set were reasonably similar. Except for the 18-21 age group, all the other three batches of data seemed to be skewed. However, the skewness was not particularly large in any case. The conclusion deducted was that while students of older age groups (22-24, 25-29, and 30+) found Family Cohesion to be an important factor to help them be more resilient, students of younger age (18-21) seemed to not have as much of an attachment to their family compared to their senior counterparts.
Figure 6. Boxplot of social support by age.

Figure 6 shows that the median of Social Support experienced by students from 25-29 years old was considerably high, as well as higher than the other three age groups. This age group (25-29) also had the shortest interquartile range and the most skewed distribution. The interquartile ranges of the other three age groups were overall similar. It is also noticeable that the median of Social Support factor among younger students from 18-21 years old was the lowest of all four groups. The overall conclusion was that students of 25-29 years old found Social Support to be the most significant role in establishing their resilience, while students of younger age (18-21) experienced the lowest level of social support of all four age groups.
It was evident from Figure 7 that median Personal Structure of students from 18-21 years old was reasonably lower than that of other age groups. The box plots were quite different in appearance; two of the age group (22-24 and 25-29) had a wide interquartile range, and the other two age groups (18-21 and 30+) had a more compact distribution. The medians of four age groups increased accordingly to the increase of age range. It was concluded that the older the students became, the more important a role that the Personal Structure factor played in constructing their resilience.

The results will be discussed, along with summary, implications, limitations and conclusions in Chapter Five.
Chapter Five: Summary, Discussions, and Implications

Summary

This study which examines the relationship between students’ resilience and protective factors contributing to this quality is believed to contribute to the literature of resilience and the improvement of intervention programs on campus. The current study reveals important findings regarding protective factors (Personal Competence, Social Competence, Family Cohesion, Social Support, Personal Structure) and resilience.

Hypothesis 1

Hypothesis 1 was supported by the data findings. Hypothesis 1 stated that: “Social Support is the most influential factor that promotes college students’ elasticity and leads to higher degrees of resilience”. As predicted, Social Support (M= 4.36, SD= .73) was proven to play the most important role in determining students’ resilience, even more important than did Family Cohesion.

This finding indicated that the support network and positive relationships that students receive from peers, teachers, and faculty members can make a more remarkable impact on students’ resilience than does the support from their own family.

Social support for students on campus can be created and developed in a variety of ways. Firstly, VIU should maintain current peer support programs such as Peer Helper and socio-cultural events such as Culture Couch or Cultural Connections’ Road Trips activities. These programs might help build up positive relationships and cultivate in students a sense of support, connectedness, and belonging in their academic setting (Fruhiht, 2015). Such positive feelings can help students more likely to persist and buffer the effects of adversity in the collegiate environment (Svetaz, Ireland & Blum, 2000).
Secondly, the VIU administration should consider launching more quality social and emotional skills programs to raise students’ awareness about mental problems such as anxiety or depression. These programs can be designed to explicitly teach a range of skills necessary for self-awareness, self-management, social awareness, and critical thinking (Ashdown & Bernard, 2012). Participating in these programs could help students gain a better understanding about their mental health, learn to deal with mental issues, and encourage students to seek help.

Thirdly, VIU administrators and teachers should work together to create more holistic intervention programs and effective group counselling services to assist students who may experience either personal, emotional, or academic difficulties.

**Hypothesis 2**

Hypothesis 2 was supported by the data findings. Hypothesis 2 stated that: “Extrinsic factors have more influence on student’s resilience than do intrinsic factors”. The results revealed that extrinsic factors (M= 4.2327, SD= .73563) had more significant influence on students’ resilience than did the intrinsic factors (M= 3.9131, SD= .66585, t= - 5.613, df= 100, p< 0.001, 1- tailed).

This finding supported the argument that even though both intrinsic and extrinsic factors influence a student’s level of resilience, environmental factors play a more important role in fostering students’ resilience. Comparing the importance of extrinsic and intrinsic factors on students’ resilience could be related to the “nature or nurture” argument. While resilience can be influenced by nature factors coming from the inner self (self-esteem or social competence), it is the nurture factors such as the support from the outer environment (peer, family, community, faculty) that play a more important part in developing students’ resiliency. This finding also reinforced the belief that resilience is not a fixed trait but a dynamic quality that can change and
develop (Bernard, 2004). VIU administration could develop students’ resilience in general by promoting Social Support with programs and services recommended previously.

**Hypothesis 3**

Hypothesis 3 was unexpectedly unsupported by the data findings. Hypothesis 3 stated that: “There is no significant difference in students’ resilience between four age groups”. Data analysis results showed otherwise. Of all four age groups, students belonging to age group 25-29 (N= 34; M= 4.19, SD=.74) were statistically proven to have the highest resilience scores. Students belonging to age group 18-21 (N= 25; M= 4.19; SD=.74) were statistically proven to have the lowest resilience scores. While the resilience scores of three age groups (22-24, 25-29, and 30+) did not significantly differ from each other (p>.05), the resilience scores of students from 18-21 years old was surprisingly proven to be significantly different from that of those belonging to the 25-29 age group (p=.025).

This finding emphasized the importance of offering more attention and supports to young college students of 18-21 years old, who just left their homes to acclimate to new environments and overcome academic stress prevalent in the college context. VIU administration should consider developing a summer bridge program for freshmen to bridge the gap between high school preparation and college (McCall, 2014). A summer bridge program is perceived as a transitional experience where students are required to attend workshops and are exposed to advisors, peers, and faculty members (Garcia & Paz, 2009). Attending summer bridge programs could help young students get to know their new peers who experience similar adjustment anxieties and form social as well as academic support networks, thus boosting their resilience (Garcia & Paz, 2009).
Hypothesis 4

Hypothesis 4 was surprisingly unsupported by the data findings. Hypothesis 4 stated that: “There are no significant differences in the influence of five main protective factors on students’ resilience between age groups”. The data results revealed that except Social Support, which was proven to be consistently high in all age group (see Table 12), there were differences in the influence of the other four main protective factors on students’ resilience between age groups. Particularly, Personal Competence was found to be significantly low among students of 18-21 years old (M= 3.61, SD= .70) but considerably high among students of 25-29 years old (M= 4.25, SD= .78). The same pattern was applied for Family Cohesion and Personal Competence. While young students of 18-21 years old experienced low level of Family Cohesion (M= 3.62, SD= .91) and Personal Competence (M= 3.61, SD=.70), older students of 25-29 years old showed high level of both Family Cohesion (M= 4.35, SD= .85) and Personal Competence (M= 4.25, SD= .78). Social Competence was also noticeably low among 18-21-year-old students but considerably high among students over 30 years old (M= 4.01, SD=.90).

This finding indicated that young students of 18-21 years old not only had lower level of connection with their family but also lacked social skills and self-confidence. As the result, school should pay extra attention to designing more holistic intervention programs to support young college students. Another area of potential improvement in designing intervention program is in relation to family outreach (Krueger, 2016). Besides designing social and emotional skills programs to enhance students’ social skills and confidence, school should also consider involving family members in students’ education. Family members could get involved by attending informational meetings or subscribing for emails to be informed of their children’s performance and stay supportive throughout their children’s learning process (Krueger, 2016).
**Discussion**

Participants in this study scored highest on questions comprising the Social Support ($M=4.36$, $SD=.73$). This factor measures social support availability, which is accepting and encouraging (Hjemdal et al., 2011). This finding was consistent with the findings noted by Pascarella & Terenzini (2005). These authors suggested that interactions with peers served as a socializing agent in helping students become acclimated and comfortable within the college environment, which in turn fostered their success (Pascarella & Terenzini, 2005).

Following Social Support, Family Cohesion was the next highest score factor ($M=4.09$, $SD=.91$). This factor measures familial appreciation and encouragement, loyalty, communication, and whether or not similar shared values are present (Hjemdal et al., 2011). This finding seemed to be on par with a previous research suggesting that receiving support from family members would facilitate students to better academic adjustment, emotional adjustment, and learning (Awang, Kutty, & Ahmad, 2014; Grant Vallone, Reid, Umali, & Pohlert, 2004).

Next in magnitude were participants’ scores on the Personal Competence factor ($M=4.03$, $SD=.77$). This factor measures self-confidence, efficacy, realistic expectations, as well as ability to plan with a goal-oriented positive outlook (Hjemdal et al., 2011). Even though Personal Competence was not found as important as Social Support and Family Cohesion in defining student’s resilience, it was perceived by students as the most important intrinsic protective factor that influenced their levels of resilience. This finding was consistent with the findings noted by Johnson (2017). To examine students’ Personal Competence, Johnson broke this construct into three dimensions: optimism, self-efficacy, and psychological well-being to study and came to the conclusion that these factors were all significantly related to students’ resilience.
The fourth lowest of the five RSA factors assessed was Social Competence \((M = 3.90, SD = .85)\). These items measured social skills, sense of humour, and ability to establish and be flexible in relationships (Hjemdal et al., 2011). Social competence is generally defined as the ability to achieve success in social settings or interpersonal situations (Chen & French, 2008). Reeslund (2010) stated that social competence, particularly as reflected in relationships with peers, plays a prominent role in resilience of youth (p. 9).

It is noticeable that participants’ scores on the Personal Structure factor \((M = 3.80, SD = .77)\) were far below all other RSA factors. Personal Structure factor measures preference for having routines and being organized and goal oriented (Hjemdal et al., 2011). This finding indicated that while setting goals and having routines might help increase student’s motivation and commitment to succeed, they are not perceived, by students, as the most important factors in determining the ability to overcome adversities. It is the supports from school, community and family that play a key role in determining students’ resilience.

**Limitations and Implications for Future Research**

There are several limitations of this study that should be noted. Firstly, this study was limited by time constraints, which provide a snapshot of participants’ self-reported experiences at a single point in time (Gay et al., 2011). A longitudinal study is essential to examine students’ resilience throughout their time at university. Findings from a longitudinal study are more likely to provide a deeper understanding about the constructs of resilience and its development. Secondly, the data were not analyzed in depth based on important factors such as gender, ethnicity, social-economic backgrounds, or religious preference, whereas the studies reviewed in Chapter Two focused mostly on gender and ethnicity. Future research should put these factors into consideration in examining students’ resilience to gain a greater exploration of the
development aspects of resilience. Thirdly, the adapted 15-item RSA scale was chosen to be used for convenience purposes. It is acknowledged that this might be one of the main limits of the study since reducing the original 37-item RSA instrument may compromise the results and thus not be able to fully answer the research question. Fourthly, the sample size was quite small ($N=101$), thus, caution should be taken when generalizing the findings of this study to all college students in VIU and British Columbia. Finally, using a five-point Likert scale might eliminate the ability to accurately assess participant report since it limits upper-end response options (Breakwell, 2006). Future studies might eliminate this limitation by using the seven-point Likert scale.

**Demonstration of Practice**

To demonstrate my learning in practice, I will take several opportunities to share my work with VIU audiences, faculty members and educators. I intend to submit proposals to present at VIU 2020 CREATE conference. The purposes of sharing my findings are: (1) to highlight the importance of Social Support to students’ resilience, (2) to raise awareness about the lack of resilience among young students of 18-21 years old at VIU, (3) to induce discussions about introducing target services particularly designed to support students’ resilience, and (3) to gain VIU stakeholders’ attention about the importance of developing more intervention programs to foster students’ resilience.

**Conclusions**

The findings of this study confirmed the belief in previous studies that students’ resilience is a complex trait that is influenced by both internal and external protective factors. One of the most significant findings of the present study is that social support from school, teachers, and friends proved to play a key role in fostering students’ resilience. This finding
highlights the importance of creating more holistic intervention programs and effective support networks for students on campus. Another significant finding of the present study is that students of the youngest age group (18-21) have the lowest resilience scores. This is understandable because students of 18 -21 years old are expected to make the transition from high school to college. As the result, young students tend to be negative affected by various problems such as changes in sleeping and eating habits, increased workload, parental demands, and changes in social activities (Steinhardt & Dolbier, 2008). Findings from this study suggests that more attention should be paid to assist young students who are making the transition to college.

Despite its limitations, the present study revealed significant findings that promote the development of intervention programs to foster students’ resilience and well-being. The researcher looks forward to investigating these possibilities in support of overall student health and well-being at VIU.
References


Appendix A: Consent Form

Protective factors that influence resiliency among college students in British Columbia-Canada

Principal Investigator
Hai Thi Doan, Student Researcher
Master of Education
Vancouver Island University

Student Supervisor
Diane Charles, EdD.
Vancouver Island University
diane.charles@sd68.bc.ca

I am a student in Master of Educational Leadership at Vancouver Island University (VIU). My research, entitled *Protective factors that influence resiliency among college students in British Columbia-Canada* aims to identify factors that have the most influence on students’ resilience, and to find out if the same protective factors will have the same influence on student’s resilience regardless their age range. My hope is that my research will help raise awareness about the importance of resilience and factors that help strengthen this quality. This study can also provide college counselors a more holistic approach in designing crisis intervention and prevention programs that help increase mental and emotional health among students on campus.
I would like to ask if you would be willing to participate in a questionnaire including 15 questions regarding five main factors that influence your level of resiliency. It is expected to take 10-15 minutes to finish the questionnaire.

You will not receive any financial inducement.

There will not be any risk of harm such as stress, embarrassment, loss of privacy, loss of status, loss of reputation subjected to you since the survey is completely anonymous. However, some of the questions are sensitive in nature and could possibly evoke an emotional response. You can stop participating in the study at any time if you find yourself uncomfortable to answer the questions.

The research data will be stored in a password protected cloud storage called Dropbox. Only the principal researcher will have access to the data.

Dropbox is a popular internet-based service that used to store data. All files stored online by Dropbox are encrypted and kept in secure storage servers. Storage servers are located in data centers across the United States. The data stored in paper or electronic form will be permanently shredded or erased respectively in the next five years.

Dropbox’s privacy policy can be found on this link: https://dropboxapp.org/privacy-policy/

The survey will be conducted on Survey Monkey, an online survey website. Survey Monkey’s privacy policy can be found on this link: https://www.surveymonkey.com/mp/legal/privacy-policy/

The results of this study will be published in my Master’s thesis, and may also be used for conference publications, presentations, and published in peer-reviewed journals.
Your participation is completely voluntary and anonymous. You may stop participating in the study at any time for any reason without explanation. However, once the survey is submitted, you cannot withdraw.

I have read and understand the information provided above, and hereby consent to participate in this research.

I, Hai Thi Doan, promise to adhere to the procedures described in this consent form.

Principal Investigator Signature __________________________ Date _______________

[Concerns about your Treatment in the Research]

If you have any concerns about your treatment as a research participant in this study, please contact the VIU Research Ethics Board by telephone at 250-740-6631 or by email at reb@viu.ca.

If you find yourself having emotional distress caused by the survey, please contact the VIU Counselling Service by telephone at 250-740-6416 or in person at the Health & Wellness Centre (3rd floor, Building 200, Vancouver Island University, 900 Fifth Street, Nanaimo). Hours are 8:30-4:00 pm, with extended hours (mid-September- May 31), Tuesdays till 7.

You should print a copy of this consent form for your records.
WHAT MAKES STUDENTS MORE RESILIENT?

WHY? The results of this study could contribute to building a more holistic intervention and prevention programs to increase mental health among students on VIU campus.

HOW? Access the following link to join the survey:

https://www.surveymonkey.com/r/S6ZHV2T
Appendix C: Online Survey

* 1. ELECTRONIC CONSENT: Please select your choice below.

Clicking on the "agree" button below indicates that:

- you have thoroughly read and fully understand the above information
- you voluntarily agree to participate
- you are at least 18 years of age

If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

☐ Agree

☐ Disagree

Thank you for participating in my survey. Your feedback is important.

* 2. Which of the following age range do you belong to?

☐ 18-21

☐ 22-24

☐ 25-29

☐ 30

* 3. Please read the following statements. To the right of each you will find 5 numbers, ranging from "1" (Strongly Disagree) on the left to "5" (Strongly Agree) on the right. Click the circle below the number which best indicates your feelings about that statement. You must answer every question to submit the test for scoring.
<table>
<thead>
<tr>
<th>PROTECTIVE FACTORS</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe in my own abilities.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I am pleased with myself.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>At hard times, I know that better times will come.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I enjoy being with other people.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I can easily establish new friendship.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I know how to start a conversation.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>In my family, we enjoy finding common activities.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I enjoy being with my family.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>There are strong bonds in my family.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
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</tr>
<tr>
<td>I have some close friends/family members who are very good at encouraging me.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
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<tr>
<td>I can discuss personal matters with some friends/family members.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I have some friends/family members who value my abilities.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I prefer to plan my actions.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I keep up my daily routines even at difficult times.</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>I work best when I reach for a goal.</td>
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<td>〇</td>
<td>〇</td>
<td>〇</td>
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</tr>
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</table>
Table 12

**Descriptive Statistics. Table of five protective factors across four age groups**

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<tr>
<th>Age</th>
<th>Personal Competence</th>
<th>N</th>
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<th>Maximum</th>
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<td></td>
<td>Family Coherence</td>
<td>20</td>
<td>2.33</td>
<td>5.00</td>
<td>4.1000</td>
<td>.81002</td>
</tr>
<tr>
<td></td>
<td>Social Support</td>
<td>20</td>
<td>3.00</td>
<td>5.00</td>
<td>4.4333</td>
<td>.58340</td>
</tr>
<tr>
<td></td>
<td>Personal Structure</td>
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<td>2.67</td>
<td>5.00</td>
<td>4.0500</td>
<td>.59506</td>
</tr>
<tr>
<td></td>
<td>Valid N (listwise)</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
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</tr>
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</table>
### Table 13

**Percentiles**

<table>
<thead>
<tr>
<th>Weighted Average(Definition 1)</th>
<th>Age</th>
<th>Percentiles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18-21</td>
<td>5</td>
</tr>
<tr>
<td>Personal Competence</td>
<td></td>
<td>1.6333</td>
</tr>
<tr>
<td>22-24</td>
<td></td>
<td>3.3333</td>
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<tr>
<td>25-29</td>
<td></td>
<td>2.5000</td>
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<tr>
<td>30+</td>
<td></td>
<td>2.0167</td>
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</table>

<table>
<thead>
<tr>
<th>Tukey’s Hinges</th>
<th>Age</th>
<th>Percentiles</th>
</tr>
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<tbody>
<tr>
<td>Personal Competence</td>
<td>18-21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22-24</td>
<td></td>
</tr>
<tr>
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<td>25-29</td>
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<td>30+</td>
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### Table 14

**Tests of Between-subjects effects**

**Tests of Between-Subjects Effects**

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
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</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>3.500(^a)</td>
<td>3</td>
<td>1.167</td>
<td>3.067</td>
<td>.032</td>
<td>.087</td>
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<tr>
<td>Intercept</td>
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<td>1578.803</td>
<td>4151.223</td>
<td>.000</td>
<td>.977</td>
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<tr>
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<td>3</td>
<td>1.167</td>
<td>3.067</td>
<td>.032</td>
<td>.087</td>
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<tr>
<td>Error</td>
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<td>97</td>
<td>.380</td>
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<tr>
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<td>101</td>
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<tr>
<td>Corrected Total</td>
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<td>100</td>
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</table>

\(^a\) R Squared = .087 (Adjusted R Squared = .058)