



# Developmental Maturity, Psychological Resilience, and Alcohol Habits in College Students and NCAA Varsity Student-Athletes

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Developmental Maturity, Psychological Resilience, and Alcohol Habits in College Students and  
NCAA Varsity Student-Athletes

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## Abstract

Do NCAA student-athletes, a high-risk population for alcohol abuse, demonstrate the same level of developmental maturity, resilience capacities, and levels of alcohol consumption over four years in college as their peers who are not involved in sports? Also, within these two collegiate sub-groups, is there a significant interaction between higher developmental maturity scores, resilience scores, and alcohol use? Affirmative answers to these questions may provide empirical evidence to support the implementation of adult educational curriculum in collegiate athletics, utilizing sports as a transformational tool and developmental context to support athletes' maturation, growth, and well-being. Therefore, this study was interested in (1) examining if there are significant differences in developmental maturity, resilience capacity, and alcohol use between college student-athletes and college students, and (2) examining if there was a significant interaction on developmental maturity, resilience capacity, and alcohol use based upon athletic participation and graduation year. This study had a number of main findings including: (1) a significant effect for athletic participation on resilience scores, with student-athletes scoring higher than students, (2) a trend toward a significant effect for graduating class and a significant interaction between athletic participation and graduating class on resilience scores, (3) a significant effect for graduating class on developmental maturity scores for all participants and for student-athletes only, and (4) a significant inverse correlation between resilience scores and alcohol use for athletes only.

## Dedication

This thesis is dedicated to my fiancé, April, in deep gratitude for her unconditional love and support as I pursue my work in the world.

## Acknowledgments

Thank you to my thesis advisor, Dr. Shelley Carson, for supporting this research and for inspiring me to learn more about the study of resilience and creativity through her classes at Harvard Extension; to my research advisor, Dr. Dante Spetter, for challenging me in the proposal process to learn extensively about my topic and encouraging me to take many different perspectives on this subject; to all of my professors at Harvard Extension School, especially Dr. Robert Kegan and Dr. Matthew Nock, for pushing me to be a better student and exposing me to different paths in the study of psychology; to the Harvard Extension School for giving me an affordable and accessible opportunity to pursue graduate studies without having to put my family life, career, and current work in my community on hold; to my colleagues and co-workers for supporting my work, education, and professional development; to my clients who have been excited for me to bring back this knowledge into business and athletic settings and helped make my education an experiential process; and finally, to my all my friends and family, especially my mother and father, who support and encourage my never-ending desire to learn.

## Table of Contents

Dedication.....	iv
Acknowledgments.....	v
List of Tables .....	vii
Chapter I. Introduction .....	1
Chapter II. Method .....	15
Participants.....	15
Instruments.....	15
Procedure.....	18
Design .....	18
Chapter III. Results.....	20
Alcohol Consumption .....	20
Resilience .....	21
Developmental Maturity .....	23
Additional Findings .....	25
Chapter IV. Discussion.....	27
Future Implications.....	31
Limitations .....	34
Conclusion.....	35
References.....	38

## List of Tables

Table 1. AUDIT Score Means .....	21
Table 2. CD-RISC Score Means .....	22
Table 3. MAP Score Means .....	24
Table 4. MAP Score Regression Table for All Participants .....	24
Table 5. MAP Score Regression Table for Student Athletes .....	25
Table 6. MAP Score Regression Table for College Students .....	25
Table 7. Correlations Among AUDIT, CD-RISC, and MAP Scores.....	26



## Chapter I

### Introduction

In the U.S. culture, one of the more promising environments for ushering young men and women into adulthood is collegiate athletics (Barber, Eccles, & Stone, 2001). Sports allow student-athletes to engage themselves in a physical practice, cultivate their strengths, witness their weaknesses, and learn in a controlled setting about success and failure. However, many athletes focus on a very shallow aspect of this experience—mainly, winning and losing (Gill & Dzewaltowski, 1988). Yet, sports can mean so much more than this in athletes' lives. As the majority of college student-athletes do not end up playing professionally, there is a great need to explicitly develop generalizability and sustainability in sports—on-field lessons should be taken into the real world, encouraging athletes to create lasting change for the common good in society.

Many people believe that sports help athletes to become “better people”. Newton and Duda (1993) wrote that while researchers including Coackley (1990), Greendorfer (1987), Humphries (1991), and Kohn (1986) all assumed that athletics develop character, morals, and motivation in young athletes, their research failed to back these claims up. Furthermore, there is evidence to support the assumption that the mental skills learned in competition translate to success off the field. A 2010 Gallup study, that was commissioned by the Navy, determined athletes such as water polo players, swimmers, triathletes, lacrosse players, boxers, rugby players and wrestlers had the highest chance of making the Navy Seals (Adams, 2014). Similarly, business leaders at Wall Street firms

are particularly compelled to hire Ivy League students with athletic experience (Soshnick, 2013).

These outcomes may seem like evidence supporting athletics as an environment for the personal growth and development of athletes; however, these real-world settings in which athletes enjoy success may simply be similar contexts when compared to sports. Soldiers must have a winning mentality because their performance could mean the difference between life and death. Workers in the financial markets are focused and motivated by the prospect winning or losing money each day. So, while it seems as though coaches are developing their athletes for their future and helping them to mature, they may only really be training them for highly competitive environments that operate in a familiar manner to the sports world. While there is nothing wrong with this per se, it just shows that athletics may not necessarily develop overall maturity and well-being in young people as strongly as the sports world would like to claim. Thus, while it is clear that athletic participation is good training for highly competitive situations, the claim that athletes are more “well-rounded” in their development lacks empirical support.

On the contrary, previous research demonstrates that many athletes can form a “toxic jock” identity that is associated with a number of negative personal qualities, characteristics, and attitudes (Miller, 2009). This author examined 581 undergraduate students ( $n = 251$  females and  $n = 330$  males) using a number of self-report measurements on sport-related identities, goal orientation in sports, primary sport ratings, masculine norms, and sociodemographic status. Limitations of this study include a lack of generalizability, a design that determines correlations but not causality, and the fact that only self-reports were utilized. The author found that students who more strongly

identified as jocks have a more ego-oriented approach to sports ( $\beta = .27, p < .001$ ), rather than being more task-oriented. In other words, “jocks” have a more competitive approach to life and value winning and outperforming other people; rather than other students who have a more task-oriented approach to success as a process in which mastery is being refined through practice and determination (Miller, 2009). Also, those who associated more strongly as a jock were found to self-identify with toxic masculine qualities of having a “playboy” attitude towards sexual relationships ( $\beta = .19, p < .001$ ), over-emphasize winning ( $\beta = .13, p < .01$ ), and demonstrate risk-taking behavior ( $\beta = .11, p < .05$ ). Although the identity of being a jock only characterizes a subset of the athlete population, it is clear that the athletic environment can be connected with certain identifications that are detrimental for individuals and the people around them.

One of the particular ways in which athletes are clearly struggling is in regards to alcohol abuse and binge drinking. Lisha and Sussman (2010) did an extensive review of 34 studies on athletes and substance use. In their review, they found that 22 of the 29 studies examining alcohol use in athletes found that athletes drank more often, were more likely to binge drink, and more consistently drank greater quantities than non-athletes. The possible explanations that the authors found throughout the studies for this phenomena included (1) that the competitive nature of athletes may provide them with the motivation to drink more than those around them, (2) that athletes are under a tremendous amount of stress and that alcohol use is a means of coping, (3) that alcohol use is part of the norms of the athletic culture, and (4) that our society links alcohol and athletics which may influence athletes from an early age (Lisha & Sussman, 2010).

Nelson and Wechsler (2001) surveyed 12,777 college students, 2,172 of whom were classified as athletes. The authors utilized a 20-page self-report questionnaire that included personal characteristics, activities, behaviors, and attitudes relating to alcohol use. They listed a number of limitations to this study such as the data being based on self-report questionnaires, the fact that there may have been some bias introduced through the people who chose not to respond, and the manner in which they classified athletes and non-athletes through the measure of time spent on a given activity—thus, this may not be an accurate assessment of varsity collegiate athletes. Despite these limitations, the study found significant differences between athletes and non-athletes in the following regards: (1) more athletes reported at least one binge drinking episode in the past two-weeks compared to non-athletes, (2) male athletes were less likely to abstain from alcohol than male non-athletes, (3) athletes were more likely to say they binged when drinking, (4) athletes were more likely to have been drunk three or more times in the past month than non-athletes, and (5) athletes were more likely to say they drank to get drunk than non-athletes. Also, athletes were more likely to have experienced the following negative consequences significantly more than non-athletes: hangover (1.27 Odds Ratio within a 95% Confidence Interval), missed class (1.33), fall behind in school work (1.25), did something later regretted (1.32), forgot where they were or what they had done (1.34), argued with friends (1.45), had unplanned sexual activity (1.37), had unprotected sex (1.17), damaged property (1.46), got in trouble with campus or local police (1.61), were injured (1.26), had an alcohol overdose (2.28), were victim of a crime on-campus (2.4), drive after binging (1.33), and five or more of the above-listed problems (1.49). Two reasons that athletes responded for limiting alcohol consumption included that it

interferes with athletics (61.2%) and that they had recently drank too much (37.8%). From this data, Nelson and Wechsler (2001) concluded that athletes are more likely to binge drink than their peers, that the current and frequently used education on the risks of alcohol abuse is not making an impact, and that social influences such as peer pressure and team atmosphere are responsible for the high-rate of binge drinking. These authors suggest that the only motivating factor that seems to limit binge drinking is when the impact on their athletic performance is considered.

Finally, Wechsler and Nelson's (2008) report on the Harvard School of Public Health College Alcohol Study (CAS) illustrates the many negative effects that binge drinking has on college students. This study surveyed over 50,000 students at 120 U.S. colleges four separate times between 1993 and 2001. Binge-drinking (defined by five or more drinks in one sitting for males and four or more drinks for females) was associated with a number of negative behaviors including missing class, falling behind in school work, lower grades, unplanned sexual activity, unprotected sex, vandalism, getting in trouble with police, drinking and driving, overdosing on alcohol, and developing a dependence on alcohol or full-blown alcoholism. Also, this review examines "second-hand" impacts of binge-drinking that negatively affect other people including interruption of sleep or study, property damage, verbal abuse, physical violence, and sexual assault. This review of the CAS demonstrates the significance of binge-drinking on college campuses. Clearly, a major effort should be put forth in finding a new intervention that impacts this behavior in student-athletes.

One psychological trait that has been found to be protective against alcohol abuse is resilience (Johnson, Dinsmore, & Hof, 2011). This term "resilience" has been used in a

wide-range of contexts including psychology, psychiatry, trauma studies, social work, and epidemiology (Atkinson, Martin, & Rankin, 2009). Also, an integrative review of all empirical research on resilience by Aburn, Gott, & Hoare (2016) demonstrated that there is no universally accepted definition of the term. However, these authors did list five key themes of resilience that were found throughout their analysis of 100 articles, which included rising up to overcome adversity, adapting and adjusting, healthy functioning of human adaptive skills, strong mental health, and the capacity to bounce back (Aburn et al., 2016). Furthermore, one of the most challenging aspects of studying resilience is the on-going debate regarding whether it is a trait, proposed by researchers such as Connor and Davidson (2003) and Wagnild and Young (1990), or a state, as argued by the likes of Luthar, Cichetti, and Becker (2000) (as cited in Gucciardi, Jackson, Coulter, & Mallett, 2011).

This current study will utilize Connor and Davidson's (2003) definition of resilience as a personal characteristic, skill, or trait that enables one to thrive under adversity. This study will also use the Connor-Davidson Resilience Scale (CD-RISC, 2003), as it is well-balanced inventory based on a wide array of well-cited research on resilience, including Kobasa's (1979) research on hardiness; Rutter's (1985) work on strategy, action orientation, confidence, adaptability towards change, social problem solving skills, different abilities under stress, and previous achievements; and finally, Lyons' (1991) research on ability to endure stress and pain (as cited by Connor & Davidson, 2003).

Furthermore, the CD-RISC has been utilized to examine alcohol abuse in colleges. Johnson et al. (2011) studied 45 male and 43 female undergraduates at a U.S.

college utilizing the CD-RISC and a short self-report that measures alcohol use. While this study lacked enough participants to find statistical significance and many of their comparisons on the alcohol use questionnaire may have been too short to provide adequate data, the authors still found a significant correlation between lower individual resiliency scores and higher alcohol use. Therefore, it is proposed that there will be a relationship between resilience and alcohol intake in this current study. Johnson et al. (2011) also concluded that the CD-RISC is helpful in highlighting the factors of resilience to focus on when developing educational programs for high-risk populations on college campuses.

Interventions for building resilience are of great interest in the sports world as stress and adversity are common and recurrent themes in an athlete's life. Many sports psychologists focus on how resilience can be observed and developed to impact performance in athletics. One of the most frequently cited studies was a methodologically rigorous qualitative investigation by Fletcher and Sarkar (2012). The authors of this study interviewed 12 Olympic champions on the topic of resilience and grounded popular theories of resilience through the athletes' recollected experiences. They concluded that psychological characteristics (including positivity, motivation, confidence, focus, and perceived social support) insulate these athletes from the effects of stress through the ways in which they cognitively assess or make meaning around challenges (Fletcher & Sarkar, 2012). Based upon these types of findings, sport psychology is searching for tools to better support the development of resilience for high-performance in sports.

However, this current study is interested in examining how resilience is generalizable to everyday life and not just as a skill to be used to perform well in sports.

This is another reason why the CD-RISC will be utilized to assess the athletes, as it looks at five factors of resilience including personal competence, trust in one's self, tolerance of negative emotions, flexibility around change, self-efficacy, and spirituality (Gucciardi et al., 2011). This assessment will provide a well-rounded understanding of the ways in which these athletes are resilient or not—for applications both on and off the field.

Furthermore, the current study will also examine if there is an interaction between resilience and developmental maturity. Forman (2010) listed a number of studies that linked increased psychological capacities to higher stages of adult development including psychological mindedness and introspection (Westenberg & Block, 1993), internal locus of control (White, 1985), open-mindedness (McCrae & Costa, 1980), tolerance toward the beliefs and values of others (Helson & Roberts, 1994), aesthetic and artistic interest (McCrae & Costa, 1980), heightened morality (Snarey, 1998), enjoyment of children and nurturance (White, 1985), gender role androgyny (Prager & Bailey, 1985; White, 1985), emotional conceptualization (Labouvie-Vief, DeVoe, & Bulka, 1989), empathy (Carlozzi et al., 1983), psychosocial development (Vaillant & McCullough, 1987), and creativity (Helson & Roberts, 1994). This study may be able to illustrate a similar connection between increased resilience capacities and developmental maturity.

To understand how athletes could possibly develop and grow throughout their collegiate careers, it is helpful to understand Kegan's (1982; 1994) Constructive-Developmental Theory (CDT) as a starting point. CDT proposes a framework for human growth in which psychological, mental, and emotional capacities can be expanded and evolved. At its core, this theory is a complex framework utilized to understand how humans transform and grow in their ability to make meaning of the world, increase their



mental capacities, and expand their complexity of awareness over the course of a lifetime.

Kegan (1982) lists the main influencers of his work as being Baldwin (1906), Dewey (1938), Herbert Mead (1934), Piaget (1936), and Kohlberg (1969) as they were the first to start to describe the idea of meaning-making and subject-object construction as children develop. The most salient characteristic of Kegan's developmental model is that it applies to the cognitive development of adults, rather than only focusing on children as many former researchers have done. This theory includes five stages or orders of mind in adult development. There is a great deal of research and literature that fully details each stage (see Garvey Berger, 2012; Helsing & Lahey, 2010; Kegan, 1982; 1994). Each stage of development is well-defined by cognitive meaning-making systems that people are either "subject to" or "hold as object" (Kegan, 1982; 1994). In other words, if an individual is not aware of certain thought processes, then that person is unconsciously driven by and subject to those meaning-making structures; on the other hand, if someone is aware of their thought processes, then that individual can hold particular meaning-making structures as object, be aware of it, and make decisions based upon that awareness. The more that a person can hold as object, the more developmental complexity that person exhibits, and the more nuanced their decision making becomes. As humans develop to higher orders of mind, they are able to construct their reality in more balanced and complex ways (hence the label, "Constructive-Developmental Theory").

One measurement now utilized within CDT is the Subject-Object Interview (SOI; Lahey, Souvaine, Kegan, Goodman, & Felix, 2011). Based on verbal responses to the

SOI, individuals are classified as falling into one of four stages (Garvey Berger, 2012). The first stage of CDT, that categorizes up to 13% of adults, is self-sovereign form of mind. This stage can be summarized as a combination of self-centeredness and focus on personal wants, needs, impulses, and desires. The second stage of development, which encompasses up to 46 percent of adults, is socialized mind. People at this level can manage (and effectively utilize) their selfish drives through valuing interpersonal relationships—people in this stage of development place great importance in being part of a group and in authority figures. This need for belonging motivates people to sacrifice their own self-centered needs, interests and desires to serve their team, organization, and close relationships. This stage also sparks ethically driven conduct and leads individuals to intrinsically act in service of others. The next stage of adult development—self-authoring mind, which accounts for 41 percent of adults—enables individuals to create their own vision, values, and personal standards. Self-directed individuals are able to initiate change without outside intervention. Finally, less than one percent of adults reach the highest level, the self-transformational form of mind. These people are able to question their own self-authored ideology, to hold and examine paradox, and to develop tremendous mental complexity, capacity, and flexibility.

An influential study that utilized the SOI and researched CDT in a collegiate atmosphere was done by Lewis, Forsythe, Sweeney, Bartone, Bullis, and Snook (2005), studied the development of cadets at the United States Military Academy (USMA) over their four years at West Point. The authors utilized the Subject-Object Interview (SOI; Lahey, Souvaine, Kegan, Goodman, & Felix, 2011) to determine the cadets' psychological growth based upon Kegan's (1982, 1994) CDT model. Using a

longitudinal design and two random samples, the researchers interviewed 55 cadets total (seven females and 48 males with the average age of 18.6 years old) during their first, second, and fourth year at the academy. They found that in the participants freshman year, 21 per cent were in self-sovereign stage of mind, 63.2 per cent were in the transition stage between self-sovereign and socialized stages, and 15.8 per cent were in socialized stage. In their sophomore year, 23.1 per cent were in self-sovereign stage, 52 per cent were in the transition stage between self-sovereign and socialized stages, 19.2 per cent were in socialized stage, and 5.7 per cent were in self-authored stage. Finally, in their senior year, 6.3 per cent were in self-sovereign stage, 31.3 per cent were in the transition stage between self-sovereign and socialized, 43.7 per cent were in socialized stage, and 18.7 per cent were in self-authored stage. This data suggests that cadets are growing out of the self-sovereign stage and into the socialized and self-authored stages of mind during their time attending USMA.

Lewis et al. (2005) took these results one step further by comparing the cadets' stage of development with their military development (MD) grade (a measurement of performance on military training requirements) from their instructors; the authors found that the cadets' SOI score in senior year had a significant correlation with their joint MD score from junior and senior year. This possibly suggests that the cadets' performance in their military training requirements improves as they grow, mature, and develop into higher stages of mind throughout their four years at West Point. It could also suggest that military training is a transformational experience that leads to greater ego maturity.

For the purposes of this current study though, the Maturity Assessment for Professionals (MAP; Cook-Greuter, 1999) will be used rather than Kegan's SOI in the

interests of time, energy, and financial considerations. Further advantages of this assessment in comparison to Kegan's SOI include no interviewer bias, strong inter-rater reliability (Cronbach's alpha 0.85 -- 0.95), and more reliable scoring for assessment purposes (Cook-Greuter, 2012). Cook-Greuter was a doctorate student of Kegan's and her model of ego development is based off of CDT. Similar to CDT, this developmental maturity assessment scores adults based upon their meaning-making on the cognitive (thinking) dimension, but also assesses the development of the behavioral (doing) and affective (feeling) dimensions. Previous researchers such as Fingarette (1963), Loevinger (1976), and Vidal (1984) have formulated how the ego constructs reality through the coordination of these dimensions (as cited by Cook-Greuter, 1999).

Cook-Greuter's MAP scale also has more specific stage delineations. Whereas the SOI is only based on theory, these stages measured by the MAP are grounded theory and empirically supported (Cook-Greuter, 2002, p. 1). The nine major stages that are assessed through the MAP are the Impulsive and Opportunist (which are in alignment with Kegan's self-sovereign stage), Diplomat, Expert, and Achiever (which are in alignment with Kegan's socialized stage), Individualist, Strategist, and Magician (which are in alignment with Kegan's self-authored stage), and Ironist / Unitive (which are in alignment with Kegan's self-transformational stage and beyond) (Cook-Greuter, 2015). The MAP also uses similar number scoring as the SOI in Kegan's model which is a categorical value that is assigned to the subject as 2, 2+, 2/3-, 2/3, 2/3+, 3-, 3, 3, 3+, 3/4-, 3/4, 3/4+, 4-, 4, 4+, 4/5-, 4/5, 4/5+, 5-, 5, 5+, 5/6-, 5/6, 5/6+, 6-, 6, 6, and 6+. Another major advantage of the MAP is that it has a numerical TWS score that is easier to analyze than the categorical stage numbers.

The MAP is also a practical assessment to use for college students. Cook-Greuter (2011) has proposed that college-aged individuals are a ripe demographic for development towards some of the highest levels of development. The author also explained that older adolescents have the potential to exhibit threads of inhabiting post-conventional or self-transformational stage of mind, and that their environment can support or impede that growth. This concept is obviously of great interest and concern to this current study and supports the administration of the MAP for these purposes.

Furthermore, there is also a precedent for the MAP being utilized in the athletic context. Harung, Travis, Pensgaard, Boes, Cook-Greuter, and Daley (2011) studied world-class Norwegian athletes from various sports to understand how ego development was related to performance indicators. These researchers compared 33 world-class athletes (10 females and 23 males who participated and placed amongst the ten best performers in the Olympic Games, World Championships, and/or World Cup) to 33 control athletes (10 females and 23 males who typically placed in the bottom half at the Norwegian World Championships). They tested the athletes on a number of different fronts: (1) two paired reaction-time tasks utilizing an EEG and the Brain Integration Scale (Travis, Tecce, Arenander, Wallace, 2002) to record brain coherence, (2) during one of the reaction-time tasks, habituation rates (in order to test neural efficiency) were recorded, (3) Cook Greuter's (1999) MAP test to assess their level of ego development, (4) the Gibbs' Socio-Moral Reflection Measure – Short Form (SMRSF) was utilized to measure moral maturity, and (5) a survey of peak experiences, developed by Harung et al. (1996) was administered to assess how often the athlete is able to access the flow state or be “in the zone”. The researchers found that the world-class athletes had significantly

higher scores on the Brain Integration scale, more rapid habituation, and higher stages of ego, and moral development. Athletes and coaches may find it of great interest that developmental capacity has been linked to sports performance, and this study hopes to further support these findings.

In conclusion, the current study is interested in (1) examining if there are significant differences in development maturity, resilience capacity, and alcohol use between college student-athletes and college students, and (2) examining if there is a significant interaction on developmental maturity, resilience capacity, and alcohol use based upon athletic participation and graduation year. It is expected that (1) there will be significant differences in developmental maturity, resilience capacity, and alcohol use between college student-athletes and college students, (2) college student-athletes will have significantly lower scores of developmental maturity and resilience capacity than college students, (3) college student-athletes will have significantly higher scores of alcohol use than college students, and (4) there will be a significant interaction between higher levels of developmental maturity, resilience scores, and alcohol use for college student-athletes and college students. Hopefully, these combined results will serve as an impetus for collegiate athletic programs to implement developmental curricula and for further research into this topic.

## Chapter II

### Method

This was an observational study that was cross-sectional in design, utilizing 20 college student-athletes and 20 college students, with five participants from each of the four graduating classes (freshman, sophomore, junior, and senior) in each group. The study utilized three assessments (one sentence completion test and two self-assessment surveys) to measure developmental maturity, resilience capacities, and alcohol use.

### Participants

The subjects of this study were 20 NCAA Division I male varsity student-athletes and 20 male college students who do not play a varsity sport from a single private liberal arts university in the United States. The varsity athletes were elite level players in their sport as indicated by the fact that their team has consistently made the NCAA playoffs every year. The college students were random volunteer participants from the university. In each sub-group, there were five freshmen, five sophomore, five junior, and five senior participants. The participants were all males due to the limitations on numbers and allowed the study and the data to be more simplified and less variable.

### Instruments

The Maturity Assessment for Professionals (MAP; Cook-Greuter, 1999) was utilized to assess developmental maturity in the subjects. The MAP is a sentence-

completion test that was assessed and scored by Cook-Greuter's Center for Leadership Maturity (CLM). This assessment is a 36 sentence-stem completion test utilized to analyze stages and areas of ego development (Cook-Greuter, 2000) that was filled in by computer on a Word doc. The sentence stems range in issues from personal, work, relationship, coping, social, and moral areas of life. Cook-Greuter (2000) explained that this assessment evolved from Loevinger and Wessler's (1970) Washington University Sentence Completion Test of Ego Development (WUSCT). The test took approximately 50 minutes for subjects to complete and the results were scored by certified evaluators and experts through the CLM. The MAP has been supported by many studies to have significant levels of construct validity and inter-rater reliability (Cook-Greuter, 1999; Loevinger, 1979; Torbert, et al., 2004).

The Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003), a pen and paper measurement was also employed to assess individuals' resilience. The 25 items on the self-report measure are scored on a 5-point scale (0–4) and total scores range from 0 to 100. Higher scores portray greater capacities in resilience. This test took approximately 10 minutes for subjects to complete. The CD-RISC has demonstrated good internal consistency (Cronbach's  $\alpha$  score of 0.89) and test-retest reliability (intraclass correlation coefficient of 0.87) in both a general non-help seeking population (n=577) and a clinical population (n=251) in the United States (Connor & Davidson, 2003). This scale has even been found to be cross-culturally appropriate, as the test was shown to have solid construct validity and reliability in a Turkish population (Kararmak, 2010). Furthermore, Connor and Davidson (2003) note that this scale is appropriate to study the positive and negative strategies for dealing with stress in individuals.



The Alcohol Use Disorders Identification Test (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) was used to determine alcohol habits of the participants. This questionnaire is a 10-question multiple choice self-report which assesses the subjects' alcohol consumption and identifies unsafe drinking behaviors and alcoholism (Babor et al., 2001). This pen and paper test takes approximately 10 minutes to complete. Each question is scored on a scale of 0-4. Total scores are used to categorize the level of need for intervention: (0-7) "Alcohol Education"; (7-15) "Simple Advice"; (16-19) "Simple Advice plus Brief Counseling and Continued Monitoring"; (20-40) "Referral to Specialist for Diagnostic Evaluation and Treatment". (Babor et al., 2001, p. 22). The obvious limitation of this questionnaire is that it relies completely on self-reporting. However, the AUDIT has been used within primary health care patient populations in six countries, it identifies dangerous and harmful alcohol use and dependence, it is short and easy to administer, it is consistent with the tenth revision of the International Classification of Diseases (ICD-10) definitions of alcohol abuse, and it focuses on recent alcohol intake (Babor et al., 2001). Fleming and MacDonald (1991) used this test to study the alcohol use of university students and found significant specificity and sensitivity for a cut-off score of 11 to indicate problematic drinking habits. Babor et al. (2001) cited that studies evaluating the validity and reliability of the AUDIT have found it to have acceptable sensitivity and specificity towards current ICD-10 alcohol use disorders (Allen, Litten, Fertig, & Babor, T., 1997; Cherpitel, 1995; Conigrave, Hall, & Saunders, 1995). Another study by Sinclair, McRee, & Babor (1992) found high test-retest reliability in a sample that included non-hazardous drinkers, drug abusers, and alcoholics (as cited by Babor et al., 2001).

## Procedure

Once approval was obtained through the Harvard Committee on the Use of Human Subjects, the University of Denver athletic department and men's lacrosse coaching staff was approached to obtain permission to contact their players for the purposes of this study. The head of the IRB department at the University of Denver was also approached for permission to contact their students as well. Athletic department staff, coaches, and academic department heads were informed that all of the athletes' and students' information and results would remain anonymous and confidential (other than for the general results for this study). Student-athletes and college students were contacted and asked for their voluntary participation on a study on developmental maturity, resilience capacities, and alcohol usage of collegiate student-athletes and college students who do not participate in varsity sports. Both student-athletes and college students were informed of their confidentiality and anonymity in the study. Five student-athletes (experimental group) and five students (control group) were allowed to sign up from each graduating class to participate in the study. These subjects were contacted by an email from the researcher with time blocks and location to answer the surveys for approximately 90 minutes in a supervised conference room. The subjects had uninterrupted space to be able to respond to the questionnaires in a focused manner. All participants were given \$30 cash for participating in the study. The results were then analyzed using SPSS version 24 statistical software.

## Design

Five student-athletes (experimental group) and five students (control group) were drawn from each graduating class which allowed for balanced factorial design and

enabled interpretation of interaction in the data. After the data were collected from the student-athletes and students on all three assessments, statistical software was used to analyze the results and test the two hypotheses of interest.

## Chapter III

### Results

Although not all of the hypotheses of this study were supported, there were a number of significant findings of interest when analyzing data from the AUDIT, CD-RISC, and MAP assessments.

#### Alcohol Consumption

Table 1 contains the means and standard deviations for all groups on AUDIT scores. To determine if athletic participation or graduating class was related to alcohol consumption, an Analysis of Variance (ANOVA) was conducted using AUDIT scores as the dependent variable and athletic participation and graduating class as the independent factors. Contrary to this study's hypothesis, results indicated no significant effect for athletic participation on AUDIT scores ( $F_{(1, 39)} = 0.68, p = .415, \eta^2 = .02$ ). There was also no significant effect for graduating class ( $F_{(3, 37)} = 0.76, p = .523, \eta^2 = .07$ ) nor for the interaction between athletic participation and graduating class on AUDIT scores ( $F_{(3, 37)} = 0.54, p = .657, \eta^2 = .05$ ).

Table 1.

AUDIT Score Means

Student-Athletes / Students	Class Numerical	Mean	Std. Deviation	N
Student-Athletes	1	9.80	6.380	5
	2	14.80	8.408	5
	3	11.40	4.669	5
	4	13.60	1.517	5
	Total	12.40	5.698	20
Students	1	11.80	3.347	5
	2	12.00	4.743	5
	3	9.80	1.789	5
	4	11.00	3.317	5
	Total	11.15	3.297	20
All	1	10.80	4.917	10
	2	13.40	6.603	10
	3	10.60	3.438	10
	4	12.30	2.791	10
	Total	11.78	4.638	40

*Class Numerical Key: 1=Freshman, 2=Sophomore, 3=Junior, 4=Senior*

Resilience

Table 2 contains the means and standard deviations for all groups on CD-RISC scores. To determine whether resilience scores varied based on athletic participation or graduating class, an ANOVA was conducted using CD-RISC scores as the dependent variable and athletic participation and graduating class as the independent factors.

Contrary to the hypothesis, results indicated a significant effect for athletic participation

on resilience scores ( $F_{(1, 39)} = 6.79, p = .014, \eta^2 = .18$ ), with student-athletes scoring higher in resiliency than college students (see Table 2). There was a trend toward a significant effect for graduating class ( $F_{(3, 37)} = 2.71, p = .061, \eta^2 = .20$ ), and a significant interaction between athletic participation and graduating class on CD-RISC scores ( $F_{(3, 37)} = 7.51, p = .001, \eta^2 = .41$ ).

Table 2.

CD-RISC Score Means

Student-Athletes / Students	Class Numerical	Mean	Std. Deviation	N
Student-Athletes	1	86.20	8.289	5
	2	68.80	5.357	5
	3	80.00	7.969	5
	4	80.80	5.630	5
	Total	78.95	9.093	20
Students	1	74.60	7.266	5
	2	80.60	9.182	5
	3	74.20	10.426	5
	4	60.80	6.648	5
	Total	72.55	10.782	20
All	1	80.40	9.559	10
	2	74.70	9.429	10
	3	77.10	9.267	10
	4	70.80	12.035	10
	Total	75.75	10.365	40

*Class Numerical Key: 1=Freshman, 2=Sophomore, 3=Junior, 4=Senior*

## Developmental Maturity

Table 3 contains the means and standard deviations for MAP scores in all groups. To determine whether athletic participation or graduating class affected resilience scores, an ANOVA was conducted using MAP scores as the dependent variable and athletic participation and graduating class as the independent factors. Contrary to the hypothesis, results indicated no significant effect for athletic participation on developmental maturity scores ( $F_{(1,39)} = 2.81, p = .103, \eta^2 = .081$ ). However, there was a significant effect for graduating class on MAP scores ( $F_{(3,37)} = 3.61, p = .024, \eta^2 = .253$ ). There was no significant effect for the interaction between athletic participation and graduating class on MAP scores ( $F_{(3,37)} = 1.99, p = .135, \eta^2 = .157$ ).

To better understand the above findings, a simple linear regression was conducted using graduating class as the dependent variable and MAP scores as the independent factors in three separate analyses with all participants, college student-athletes only, and college students only. Table 4 contains the results from a linear regression analysis of all participants. In support of previous research, results indicated a significant relationship between graduating class and MAP scores ( $p = .012$ ) for all participants.

Table 5 contains the results from a linear regression analysis of student-athletes only. In support of previous research, results indicated a significant relationship between graduating class and MAP scores ( $p = .008$ ) for student-athletes only.

Table 6 contains the results from a linear regression analysis of college students only. Contrary to previous research, results found no significant relationship between graduating class and MAP scores ( $p = .366$ ) for college students only.

Table 3.

MAP Score Means

Student-Athletes / Students	Class Numerical	Mean	Std. Deviation	N
Student-Athletes	1	206.20	9.935	5
	2	201.00	15.890	5
	3	225.00	10.794	5
	4	228.60	20.268	5
	Total	215.20	18.217	20
Students	1	222.80	13.065	5
	2	220.60	13.372	5
	3	214.80	8.643	5
	4	234.60	22.799	5
	Total	223.20	15.916	20
All	1	214.50	14.010	10
	2	210.80	17.274	10
	3	219.90	10.671	10
	4	231.60	20.582	10
	Total	219.20	17.364	40

*Class Numerical Key: 1=Freshman, 2=Sophomore, 3=Junior, 4=Senior*

Table 4.

MAP Score Regression Table for All Participants

Model	B	Std. Error	$\beta$	t	Sig.
(Constant)	-3.130	2.138		-1.464	.151
MAP	.026	.010	.394	2.641	.012

*Dependent Variable: Class Numerical*



Table 5.

MAP Score Regression Table for Student Athletes

Model	B	Std. Error	$\beta$	t	Sig.
(Constant)	-5.282	2.624		-2.013	.059
MAP	.036	.012	.574	2.976	.008

*Dependent Variable: Class Numerical*

Table 6.

MAP Score Regression Table for College Students

Model	B	Std. Error	$\beta$	t	Sig.
(Constant)	-.932	3.713		-.251	.805
MAP	.015	.017	.213	.926	.366

*Dependent Variable: Class Numerical*

### Additional Findings

Table 7 contains the correlations between AUDIT, CD-RISC, and MAP scores for athletes only. To determine whether there was any correlation between alcohol consumption, resilience scores, and developmental maturity, a bivariate analysis was conducted using AUDIT, CD-RISC, and MAP scores as the variables, using college student-athletes, college students, and both student-athletes and students in three separate analyses. For both student-athletes and students, results indicated no significant correlation between CD-RISC and AUDIT scores ( $r = -.195, p = .227$ ), no significant correlation between CD-RISC and MAP scores ( $r = -.209, p = .195$ ), and no significant correlation between AUDIT and MAP scores ( $r = .196, p = .226$ ). For college students,

results indicated no significant correlation between CD-RISC and AUDIT scores ( $r = .107, p = .653$ ), no significant correlation between CD-RISC and MAP scores ( $r = -.389, p = .090$ ), and no significant correlation between AUDIT and MAP scores ( $r = .300, p = .198$ ). However, for athletes only, results supported the hypothesis in that there was a significant inverse correlation between CD-RISC and AUDIT scores ( $r = -.527, p = .017$ ). For athletes only, there was no significant correlation between CD-RISC and MAP scores ( $r = .099, p = .677$ ), and no significant correlation between AUDIT and MAP scores ( $r = -.209, p = .373$ ).

Table 7.

Correlations Among AUDIT, CD-RISC, and MAP Scores

		CD-RISC	AUDIT	MAP
CD-RISC	Pearson Correlation	1	-.527*	
	Sig. (2-tailed)		.017	
	N	20	20	20
AUDIT	Pearson Correlation	-.527*	1	
	Sig. (2-tailed)	.017		
	N	20	20	20
MAP	Pearson Correlation	.099	.211	1
	Sig. (2-tailed)	.677	.373	
	N	20	20	20

\* Correlation is significant at the 0.05 level (2-tailed).

## Chapter IV

### Discussion

To review, this study examined (1) differences in developmental maturity, resilience capacity, and alcohol use between college student-athletes and college students, and (2) interactions between developmental maturity, resilience capacity, and alcohol use based upon athletic participation and graduation year. It was hypothesized that (1) there would be significant differences in developmental maturity, resilience capacity, and alcohol use between college student-athletes and college students, (2) college student-athletes would have significantly lower scores of developmental maturity and resilience capacity than college students, (3) college student-athletes would have significantly higher scores of alcohol use than college students, and (4) there would be a significant interaction between higher stages of developmental maturity, resilience scores, and alcohol use for college student-athletes and college students.

As for the first hypothesis that there would be significant differences in developmental maturity, resilience capacity, and alcohol use between college student-athletes and college students, there are mixed results. There were no significant differences observed between college student-athletes and college students for alcohol consumption or developmental maturity. However, there was a significant difference between college student-athletes and college students in reported resilience capacities with athletes showing stronger resiliency. Furthermore, the second hypothesis, that college student-athletes would have significantly lower development maturity and

resilience capacity, was not supported. There was no significant effect for athletic participation on developmental maturity scores. Second, there was a significant effect for athletic participation on resilience scores, but student-athletes actually scored higher than students, which is contrary to the hypothesis. There was also trend toward a significant effect for graduating class and a highly significant effect for the interaction between athletic participation and graduating class on resilience scores, such that younger student-athletes were the most resilient.

Thus, in this study, athletes displayed higher scores on resilience capacity, rather than lower scores. This is a very interesting finding and may support the premise that athletics may provide a positive learning environment for young men and women. These results around athletes' resilience capacities support previous research (Fletcher & Sarkar, 2012) who found that psychological characteristics (including positivity, motivation, confidence, focus, and perceived social support) protected athletes from the effects of stress through the ways in which they cognitively assess or make meaning around challenges. These current findings also support researchers like Coackley (1990), Greendorfer (1987), Humphries (1991), and Kohn (1986) who theorized that athletics develop character, morals, and motivation in young athletes and is contrary to Newton and Duda's (1993) assertion that there is no evidence for this theory. Finally, these findings may also describe why athletes such as water polo players, swimmers, triathletes, lacrosse players, boxers, rugby players and wrestlers have the highest chance of making the Navy Seals (Adams, 2014) and business leaders at Wall Street firms are particularly compelled to hire Ivy League students with athletic experience (Soshnick, 2013). It seems appropriate to suggest that greater resilience capacities could be valued in

contexts such as these. Admittedly, this study's findings only support correlation and not causation, so it is possible that more resilient people turn out to be successful college athletes, rather than athletics making for more resilient people. In fact, the freshman athletes had the highest mean scores on the CD-RISC, which suggests that the athletes may come to college more resilient than their same aged peers to begin with.

The third hypothesis that college student-athletes would have significantly higher scores of alcohol use, was not supported either. Results indicated no significant difference between college student-athletes and college students on AUDIT scores, although it should be noted that the means for these scores were all fairly high. This does not fully support previous findings by Lisha and Sussman (2010) who found that athletes drank more often, were more likely to binge drink, and more consistently drank greater quantities than non-athletes and by Nelson and Wechsler (2001) who concluded that athletes are more likely to binge drink than their peers. However, it should not be overlooked that the mean score of college students was 11.15 and the mean score of college student-athletes was 12.4; and as the AUDIT explains, scores of 8 or higher demonstrate hazardous or harmful alcohol use. Babor et al. (2001) also suggested that scores between 7-15 indicate the need for "Simple Advice", which means that an alcohol education program could be helpful for this population. Furthermore, Fleming and MacDonald (1991) used the AUDIT study the alcohol use of university students and found significant specificity and sensitivity for a cut-off score of 11 to indicate problematic drinking habits. Thus, both populations in this study demonstrated high-risk drinking behavior which may point to a campus-wide cultural issue at this particular university.

Finally, the last hypothesis, that there would be a significant interaction between higher levels of developmental maturity, resilience scores, and alcohol use for college student-athletes and college students, was partially supported. There was a significant negative correlation between CD-RISC and AUDIT scores for athletes only. This means that athletes who had higher resilience scores displayed lower levels of alcohol consumption. This is supportive of findings by Johnson, Dinsmore, and Hof (2011) which found resilience to be a protective trait against alcohol abuse. This may suggest that resilience is an additional protective factor against alcohol abuse in the culture of team sports, but further research would have to be done in that arena. Nelson and Wechsler (2001) found that another protective factor for athletes that may limit alcohol consumption is that they believe it interferes with their athletic performance. Perhaps this belief, along with greater capacities of resilience, explains this correlation between resilience and alcohol use for athletes only.

One last finding of interest, which was not hypothesized in this study, was a significant relationship between graduating class and MAP scores for all participants and for athletes only. This points to a strong correlation between the experience of being a student-athlete over four years at college and increased developmental maturity. This finding supports earlier research by Lewis et al. (2005) with cadets at the USMA. Future research should examine whether or not there is also a correlation between athletic performance and developmental maturity, just as Lewis et al. (2005) found between MD grade and developmental maturity and Harung et al. (1996) found between the Brain Integration scale, rapid habituation, and developmental maturity.

## Future Implications

Based on the results of this study, there are a number of future implications to be considered. First, further research should determine if there is a causal relationship between athletics and resilience capacities in student-athletes. While this study demonstrated that college student-athletes have significantly higher scores on resilience capacities than college students, this does not demonstrate causality. It is possible that more resilient young people self-select to become college student-athletes, so future longitudinal research should be done. However, it should be noted that athletics provides a perfect context to educate young people about resilience qualities and characteristics. Furthermore, the athletic context also provides an environment of social support that is supportive factor of resilience. It would also be of interest to learn what aspects of sports provide their participants with greater resilience and applying those findings to other student populations for their benefit.

Results on alcohol use in this study support the idea that alcohol abuse is prevalent amongst both college students and college student-athletes. There needs to be continued research on impactful education and intervention programs. Further research should also follow-up this study's finding that higher resilience scores were associated with lower levels of alcohol use in athletes. It seems plausible to suggest that resilience is a predictor of lower alcohol use, but other factors came into play as well—possibly aspects of student-athletes lives like coaches' rules, performance expectations around practices and games, time limitations, and positive peer pressure around not drinking before competition. It would be of interest to study these and other protective factors that athletes have and examining how these could be supported in other college students' lives

as well. It is imperative for future research to examine alcohol abuse and the protective factors against such behavior in collegiate populations, as it clearly continues to be a reality in that culture.

Finally, a correlation between graduating class and developmental maturity scores for all participants and for student-athletes only may be of great interest to researchers who focus on developmental maturity. This result shows the potential for college and college athletics to be seen as a developmental scaffold for young people. In utilizing a developmental perspective, the athletic world's capacity to foster maturity in young men and women can be better understood. It would be interesting to study different teams in the future and see if different coaching and culture leads to more or less growth in developmental maturity over four years.

Some athletes live in a transactional world entirely based upon outcomes through which they receive either reward or punishment. If these athletes do something well, they get to start in games, earn fame and popularity, win praise and attention, receive awards such as MVP or All-American nominations, and can be rewarded financially. If these athletes fail to perform, they can be relegated to the bench, cut by teams, reprimanded by coaches, and so on and so forth. An environment that is disturbingly similar to this set-up in athletics is that of a correctional facility which Kegan (1982) observed and described. He noted that inmates were "trained" using behavior modification designed after Skinner's (1958) model that he discovered (ironically) while teaching pigeons how to bowl. Kegan (1982) explained that this type of treatment as, "It is not merely geared to, but locked on, the imperial balance, neither recognizing nor inviting the emerging capacities for internalized mutuality," (p. 175). In other words, correctional facilities that



utilize behavioral modification through reward and punishment are essentially setting up an environment in which those inmates of second-order or self-sovereign mind (Kegan also uses the word “imperial”) can acclimate to, but will grow no further. So, this type of similar reward system in athletics—based upon outcomes—may keep young men and women stuck at a very low level of development as they are constantly being trained to focus on themselves and their own performance. While these coaches and teammates may speak of a “team-first” mentality, the only way an athlete will get his own needs, wants, and desires met (getting to play, winning awards, gaining recognition) is by performing well.

More transformational approaches to coaching in athletics may concentrate on the development of athletes, but also on their overall sense of well-being and community. As Bauer (2011) pointed out, experiential opportunities like sports increase an individual’s capacity to feel positively about self and others. Athletics clearly provide an outstanding opportunity for young people along the lines of experiential growth which can lead to overall development. In the same vein, CDT has been utilized to build curriculum in high-powered corporate environments, supporting the development of business leaders and their employees (Kegan & Lahey, 2016; Kegan, Lahey, & Fleming, 2014); in educational settings, allowing administrators and teachers to expand their own psychological capacities to serve their student population (Drago-Severson, 2007; 2009); and for leadership development of cadets at United States Military Academy at West Point (Keith et al., 2009). Also, counselors, coaches, and consultants are being trained to utilize a developmental approach as a means to work with their clients (Forman, 2010; Cook-Greuter, 2011; Garvey Berger, 2012; Kegan & Lahey, 2016). Athletic coaches and

administrators may take this current study as a demonstration of the potential for collegiate athletics to develop maturity in young men and women and utilize some of these educational approaches to optimize this opportunity.

### Limitations

The greatest weakness of this study is that the cross-sectional design only allowed for findings on correlation, but not causality. For example, while this study demonstrated that the college student-athletes had significantly higher scores on resilience capacities, that does not necessarily mean that athletics leads to greater resilience. It could, of course, be the other way around—college student-athletes, may be more resilient to begin with.

Another limitation of this study may have included participation bias. Students with higher levels of alcohol abuse issues may have been less willing to be involved with the study, which included an alcohol use survey. Or it is possible that the amount of time required to take this test may have dissuaded others. Any of these types of participation bias may have prevented this study from finding a more broad range of samples.

Next, the small sample size of only five participants within each sub-group and 40 participants overall may have limited the power of analysis. The major factor of this limitation was due to overall cost. The scoring of each MAP costs \$125 per test for research purposes and permission to obtain and use the CD-RISC is \$30 total. Along with the \$30 cash that was given to each participant, the total costs for this study was over \$6,000.

Next, limiting the sample to male athletes who participated in one particular sport was yet another limitation. This focus helped control variability and simplified the data,

but it also lead to less generalizable findings for all student-athletes. Broader sampling from both genders and all sports should be studied in the future.

Finally, the limitation of only examining students from one school may have decreased the range of findings. For example, it is very possible that at this small liberal arts college, the culture and social circles of the student-athletes and students were very similar, which may be one reason why the alcohol use scores were so similar between groups.

### Conclusion

Although the hypotheses of this study were not fully supported, there were a number of major findings in relation to the questions that were asked. First, there was a significant effect for athletic participation on resilience scores, with student-athletes scoring higher than students. Further research should look at the causal direction of this relationship, yet it is a powerful finding that explains the effectiveness of athletes in contexts like the Navy Seals (Adams, 2014) and Wall Street (Soshnick, 2013). While this study first proposed that this occurrence may be due to the competitive nature of these environments, it seems plausible now to suggest that athletes thrive in these high-pressure and stressful situations due to their resilience capacities. Perhaps these skills can be strengthened further through the context of athletics, and also made transferable and accessible for those who may not participate in elite level sports.

Next, this study found a trend toward a significant effect for graduating class and a highly significant effect for the interaction between athletic participation and graduating class on resilience scores; however, it should be noted that the resilience scores of the student-athletes and students seemed to trend downward over their time in college. With

college being a stressful experience and an important transitional period for young adults, it may be important to find ways to increase resilience over those four years, rather than see this capacity decline.

This study also found a significant negative correlation between resilience scores and alcohol use for athletes only, pointing towards the possibility that resilience may be a tipping-point protective factor against alcohol abuse. However, the high levels of mean alcohol use that was observed in all participants, points to the distinct possibility that the heavy-drinking culture on college campuses continues unabated. New approaches need to be conceived and further research done to approach this challenge and support healthier lifestyles for all college students.

Finally, this study found a significant relationship between graduating class and developmental maturity scores for all participants and for athletes only. This is an important and supportive finding towards the ongoing research of adult development. The college experience is a transformational period where young adults can grow and mature on cognitive, emotional, behavioral, and spiritual levels. Approaching both education and athletics with this knowledge in mind may motivate administrators, professors, and coaches to take a more developmental approach in this process. It is up to experts and researchers in this field to begin to develop philosophies, curricula, and applied learnings that best support this development, so that young men and women can leave college ready to face the ever-growing complexities and challenges of society.

In summary, developmental maturity, resilience, and alcohol habits are major psychological aspects of the college experience. This study was another step towards the

understanding of how young people can thrive in this challenging time of their lives and beyond.

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