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William & Mary - School of Education

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A SYSTEMATIC /STRUCTURAL EXAMINATION OF FACTORS

THAT FACILITATE AND INHIBIT NATURAL RECOVERY FROM

ALCOHOL ABUSE IN COLLEGE STUDENTS

A Dissertation

Presented To

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
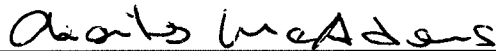Doctor of Education

by
David S. Keel
August 2013

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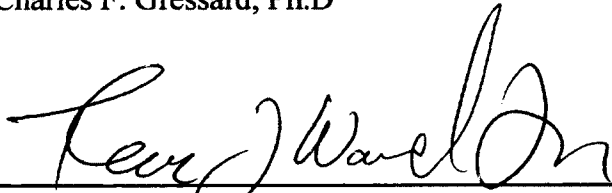
by

David S. Keel

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DEDICATION

This is dedicated to my parents Ralph and Nancy Keel, who created a home where learning in all its many forms was valued, encouraged, and expected. I am overwhelmed by your support of my educational journey even though it sometimes led in directions we never expected. It is hard to count all the ways you supported me during this process, including the many graduate textbooks you purchased, the pep talks, all the food you cooked and delivered while I was writing and most importantly your love for me which often took the form of your belief in me, even when I didn't believe in myself.

This is also dedicated to my brother Matt, who though he wasn't able to realize his dream to be an official part of my committee, always challenged me to explain my ideas in a concise, intelligent fashion. Your ability to help me see things with great clarity, to avoid taking life too seriously and most of all your friendship are something I treasure.

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Dr. Roger Ries who modeled an infectious excitement about research and education. The opportunity to be your student has made me want to be a better

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ABSTRACT

The purpose of this study was to investigate the factors involved in natural recover or spontaneous remission from high-risk alcohol use in college students. The author hoped to explore the relationship between cognitive development and college students' drinking behaviors. Fraternity and sorority students from The College of William and Mary and Christopher Newport University served as participants in this study. The two universities were chosen because their undergraduate enrollments were approximately equal, and both campuses possessed a similar number of active fraternity and sorority chapters. Participants completed a demographic questionnaire, an instrument to assess for problems caused by their drinking, and an instrument designed to measure their level of cognitive complexity.

It was hypothesized that as students became for cognitive complex over time, that their alcohol use would become less hazardous. This was not supported by the findings however, and participants instead appeared to engage in higher levels of hazardous drinking as they became more cognitively complex.

DAVID S. KEEL

COUNSELOR EDUCATION PROGRAM

THE COLLEGE OF WILLIAM AND MARY IN VIRGINIA

CHAPTER ONE: OVERVIEW

Introduction

Statement of Problem

The ages from 18 to 22 years old, when many American youth attend college, are a time of rapid life change. In social, academic, and developmental domains, youth in this age group experience growth that is both exciting and frightening. It is at this point in their lives that they enter colleges and universities and work to integrate themselves into the campus context. For 80–90% of American college students, the use of alcohol is part of their college experience (Hingson, Heeren, Zakos, Kopstein & Weschler, 2002, as cited in U.S. Department of Health and Human Services, 2002). Recently, researchers have begun studying the trend of heavy episodic drinking on college campuses and the negative consequences of this behavior. Heavy episodic drinking, or "binge drinking" is defined by Weschler, Dowdall, Davenport, and Castillo (1995, p. 921) as consuming five drinks or more in a row for men or four drinks or more in a row for women.

Annually, 1,400 college students between the ages of 18 and 24 die as a result of hazardous drinking, and an additional 500,000 suffer unintentional injuries while under the influence of alcohol (Hingson et al., 2002, as cited in U.S. Department of Health and Human Services, 2002). Another 600,000 are assaulted

by fellow students who have been drinking, and 70,000 are sexually assaulted in incidents also involving alcohol use (Hingson et al., 2002, as cited in U.S. Department of Health and Human Services, 2002). According to a 1993 Harvard study of U.S. college student drinking, 44% of students at four-year academic institutions engaged in heavy episodic drinking during the two weeks prior to the survey (Dejong, 1995).

Historically, binge drinking on college campuses has been viewed by some as a rite of passage. Most students who exhibit dangerous levels of alcohol consumption in college mature out of this heavy drinking after graduating from college (Misch, 2007; U.S. Department of Health and Human Services, 2002). For this reason, some administrators have assumed that most heavy drinkers will learn from their mistakes and outgrow heavy drinking if left to their own devices. Although there is some research indicating that students' drinking behaviors moderate as they move through late adolescence and toward young adulthood (U.S. Department of Health and Human Services, 2002), it may be an oversimplification of the data to assume that excessive drinking is a problem that students will simply outgrow.

Although some students may successfully develop less risky drinking behaviors over time through trial and error, other students experience consequences of their drinking behaviors that have a more profound and negative impact on their academic progress. The National Center for Educational Statistics indicated that there were approximately 3.5 million 18- to 19-year-olds enrolled in colleges in the United States in 2000. According to American College Testing

(ACT, 2004), more than 30% of first-year students drop out of college. The National Center on Addiction and Substance Abuse (1994) at Columbia University estimated that alcohol is involved in about 28% of college dropouts. If 30% of 3.5 million first-year students drop out of college and 28% of those 1,050,000 students drop out for reasons involving alcohol, then approximately 294,000 students never have a chance to outgrow their risky drinking behaviors before they drop out of college. Although students may simply outgrow their problem with alcohol after dropping out of college, that cost is very high for many students. These risks would seem to be too great to justify a view collegiate alcohol abuse as something students can grow out of as opposed to a significant challenge for which students need skills to handle adequately.

Conceptual approaches to the problem. Historically, colleges have tried a number of different approaches for intervening in this cycle of alcohol abuse by their students. These interventions can broadly be grouped under the rubric of alcohol education. Dean and Bryan (1982) suggested that *alcohol education* is defined as activities designed to: (a) involve individuals in discussions of problems associated with alcohol, (b) examine why people consume alcohol, (c) identify the effects of the use of alcohol on individual students and their peer group, (d) suggest a method and rationale for making responsible decisions about alcohol, (e) recognize that irresponsible alcohol use can be harmful to individuals and others, (f) recognize that the act of decision making is a personal one, (g) establish criteria for decisions regarding responsible

use of alcohol, and (h) establish campus norms that intentionally promote the positive use of alcohol and restrict its negative use.

Perhaps it is in part due to the myriad of roles that alcohol education has assumed (as Dean and Bryan [1982] have suggested above), that the understanding of how to present alcohol education to college students through the years has necessarily evolved. This evolution has, in many ways, mirrored the cultural shifts in society that have altered the understanding of the relationship between college students and the universities and colleges they attend (Thelin, 2003). Through the years, approaches to alcohol education have progressively found bases in various theoretical orientations. These include morality, social influence, environmental management, and harm or risk reduction orientations.

Moral approach. Early efforts at alcohol education were based on moral objections to the use of alcohol and other drugs. For this reason, these efforts advocated for moderation of use, because it was believed to make people better morally if they reduced or discontinued their use of alcohol and other drugs. Woodward (1985) noted that moral approaches, including the outlawing of various substances, were unsuccessful and did not elicit significant reductions in their use. As Ksir (2006) described, "The law [prohibition] did not result in an alcohol-free society, and this came as a surprise to many people. It soon became clear that people were buying and selling alcohol illegally and that enforcement was not going to be easy" (p. 205).

A second historical phase of the moral approach involved the use of fear. Efforts in this phase centered on making people afraid to use alcohol or drugs. A

well known example of a program that used fear is Mothers Against Drunk Driving (MADD) who sponsored programs that brought speakers to campus to show and tell graphic stories about how drinking could kill, maim or disfigure students. Other examples would include "Death on the Highway" and "Red Asphalt." Both movies that depicted individuals dying as a result of carelessness and alcohol use behind the wheel, and represent the type of films that were widely used in educational efforts in driver's education classes from the 1960s through the 1980s. The fear approach, like the earlier efforts that played on moral sensibilities, was ineffective (Woodward, 1985).

A third phase emphasized the provision of objective facts about drugs and alcohol and the long-term health consequences of using them (Woodward, 1985). Specifically, these programs focused on providing research-based data on the dangers of alcohol abuse and drug use. Even these programs were not as effective as the alcohol and drug education community had hoped. Research showed that they often created changes in knowledge, yet knowledge change was only the beginning of the complex process of accomplishing a change in behaviors (Flay, DeTecco, & Schlegel, 1980).

Social influence approach. In recent years, the understanding of alcohol and other drug use has evolved to include the knowledge that peer and family influences are central to students' decision making surrounding the use of alcohol and other drugs. Many prevention programs have made use of this knowledge by designing their educational programs to help students develop an awareness of these social influences and hone the social skills needed to resist or cope with

these peer influences. Alcohol prevention programs that have focused on building

skills and awareness have been more successful at eliciting behavior change than

the previous programs that were constructed using the moral approach

(Woodward, 1985). The skills and awareness facets of these social influence

programs focused on helping students become more aware of social pressures and

developing specific skills to help them resist these pressures (Graham, 1991).

Environmental approach. Johannessen, Collins, Mills-Novoa, & Gilder

(1999) gave the following explanation of the environmental approach: "This

approach [to alcohol education] emphasizes the responsibility that institutions of

higher education have in creating prevention policies that establish and maintain a

healthy and safe environment for students" (p. 6).

The environmental and peer culture on campuses as it pertains to alcohol

abuse presents a unique challenge for college student personnel as they seek to

foster independence in students. To foster this independence, it is necessary to

provide a developmentally appropriate level of environmental structure and

support that matches the needs of their students. The challenge for student affairs

personnel is how to buffer and reshape this negative peer influence where it exists

as they seek to engage in alcohol education and prevention work with students

(Johannessen et al., 1999).

University Responses to Alcohol Use

Although university presidents and other high-ranking college officials

recognize that alcohol use on college campuses is an issue of critical importance,

few universities have successfully responded to the challenges of addressing

alcohol abuse on their campuses. One suggested reason that alcohol use is not more intentionally addressed is that alcohol issues are seen as unsolvable problems. This erroneous belief has been reinforced when universities have devoted resources to address the issue of alcohol abuse and have not been successful in meeting their goals (U.S. Department of Health and Human Services, 2002).

A common factor in situations where universities have unsuccessfully sought to address issues of alcohol use on their campuses appears to be that their efforts were not framed and implemented in an integrated way. Research from both the U.S. Department of Education's Higher Education Center for Alcohol, Drug Abuse, and Violence Prevention (HEC) and the NIAAA has posited that a comprehensive plan is needed to manage the overall environment to prevent problems with alcohol and other drugs (U.S. Department of Health and Human Services, 2002). In examining what more than 80 campuses were doing to address issues with alcohol on their campuses, the HEC identified five different types of programs: (a) education (i.e., changing knowledge, attitudes, and behavioral intentions), (b) early intervention (i.e., a type of assistance that seeks to interrupt abusive alcohol use before it progresses to dependence), (c) treatment (i.e., formalized assistance most often delivered to persons meeting the threshold for alcohol dependence), (d) health protection and promotion (i.e., education that seeks to encourage moderate users to continue making healthy choices), and (e) environmental management [i.e., manipulating the environment to facilitate the reduction of alcohol use; (HEC, 2006)].

Education

Although individual campuses handle preventative alcohol education measures differently, many institute a class or intervention for students who get caught for policy violations such as public drunkenness or underage possession of alcohol. These students are frequently assigned to complete the intervention or course as part of sanctions imposed by the dean of students or university housing and residence life administrators. The classes tend to have the common goal of educating students about alcohol in the hopes that they will change their behavior (HEC, 2006).

However, universities may also often base their approaches on very different philosophies. This is important, given research findings that stress the importance of context in the delivery of educational interventions. Some may seek to give students information alone with the hope that it will change the students' behavior, and others, such as PRIME for Life (Raiford, 1990), use a persuasion model with hopes of convincing students to make choices that they feel best suit them. Recent research indicates that educational intervention has the most impact when delivered in an integrated way and not solely as part of one class or activity that is disconnected from the rest of the campus fabric (Jordan Dungy, 2002).

Early Intervention

Alcohol education programs seek to intervene when students are experiencing mild to moderate problems (Dimeff, 1999). Often, this occurs when students would meet the diagnostic criteria for alcohol abuse but have not yet reached the threshold for being alcohol dependent. Early intervention programs

are specific educational programs that are designed for students who are experiencing significant alcohol related problems, but with the help of early assistance may be expected return to less problematic and risky use of alcohol. Early intervention programs are popular on college campuses, partially because of an awareness that students need assistance as soon as possible after they start experiencing alcohol-related problems.

One example of an early intervention program that is evidence-based and designed for college students is the Brief Alcohol Screening and Intervention for College Students (Marlatt, 1998). BASICS is a program that quickly identifies college students who exhibit patterns of hazardous drinking, and helps them change these behaviors in only a few additional meetings with a counselor (Marlatt, 1998). Early intervention programs offer the hope that if students receive an intervention matched with their level of alcohol abuse, it can prevent them from progressing from alcohol abuse to dependency and, thereby, prevent their need for more intensive treatment (Dimeff, 1999).

Treatment

Students who meet the diagnostic criteria, as set forth by the *DSM-IV-TR*, for alcohol dependence may seek treatment either of their own accord or because of mandates imposed by their campuses or their families (American Psychological Association, 2000). Fisher and Harrison (2005) noted that this treatment may be delivered individually or as part of a therapeutic community. It may also take the form of residential treatment; w here the student is in a traditional hospital-based rehabilitation program, day treatment in which the student is not required to stay

onsite but receives care for most of the day, or intensive outpatient treatment, that is generally offered three to four times a week in the evening for two to four hours (Fisher & Harrison, 2005).

Health Protection

Health protection programs are efforts that may benefit any individual regardless of whether or not they are experiencing any negative consequences of their alcohol use. These types of efforts seek to provide factual information to help individuals make choices that are less risky than if they did not receive such an intervention. One example of a health protection program that is related to alcohol use among college students is *social norming*, or providing specific data to the campus population on the average number of drinks that students on a particular campus drink when they consume alcohol (Lewis & Neighbors, 2006).

A Matter of Degree

The A Matter Of Degree (AMOD) schools were one prominent example of the use of environmental management by colleges and universities. These schools were part of a consortium of institutions funded by the Robert S. Woods Foundation to foster collaboration between the participating universities and the communities in which they were located. The schools worked with local businesses, police, neighbors, and bars to shape how students' experienced alcohol. This includes the elimination or reduction of cheap drink specials, increased enforcement for the use of false identification, and educating college administrators about the negative consequences of providing mixed messages about alcohol use on campus (National Center on Addiction and Substance Abuse

(CASA), 2007). Although it may seem that there are many approaches to addressing collegiate drinking, and equally many researchers studying collegiate alcohol use, the problem of alcohol abuse by college students is still not fully understood. One phenomenon that is described in the literature on alcohol treatment is the concept of natural recovery or spontaneous remission: a recovery from problematic uses of alcohol without formal intervention (Walters, 2000).

Natural recovery. As they progress from their freshman year to their senior year in college, a significant number of college students reduce their abusive alcohol consumption without formal intervention or treatment from the university (U.S. Department of Health and Human Services, 2002; Misch, 2007). This phenomenon has been described in the literature as early cessation, natural reduction, natural recovery, spontaneous recovery, or spontaneous remission and will hereafter be referred to as natural recovery. Natural Recovery has been described by Steinman (2003), Sobel (2000), Watson (1998), Burman (1997), and others, yet it is poorly understood, and much still remains unknown about its frequency and mechanism (Misch, 2007).

Approximately 80% of college students drink, and roughly half of students who drink engage in heavy episodic drinking (Goldman, 2002). Although the process by which students make changes in their heavy drinking is not completely understood, there is a growing body of research examining the factors involved. Factors hypothesized to influence this process include a significant change in life roles (Dawson, Grant, Stinson, & Chou, 2006), friends and social networks, negative experiences (e.g., doing something they regret while drinking or injuring

themselves or someone else), and the rigorous academic demands of college that increase as students progress in their academic programs (Misch, 2007).

In terms of the prevalence of natural recovery from episodic heavy drinking, Steinman (2003) suggested that as many as one in four collegiate heavy drinkers may discontinue their heavy drinking before graduation from college. This change in drinking behavior does not occur in a vacuum. It is unfolding at a time in students' lives when they are also experiencing a host of developmental changes. This complicated relationship between alcohol use and college student development will be discussed more fully in the justification for the study.

By more fully understanding how some students are able to change their behavior without formal intervention, important insights may be gained into how to foster natural recovery as well as structure programs for students who do need formal intervention. In order to develop an understanding of how students change their behavior, it is important to first consider how students themselves grow and change. A growing body of research has illustrated how an individual's behavior is related to his or her level of development (Hunt, 1975; Baxter Magolda; 1992, Perry, 1968/1999). Exploring cognitive developmental theory will provide a framework for more fully exploring this nexus between student development and behavior.

Cognitive development. For much of the twentieth century, the study of cognitive development has been a topic of great interest within the social sciences. The research in this area has primarily focused on two different areas of cognitive development: intelligence and the process of cognition and how

individuals develop and refine their cognitive abilities (Love & Guthrie, 1999).

Jean Piaget first envisioned cognitive development as a life-long process, during

which individuals develop increasingly more complex schema or frameworks for

understanding themselves in relationship to their environment. As an individual

gains new information, it is incorporated into existing schemas, which are

adjusted as needed. In some situations, new schemas are created in reaction to the

new experiences and new information. Across a lifespan, the individual

assimilates new information and incorporates it into his or her schema. Over time,

exposure to new and challenging information provides the individual with an

opportunity to develop increasing cognitive complexity, but this growth is not

simply a function of maturation. Higher levels of cognitive complexity are

desirable, in that positive correlations have been established between higher levels

of complexity and increased coping skills, problem solving, and empathic

responses (van Geert, 1998).

In addition to providing a clearer understanding of how individuals

develop across a lifespan, Piaget was the first to articulate three fundamental

assumptions of cognitive developmental theory (Rest, 1973). These three central

assumptions are defined in the following ways:

1. Structural Organization: Individuals are understood in terms of their

   ability to interpret and making meaning of the world around them.

   Implicit in this meaning-making process is the ability to develop

   principles and rules to guide both behavior and the decision-making

   processes. This ability is assumed to be the key determining element of

how individuals will interpret the information they receive from their environments and use it to make a decision (King, 1978).

2. Developmental Sequence: According to King (1978), "Development is seen as a progression along a hierarchical continuum which is divided into a sequence of stages, with each stage representing a qualitatively different way of thinking. Each stage represents a more differentiated and integrated structural organization subsuming that of previous stages" (p. 36). Although growth occurs in stages, it does not occur in a uniform manner. Rather, it develops unevenly over time. Individuals must past through each stage on this continuum of growth and cannot skip stages (Rest, 1983).

3. Interactionism: Development does not occur in a vacuum but is rather a function of individuals' interactions with their environments. Intertwined with this interaction between individuals and the environment is both the maturity of the individuals and the readiness of certain elements in their environments that must occur in tandem for growth to occur (King, 1978). This is to say that although the readiness of both the individual and the environment are necessary for fostering growth, they are not sufficient conditions for growth to occur in on their own. Sprinthall (1978) suggested that individuals need to be placed in significantly new roles and provided new experiences in order to catalyze growth.

King (1978) described three additional contributions to cognitive developmental theory that are not fully captured by those three central assumptions, but are nonetheless heuristically useful for student affairs practitioners. These additional contributions include: (a) that cognitive development is discontinuous, (b) that horizontal decalage occurs once an individual moves to new stages, and (c) that cognitive dissonance is a central part of the growth process.

Discontinuous development. Cognitive development occurs at an irregular pace and is occurring even after individuals move to their next stage or step in development, even when it is not always apparent. King noted, "Development occurs at an irregular speed. In order for individuals to move to the next step, there is a period of internal preparation before they are ready to move to the next step or stage in their development" (p. 37).

Horizontal decalage. Once individuals move to the next stage in their development, they are not always capable of functioning at this new level (King, 1978). King (1978) suggested that was due to the idea of *horizontal decalage* or gradual change, which occurs within the framework of rigid stages. That is, once individuals have progressed to the next stage in their development, there is still a process of development occurring while they are in that stage. This is in keeping with the position taken by Sprinthall and Collins (1984) that the nature of cognitive development is both domain specific and modal rather than fixed.

Cognitive dissonance. Individuals undergoing cognitive development exhibit an internal dissonance, or as King (1978) described it, another way "An important contribution of Piagetian theory has been the identification of an

attitude or 'state of mind' that appears to accompany some phases of developmental progress." (p. 37). Dissonance is the discomfort experienced when inconsistency exists between an individual's actions and beliefs (Gruber, p. 242, 2003). Leon Festinger postulated that cognitive dissonance was an important motivational force. He theorized that individuals inherently sought to jettison the dissonance they were experiencing. In order to accomplish this, they would change their behaviors to align with their beliefs. By aligning the beliefs and behaviors, the dissonance would therefore be eliminated (Krause, 1972).

Central Assumptions

McAdams (1988) conducted a thorough review of the literature and developed a general list of the central assumptions of cognitive developmental theory. These 11 central assumptions are that

1. Internal motivation toward mastery is intrinsic and inherent. Individuals are designed with an innate drive to develop increasingly complex understandings of their environment (Piaget, 1952; Kohlberg, 1973).

2. Cognitive development is linear and occurs in stages. Before an individual can move to a higher stage, he or she must first complete the developmental tasks that are associated with moving through the lower stages (Perry, 1968/1999).

3. This step-wise or stage-oriented growth is a qualitative rather than a quantitative transformation. While two different individuals may both go through the same stages, their progression can look very different

and must be evaluated through the lens of each individual's experience (Sprinthall, 1978, Perry, 1968/1999, Baxter Magolda, 1992).

4. Growth is sequential and cumulative. The growth an individual is currently experiencing provides the foundation for future growth (Rest, 1983, Baxter Magolda, 1992).

5. The direction of growth is irreversible. In other words, the gains in complexity that an individual makes cannot be lost or undone (Perry, 1968/1999).

6. Growth is not accidental or automatic. While the individual's interaction with the environment can help foster growth, this alone is not sufficient for growth to occur (Sprinthall, 1978; Baxter Magolda, 1992).

7. Behavior is related to an individual's level of development (Hunt, 1975; Baxter Magolda; 1992, Perry, 1968/1999).

8. Cognitive development is both psychologically and physiologically based. While physiological development alone is not enough to create cognitive development, the two processes are inextricably linked (Sprinthall & Collins, 1984).

9. Stage growth is domain specific. It is possible for an individual to experience growth in one domain of their life, but be globally functioning at a lower level or in another domain (Perry, 1968/1999; Sprinthall & Collins, 1984; Baxter Magolda, 1992).

10. Stage definition is modal rather than fixed. Because the process of growth is dynamic rather than static, individuals are never completely in one stage at any given time. Interaction with the environment and significant new experiences may cause an individual to function in a stage that is either slightly higher or lower than their modal stage (Sprinthall, 1978; Perry, 1968/1999).

11. Cognitive development is not culturally bound and occurs across all cultures. Though culture is a powerful lens that shapes how individuals make meaning of their world, cognitive development is an innate and universal process (Kohlberg, 1963).

Intellectual Development

Drawing on the earlier work of Piaget, and based on his research at Harvard, William Perry (1968/1999) constructed a model consisting of nine stages, or in his own words, "positions" (p. 53) that showed the trajectory of growth in an individual's cognitive complexity along the intellectual domain. At the earliest stages, individuals function from a dualistic understanding of the world; that is, they understand the world in a dichotomous way, in which there are only two ways of understanding a situation. One is correct, and the other is incorrect and only one way one is clearly correct. Here they are unable to discern a middle ground. If provided with the appropriate challenge and support, the individual will then move from this dualistic position toward a position of multiplicity. This movement is marked by a newly developing ability to see a variety of perspectives when examining a certain issue. At this point in their

development, no particular viewpoint is seen as superior to the others. Assuming that the necessary conditions exist to foster continued cognitive growth, individuals eventually move to a position of commitment. They are still able to consider multiple perspectives, yet at the same time, they commit to one perspective as being their preferred one.

As individuals move from dualism toward a place of commitment, their methods of constructing knowledge become more complex (Perry, 1968/1999). Students in multiplistic positions may experience difficulty with decision-making, as they have not yet clarified their individual perspectives and values enough to reach a place of commitment. This could be especially relevant to drinking behaviors. Students who have not clearly defined their values for themselves may be more influenced by pressure from their peers to engage in high-risk drinking behaviors.

In the earlier positions of Perry's (1968/1999) model, knowledge is seen as being absolute; something can be known with certainty. As the individual develops intellectually and becomes more complex, his or her understanding of knowledge changes also. Instead of knowledge being concrete as it is in the earlier positions, knowledge in multiplicity becomes more uncertain and requires interpretation.

An abbreviated way of conceptualizing the nine positions in the Perry (1968/1999) scheme, as suggested by Perry, is to collapse the nine positions into the three overarching groups of dualism, multiplicity, and commitment. King (1978) suggested an alternate form of collapsing the scheme into four overarching

groups: dualism, multiplicity, contextual relativism, and commitment within relativism. For the purpose of this study, the original Perry summary using three groups is used, because its simplicity more easily shows the significance of position five as being a central developmental window for college students.

Perry's (1968/1999) model can be useful in addressing collegiate alcohol use in several ways. It can be used to describe the varying ways that students construct an understanding of the specific environmental context on their campus and how alcohol is part of this context. It can also be applied as a framework for understanding how individuals draw from their earlier experiences when they confront new situations. This is especially relevant when trying to measure the impact of alcohol education efforts. Two specific mechanisms that are involved in students' growth and exposure to new information area are assimilation and accommodation. Assimilation is "the assignment of a new meaning or understanding to a preexisting structure (Perry, 1968/1999, p. 287)." Freshman students who go to a party and abstain from drinking because they had been taught by their families that underage drinking is wrong, and then have this reinforced when they see peers experience negative consequences of binge drinking, is an example of assimilation. Accommodation is "the modification or reorganization of a structure in response to incongruities produced by assimilations" (Perry, 1968/1999, p. 287). Students might further change their understanding of how alcohol fits into their value system after they have a new experience with it after arriving at college. For instance, they decide that not only is underage drinking permissible, but hazardous drinking may seem like a good

way to be social because they see their peers engaging in it with few known negative effects. Students balance between assimilating the new experiences into their pre-existing expectancies, and accommodating these pre-existing expectancies to fit their new experiences, which requires restructuring the previous expectancy (Perry, p. 46, 1968). Perry's scheme of ethical and intellectual development will be discussed in more detail in Chapter Two.

Deliberate Psychological Education

The deliberate psychological education model (DPE), developed by Sprinthall and Mosher (1978), is an educational model that uses cognitive developmental theory to structure the educational process for students in order to maximize the opportunity for psychological growth. As the name implies, there are deliberate parts or steps of the model, which are applied consistently in order to foster this growth. The model consists of five necessary conditions: (a) a significant new role taking experience, (b) careful and continuous guided reflection, (c) a balance between experience and reflection, (d) continuity of application that allows sufficient time for significant cognitive growth to occur, and (e) a balance between adequate support and challenge. Though researchers and counselors have applied the DPE in a variety of settings, the model always involves the five steps noted above.

It can be difficult to adapt the DPE intervention for use in some college settings, because the continuity condition calls for at least a semester to implement. However, the process of enrolling in college itself requires students to take on a significantly new role, which can easily be incorporated into a DPE

intervention. Even when a formal DPE cannot be implemented with college students, the highly structured approach to scaffolding learning that is used with participants in a DPE can be used to structure how student affairs practitioners approach both studying and intervening in collegiate alcohol use.

Justification for the Study

As Schulenberg et al. (2001) have postulated, increases in heavy drinking in college may be linked to developmental changes that students are experiencing. Because existing research has indicated that both gender (Read, 2004; Murphy, 2005; Lewis, 2004; Kahler, 2003) and age at first use of alcohol (York, 2004; DeWitt, 2000) are significant factors connected to the rates of alcohol use in college students, research is needed that examines how these factors may be related.

In addition, there is a need examine whether the phenomenon that is described by researchers as natural recovery could be better reconceptualized as a natural developmental process that college students experience in college, as indicated by reductions in their binge drinking. Understanding the phenomenon of natural recovery and the factors that influence it is important for reasons beyond mere heuristic interests. For the 1,400 college students who die annually due to their hazardous drinking, the 500,000 who suffer injuries while under the influence of alcohol, and 600,000 who are assaulted by fellow students who are under the influence of alcohol, understanding natural recovery more fully is a matter of protecting their health and safety (Hingson et al., 2002). Only by more fully understanding the process of natural recovery can college student personnel

develop programs and interventions that assist students. By using student developmental theory, along with an understanding of natural recovery, student personnel will be able to develop these much-needed interventions.

Research Questions

The broad research questions examined in this study are as follows:

- Are changes in students' drinking patterns that emerge during their time in college linked with changes in their developmental level?

- Is the phenomenon that has been described in the literature as natural recovery (Bischof, Rumpf, Hapke, Meyer, & John, 2002; Dawson et al., 2006; Misch, 2007; & Walters, 2000) a function of the growth that occurs during the college years for many students?

- Can natural recovery in college students be more precisely viewed as decreases in alcohol-related life problems and increases in their cognitive complexity that are separate from natural maturation that occurs during college?

Definitions

- *Assimilation:* The assignment of a new meaning or understanding to a preexisting structure (Perry, 1968/1999, p. 287).

- *Accommodation:* "The modification or reorganization of a structure in response to incongruities produced by assimilations" (Perry, 1968/1999, p. 287).

- *CCI:* Cognitive complexity index, or the overall measure of cognitive development as measured by the Learning Environment Preferences scale (Moore, 2000).

- *Cognitive Development:* The intellectual development of an individual as measured by their development of new and more complex processes for making meaning of the world around them both as they mature psychologically and encounter new experiences (Perry, 1999), (Sprinthall, 1978).

- *Dualism:* "A bifurcated structuring of the world between Good and Bad, Right and Wrong, We and Others" (Perry, 1968/1999, p. 287).

- *Episodic Heavy Drinking:* Also called binge drinking in some earlier research, it is "a pattern of misuse typical among college students that is characterized by occasional bouts of intensive alcohol use" (Steinman, 2003, p. 197). Wechsler et al. (1995) operationalized it as "men having 5 or more drinks (for women 4 or more) in one sitting at least every two weeks" (p. 921).

- *Growth:* Progression from one position to a higher position as defined in the scheme (Perry, 1968/1999, pg. 287).

- *Intellectual Development:* A developmental process that takes place as individuals experience an evolution in how they understand significant experiences in their lives. These changes in understanding occur in different forms that are scaffolded by the way students make sense of "the

nature and origins of knowledge, of value, and of responsibility" (Perry, 1968/1999, pg. 1).

- *Multiplicity:* A plurality of vantage points from which a topic can be understood with the implication that no judgment among the varying views can be made (Perry, 1968/1999, pg. 287).

- *Natural Recovery:* Also called early cessation, natural reduction, or spontaneous recovery in the literature. The process by which "students reduce their abusive alcohol consumption without formal interventions on the part of the university, other agencies, or counseling/mental health services" (Misch, 2007).

- *Position:* "The structure representing the mode, or central tendency, among the forms through which an individual construes the world of knowledge and values it at a given time in their life" (Perry, 1968/1999, pg. 287). A position differs from a stage in that a stage is assumed to be stable and enduring, and position implies the point from which the student views the world that can vary over time (Love & Guthrie, 1999, p. 7).

- *RAPI:* The Rutgers Alcohol Problem Index is a 23-question instrument designed to measure negative consequences that are experienced as a result of alcohol use (White, & Labouvie, 1989).

- *Relativism:* "A plurality of points of view, interpretations, frames of reference, value systems, and contingencies in which the structural properties of contexts and forms allow various sorts of analysis, comparison, and evaluation (Perry, 1968/1999, p. 287).

Summary

This chapter has addressed the scope of the collegiate drinking problem and some different contemporary approaches that have been employed to address it. Some college students seem to grow out of or naturally recover from problematic use of alcohol, and others do not. Investigating the potential connection between cognitive development and this process of natural recovery could provide insight into how to improve alcohol education efforts at the collegiate level.

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

This chapter will examine the current literature on alcohol use that is relevant to gaining a more nuanced understanding of alcohol use in college students, and a critical analysis will be provided for the articles that are presented. First, research on college alcohol abuse intervention will be examined with a focus on current approaches to the problem. Second, studies addressing natural recovery will be presented and critically analyzed. Third, current models of cognitive development will be examined.

Research on College Alcohol Abuse Interventions

Because college campuses are as unique as the students they serve, alcohol abuse interventions across the country take many different forms. However, research by the Higher Education Center identified five different types of programs being implemented: (a) environmental management, (b) education, (c) early intervention, (d) health promotion and protection, and (e) treatment (2002). Current research suggests that campuses combine these different types of interventions to address the issue of collegiate alcohol use at the level of the: (a) individual, (b) the entire student body, and (c) the larger environment comprised of both the campus and surrounding community (Hingson and Howland, 2002; DeJong et al., 1998).

Environmental influence. Johannessen, Collins, Mills-Novoa, & Gilder (1999) gave the following explanation of the environmental approach: "This approach [to alcohol education] emphasizes the responsibility that institutions of higher education have in creating prevention policies that establish and maintain a healthy and safe environment for students" (p. 6). The scope of the problem with alcohol on college campuses is staggering.

A study of 14,138 students at 4-year colleges and universities by Knight et al. (2002) found that alcohol disorders were prevalent among college students as indicated by self-reporting of the *Diagnostic and Statistical Manual of Mental Disorders* (fourth edition, text revision; *DSM-IV-TR)* criteria. Their sample was drawn from 119 colleges, with 70% of respondents attending public colleges and 30% attending private colleges. This proportion closely mirrored the overall national distribution of students for full-time, four-year colleges at the time. More than 30% of students who participated in the study reported one or more symptoms of alcohol abuse. When the criteria were expanded to include both alcohol abuse and alcohol dependence, more than 40% reported one or more symptoms of either diagnosis. Further results of the study led the research team to comment:

> We estimate that at least 1 in every 20 college students has a 12-month diagnosis of alcohol dependence. The prevalence rate is even higher for men in the usual college age group. We found that almost 1 in 10 (9.4%) men less than 24 years of age were classified with alcohol dependence. (Knight et al., 2002, p. 268)

An equally disturbing finding by Knight et al. (2002) was that the majority of the students who exhibited alcohol abuse and dependence did not characterize themselves as problem drinkers or believe they had a problem with alcohol. That highlights the importance of having university staff who are able to accurately screen for alcohol-related problems. Residence hall staff, judicial staff, health center staff, and counseling center staff all need to make an integrated effort to identify the students who are most at risk and intervene. This study indicates that the problem with alcohol on college campuses is systemic, and based on its findings, even alcohol-free campuses are not immune from the issue of alcohol abuse.

How can universities take current research on collegiate alcohol use and apply it to how they interact with their students on a daily basis? Knight et al. (2002) responded to that question as follows:

> We recommend that colleges act on our findings in several different ways. First, by implementing early identification programs in student judicial and health service settings. Second, by increasing the skills and awareness of students' resident hall and advising personnel about alcohol disorders. Third, by reducing the "wetness" of the school environment by limiting access to and consumption of alcohol among such vulnerable groups as resident students and Greek-affiliated students. Specifically, we recommend colleges provide diagnostic assessments for students caught violating alcohol regulations or otherwise identified as engaging in heavy drinking. (p. 268)

Research on collegiate alcohol use is beginning to examine the motivations for college students to drink. In a study of 403 randomly selected college students, Clapp and McDonnell (2000) examined the relationship between gender, alcohol consumption, and students' perceptions of their peers' alcohol use. The researchers found that for a 30-day period preceding the data collection, gender and perceived normative alcohol use were factors related to students' level of alcohol use. When participants perceived that their peers were drinking heavily, their alcohol use increased as well. Males reported drinking more than females, and students who held higher perceptions of peer alcohol use drank more. Clapp and McDonnell found that males and younger drinkers drank more than other participants in their study, which parallels the findings in other studies (Baer, Kivlahan, & Marlatt, 1995). It is significant to note that the students' assessment of their peers' drinking frequencies were generally accurate, although data were not collected on the perception of the quantity in which peers consumed alcohol. This is significant because it suggests that students' perceptions of their peers' drinking are not inaccurate.

Studies that replicate Clapp and McDonnell's (2000) findings but that also collect data on the perceptions of peers' quantities of alcohol consumption could help design more effective alcohol education efforts. Clapp and McDonnell hypothesized that if students accurately perceived the drinking frequencies of their peers but incorrectly overestimated their drinking quantities, it might result in an overall belief that most students are heavy, frequent drinkers. It is important to consider Weschler et al.'s (1994) definition of binge drinking as four drinks in

one event for women or five drinks in one event for men when examining how this study was constructed. With collegiate binge drinking, the issue is not frequent drinking in small amounts. Rather, it is infrequent drinking of large quantities of alcohol, which significantly raise individuals' blood alcohol content (BAC). This increased BAC contributes to the increased negative consequences that are suffered as a result of the binge drinking. While binge drinking is an issue on college campuses, the misperception that by some students that the majority of their peers s are frequently drinking in large amounts could, in turn, contribute to permissive drinking norms and falsely perpetuate a party school image.

Weschler et al. made a distinction between a campus culture where alcohol is part of the culture and is consumed by students and a culture where the abuse of alcohol is condoned (1994). In a culture where alcohol is simply consumed by students, it is an element of campus culture, but not elevated in importance over other elements (e.g., grades or social interaction). However on campuses where the abuse of alcohol is condoned, the relationship that students have with alcohol is very different; students cannot imagine their college experience without abusing alcohol. Suls and Peter (2003) found that perceptions of peers' drinking powerfully influenced the students they surveyed. Their study at a large Midwestern university used participants ($N = 344$) who all volunteered to get research credit for their elementary psychology course requirement, and did not represent a random sample. One of the most significant differences they noted in their results was that the men in the sample surveyed perceived that they were more concerned about excessive alcohol consumption than other male students,

and they felt that their views were closer in sentiment to those of their female

friends rather than of other male drinkers. Their findings implied that the men felt

deviant from their same-sex peers, because they were concerned about excessive

alcohol use. Other authors have also found significant differences in alcohol use

on college campus in terms of gender, with male fraternity members consuming

more frequently and in larger quantities than males who were not members of

fraternities (Sher, Bartholow, & Nanda, 2001).

Another current issue concerning alcohol use among college students is

the complex issue of how the environment influences both attitudes toward

alcohol use and actual patterns of consumption including both the quantity and

frequency of use. Yu (2001) examined the primary and secondary consequences

of alcohol use among college students. Primary consequences of alcohol use are

those experienced by the student who chooses to use alcohol. Secondary

consequences of alcohol use are those experienced by peers of the student who is

abusing alcohol. These secondary consequences may include, but are not limited

to, difficulty studying because of noise, having a roommate whose drinking

impacts them negatively, or having their property damaged by an intoxicated

student.

Viewing college students dichotomously as those who experience negative

consequences related to their personal alcohol use or those who suffer the

consequences of other students' alcohol use gives an incomplete and distorted

picture of collegiate alcohol use. It would be more accurate to say that for many

students, their relationship with alcohol is more complex than a dichotomy would

suggest. Because some research indicates that the their level of usage may moderate over the time they are in college (U.S. Department of Health and Human Services, 2002), it is more accurate to conceptualize the impact of drinking as falling along a continuum rather than fitting into a dichotomy.

Drinking in college appears to be part of an interconnected system or culture. In its 2002 report *A Call to Action: Changing the Culture of Drinking at U.S. Colleges,* the National Institute on Alcohol Abuse and Alcoholism (NIAAA) described the complex culture of drinking on college campuses this way:

> The tradition of drinking has developed into a kind of culture—beliefs and customs—entrenched in every level of college students' environments. Customs handed down through generations of college drinkers reinforce students' expectation that alcohol is a necessary ingredient for social success. These beliefs and the expectations they engender exert a powerful influence over students' behavior toward alcohol. (p. 1)

Customs that promote drinking are embedded in numerous levels of students' environments. The walls of college sports arenas carry advertisements from alcohol industry sponsors. Alumni carry on the alcohol tradition at sports events and alumni social functions, perhaps less flamboyantly than during their college years. Communities permit establishments near campus to sell or serve alcohol, and these establishments depend on the college clientele for their financial success.

Students derive their expectations of alcohol from their environment and from each other as they face the insecurity of establishing themselves in a new

social milieu (U.S. Department of Health and Human Services, 2002).

Environmental and peer cultural influences combine to create a culture of

drinking. This culture actively or passively promotes drinking, through tolerance

or even tacit approval, as a rite of passage (U.S. Department of Health and Human

Services, 2002.

The environmental and peer culture on campuses as it pertains to alcohol

abuse presents a unique challenge for college student personnel as they seek to

foster independence in students. To foster this independence, it is necessary to

provide a developmentally appropriate level of environmental structure and

support that matches the needs of their students (Sanford & Adelson, 1962).

Students' connections to their peers can largely be positive, and it is not possible

to remove this influence from the equation, even when it is a negative influence.

The challenge for student affairs personnel is how to buffer and reshape this

negative peer influence where it exists as they seek to engage in alcohol education

and prevention work with students (Johannessen et al., 1999).

The current research on alcohol use by college students that has been

presented highlights the role of the campus environment in influencing students'

alcohol use. Similarly, one current research-based harm reduction strategy draws

on the primacy of the environment in shaping student behavior. This strategy,

called environmental management, was examined in a decade long study which

was sponsored by the Robert S. Woods foundation at a consortium of schools.

The unified environmental management strategy was called A Matter of Degree,

or AMOD. The AMOD program sought to reduce the potential harm to students

who engaged in binge drinking by reducing the quantity and frequency of students' alcohol use rather than extinguish it completely. Replicating this type of successful intervention on other college campuses requires that college officials work in concert with the local community to change both the campus environment and address the interface between the local community and campus community. Many recent efforts to address the pattern of alcohol use on college campuses have failed due to the lack of an integrated focus on the entire system involved that includes students, administrators, and the local community (U.S. Department of Health and Human Services, 2002).

The Harvard School of Public Health College Alcohol Study (CAS) was a 14-year study that began in 1992 and was designed to capture a nationally representative sample on collegiate alcohol use (Wechsler & Nelson, 2008, p. 1). The CAS data was one method used to evaluate the AMOD results (Wechsler & Toben, 2008, p. 6). Weitzman, Nelson, Lee, & Wechsler found that the AMOD sites that implemented the greatest number of interventions had an increase in student reports of difficulty obtaining alcohol (2004, p. 191). These same sites experienced modest, but statistically significant declines in alcohol consumption, alcohol-related consequences, and secondhand effects of alcohol when compared to referent colleges (Weschler & Nelson, 2008, p. 6). Seven measures were used to monitor alcohol use at both the AMOD schools and the comparison sites or referent institutions: (a) any alcohol use, (b) binge drinking, (c) initiation of binge drinking in college, (c) drinking on ten or more occasions in the last 30 days, (d) being drunk on three or more occasions in the last 30 days, and (e) tendency to

binge drink when consuming alcohol (Weitzman et al., 2004, p. 192). At these

same sites, significant declines in six of the seven measures of alcohol

consumption were discovered during the period from 1997-2001 (Weitzman et. al,

2004, p. 191). By comparison, the 32 referent schools used in the study either

remained flat or increasing change on these seven measures during the same time

period (Weitzman et al., 2004, p. 191). While this research indicates that the

AMOD framework has the potential to be effective, there were differences in

outcomes when the low environment AMOD campuses were compared to the

high environment campuses. When all ten AMOD campuses were examined in

aggregate, reductions were detected in only two of the 11 factors used to indicate

alcohol induced problems, or what researchers called "alcohol harms" (Weitzman

et al., 2004, p. 191). Despite the differences between the low and high

environment AMOD campuses, the AMOD framework does hold promise for

suggesting concrete interventions that can be used to address collegiate drinking.

Wechsler and Nelson suggest that one way to implement the results of the CAS is

for colleges to take the approach, "it may be more feasible for prevention

practitioners in college to incrementally shift the drinking behavior of the

majority than to dramatically change the behavior of the heaviest drinker" (2008,

p. 7).

Natural recovery. In order to understand the phenomenon of natural

recovery, it is important to first understand how this process may vary in different

ways between individuals and across groups. A 2002 study by Bischof, et al.

examined the difference between people who recovered from alcohol dependence

with varying amounts of assistance. Three groups comprised the sample were individuals who received no help (NH), individuals who received minor help (MH), and individuals who participated in self-help groups (SHG). Receiving no help was defined as having no history of contact with any kind of alcohol treatment, which included inpatient or outpatient treatment, counseling, or self-help group participation. Minor help was defined as receiving no more than five counseling sessions, or attending no more than nine self-help group meetings (Bischoff, 2002, p. 230). Self-help group participants had participated in one of three common self-help groups in Germany: (a) Alcoholics Anonymous, (b) Good Templars, and (c) Blue Cross (Bischoff, 2002, p. 230). Members of all three groups in the study met the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria of lifetime alcohol dependence, but had not been alcohol dependent within the previous year. All participants were solicited through the use of media advertisements, and were then screened for participation over the telephone (Bischoff, 2002). The hypothesis guiding the study was that formerly alcohol-dependent participants who received no help would not differ from those who received minor help, but that both groups would differ from the self-help group (Bischoff, 2002, p. 230).

The first group in the study consisted of 103 individuals who had received no help (NH) or alcohol treatment of any sort. Treatment was defined as any kind of counseling inpatient or outpatient treatment for alcohol dependence, self-help group participation, or Antabuse (disulfiram) medication regimen. Any participation in psychotherapy for co-morbid disorders received two years prior to

the start of the study and one year after remission of their alcohol dependence

excluded participants from the study. Individuals who received no counseling,

medication, or self-help group participation before their remission from hazardous

drinking were labeled as having received no help (NH) in accordance with

Sobell's definition of natural recovery (1996). Based on this definition,

participants who had a past history of hazardous drinking, but currently abstained,

as well as participants who had a history of past hazardous drinking but now

drank only one to three drinks at a time were considered to exhibit natural

recovery. The second group was comprised of individuals who received only

minor help (MH). Minor help was defined as contact with alcohol treatment at

any time which did not exceed nine self-help group sessions, five counseling

sessions with a physician, or three counseling sessions by a professional in the

addiction treatment field. This group was comprised of 75 participants who also

responded to a newspaper advertisement. Most of the participants in the MH

group (n = 51) had received minor help that did not exceed three contacts with

helping services (Bischof, 2002), even though any participant who fit the more

comprehensive definition given previously was included in this group. The third

group, or self-help (SH) group, was comprised from 50 members who participated

in at least 50 self-help group meetings. This group was solicited using the

newspaper advertisements that sought individuals who had received no help or

minor help for alcohol dependence. Respondents were then screened via

telephone for potential inclusion in the study. Self-help groups, which follow the

traditions of the 12-Step framework as first developed for Alcoholics

Anonymous, tend to be provided through non-professional organizations. That is, they are run using lay people who are themselves in recovery rather than by individuals trained in the helping professions. However, most researchers in the field consider attending a self-help group to be a form of help seeking, rather than natural recovery (Humphreys et al., 1995). As Bischoff has noted, discrepancies among researchers in their inclusion or exclusion of help-seeking as treatment could be a source of error in many studies (2002). For the two years prior to recovery and the year following it, 29 of the participants in the SH group received no help other than self-help meetings, while 11 respondents received some additional counseling, and 10 subjects received either inpatient or outpatient treatment.

Across the three groups, four different variables were compared: (a) demographic variables, (b) characteristics of remission, specifically whether individuals were abstinent or returned to low risk drinking levels, (c) triggering mechanisms or factors influencing remission and (d) maintenance factors of the remission or protective factors that helped participants continue their current natural recovery. Comparison of these variables for the three different groups revealed that the self-help group participants differed significantly from both the participants who received no help and those who received minor help. Help seeking appeared to be triggered both by a reduction in alcohol consumption and driving while intoxicated, while the natural recovery mechanism appeared to be triggered by health and financial problems. In terms of the maintenance factors, or factors which helped maintain positive changes associated with recovery, the self-

help group attendees reported more coping efforts, shared with more people about their past drinking, perceived more support from those around them, and revealed a higher satisfaction at the time of the interview. The researchers highlighted the fact that self-help group attendees shared information about their past drinking behaviors, as an indication of a positive coping behavior (Bischoff, 2002, p. 231). However, the increased level of self disclosure about previous drinking problems among the SH group could be due to the fact that sharing their personal story with others is often a part of many self-help frameworks (Alcoholics Anonymous World Services, 2004). Overall, the researchers' hypothesis that both the groups receiving minor help and no help were similar to each other, but very different from the self-help group, was supported by the data. One notable exception to this hypothesis was that for no help, moderate help, and self-help groups the data revealed a linear relationship between the variables of craving for alcohol and social pressure and the amount of help utilized (Bischof, 2002). Additionally, a linear relationship was discovered between the amount of help utilized and the stressors experienced for all three groups (Bischof, 2002).

As Bischoff highlights, one of the difficulties of studying the phenomena of natural recovery is that it is frequently operationalized in different ways in the literature. In this study, individuals in No Help and Minor Help groups were both considered to have naturally recovered, in contrast to the SH group that was not considered to have naturally recovered. While many of the characteristics of the NH and MH group were similar, the linear nature of the relationship between the amount of help utilized and the stressors experienced raises the question of what

allows individuals who recover with both NH and MH to maintain their recovery despite the increased levels of stress they are experiencing. In an era when colleges and universities are being increasingly pressed to show the benefits of their programs, a research design like that used in this study could be of great utility in illustrating similarities and differences in students who naturally recover both with MH as a result of their experiences with university programs and services, and NH. As Bischoff points out, one weakness of the current model of natural recovery is that it assumes in a dichotomous way that individuals either naturally recover, or they do not. Expanding the model of natural recovery to capture the experience of individuals who make abortive attempts to receive treatment and those who seek minor help with those who naturally recover will help give a more nuanced and complex understanding of the phenomenon of natural recovery (Bischoff, 2002). Additionally, because the sample was obtained through media solicitation, it cannot be assumed that their study sample is representative of a random sample of individuals who are experiencing alcohol related problems. The media solicitation specifically targeted individuals who were experiencing alcohol related problems. Respondents to the advertisements displayed both knowledge of the solicitations and a responsiveness to participate, and both these traits indicate they do not constitute a random sample. Additionally, individuals who were both aware of and motivated to respond to media solicitation have motivation levels which are higher than they would be in a sample drawn entirely from individuals that are experiencing alcohol related problems.

Frequency of natural recovery. Through a quantitative review of

substance abuse literature, another study examined whether spontaneous

remission from alcohol, tobacco, and other drugs occurs as well as the frequency

with which it occurs without formal intervention (Walters, 2000). Articles from

1984 to 1997 that discussed spontaneous remission, natural recovery, self-

remitting, and maturing out as well as alcohol, drinking, cocaine, heroin, our

substance abuse were selected for review as part of the study. Only articles that

addressed the general prevalence of spontaneous remission or the factors involved

in spontaneous remission were selected for inclusion in the study (Walters, 2000,

p. 446). In this study spontaneous remission was defined as the cessation of any

addicting substance without formal intervention. In order to operationalize the

term "formal intervention" during the study, the definition for formal intervention

proposed by Stall (1983) was used. Stall characterized formal intervention as that

intervention: "received through a generally recognized organization which has as

a primary goal the resolution of alcohol (or other drug) related problems" (Stall,

1983, p. 194, as cited in Walters, 2000). Participants were considered to have

experienced spontaneous remission if they reported going through past treatment

that they said did not impact their decision to cease their use of alcohol or other

drugs (AOD) or if they reported having received no treatment of any sort. One

difficult aspect of studying spontaneous remission is choosing a window of time

during which to follow up to see if the remission from alcohol abuse has been

stable across time. In studies pertaining to spontaneous remission, that window

has ranged dramatically from as short as one year to as long as 27 years, with

reported incidences of substance remission ranging equally dramatically from 4.3% to 56.4% (Walters, 2000). In Walters' study, the preliminary analyses failed to identify any identifiable differences in the factors cited by subjects in initiating and maintaining their desistance from alcohol and other drugs. One trend that was discovered was that alcohol self-remitters, or individuals who change their use of alcohol or drugs without either mandated or voluntary treatment, generally had a more extensive history of prior alcohol use than non-remitters. Across all the participants, social support, relationship changes, will power, and identity transformation were the most frequently cited maintaining factors for self-remitters. Both alcohol and illicit drug users made greater use of social support, new relationships, and identity transformation strategies than individuals who had used tobacco (Walters, 2000).

One of the most useful findings from Walter's analysis is that "spontaneous remission from substance abuse is a relatively common event that has been observed across cultures (2000, p. 454)." However, although Walter's finding that the prevalence of natural recovery ranges from 4% to 56% (depending on the study) is heuristically useful, it is not easily generalizable. These findings have limited usefulness in application with a college population because the studies analyzed in this meta-analysis were not drawn from research on college students. Therefore the results cannot be assumed to be generalizable to a college student population. The results do, however, highlight the need for a standardized definition for natural recovery to guide further research in this area. Walters suggests that a standard definition of natural recovery could help catalyze

the collection of more substantial longitudinal data on natural recovery (2000).

One of the most significant findings in this study is the identification of the key

factors of "social support, new relationships, and identity transformation

strategies in maintaining" natural recovery (Walters, 2000, p. 455).

In terms of developing a broader understanding of college student alcohol

abuse, this study has several weaknesses. The primary weakness, as mentioned

above, is that the studies examined were not studies of collegiate alcohol use.

Additionally, because Walters was doing seminal work in studying the broad

phenomenon of natural recovery, he examined alcohol and other drug use rather

than solely limiting the scope of his study to examine alcohol use.

Life events as factors in natural recovery. Dawson, et al. (2006)

examined the role of transitional life events and their influence on the process of

natural recovery. Their study was conducted using data from the 2001-2002

National Epidemiologic Survey on Alcohol and Related Conditions (NESARC).

The NESARC sample "represents the civilian, non-institutionalized adult

population of the United States (Dawson, 2006, p. 197)." The NESARC was a

face-to-face, nationally representative survey. The NESARC oversampled

African American, Latino/a, and young adult participants, and had an overall

return rate of 81% (Dawson et al., 2006). The oversampling, or intentionally

sampling these sub-groups of the American population at higher levels, was done

to offset the fact that previous studies had under-represented these sub-groups

(Grant et al., 2003). Like Walters' meta-analysis of natural recovery (2000),

Dawson et al. research examined the prevalence of natural recovery; however this

research focused exclusively on recovery from alcohol dependence. It found that among adults with a prior-to-past year diagnosis of alcohol dependence as defined by the DSM-IV, only one quarter reported receiving any sort of formal treatment (including self-help). Despite the low number who received assistance, nearly one-half were in full remission at the time of the interview. Out of this sample 18.2% were abstainers, 17.7% were low-risk drinkers, and11.8% were asymptomatic drinkers with consumption that was above low-risk guidelines (Dawson, Grant, Stinson, & Chou, March 2006). Previous research had indicated that life events such as finishing college, entering into a first full-time job, marriage, exiting marriage (by divorce, separation, or widowhood), and entry into parenthood all could have significant impacts upon the process of natural recovery (Kandel, 1980; Klingemann, 1991).

Dawson (2006) compared individuals who had experienced two forms of natural recovery: abstinent recovery (AR) and non-abstinent recovery (NR). AR is recovery from alcohol related problems through being abstinent, while NR is defined as recovery from alcohol related problems with a reduction of use that does not include abstinence. The analysis also examined ways in which transitional life events were associated with the likelihood of recovery from alcohol dependence. Life events which included the completion of education, beginning a first full-time job, entering into a first marriage, exiting a first marriage, and entry into parenthood were all studied in relation to their correlation with achieving both AR and NR. One finding was that individuals, "who had not yet recovered were, on average, at least a decade younger than those who had

achieved NR or AR" (Dawson, 2006, p. 198). Individuals who had not yet recovered were also less likely to have completed school, entered into or exited from a first marriage, or become parents than those who had achieved either form of recovery (Dawson, 2006, p. 198). The implication is that significant life events like these are delayed for many individual until recovery is achieved. It is also noteworthy that individuals who achieved Natural Recovery had been using alcohol for periods of time that were shorter than both those who achieved Assisted Recovery and those who had not recovered yet. While the reasons for these findings are were not fully explored, they are consistent with models of addiction that understand alcoholism as a progressive and chronic issue (Fischer & Harrison, 2005). On average, the difference in length of use of alcohol was five years (Dawson, 2006, p. 198).

The identified associations between significant life events and natural recovery were suggestive of selectivity and not direct causation. That is, they appeared to identify events that were less likely to occur among individuals who had not recovered rather than to identify events that directly influenced the likelihood of recovery (Dawson, Grant, Stinson, & Chou, 2006). For example, completing an educational program or getting married are both life transitions which might be delayed or prevented by alcohol dependence on the part of the participant. This is especially important to consider with respect to college students, because what is often attributed as a high rate of natural recovery could be masked by the large numbers of students who drop out of college or transfer to another college due to problems related to their substance use. The assumption

that large numbers of college students naturally recover from alcohol abuse could be erroneous, because the population that colleges study are the students they are able to retain rather than the students who leave school due to problems related to their alcohol use. What some observers believe to be the process of students changing behaviors as they approach graduation could instead represent two different processes or paths. Students who follow the first path graduate because they have changed their binge drinking. Conversely, students who are unable to change their pattern of binge drinking follow a different path and leave college without graduating. Because students who have remitted from hazardous drinking patterns are more likely to persist to graduation, while those who are unable to change their drinking are more likely to leave the campus community, there is a false impression that the majority of students are recovering from their hazardous drinking. However, the absence of the chronic drinkers due to academic issues or student conduct issues masks the larger dynamics of the divergent paths students follow during this process.

Dawson et al. found that the effects of marriage and becoming a parent were consistent with role socialization, yet the effects of school and work transitions conversely appeared to reflect only role selectivity (2006). Overall, the authors found that their results validated other research which indicated that the following mechanisms influence the recovery process: (a) role socialization, (b) development of social capital or supportive social relationships and interpersonal networks, (c) forging and maintaining a new identity, (d) and integrating into a nondependent lifestyle. Based on the preceding discussion of the current research,

it is apparent that natural recovery is a complex and multi-factorial phenomenon. When considering the alcohol use and abuse that occurs in a college-student population, the phenomenon of natural recovery is further nuanced by the myriad of developmental changes, which take place during this point in the life span. For this reason, it is important to consider which developmental frameworks can serve as a helpful lens through which to examine the overlapping phenomena of college student development and collegiate alcohol use. Cognitive developmental theory is posited as being one such framework.

Cognitive Developmental Theory

As introduced in Chapter One, humans have an intrinsic desire for growth that proceeds from lower levels of functioning to higher levels of functioning as they develop (Sprinthall, 1994, p. 86). At higher levels of development, individuals are able to understand the world around them in more complex and nuanced ways. While higher levels of development are linked to increased ability to conceptualize the world in a more complex way, individuals at higher levels of development do not necessarily report higher levels of satisfaction. While fostering an environment in which students can attain higher levels of development is generally considered to be advantageous, growth can be encouraged but it cannot be forced.

Higher is Better

Higher levels of cognitive complexity are desirable, in that positive correlations have been established between higher levels of complexity and increased coping skills, problem solving, and empathic responses (Santrock,

2007). One study of 226 first-year college students found that students with more complex expectations for their college experience adjusted better than their peers who had less complex expectations about their transition to college (Pancer, Hunsberger, Pratt, & Alistat, 2000). Their sample was comprised of 158 female participants and 68 male participants. The researchers' findings provide some important suggestions about interventions for students who are transitioning to college; specifically, students who report high levels of stress during the transition to college may find programs to help them adjust more beneficial than students who report lower levels of stress during the transition. There are some limitations to this study that limit its generalizability. First, the final sample represented less than one-fifth of the entering first-year student class from the year that data was collected (Pancer et al., p. 53, 2000); thus it cannot be assumed it accurately represents the first-year class that was being studied. Second, the authors note that their measurement of "complexity of thinking about university is, at least in part, a function of the amount of information that students have about university" (Pancer et al., 2000, p. 53,). That is, having knowledge about the university is correlated with the ability of students to think about the university in complex ways. The difference between first-generation college students and other students in conceptualizing what it means to go to college was a third limitation of the study. The authors addressed that the ability to think about the university complexly was correlated with already having knowledge about the university. However, the study did not consider how first-generation college students might be significantly disadvantaged from other students in their ability to learn about

college from their families. Lawson, Banks, & Logvin studied 459 introductory biology students using a pre-test, post-test design examining the relationship between reasoning ability, self-efficacy, and achievement (2007). Reasoning ability was assessed with a modified 22-item version of The Classroom Test of Scientific Reasoning, an instrument that examined students' reasoning patterns associated with hypothesis testing. The authors found that self-efficacy and reasoning ability increased over the course of the semester, and that there was a positive correlation between self-efficacy and achievement. Reasoning ability accounted for between 15 and 30 times more variance in achievement than self-efficacy, depending on what achievement measures were used (Lawson et al., p. 706, 2007). Implications from this study include the potential benefits of helping faculty develop instructional methods, which help students hone their reasoning abilities, as this may help students also achieve gains in both self-efficacy and academic achievement. Limitations of this study include the fact that women were disproportionally represented in the sample, which was drawn only from non-major sections of an introductory biology class. Additionally, because all the participants were first-year students, it cannot be assumed that the same relationship would exist if the study were replicated with a more stratified sample.

In her 1996 dissertation, Guthrie explored the relationship between tolerance of diversity and levels of reflective thinking. Her research used King and Kitchener's Reflective Judgment Model to measure intellectual development, and defined tolerance as the presence of low levels of prejudice towards both African Americans and homosexuals (Guthrie, p. 45, 1996). Intellectual

development was assessed using three measures of intellectual development (two versions of the Reflective Thinking Appraisal and a Reflective Judgment Interview), and prejudice was assessed using two measures [New Racism Scale (Jacobson, 1985) and Heterosexual's Attitudes Toward Lesbians and Gay Men Scale (Herek, 1988)]. Using strategic sampling, the 48 participants were selected from an initial pool of 194 students at a public university in the Midwest (Guthrie, p. 46, 1996). When the relationship between intellectual development and tolerance was examined, "correlations between the participants' reflective judgment scores and the tolerance measure were all positive and significant; they were in the moderate range, with the highest being the .58 correlation between Reflective Judgment Interview scores and tolerance scores" (Guthrie, 1996, p.139). The results of this study provided significant support for the relationship between intellectual development and tolerance. Important limitations of the study that need to be considered include the small sample size (N = 48), and cross-sectional design. While the cross-sectional design provided an estimate of the impact of relationship between intellectual development and tolerance across students' time in college, repeating the study with a longitudinal design and a more robust number of participants would strengthen it.

The studies examined here illustrate how students at higher levels of development are able to function more effectively in their environments through their ability to understand their environments in increasingly complex ways. Though there are many domains across which higher levels of development are advantageous to the individual, intellectual development is a specifically salient

domain of development in college students. The following section will describe in more detail the theoretical framework for the scheme of intellectual development that is used in this study.

Intellectual Development

The conceptual framework for this study was William Perry's scheme of intellectual development (Perry, 1968/1999). Perry's research indicated that students move from an initial position where there is an absolute truth to a position when they question the absolutes by which they once lived. A shift also occurs in how they view responsibility. Initially, they view outside persons and forces as being responsible for their actions, and as they develop, they begin to understand that they possess agency and must take responsibility for themselves. In this part of their developmental trajectory, students develop the ability to see themselves and their decisions with a new perspective and clarity. This new vantage point allows them to commit themselves to a course of action. For some students, this initial commitment may be to a specific academic major. Although they are developing the ability to see things from different views, there is still the tendency to want to have all the answers, at least in one area of their life when they are in the early positions in Perry's developmental scheme. As they continue to develop toward actualization, they come to the realization that even while they previously thought they were "a knower," they were still ignorant on many things (Perry, p. 111, 968/1999). Sometimes rather than continuing consistently along their developmental path, students' progress will be temporarily interrupted by the conflicting desires to both progress and conserve (Perry, p. 58, 1968/1999).

Students struggle with a task of achieving an inner balance between action and contemplation (Perry, 1968/1999). After examining the trends in the transcripts of student interviews, Perry found that the development of students showed some periods of growth that occurred smoothly and some periods where growth occurred sporadically. These periods of predictable or smooth growth were described as positions along the developmental continuum, while the periods of erratic growth were conceptualized as transitions between positions (Perry, 1968/1999). The Perry model is comprised of nine positions of development; however, Perry wrote that in general, the model could be seen as having three phases. The first phase can be described as that of Dualism and is comprised of the first three stages; the second phase can be described as the realizing of Relativism, and subsumes stages four, five and six; and the third phase, described as the evolving of Commitments, is a composite built from stages seven, eight, and nine (Perry, 1968/1999). Table One, provides an overview of the scheme as well as a brief description of each of the nine positions.

Table One

Perry's Scheme of Ethical and Intellectual Development by Positions

	Position	Description
1	Basic Duality	Dualistic, or bifurcated into good vs. bad understanding of the world that is taken for granted and is unexamined. Self is understood by membership in the right and conventional (p. 67).
2	Multiplicity Pre-Legitimate	Multiplicity, or a plurality of answers to any problem, is perceived but discerned as being "other." The student struggles to grow because multiplicity requires taking a new approach to understanding the world. (p. 67).

Position		Description
3	Multiplicity Subordinate	Multiplicity is perceived with some of its implications. Students begin to struggle with the realization that there is no single answer to questions and may be overwhelmed by all the possible perspectives to consider when approaching a problem (p. 99).
4	Multiplicity Correlate or Relativism Subordinate	Students move into this position with unresolved questions about their relationship to knowledge and value and may view multiplicity as either a "temporary fuzziness" (p. 105) or develop an understanding of relativism in multiplicity (p. 111).
5	Relativism Correlate, Competing, or Diffuse	The student begins to perceive knowledge and values as relative and contextual (p. 64). Relativism moves from its previous status as being a "special case to the status of context, and within this new context they consign dualism to the subordinate status of a special case" (p. 121).
6	Commitment Foreseen	Students find themselves faced with decisions about whether to keep or discard the values of their past as they forge their new identity. Commitment is understood as the quelling of the dissonance of relativism, but isn't experienced yet (p. 153).
7	Initial Commitment	First commitments are made along with the realization that they are rooted in the self's experience and choices with some concept of the implications. The impact of the commitment is especially salient for the individual at this point (p. 171).
8	Orientation in Implications of Commitment	Through increased experience, the nuances of the commitment become increasingly important to the individual. They begin to more fully understand the choices, which exist even within the commitment they have made (p. 171).
9	Developing Commitment(s)	Individuals have reached a maturity marked by the formation of a self-understanding of who they are in terms of their commitments. This understanding includes the knowledge that this process of understanding their commitments is an incremental and ongoing process.

Note. Adapted from Perry (1968/1999).

The three-group model is presented in Table Two.

Table Two

Perry's Scheme of Ethical and Intellectual Development: An Overview

Category	Subsumed Position	Description
Dualism	1–3	Persons initially view world in absolutes and move toward replacing this stance with an understanding that things are less absolutely right-wrong than they thought. The simple pluralism they begin to adopt is called multiplicity (pg. 64).
Realizing Relativism	4–6	Persons grapple with the nature of simple pluralism and over time move to a position of contextual relativism in their understanding of the world around them (pg. 65).
Evolving of Commitments	7–9	Persons move from making a commitment in one domain of their lives (e.g., career) and work toward a personal commitment to the style in which they will live out this commitment (pg. 171).

Note. Adapted from Perry (1968/1999).

Position one: Basic duality. Students in the basic duality position display thought patterns that are characterized as dividing issues into right and wrong. Decisions about personal responsibility and morality are propelled by obedience to authority rather than independence. Students in this first position are capable of independent thinking, but their process of learning to function with agency is driven by learning self-imposed obedience (Perry, 1968/1999). In Perry's research, a small number of college students were found to be in this position; however the new role taking required in college seemed to propel them out of this initial stage by the end of their freshman year. Students in this position could be described as innocent or naïve, in that they are unable to find alternate

vantage points through which they can make sense of the world (Perry, 1968/1999).

Position two: Multiplicity – pre-legitimate. As students move into this second position, ideas of diversity and complexity are especially salient. Students at this position view diverse and complex perspectives on issues as challenges that have been introduced into the college context by "willful authorities" such as faculty and university administration for the purpose of promoting learning. Students may appear to be resistant to new multiplistic ideas at this point. While it is tempting to understand this resistance as a defense against growth, Perry suggests that it is quite the opposite; a defense of growth (1968/1999, p. 83). This is illustrated by one student's comment that: "I really think it's [a pedagogical method that is less concrete] good, in the back of my mind, but I can't accept it" (Perry, 1968/1999, p. 85). The dissonance that is illustrated in the quote is a result of an emerging new awareness that does not fit with older ways of thinking. The student is struggling, not against growth, but, rather, to grow despite that fact that it requires new ways of understanding their world. For some students from the class of '62 and '63 who took the Checklist of Educational Views (CLEV), a measure of intellectual development and moral relativism that was developed based on G.G. Stern's *Inventory of Beliefs,* it took up to two years in this position of Multiplicity Pre-legitimate before they were fully able to move from simply assimilating multiplicity into their old world view to the accommodation of a new and more complex world view available at the next position in the developmental scheme (Perry, 1968/1999, p. 87).

Position three: Multiplicity subordinate. The accommodations of multiplicity that began in position two continue in position three. Gradually, students begin to internalize that uncertainty is unavoidable, and they begin to see the world as being more complex than one in which knowledge is held by authority and dispensed out to students. One salient question for students in this position is how is it possible to grade their work if knowledge is subjective, or as Perry suggests, "where even authority doesn't know the answer yet, is not any answer as good as another?" (1968/1999, p. 99). The gradual realization that the faculty they admire so are also puzzling over the "answers" challenges students to reconsider the traditional pedagogical hierarchy. Because there are now so many possible perspectives to consider when thinking about an issue, students are often overwhelmed by the sheer number of options to consider.

Position four: Multiplicity correlate or relativism subordinate. Students move into this position with unresolved questions about their relation to knowledge and value. One pattern that emerged in Perry's study was that students who conformed to group norms and expectations benefited the most from their learning experience. Thus the ability to engage in comparative and contextual thought appeared to be a cornerstone of the successful educational experience. Students in Dualism sought to separate themselves from illegitimate authority that lacks true understanding, while students in the Multiplicity Correlate stage viewed an instructor's uncertainty as only "temporary fuzziness" in that authority's domain (Perry, 1968/1999). That is, students expected the instructor's uncertainty to be temporary, and hoped that the instructor would re-

adopt a more certain approach which that matched more appropriately with the students stage and felt less dissonant. They tended to hold the view that everyone has the right to his or her own opinion. An alternative perspective assumed at this stage is that of Relativism Subordinate, the perspective held by most of the students who participated in Perry's study. The main difference between Multiplicity Correlate and Relativism Subordinate is in the context within which multiplicity is understood. Perry explains:

> [Relativism Subordinate] does not involve setting Multiplicity, as a world
>
> of its own, over against the world of Authority. Rather, it allows the
>
> discovery of relativism in multiplicity to occur in the context of
>
> authority's world where
>
> Multiplicity is still something "they want us to work on" (Perry,
>
> 1968/1999, p. 111).

At this point in their development, students' show a shift in their awareness of their thinking. In a rudimentary way they understand that it is not about thinking what the professors what them to think, but instead they become aware of their own epistemology. Students in Multiplicity Correlate and Relativism Subordinate perceive the world with enough complexity to see other possibilities, yet approaches which different from their own are understood only in an abstract way and do not seem concrete or viable to them (Perry, 1968/1999.

Position five: Relativism correlate, competing or diffuse. Position five is the fulcrum upon which a most significant shift in students' understanding of the world and their position in it occurs (Perry, 1968/1999). Assimilating new

understandings of knowledge and learning have previously been done by working

the new into the pre-existing dualistic framework. In position five, this old

framework is no longer adequate. It must be dismantled and reassembled into a

more complex framework. Perry likens this stage to an intellectual revolution of

thought. Relativism Correlate is an extension of Relativism Subordinate in

Position Four, while Relativism Competing is an extension of Multiplicity

Correlate in Position Four. In Relativism Correlate, the world is still understood

as being somewhat dichotomous and divided into realms where authority holds

the answers and those where relativism must be employed. In Relativism

Competing, students understand that relativism applies to their entire worldview,

but this understanding alternates with the Relativism Correlate worldview. Perry

found what he believed was evidence that these two states could exist

simultaneously for a short amount of time. Remarkably, each state seemed to be

able to maintain its distinct boundaries, yet each interacted and competed with the

other. In Relativism, the Correlate and Competing phases are considered

transitional, while Relativism Diffuse signals the end of the transition and is a

hallmark of this position (Perry, 1968/1999, pg. 128). Students in this phase of

position five understand all knowledge as relative, although they do not

understand how to apply this new perspective to their lives. Salient

developmental markers or milestones in this position include a changed

relationship to authorities, forming the capacity for detachment, and remaining

unaware that through commitment they may develop a new identity.

Position six: Commitment foreseen. Perry's sixth position is built on Erickson's (1968) belief that in order to achieve a sense of identity, students need a sense of continuity in what they know and what they value. Without this continuity, students could easily become disoriented by examining each and every context relatively (Perry, 1968/1999). At this point in their developmental trajectory, the idea of commitments becomes important. As Perry conceptualizes them, commitments are ongoing acts of affirmation of choice through which individuals create meanings and relationships, which are, "neither presupposed nor entailed by the structure of the relativistic world itself" (Perry, 1968/1999, p. 150). Students find themselves faced with decisions about whether to keep or discard the values of their past as they forge their new identity. Connected to this idea of reconciling one's past with a new identity is the issue of how much agency the individuals will choose to exercise. Much like something viewed on the horizon, Commitment Foreseen is understood as the quelling of the dissonance of relativism, but it is not yet experienced in Position six (Perry, 1968/1999). For example, students may look forward to picking a major so that they can set aside the dissonance of picking a major, however at the same time they may be nervous about making the wrong choice and narrowing their options. As students move into the final three positions, the distinction between the final three positions is much more subtle than earlier in the positions.

Position seven: Initial commitment. "Position Seven describes that state in a student's life in which he has undertaken to decide on his own responsibility for who he is, or who he will be in some major areas of his life"

(Perry, 1968/1999, pg. 170). Approximately 75% of the original Perry sample was found to be in Positions Seven & Eight (Perry, 1968/1999). From Position Seven through Position Nine, the harbinger of development is "no longer major restructuring of the background of life" (Perry, 1968/1999, pg. 170), but rather it is elaboration on the theme of responsibility. Students talk about developing a sense of morals when they reach this position of development. The responsibility for these types of moral decisions now driven by largely internal forces, as contrasted to the external forces that shaped them in the initial Position Nine. For example, students in this position often talk about how their values have helped them arrive at a choice of career (e.g., someone who likes helping others who wants to become a doctor).

Position eight: Orientation in implications of commitment. During Position Eight, students grapple with the impact of the commitments they are making. This grappling or exploration often takes the form of making more concrete decisions about the commitments that began in position seven. For example, if they have decided to go to graduate school to become a teacher, they may struggle with what facet of education will they choose as a specialization? Some of the key developmental tasks that students are undertaking at this point are identification with authority, self-centeredness vs. other-centeredness, limits of identification with authority, tolerance vs. contempt, self-trust vs. self doubt, action vs. contemplation, and limits of reason.

Position nine: Developing commitments. By Position Nine, individuals have reached a maturity that is marked by the formation of an understanding of

who they are in terms of their commitments. This knowledge of their commitments extends both to what their commitments are and how they have chosen to live them. At the same time, they are also at least marginally aware that this process of understanding their commitments is an incremental and ongoing process that extends across the lifespan (Perry, 1968/1999). Students realize that their understanding of commitments has changed and continues to change, but they may not fully grasp the extent to which this process will continue through their life and not be isolated to their college years alone. Perry initially expected to find no empirical evidence of this final position in his sample of students. Despite this expectation, however his raters assigned 13 out of 120 students in the sample to this final position.

Alternatives to growth: Temporizing, retreat, escape. Perry speculated that at any point along the scheme of development, a student may stop, pause, or even reverse the growth process. While this may initially appear to contradict the basic assumptions of his developmental scheme, these mechanisms of temporizing, retreat, and escape are conceptualized as variations on the more typical developmental sequence. The choice of the term position rather than stages during the construction of the overall theory was intentional in order to reinforce the finding that growth was "wavelike" and occurred in surges rather than as a linear process (Perry, 1968/1999). Perry termed the process of pausing for a year or more along the developmental path as "temporizing", while he labeled students' process of entrenchment and lashing out at "otherness" and clinging to the dualism of early positions, as retreat (Perry, 1968/1999, p. 205).

Temporizing is a more passive alternative to growth, where the student has simply stopped briefly, while retreat is characterized by defensive interaction with those who hold different perspectives. The third alternative to growth or retreat was defined as "settling for exploiting the detachment offered by some middle position on the scale, in the deeper avoidance of personal responsibility" (Perry, 1968/1999, p, 198). Put simply, choosing a middle position offered safety, because it did not require students to take a significant stand. Originally retreat was described by Perry et al. as the position of students who were regressing to Position Two and Position Three. Later this was expanded, as it became evident that students could regress to any position (Perry, 1968/1999). Perry observed that, "the clearest of the roads into Escape are those leading from Temporizing" (Perry, 1968/1999, p. 212). Once students took this path into Escape, they either moved toward dissociation [i.e., the denial of responsibility implied in multiplicity (Perry, p. 287, 1968)]or toward encapsulation [i.e., the use of competence to establish a vestigial identity that protects the individual from exploring a more value laden identity (Perry, p. 213, 1968)] as alternatives to continuing their growth.

Students who claim no to have no strong opinions or things that get them worked up about would be one example of those who were using dissociation to deny what Perry called their "implications for growth" (Perry, 1968/1999, p. 290). Conversely, students in encapsulation have often learned to play the academic game, but they are more focused on the process of working the system to get the result they want and do not see the larger picture of how seeing the world in

increasingly complex ways changes how they understand what it is to learn. They are unable to connect their academic stances and views to who they are as individuals and what they believe.

Critical analysis of the Perry Model

It has now been just over 50 years since Perry and his colleagues began their research. It is important to consider what facets of their theory have stood the test of time, and which ones have not. The model Perry and his colleagues developed was based on interviews, and it posited that students could be in different positions for different domains of development at the same time. For example, a student in Position Five might believe that physics class work is an area where the authority, in this case, his or her professors, have all the answers. However, this same student may be able to use relativism when writing an English essay and perceive this as an area where there is a single correct answer. This is consistent with McAdams (1988) finding that stage growth is domain specific, and not occurring across the entire whole of an individual's life. This perspective that students could be in different positions for different domains simultaneously allows greater flexibility and adaptability than the frameworks proposed by other developmental theorists. This is a significant strength of the model, as it adequately allows for the model to both identify generalities of students' experiences, yet, at the same time, acknowledges that each student possesses characteristics unique to them (Knefelkamp in Perry, 1968/1999, p. xii).

Perry stressed the student's ability to construct meaning and to shift or change those constructions or standpoints to developmentally accommodate uncertainty, paradox, and the demands for greater complexity in knowledge and learning (Knefelkamp, 2003). Rooted in the work of Piaget, this stance is in keeping with the later work of contemporary cognitive developmental theorists including Marcia Baxter-Magolda (1992), Robert Keegan (1982/2001), and Norman Sprinthall (1985). Many stage theories of human development are seen as excessively rigid and are not as easily applied to a diverse population (Knefelkamp, 2003). Perry, however:

> created a developmental model that both conformed to traditional hierarchical notions and at the same time, broke free of them. Just as he always saw the students as more complex than any theory, he heard in their thinking more complexity than any benchmark along the way of his model (Knefelkamp, 2003, p. 11).

Perry sought to create a model that was both parsimonious and appropriately descriptive (Perry, 1968/1999). He noted: "In focusing on a common scheme of development, we have reduced to a minimum the consideration of individual differences based on personality, temperament, ability, sociology, and personal history." (Perry, 1968/1999, p. 39). Distillation of data gathering interviews down into a common scheme of development was necessary in order to find some common themes and trends; however it also raised the possibility that many voices were not represented in the study. Perry noted that

generalizing his findings, even to students at Harvard a generation later, was difficult (Perry, 1968/1999).

It is important to weigh the limitations of the Perry model against its potential benefits. To fully understand the results of the original study it is particularly important to understand the broader cultural context within which American colleges in 1953 operated, the time when the first of the studies was conducted. In that era, it was considered acceptable to have a sample drawn predominantly from white men, because white men were attending college in greater numbers than other individuals. While such a homogeneous sample does not meet current standards for research that could be generalized, Perry's original sample was homogenous because it reflected the larger dominant culture of colleges in the United States at the time. When juxtaposed against more current research, Perry's scheme is still a meaningful tool to help scholars and practitioners understand college student development. Marcia Baxter-Magolda's measure of epistemological reflection was heavily influenced by Perry's scheme. Her book, *Knowing and Reasoning in College*, can be considered a significant extension of Perry's work, as it fleshes out the how gender intersects with the patterns of epistemological development in college students (Baxter-Magolda, 1992). Baxter-Magolda's model is comprised of four stages, with each stage having a learning style that is correlated with gender.

Perry's scheme of intellectual development posits that students move from an initial position where there is an absolute truth to a position when they question the absolutes by which they once lived. A shift also occurs in how they view

responsibility. Initially, they view outside persons and forces as being responsible for their actions, and as they develop, they begin to understand that they possess agency and must take responsibility for themselves. In this part of their developmental trajectory, students develop the ability to see themselves and their decisions with a new perspective and clarity. As they continue to develop, they make the realization that even while they previously thought they were "a knower," they were still ignorant on many things (Perry, 1968/1999). Historically one criticism of Perry's scheme is that it was developed using an original sample that was not gender balanced. However, since its original development, tens of thousands of additional students have been studied using the Perry's model. This further extension of the original model has supported that the model is effective with a myriad of diverse students (Knefelkamp in Perry 1968/1999, p. xvi).

Another significant criticism of the Perry scheme is that although it richly describes college student development, it is hard to separate the underlying constructs on which the model is based (King, 1978, p. 40). More specifically, "the focus of the first half of the scheme (positions 1-5) is on epistemological and intellectual development; the focus of the second half (positions 6-9) is on moral, ethical, and identity development" (King, 1978, p. 40). King has suggested that one strength of the model lies in its application to both intellectual and identity development, yet this has also made research more complicated (1978, p. 40). This increases its utility but also is a potential confounding factor, because depending on where in the scheme students are, different developmental constructs are being measured by the scheme.

William Perry's scheme of intellectual and ethical development "set the stage for future theory building related to the cognitive development of college students" (Love& Guthrie, 1999, p. 5). Despite the fact that both our society and higher education have experienced significant changes since Perry's original research was conducted, it would be a mistake to assume that the utility of the Perry scheme is merely in serving as a foundation upon which other theories have been constructed. As Love & Guthrie (1999) note:

> Perry's scheme still has salience today, because the basic underlying structure-movement from a right-wrong mentality to one in which multiple viewpoints are experienced as valid, and finally to one in which evaluations of evidence are made in a relativistic world – remains viable. Kurfiss (1975, 1977) validated the sequence and cohesiveness of Perry's positions using a sample of sophomores and juniors at a large state university. Although both King and Kitchener's research (1994) and Baxter Magolda's (1992) research differ, and at points diverge, from Perry's in important ways, they bear out Perry's pattern of development (1999, p. 13).

Further validation for the Perry scheme has come from comparing it to other measures with which it shares theoretical relevance. Perry's position scores have been found to have a positive, moderate correlation with Kohlberg's (1969) theory of moral judgment as well as with scores from Harvey, Hunt, and Schroeder's (1961) conceptual level theory. In his dissertation research, Meyer (1975) found a correlation of $r = .40$, while Widdick (1975) reported a correlation

of r = .51 in her doctoral research (as cited in King, 1978). In her unpublished

dissertation, Clinchy examined the correlation between Kohlberg's (1969) theory

of moral judgment and Perry positions scores. Clinchy (1977) found a correlation

of r = .42 for high schools sophomores, and r = .70 for high school seniors (as

cited in King, 1978) This finding is to be expected, given that each of these

theories shares the notion of cognitive complexity with the Perry scheme.

Support for Perry's Scheme

The landscape in American colleges and universities has changed

significantly since Perry began his initial research at Harvard in 1958. Student

bodies are significantly more diverse and less homogeneous in terms of race,

gender, and culture than they were in 1958. Because of this shift in

demographics, one criticism of the Perry scheme is that it was developed based on

a different college population than the population that attends college today.

During a research project spanning from 1994 to 2000, Zhang examined if Perry's

scheme truly measured cognitive development that was consistent across cultures.

Zhang studied a total of 2,269 college students from 18 different universities.

Five universities were in Beijing, nine were in Nanjing, one was in Shanghai, one

was in Hong Kong, and two were in the United States. Out of the total sample,

937 participants were male and 1321 were female, with 11 participants declining

to indicate their gender (Zhang, 2004, p. 126).

Through the use of the Zhang Cognitive Developmental Inventory

(ZCDI), a self-report inventory, the cognitive developmental positions of students

were assessed. The 75-item instrument measures three levels of development in

the Perry scheme. These levels are dualism, relativism, and commitment (Zhang, 2004, p. 127). The ZCDI was found to have strong internal and external validity data, supporting that Perry's construct of cognitive development was useful for portraying the development of students from Hong Kong, China, and the United States (Zhang, 2004, p. 135). However, Zhang's research suggests that the developmental pattern (i.e., the movement through the positions) identified in Perry's work cannot be generalized to Chinese cultures (Zhang, p. 135, 2004). A one-way MANOVA did not find any statistically significant main effect (at .05 level) based on students' university class level on the ZCDI subscales for the American group, but found that the main effect for different university class levels was statistically significant ($F15, 497=2.18$; Wilks's $\lambda=.84$, $p < .01$) for the Chinese group. Additionally, a follow-up univariate analysis of variance resulted in statistically significant differences in two of the five ZCDI subscales and in one of the three overall scales based on class level (Zhang, p. 133, 2004).

Because Perry's original sample used in the 1968 publication of his book *Forms of Ethical and Intellectual Development in the College Years: A Scheme* was predominantly male, subsequent research that was influenced by Perry looked more critically at the intersection between gender and cognitive development. For example, Belenky, Clinchy, Goldberger, and Tarule examined the epistemology of women and found that not all of their findings meshed with the Perry scheme. In *Women's Ways of Knowing: The Development of Self, Voice, and Mind* they presented a different model for understanding their findings (1986). Marcia Baxter Magolda also studied the epistemology of college students

and found differences in the pattern of meaning making along gender lines. Magolda's framework consisted of four major ways of knowing, with two different reasoning patterns within each way of knowing (Magolda, 1992).

West examined the work of Perry, Belenky et al., Magolda, and King & Kitchener to develop a four-stage model of epistemological development. West's model identifies the four stages of development as: stage one- absolute knowing, stage two – personal knowing, stage three- rules based knowing, and stage four – evaluative knowing. In stage one there is one right answer for each question and no ambiguity exists. When students have confidence in the infallible authority of a teacher or authority, they begin the transition to stage two (West, p. 64, 2004). In stage two, students recognize that evidence exists that can be used to support alternate viewpoints, but concern themselves with only the evidence that supports their beliefs. West describes this stage as a "closed system that allows only the knower to decide 'I'm right (2004, p. 64)." In comparison, students in stage three "recognize the power of discipline specific rules for comparing and evaluating knowledge claims (e.g., replication and hypothesis testing in science, sample size in statistics)," to help them determine which information is more correct (West, 2004, p. 64). While this is a more sophisticated way of discerning than the previous stage, it does not provide the individual with a way for making judgments if the rules do not apply (West, 2004, p. 64). Stage four is marked by the ability of individuals to "construct knowledge by testing their interpretations against evidence and experience; they assess the believability of the evidence upon which they base their knowledge" (West, 2004, p. 66).

West found that while not all the theories upon which the four-stage model was based share all the Piegetian characteristics of stages, the shared similarities of these empirically based theories do strongly suggest that they describe the same phenomenon. One strength of the four-stage model is that that by subsuming the earlier works into one, it creates a gender-neutral model (West, 2004, p. 66). As such, the four-stage model both addresses the lack of gender sensitivity in the original Perry scheme, and provides and extension of Perry's work, which includes later theorists.

Summary

This chapter first examined the research on natural recovery and the factors, which appear to influence the process of natural recovery. Second, it examined research supporting the proposed benefits of achieving higher stages of cognitive development. Third, the chapter examined Perry's nine position model for ethical and intellectual development in college students in which move from a position of dualism or right-wrong mentality to a position from which they can consider both multiple positions, as well as the implications of holding these different positions. Finally, research supporting the Perry scheme was examined. Just as Perry's scheme built upon the work of Piaget, the Perry scheme is significant to the field of college student development both because it has been extended by later theorists, but also because it still has saliency and relevance for use in studying modern college student populations as well.

The next chapter will discuss the research design for the study as well as the populations from which the participants were selected and how they were

identified. It will also describe the instruments used in the study and outline the

manner in which they were administered.

CHAPTER THREE: RESEARCH METHODOLOGY

Introduction

This chapter will address the design and methodology of this study. The topics to be outlined are: sampling and data gathering methods, instrumentation, specific research hypotheses, data analysis methods, and ethical considerations.

Population and Sample

The target population for this study was undergraduate students who were members of fraternities and sororities. This sample represented a convenience sample, and was drawn from fraternity and sorority chapters both at the College of William and Mary (W&M) and Christopher Newport (CNU) Universities.

At the time of this study, W&M had an undergraduate population of 5,811 undergraduates and 1,958 graduate students who were drawn from 50 states and 43 foreign countries. As of fall 2008, 45.3% of undergraduates were male, while 54.7% were female (Office of Institutional Research, College Of William And Mary, 2009). More than 80% of students at the college graduated in the top 10% of their high school class, including 77 valedictorians and 33 salutatorians. The middle 50th percentile on the SAT for students at the college was 1260-1420. The average grade point average (GPA) based on a 4.0 scale was 3.19 with an average GPA of 3.26 for women and 3.11 for men. For students who were members of fraternities and sororities, the average GPA was 3.25 for women and for 3.09 for men. Student retention rates were high, with 95% of first-year students returning

for their sophomore year (College Of William And Mary, 2008). There were 18 fraternities and 12 sororities active on campus, with 25% of undergraduate men participating in fraternities and 27% of undergraduate women participating in sororities. The average size for a fraternity was 38 brothers, while the average size for a sorority was 70 sisters (Office of Greek Life, June 1, 2008).

Students had a minimum 2.0 GPA in order to be eligible to pledge a fraternity. It was possible for students to go through the bid and pledge process both during both fall and spring semesters. For sororities, there was also a 2.0 minimum GPA in order to be able to join. This was a university minimum GPA, but some individual chapters may have imposed more stringent requirements. Formal sorority recruitment occurred only during the fall semester (Office Of Greek Life, 2006).

At the time of data collection in fall 2008, CNU had an undergraduate population of 4,800 students from Virginia, and 32 other states as well as from several other countries. The average high school GPA was 3.4, and the average SAT score was 1165. Forty-five percent of 4,800 students were male; 55% were female (Christopher Newport University, 2009). In order to join a social fraternity organization, students had to be enrolled full time, and have earned 12 CNU credits with a 2.4 cumulative GPA earned while at CNU. Formal recruitment began early during the spring semester of each year (Christopher Newport University, 2007). The anticipated sample size from each institution was N=75, for a total N=150 with approximately equal numbers of male and female participants.

Method

Data collection. Permission was obtained from the Institutional Review Boards (IRB) at both the College of William and Mary and Christopher Newport University to conduct this research. Once this approval was received, the researcher worked with the Assistant Director for Greek Life at both schools to solicit volunteer participants for the study. The researcher solicited fraternity and sorority chapters to volunteer in data collection by sending an email to fraternity and sorority presidents (See Appendix A). This email was followed up with a visit to the fraternity and sorority council meetings at each school; where the researcher introduced himself, explained the purpose of the study, and asked for volunteers.

For fraternity and sorority chapter members who volunteered, the researcher attended a chapter meeting to administer the instruments. Chapter presidents were told that the data collection would take about 30 minutes, that the chapter participating would remain anonymous, and that each chapter that participated would be entered in a drawing to win a Nintendo Wii. Data was collected during fall semester 2008 at both universities; starting in September and ending the second week in November. At CNU, two fraternities and one sorority participated in data collection, while at W&M three fraternities and three sororities participated in the data collection.

On the nights the data was collected, the researcher started by explaining the nature of the survey, reminding students that participation was voluntary, and then administered the three instruments (the demographic questionnaire, the

Learning Environment Preferences, and the Rutgers Alcohol Problem Index).

Students were informed that if they did not want to complete the surveys, they

could keep the packet and turn it back in without filling it out so that they would

not stand out from peers who opted to complete the packet. The researcher

remained in the room the entire time to answer questions about the instruments.

As they were being handed back in, he also verified that each packet was

numbered on each instrument. The numbers on each set of instruments

indentified that a single individual had filled out the entire packet. Some

participants initially expressed concerns that their data could be linked to them.

In order to assuage these concerns and make participation in the research more

comfortable to the students, no key linking the packet number to the identity of

any individual student was kept in order to ensure the anonymity of the data.

Most participants were able to finish the three instruments in between 25-35

minutes.

Instrumentation

Demographic Questionnaire

In order to gather demographic information participants were asked to fill

out a short demographic questionnaire. The demographic questionnaire sought

information regarding what university the participants attended, their age, their

gender, and their academic year. (Appendix B). Because many students come

into college with a significant number of Advanced Placement (AP) credits, the

questionnaire specified that academic year should be determined by the number of

semesters they had been enrolled, not by the number of credits they had obtained.

Rutgers Alcohol Problem Index (RAPI)

There is little doubt that alcohol is part of the collegiate landscape; Knight et al. found that nearly one-third of college students meet the criteria for alcohol abuse as outlined in the DSM-IV TR, and six percent meet the criteria for alcohol dependence (2002). As a result, the challenge of picking appropriate instrumentation for this study was choosing one that possessed both sensitivity and specificity to both alcohol abuse and alcohol dependence since both would likely be present in the sample. In this context, the sensitivity of an instrument is related to its ability to accurately detect problems related to alcohol use, while specificity refers to the ability to distinguish between students who are at low risk of experiencing problems from their drinking choices from those who meet the criteria for both alcohol abuse and alcohol dependence. It is on these premises that the Rutgers Alcohol Problem Index (RAPI) was selected for application in this study. The RAPI can be used to detect alcohol problems in adolescents that have occurred during the previous year. There are two versions of the RAPI, the original version that contains 23 questions, and a slightly shorter version with only 18 questions. For this study, the original 23-question form of the RAPI was utilized (Appendix C), because more normative data was available for that version. The instrument assesses negative consequences that are experienced as a result of alcohol use. It can be completed in approximately 10 minutes, requires a 7th grade reading level, and does not require any special training to administer (White, And Labouvie, 1989).

The RAPI was developed using factor analyses of test-retest data on frequencies of 53 consequences of alcohol use from a non-clinical sample of 1308 individuals. The resulting instrument has a reliability of .92 as well as a three-year stability coefficient of .40 for the total sample (White, And Labouvie, 1989). The RAPI has also shown good internal consistency and test-retest reliability using one, six, and twelve month time frames (as Cited in Larimer, Cronce, Lee, & Kilmer, 2004/2005). The developers of the instrument found that it correlates significantly in a positive direction with a composite of drinking frequency, typical quantity, and frequency of intoxication with an r value that ranged from .35 to .57 (White, And Labouvie, 1989). In research conducted by the instrument developers, means in clinical samples ranged from 21 to 25. In non-clinical samples, the means ranged from 4 to 8 (White, And Labouvie, 1989). In the current study, scores ranged from 66 to 0, with M=15.45 and SD=13.15.

The Learning Environment Preferences (LEP)

The Learning Environment Preferences (LEP) was developed by William S. Moore to measure the cognitive portion of the Perry scheme of intellectual development (Moore, 1989). Perry's scheme for intellectual development originally outlined nine positions in which each position represented a higher or more complex style of thinking. As noted in Chapter Two, Perry later grouped these nine positions into three broader categories to more easily capture the broader developmental themes that were identified by his research. Students in lower positions understand learning experiences in more concrete and simplistic ways, while those in higher positions are able to view the world in more nuanced

and diverse ways (Perry, 1999). Rest's Defining Issue's Test (Rest, 1975) served as a model for the initial construction of the LEP (Moore, 1989).

During the development of the LEP, the original sample of 725 participants was drawn from several different universities including: a small public, a medium-sized regional public school, a small selective public school, two similar medium-sized state schools, a public community college, a small liberal arts college, and a large public research university (Moore, 1989). In terms of gender, 47% of the original participants were men and 53% were women (Moore, 1989). The content of the questions on the LEP examine "specific aspects of the classroom learning environment shown to be associated with increasing complexity on the Perry scheme of intellectual development" (Moore, 1989, p. 506). The LEP focuses primarily on the intellectual portions of the scheme; that is, the first five positions. The LEP further focuses on the segments of the Perry scheme most directly salient to college students, positions two through five. Position one is not included, because previous research has failed to show its presence in college aged populations (Menthkowski et al., 1983).

The five domains that the LEP examines are: (a) student views of knowledge and course content, (b) the role of the instructor, (c) the role of both students and peers in the classroom, (d) the classroom atmosphere, and (e) the role of testing and evaluation (Moore, 1989). These domains were chosen because they represent the major domains on the Measure of Intellectual Development (a previous instrument developed to measure the Perry scheme) and also because they reflect the most salient aspects of translating the Perry scheme into

characteristics that students display in their learning environments (Knefelkamp & Cornfield, 1978).

The original item pool was drawn from 134 statements, which were based on Measure of Intellectual Development (MID) rating criteria and essay quotes that reflected those criteria (Moore, 1989). After the item pool was determined, individual items were assigned to each of the specific Perry positions that were being measured. Two expert raters who were trained in the MID rating criteria independently assigned the positions. Any item that was rated to fall into more than one position by the expert raters was discarded, resulting in six percent of the items being thrown out (Moore, 1989). Items that were found to be in adjacent positions by the raters, as well as items which were determined to be ambiguous or unclear, were either reworded or discarded. By using this method, 54 total items were ultimately rejected. From these remaining items, the first version of the instrument was developed which contained 80 items (Moore, 1989). Also included in the first version of the LEP were five items, one per domain, that sounded complex but did not tie to any specific position in the scheme. These items were designed to parallel the M, or meaningless item on Rest's DIT measure (Moore, 1989) that functions as an indicator of whether respondents are choosing certain preferences only because they hope to appear as being more complex thinkers than they actually are.

The psychometric reliability was assessed in two traditional ways: internal consistency and test-retest. Cronbach's (1951) coefficient alpha was computed for each individual domain and for each position across all five domains. The alpha

reliability coefficients ranged from .63 on "Role of Evaluation" to .84 for

positions four (Multiplicity Correlate or Relativism Subordinate) and five

(Relativism Correlate, Competing, or Diffuse). While the position item sets are

not scored as scales, they reflect substantially stronger alpha levels than the

domain scales. The higher alpha levels suggest that the items are correctly

measuring the constructs represented by each position. These higher alpha levels

suggest the position items are linked more closely than the domain items.

Because the position items measure a more narrow construct, while the domain

items measure broader and more amorphous constructs, it stands to reason that the

alpha levels for the domains would be less robust than those for the position

items. The relative strength of the position-item groupings seems to suggest the

relative clarity of the underlying concepts of the Perry positions. A one-week

test-retest reliability study was also conducted with a small group of students

(N=30). The Cognitive Complexity Index (CCI) (the measure of cognitive

complexity across the positions) showed a test-retest correlation of .89, suggesting

a reasonable amount of stability for the measure over that time period (Moore,

2000, p. 9). For the Learning Environment Preferences instrument (LEP), the

general issue of validity was addressed in several specific ways for the present

study: criterion group differences, concurrent validity, and construct validity. The

central measure within the LEP is the Cognitive Complexity Index (CCI). The

CCI is a single score, which ranges from 200 (stable position 2) to 500 (stable

position 5) (Moore, 1988/2000, p. 8). In the current study, the CCI ranged from

207 to 456 with M=335.9 and SD=51.16.

Based on a gender-balanced sub-sample (N=470) drawn randomly from the total sample collected, the means on the CCI reflect a steady increase in CCI score from freshman year n to senior year, even though the sophomore and junior means were almost identical. In keeping with previous research, the analysis of variance indicated that there was a significant difference across the class levels on the CCI, suggesting that students became more cognitively complex as they spent longer in college. However, there was no consistent or significant difference by gender (Moore, 2000, p. 10), suggesting that gender was not correlated with the cognitive complexity scores.

The study of the construct validity of the LEP measure focused on two factor analyses computed to examine whether and to what extent: (a) the LEP seems to be measuring underlying factor constructs which correspond to the four Perry positions two through five, and (b) the LEP seems to be measuring a phenomenon which displays a hierarchical, or developmental, progression. Because, theoretically, the Perry positions are hierarchical (i.e., building upon and integrating prior position perspectives), they are assumed to be correlated such that previous positions help prepare students for later positions; hence, the oblique rotation method, which assumes this kind of correlation among factors, was chosen for both of the factor analyses (Moore, 2000, p. 10).

Respondents on the LEP are required to rate 65 sentences that describe different characteristics of learning environments, as not significant, somewhat significant, moderately significant, or very significant. These 65 sentences are divided into 13 questions for each of five domains. In addition to answering the

13 questions, student choose the top three characteristics that are important to them within each domain or content category. The five content categories were: (a) Course Content/View of Learning, (b) Role of Instructor, (c) Role of Student/Peers, (d) Classroom Atmosphere, and (e) Evaluation Procedures. Items are rated in terms of their significance to the respondent's ideal learning environment. For each domain, the respondent is also asked to rank the three most significant statements (Moore, 1989). Across domains, all the items except the M items correlate to specific Perry positions, two through five.

Research Hypotheses

The research hypotheses for this study are as follows:

1. There will be a negative correlation between developmental level and alcohol related problems; at higher levels of development, as measured by the CCI score on the LEP, participants will exhibit lower rates of alcohol related problems, as indicated by their scores on the Rutgers Alcohol Problem Index (RAPI).

2. There will be a positive correlation between participants' academic level as indicated by their self reported academic level on the demographic survey and their developmental level as indicated by their CCI score.

3. There will be a negative correlation between alcohol related problems and academic level; the higher participants' academic level, as indicated by their class standing, the lower their level of

alcohol related problems will be, as indicated by their scores on the

Rutgers Alcohol Problem Index (RAPI).

4. Male participants who are lower in academic standing (e.g.,

freshmen or sophomores) will drink in both greater quantity and

frequency as indicated by their scores on the RAPI and will show

more dramatic reductions in their drinking behaviors over time.

5. There will be a negative correlation between the age of onset of

alcohol use as shown by responses on the demographic questionnaire

and alcohol related life problems as demonstrated by scores on the

RAPI.

Data Analysis

One of the key facets of the data analysis was setting the threshold for

distinguishing participants who are considered to be exhibiting natural recovery

from those who received assistance or treatment. For the purposes of this study,

participants who received formal intervention, as defined by Stall (1983) and

indicated on their demographic questionnaire were separated from other

participants, because any changes in their drinking behavior might be attributed to

the treatment they received. Stall defined formal intervention as that: "received

through a generally recognized organization which has as a primary goal the

resolution of alcohol (or other drug) related problems" (Stall, 1983, p. 194, as

cited in Walters, 2000).

For all statistical analyses, the level of significance chosen was an alpha

level of .05. Pearson's correlation coefficient was calculated to determine the

degree of correlation, between participants' scores on the LEP and their scores on

the RAPI. Analysis of Variance (ANOVA) was used conducted to examine the

correlation between students' academic standing and their alcohol related life

problems as measured by their scores on the RAPI. Specifically, the data was

examined to see if students appeared to experience fewer alcohol-related life

problems as they gained higher class standing. In order to determine the degree

of correlation between the age of onset of drinking as illustrated by the

demographic questionnaire and alcohol related life problems, as assessed by the

RAPI, Pearson's correlations coefficients were be calculated

Demographic differences between the sample drawn from Christopher

Newport University and The College of William and Mary were also examined

for statistical significance using a two-tailed t test. Finally, differences in gender

as it intersects with class, alcohol related problems, and developmental level were

analyzed using Analysis of Variance (ANOVA).

Limitations

Internal validity. Because there was no comparison or control group, the

threats to internal validity were greatly reduced. However, one potential threat to

internal validity was experimental mortality that is said to occur when some

participants fail to complete all the instruments used during data collection. If

there were significant differences between members who dropped out of the study

and those who completed both measures, this could be a threat to internal validity.

In order for this to occur, there would have to be commonalities between the

participants who dropped out (e.g., a high percentage of Sophomore men or an

entire fraternity or sorority chapter not taking the second instrument, etc.). In order to control for this type of threat to internal validity, the demographic variables of students who completed only the first measure, and dropped out before completing the second measure were analyzed to look for trends among participants who were lost from the study prior to the administration of the second measure.

External validity. The largest potential threats to the validity in this study were the threats to external validity, most specifically, population validity. Because the participants were all members of the fraternity/sorority system at two different universities and were volunteering to be part of the study, they could potentially have been different from the greater general population of college students. The fact that students self select to participate in social fraternities/sororities suggests that these groups may represent sub-groups and may differ from the general college population in some way. The existence of significant differences between the fraternity/sorority members and the larger college population at these schools limits the ability to generalize results to non-fraternity/sorority students in the general population of American college students. The differences, however, do not necessarily preclude comparing the participants in this study to the larger population of fraternity/sorority students, since the populations from which the participants were drawn appeared to be similar in composition to fraternity and sorority student groups at peer institutions. One additional potential threat to the external validity was the ecological validity, or the degree to which the results of an experiment can be

generalized from one set of conditions created by the researcher to a different set of environmental conditions (i.e., the Hawthorne Effect) (Gall, Gall, & Borg, 2003). This potential confound to the validity of the data would be said to occur if participation in this study changed the way that participants filled out their surveys (i.e., if students feared that data was not completely anonymous and caused them to not answer candidly), or if participants did not trust that the information would be kept confidential and, consequently failed to answer questions that they felt reflected negatively on them (i.e., serious consequences as a result of their alcohol abuse), the validity of the data that was collected would be confounded.

Ethical Considerations

This study presented minimal ethical risks to participants. While basic demographic data was collected, it did not reveal the individual identifies of the participants. As previously noted, all data collected was marked with a unique and sequential number, which was used solely to identify it as coming from a single participant. All participants had the right to refuse to participate in the study. Participants were notified at the onset that the purpose of the study was to help the researcher better understand the correlation between developmental level and alcohol use and not to scrutinize their personal drinking behaviors.

One important ethical consideration involves the use of the RAPI. The RAPI is a screening tool used for detecting alcohol related problems, and by taking it, some participants may have gained a new awareness of their drinking patterns as being problematic. In order to accommodate for this possibility, the

researcher invited participants to notify him of their concerns at the conclusion of the RAPI administration. While no concerns were voiced by participants, the researcher was prepared to refer students to counseling services or health educators on each campus.

Summary

This chapter outlined the data collection methodology, sampling methods, and instrumentation used in this study. It also specifically addressed how the different instruments administered to participants' were coded to connect them to a single participant without revealing the participants' identity. Threats to both the internal and external validity of the study were also outlined in this chapter. The results of the research process will be presented in Chapter Four.

CHAPTER FOUR: RESULTS AND DATA ANALYSIS

Introduction

This chapter presents a summary of the research findings and data analysis. Five hypotheses were presented in Chapter three that explored the relationship between alcohol use and the factors of cognitive complexity, class standing, gender, age of first use of alcohol, and alcohol-related life problems. The descriptive statistics of the sample are explained first, followed by an explanation of the statistical analyses that were conducted to investigate each hypothesis.

Data Integrity

Before data was analyzed, the data file was examined for errors by running descriptive statistics on the data set. Any unexpected data points were examined to determine if there had been a data entry error. For example, class standing was coded as follows: freshmen = 1, sophomores = 2, juniors = 3, seniors = 4, alumni = 5. Any value in SPSS that was not in within the expected range of 1-5 was considered to be a data entry error. Any data entry errors were corrected at this point by going back to the original demographic questionnaire and re-entering the values. This allowed the data entry error to be corrected by entering the correct data from the demographic questionnaire.

During the data analysis, decisions were also made about whether or not data should be excluded from the data analysis. The 23 questions on the RAPI

were arranged in eight groupings, with spaces between each grouping. For some questions that were long, the text of the question scrolled to the next line, and for this reason it was sometimes difficult to tell if all the questions had been answered before moving on to the next section. Because of this, 12 participants inadvertently skipped questions. In 10 cases individuals skipped two questions, and in two cases individuals skipped two questions that were replaced through the use of linear interpolation. Inasmuch as the total RAPI score is a sum of the scores for each individual question, a single missing response would invalidate the entire survey unless missing values were replaced. For this reason, after consulting with his methodologist, the decision was made by the researcher to replace for missing values using linear interpolation. Missing scores were not anticipated during the design of the study, because the proctor had an opportunity to check for missing responses while the students filled out the instruments.

The instrument developer scored the LEP. During the process of scoring, any individual instruments that had errors or inconsistencies were flagged, their responses marked with one of three designations. A marking of * indicated that three or more meaningless items were entered on the survey, and that the scores should be interpreted with caution. Responses marked with ** indicated a pattern of responses that was inconsistent or that a participant was unwilling to take the task of filling out the instrument seriously, while responses marked with *** indicated that an individual's score sheet was incomplete and not possible to score. Thirteen participants had score reports which were marked with an *, and because the LEP manual advises that these scores be interpreted with caution,

they were omitted from the data analysis. No participants had score reports that ·

were marked with ** or ***; however, two participants did turn in LEP score

sheets that were incomplete, and, thus, not scored. They were not marked ***

because the researcher removed them from the completed LEP score sheets before

they were sent to the instrument developer for scoring in order to prevent

unnecessary scoring costs.

Participants

As described earlier in Chapter Two, students who had received formal

intervention for alcohol use (attended a self-help group, or counseling for their

alcohol use) were eliminated, because seeking treatment confounds the possibility

that they have naturally recovered. Out of the total sample of 328 students, 302

remained after rejecting 26 participants who didn't fill out all three instruments.

The demographic questionnaire was left undone by 10 participants, the RAPI was

not completed by 14 participants, and the LEP was not completed by 2

participants. Of the remaining 302 students, 15 were rejected based on their LEP

results, and 287 students remained. Of these 287 students, when those 15

individuals having received formal intervention were eliminated 273 remained.

This included two alumni who excluded from the analysis because their small

group size limited the ability to include the alumni group in the statistical

analysis. Their demographics are presented in Table 1. The sample consisted of

71 students from University One, and 200 students from University Two.

Participants ranged in age from 17 years old to 24 years with a mean age of 19.96

(SD =1.13). Male participants comprised 33.2% of the sample (n=90), with

female participants comprising 66.8% of the sample (n=181). When examining gender breakdown by university, the University One male participants (n=34) accounted for 37.8% of the total male participants, and the University Two male participants (n=60) accounted for 62.2% of the overall male participants. Female participants from University One (n=37) accounted for 26.2% of the overall total of female participants, while University Two female participants (n=144) represented 73.8% of the total number of female participants.

Table 1

Participants by School, Gender, & Class

University	Gender	Class				Total
		Freshman	Sophomore	Junior	Senior	
University One	Male	0	9	6	19	34
	Female	0	7	16	14	37
	Total	0	16	22	33	71
University Two	Male	4	11	23	18	56
	Female	30	41	41	32	144
	Total	34	52	64	50	200

Review of Hypotheses

     As reported in Chapter Three, there were five primary hypotheses in this study. The first hypothesis proposed that the independent variable (Cognitive Complexity Index or CCI score) would be negatively correlated with the dependent variable (alcohol related problems). The second hypotheses proposed a positive correlation between students' academic level and their developmental level (as reflected in their CCI score). The third hypothesis proposed a negative correlation between alcohol related problems (as measured by the RAPI), and participants' academic level. The fourth hypothesis proposed differences in the drinking patterns of female and male participants as well as significant differences in drinking rates by academic year for each gender. Specifically it was proposed that male participants with lower academic standing would have greater levels of alcohol related problems (as measured by the RAPI) than both their older male peers, and their female peers. The final hypothesis, proposed a positive correlation between the age of onset or first use of alcohol (as indicated on the demographic questionnaire) and alcohol related life problems as demonstrated by scores on the RAPI. An alpha Level of .05 was chosen for the analyses of each of the five hypotheses.

     Hypothesis one. There will be a negative correlation between developmental level and alcohol related problems; at higher levels of development, as measured by the Cognitive Complexity Index (CCI) score on the Learning Environment Preferences (LEP), participants will exhibit lower rates of

alcohol related problems, as indicated by their scores on the Rutgers Alcohol

Problem Index (RAPI).

A Pearson correlation was used to examine the relationship between

subject's CCI scores ($M = 335.92$, $SD = 51.16$) and RAPI scores ($M = 15.51$, SD

$= 13.14$). As shown in Table 2, no significant correlation between CCI and RAPI

scores were found ($r = .036$, $p < .05$), indicating that cognitive development and

problem drinking were not related for the participants in this study (See Table 2).

Thus, Hypothesis One was not supported.

Table 2

Correlation Between CCI and RAPI scores

		RAPI Total	CCI
RAPI Total	Pearson Correlation	1	.036
	Sig. (2-tailed)		.560
	N	271	270
CCI	Pearson Correlation	.036	1
	Sig. (2-tailed)	.560	
	N	270	270

Hypothesis two. There will be a positive correlation between

participants' academic year (as measured by their academic year reported on the

demographic questionnaire) and their developmental level, as measured by the

Cognitive Complexity Index (CCI) score on the Learning Environmental

Preferences instrument. Findings with regard to Hypothesis Two are presented in

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Table 3. As shown in the table, Pearson correlation revealed a significant positive

relationship ($r = .101$, $p < .05$) between students' class ($M = 2.81$, $SD = 1.02$) and

their scores on the CCE ($M = 333.47$, $SD = 64.07$), (Table 3). Thus, Hypothesis

Two was supported by the findings, in that there was a positive correlation

between CCI and class. Students with higher class standing had higher levels of

cognitive complexity as measured by the CCI.

Table 3

Correlation Between CCI and class

		CCI	Class
CCI	Pearson Correlation	1	.017
	Sig. (2-tailed)		.777
	N	270	270
Class	Pearson Correlation	.017	1
	Sig. (2-tailed)	.777	
	N	270	271

Note. *$p < .01$.

Hypothesis three. There will be a negative correlation between alcohol

related problems and academic level; the higher participants' academic level, as

indicated by their class standing, the lower their level of alcohol related problems

will be, as indicated by their scores on the Rutgers Alcohol Problem Index

(RAPI). Findings with regard to Hypothesis Three are presented in Table 4. As

can be seen, Pearson correlation revealed a significant positive correlation ($r = $

$.199$, $p < .01$) between class ($M = 2.81$, $SD = 1.02$) and RAPI score ($M = 15.50$,

SD = 13.15). This finding contradicted the anticipated negative correlation

between the two variables, suggesting, instead, a positive but not significant

positive correlation between class and RAPI scores. Thus, these findings failed to

support Hypothesis Three.

Table 4

Correlation Between RAPI and class

		RAPI	Class
RAPI	Pearson Correlation	1	.199**
	Sig. (2-tailed)		.001
	N	271	271
Class	Pearson Correlation	.199**	1
	Sig. (2-tailed)	.001	
	N	271	271

Note. **p <.01.

Hypothesis four. While both male and female participants will show

evidence of natural recovery, male participants will initially drink in both greater

quantity and frequency, as measured by self reported data on the demographic

questionnaire, and will show more dramatic changes in their drinking behaviors as

measured by differences in quantity and frequency of drinking behaviors by class.

A two-way Analysis of Variance (ANOVA) was conducted to evaluate the

effects of gender and class on the average number of drinks consumed by

participants. Results of this analysis are shown in Tables Five and Six. The

results for the ANOVA indicated a non-significant main effect for class $F(2, 91)$

= .339, p =.713, a significant effect for gender, F(1, 91) =13.73, p <.0005 and

non-significant interaction between gender and class, $F(2, 91)$ = .410, p =.665,

(See Table 6). These findings indicate that, individually gender significantly

influenced the average number of drinks consumed by participants in the study,

but the interaction between gender and class on the average number of drinks was

not significant.

Table 5
Average Drinks by Gender

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Male	20.447	2.699	15.087	25.808
Female	5.352	3.051	-.707	11.412

Table 6

Interaction of Class & Gender with Average Number of Drinks

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	5495.145(a)	5	1099.029	3.086	.013
Intercept	14289.085	1	14289.085	40.123	.000
Class	241.594	2	120.797	.339	.713
Gender	4891.716	1	4891.716	13.736	.000
Class*Gender	291.944	2	145.972	.410	.665
Error	32407.855	91	356.130		
Total	55581.250	97			
Corrected Total	37903.000	96			

Note. (a) R Squared = .145 (Adjusted R Squared = .098).

* Denotes the interaction of gender and class

Hypothesis five. There will be a negative correlation between the age of onset of alcohol use as shown by responses on the demographic questionnaire and alcohol related life problems as demonstrated by scores on the RAPI. The results of analysis for Hypothesis Five are presented in Table 7.

Pearson correlation revealed a statistically significant negative correlation, $r = -.151$, $p < .01$, between age of first alcohol use ($M = 16.81$, $SD = 8.75$) and RAPI score ($M = 15.40$, $SD = 12.91$). This indicates that, in accordance with the hypothesis, the younger the age of first alcohol use may have a positive

correlation with higher rates of alcohol related life problems.

Table 7

Correlation Between first-use and RAPI

		First Use	RAPI
First-Use	Pearson Correlation	1	-.147*
	Sig. (2-tailed)		.016
	N	270	270
RAPI	Pearson Correlation	-.147*	1
	Sig. (2-tailed)	.016	
	N	270	271

Note. *p<0.05

Summary

This chapter presented the data analyses and findings for the demographic

indices and each of the five hypotheses. Of the five research hypotheses proposed,

two of the hypotheses were supported by the study findings. Hypothesis One was

not supported, as no significant negative correlation between cognitive

development and problem drinking behavior was discovered. In fact, a positive,

rather than a negative relationship was found between the RAPI and CCI scores.

For Hypothesis Two, the prediction of a significant positive correlation between

academic class standing and cognitive complexity was supported. As anticipated

for Hypothesis Three, a significant positive relationship was found between the

two variables of students' class and problem drinking behavior. Hypothesis Four

was not supported by the findings, in that significant negative correlations

between gender, class, and the interaction of gender and class on the average

number of drinks consumed by participants were not detected. Finally, the predicted negative relationship between problem drinking behaviors and age of first alcohol use proposed in Hypothesis Five was supported by the findings of the data analysis.

The next chapter will discuss the implications of the results presented in this chapter. Specifically, it will examine the meaning of the results, how they contribute to the current understanding of collegiate alcohol use, and how this understanding can benefit the education and training of both counselors and educators who do substance abuse prevention work with college students.

CHAPTER FIVE: IMPLICATIONS

Discussion

The purpose of this study was to examine the factors that contribute to natural recovery in college students. Specifically considered were whether gender, class, age of first use of alcohol, and cognitive complexity account for some of the moderation in drinking that many college students experience without undergoing treatment or some form of formal intervention. The implications of the findings with regard to each hypothesis, the broader implications for higher education and counselor education, and the limitations of the study will be examined in this chapter.

Major Research Findings

Hypothesis one. It was hypothesized that there would be a negative correlation between the developmental level as measured by the CCI score and alcohol related problems as measured by the RAPI. However, this finding indicated that at higher levels of cognitive complexity, students did not experience fewer alcohol related problems as a result of their alcohol use. Instead, the research found that participants with higher CCI scores also had higher scores on the RAPI. One possible explanation for this lack of negative correlation between increases in cognitive complexity and decreases in alcohol related problems is that the original hypothesis is invalid; that there is, in fact, no connection between the two variables. However, based on the research presented in Chapter Two,

there are several potential explanations for this finding that would still allow for this hypothesis to be correct.

Bischoff found that different experiences triggered help seeking and natural recovery (2002). He found that natural recovery was triggered by health problems and financial problems. The RAPI had several questions that asked about physical and psychological dependence on alcohol, but there were not more specific questions on the instrument that asked about health related problems. Research presented in Chapter One illustrated the frequency of fights and unprotected sex among students who abused alcohol, and it may be that adding questions on the demographic questionnaire that asked more specifically about both seeking medical attention for injuries or other medical conditions related to drinking could have yielded anticipated data similar to Bishchoff's findings. Additionally, none of the instruments used in the study asked students about financial problems they experienced as a result of their drinking. Students might have a hard time tracking how much their drinking habits contribute to their financial problems, and they might overlook the harder to track expenses, such as how much they spend on alcohol in a month. However they might be more cognizant of expenses such as paying for a lawyer for a DUI related court appearance. It may be that adding questions to the demographic questionnaire that asked students about their spending on alcohol could yield useful information. Bischoff noted that the financial consequences of alcohol use was one precipitator of natural recovery, and having specific information about how much participants

spent on alcohol and alcohol related expenses could help participants reflect on how their drinking impacts them financially (2002).

Additionally, Bischoff noted that one difficulty of studying natural recovery was that it is too often over-simplified as a simple dichotomy; either individuals naturally recover or they do not (2002). This intersects with Perry's scheme of intellectual development that was presented in Chapter Two. Just as Bischoff suggests that natural recovery is more complex than a simple dichotomy, Perry's scheme suggests that cognitive development is more complex than students simply developing or remaining the same. Perry discussed alternatives to growth that students sometimes employed rather than continuing their developmental trajectory. Students at higher levels of cognitive complexity who also exhibited elevated RAPI scores could be understood to be utilizing one of the three alternatives to growth: temporizing (i.e., pausing growth for a year or more), retreat (i.e., entrenchment and lashing out at otherness while clinging to duality), or escape (i.e., denying the personal implications for growth through either dissociation or encapsulation). Because Perry conceptualized growth as wavelike and domain specific, it would be possible that students could show an increase in cognitive complexity as measured by their CCI scores, yet at the same time be employing one of the alternatives to growth that protected them from fully integrating gains in cognitive complexity that could foster a positive change in drinking behavior.

One additional explanation for the unexpected finding is that the hypothesis is valid, but that the data collection was conducted in such a manner

that the data did not accurately capture students' true levels of cognitive

development and problematic alcohol use. As discussed in Chapter Three, one

potential source of error during the data collection was the Hawthorne effect. In

addition to the potential for the Hawthorne effect during data collection, it is also

possible that the timing of the data collection impacted the students' responses on

the instruments. Data collection occurred during the fall semester "rush" period, a

time when fraternities and sororities typically host a greater number of social

events in order to attract prospective new members. Question 11 (about binge

drinking) and question 12 (the average number of drinks consumed in a week) on

the demographic questionnaire, as well as scores on the RAPI (See Appendix A)

could have been influenced if data collection reflected extraordinary student

drinking behaviors as a result of rush that were atypical of students' usual

drinking behaviors. A more complete discussion of how the design of the study

and sampling may have influenced the results for this hypothesis may be found in

Chapter Three.

Hypothesis two. It was hypothesized that there would be a positive

correlation between participants' academic level, as indicated by their academic

level on the demographic survey, and their developmental level as indicated by

their CCI score. As anticipated, the data showed a positive correlation between

the academic level of participants and their CCI score. This significant positive

relationship between participants' class standing and their developmental level

corroborates previous research illustrating that individuals become more

cognitively complex as they progress through college (Perry, 1968/1999; Baxter

Magolda, 1992). As discussed in Chapter 2, higher levels of cognitive complexity

have shown to be positively correlated with problem solving and empathy

(Santrock, 2007), adjustment to college (Pancer et al., 2000), self-efficacy

(Lawson et al., 2007), and tolerance of diversity (Guthrie, 1996). The current

study proposed that natural recovery could be yet another positive behavioral

indication of individuals functioning more adequately in their environment due to

increases in developmental level, and although the study did not confirm this,

additional research would seem to be warranted in light of the positive findings in

so many other research contexts.

It is also important to note that the positive findings for Hypothesis Two are to be

interpreted with caution, due to the fact that environmental factors could have

influenced the finding for this hypothesis. Examples of mitigating environmental

influences would be study groups specific to the fraternities and sororities studied,

as well as chapter specific grade point average expectations that encouraged

students in the participating chapters to be more academically focused than their

peers. As the following discussion of Hypothesis Three will illustrate, the

environmental conditions the participants experienced may have been those that

are necessary for development (i.e., as illustrated by the findings that supported

Hypothesis Two) but not sufficient for natural recovery to occur (i.e., as

illustrated by the findings for Hypothesis Three).

Hypothesis three. It was hypothesized that there would be a negative

correlation between alcohol related problems as measured by scores on the RAPI

and students' academic level. Because students have shown to become more

cognitively complex the longer they are in college, it was anticipated that this increase in complexity would translate into a reduction of high risk drinking behaviors.

The research finding did not support this hypothesis, and the expected negative correlation was not found. Instead, the actual finding of a positive correlation between class and RAPI scores was in direct contradiction to the hypothesized relationship between these two variables.

One possible explanation for this lack of negative correlation between alcohol related problems as measured by scores on the RAPI and increases in students' academic level, is that the original hypothesis is invalid; that is, that there is no connection between academic level and alcohol related problems. Despite this possibility, a review of the studies presented in Chapter Two offers several alternate explanations for this finding.

Bischoff (2000), for example, suggested that inadequate models for conceptualizing natural recovery make it more difficult to study, predict, and encourage. Specifically, designing models that work to explain significant problems caused by alcohol use before natural recovery, as well as more moderate problems caused by alcohol use before recovery is challenging. Additionally, as noted in Bischoff's study in 2000, there is little agreement in the literature about whether to treat participants who received minor help as a separate category, to include them in with participants who received no help, or to compare them with participants who had received formal treatment. The unexpected result for this hypothesis could be partially explained by relying on these current and

incomplete models of natural recovery. The current study may have been impacted by using the current models of natural recovery because the RAPI examines the negative consequences of students' alcohol use, it does not consider the their thought patterns or associated meaning making surrounding the consequences of their alcohol use. It stands to reason that students could be thinking more complexly about their alcohol use before they are able to completely change their hazardous patterns of use, which would not be detected by the use of the RAPI.

As noted in Chapter Two, Dawson et al. (2006) found that students who exhibited abstinent recovery (i.e., natural recovery where individuals maintained abstinence) had a more extensive history of alcohol use than students who exhibited non-abstinent recovery (i.e., natural recovery where the individuals still consumed alcohol in moderation). As a result, they concluded that natural recovery could take different forms, and hypothesized that these different forms may be due to the difference in the alcohol use histories between the two groups. Their findings also indicated that individuals who had more extensive alcohol use histories took longer to recover than individuals who had less extensive histories (Dawson et al., 2006, p. 198). The current study did not specifically define what constitutes a significant history of alcohol use. This is due to the fact that based on a review of the literature, significant alcohol use was conceptualized as being multi-factorial, and the individual hypotheses examined individual factors that together comprised significant alcohol use. However, Chou and Pickering's (1988) finding (previously discussed in Chapter Two) that individuals who first

use alcohol at age 15 or younger were twice as likely to meet the criteria for

alcohol dependence as adults, would suggest using 15 years or younger for first

use as a threshold. If this criterion is used as a threshold for the current study,

then 92 of the 288 participants who did not receive any sort of formal intervention

for their alcohol use reported their first use of alcohol was at age 15 or younger.

The unexpected positive correlation between alcohol-related problems and

students' academic level in the current study could, thus, be partially attributed to

the fact that this substantial number of participants with the most extensive

alcohol use histories (as shown by their higher RAPI scores) had not had an

adequate window of time in which to naturally recover, and they continued to

engage in problematic drinking behaviors. While based on the review of the

literature age of onset was understood as an important risk factor, it was not

considered in the design of the study that natural recovery might be a more

lengthy process in students with an earlier age of onset. As proposed by Dawson

et al., these participants with the most extensive histories of alcohol-related

problems may have been on the road to recovery but simply may have needed

more time for recovery than they had at the point of testing for this study.

Walters (2002) similarly described the difficulty of selecting the window

of time to use to gauge natural recovery. Walters suggested that one difficulty in

studying and detecting natural recovery is that it is difficult to choose the window

of time to use in data collection. If the window is too narrow, it may miss

detecting natural recovery that happens only after many years of drinking. This

study examined at students during a very narrow time frame, (students in their

sophomore through senior years), and the data that was collected relative to Hypothesis Three may have been usefully broadened if freshmen and alumni were also included.

Another possible way of understanding the absence of expected correlation between participants' class standing and their RAPI scores, is that while participants became more cognitively complex, these gains in cognitive complexity were alone not sufficient to impact their alcohol use. As discussed for Hypothesis One above, physiological maturity is necessary for the development of cognitive complexity, but not sufficient by itself to promote cognitive complexity (Sprinthall, 1978). Hingson et al. (2002) have noted, the issue of natural recovery is complex, and it may be that other factors in addition to increased cognitive complexity are needed to promote natural recovery. Two potential factors for consideration that may more adequately capture natural recovery are ego development (Loevinger, 1985), and the trans-theoretical model of change (Prochaska, DiClemente, & Norcross, 1993). Because the concept of ego development examines growth more broadly than only addressing cognitive development, the complex process of natural recovery might be more fully examined. Additionally, using the trans-theoretical model of change to examine the intersection of cognitive complexity and changes in alcohol use may expose the relationship between cognitive complexity, readiness for change, and alcohol use, if any exists. Accordingly, it would seem premature to suggest that the current findings eliminate cognitive development as a factor to be considered in natural recovery; rather they point to a need for broader future research into

multiple antecedents (including cognitive development) of the natural recovery process.

Hypothesis four. It was hypothesized that male participants would initially drink in greater quantity than female participants as measured by the self-reported number of average drinks consumed, and that males would also show more dramatic changes in their drinking behaviors as measured by the average number of drinks when compared to their class standing. The results for the ANOVA indicated a significant main effect for gender and a non-significant interaction between gender and class. This finding indicates that, individually, class significantly influenced the average number of drinks consumed by participants while gender did not. Additionally, this finding suggests that the interaction of gender and class together did not significantly influence alcohol consumption of participants. One possible explanation for this lack of interaction between gender, class and average number of drinks consumed by participants is that the original hypothesis is invalid; that is, that there is, in fact, no connection between the three variables examined. However, alternative explanations are also possible that seem to dispute this conclusion.

It was illustrated in Chapter Two that men tend to drink more than their female counter-parts, presumably because men are generally larger and have higher fluid volumes (i.e., higher fluid content) than women, Consequently, they may often end up with very different blood alcohol level (BAL) than those of their female peers, even if they consume the same number of drinks (Read et al., 2004). The fact that the current study examined the number of drinks consumed

by students rather than the peak BAL that they achieved could possibly account for the unanticipated finding for this hypothesis. Comparing the number of drinks individuals consumed with the number of drinks that a peer consumed, or even to the number of drinks their peers tend to consume nationally does not permit the determination of what their peak BAL was. This is significant because peak BAL may be a more accurate metric in providing individualized feedback to college students about the level of risk related to their alcohol consumption (Dimeff, 1999). Peak BAL was not used as a metric in this research project because of the difficulties of soliciting accurate self-reported data from students (White, et al., 2005). However, it seems that finding methods of obtaining accurate peak BAL information from students and using that as a metric along with number of drinks consumed could be a way to strengthen the research design used in this and future studies.

Additionally, past research has illustrated significant differences by gender in collegiate drinking patterns (Mooney, Fromme, Kivlahan, & Marlatt, 1987), though current research has also suggested that these patterns are changing. It seems that the risk of alcohol dependence is rising in younger generations, and previously different patterns demonstrated by men and women are starting to converge (Holdcraft & Iacono 2002). However, the significant results along gender lines may indicate that these changing societal trends around gender and drinking behavior are not represented in the current sample.

Hypothesis five. It was hypothesized that there would be a negative correlation between the age of onset of alcohol use as measured by responses in the demographic questionnaire and alcohol related life problems as measured by scores on the RAPI. A Pearson Product Moment correlation revealed a significant relationship that supported this hypothesis.

As shown in Chapter Two, previous research has suggested a link between age of first use, and drinking patterns later in life. Chou and Pickering (1988) found that individuals who first used alcohol at age 15 or younger were twice as likely to meet the criteria for alcohol dependence as adults. Grant and Dawson (1997) found that delaying the age of first use appeared to decrease problems later in life, and for each year that the onset of alcohol use was delayed, the risk of developing alcohol dependence was decreased by 14%. This information can be used to help predict what students may be at higher risk of developing alcohol dependence, and for targeting interventions toward those students who show increased risk based on their age of first use. For example, college health services staff and counseling center staff could include questions about age of first use to clinical intake forms. Students who showed indications of increased risk based on this information could be provided the opportunity to attend a program that focuses on teaches students harm-reduction strategies.

Additionally, this finding is particularly relevant in the context of this study, because it gives some indication that even though participants may have felt pressured to participate (as discussed previously), they nonetheless seemed to provide accurate answers to the questions about their age of first use, as well as

about their current use of alcohol. This is particularly significant to future research, because it may dispute previously cited concerns about impact of social pressure on the accuracy of data collection with regard to drinking behavior.

Implications

The findings of this study have distinct implications for higher education, counselor education, and counseling practice. The following discussion will examine the implications for each of these three areas, and will explore the connections between the implications presented here and the current research in the field that was presented in Chapter Two.

Implications for higher education. A key implication for higher education is that alcohol education programs need to target a broader audience than solely first-year students. The results of hypothesis three showing increased RAPI scores in upper class students versus their younger classmates suggest that alcohol education efforts with older students could still be beneficial. As discussed previously, existing research addresses the benefits of intervening early to delay the age of first use of alcohol, because an early age of first use is seen as an indicator of increased risk for alcohol use disorders later in life. On college campuses early intervention is often difficult, because many students arrive at college with significant previous drinking experience (Johnston et al., 2012). Having missed the opportunity for early intervention with many students, college counselors and administrators may be faced with students who have well-established drinking problems that will not be resolved during their first year. Thus, while the finding for Hypothesis Three does not diminish the importance of

early education and intervention, it suggests that there is still significant need for alcohol education and intervention throughout the college years and not only for freshmen.

In Chapter Two, research by the Higher Education Center was presented that identified five different types of alcohol educational programs being implemented: (a) environmental management, (b) education, (c) early intervention, (d) health promotion and protection, and (e) treatment (2002). Current research suggests that campuses combine these different types of interventions to address the issue of collegiate alcohol use at the level of: (a) the individual, (b) the entire student body, and (c) the larger environment comprised of both the campus and surrounding community (Hingson and Howland, 2002; DeJong et al., 1998). Support for the premise that a multi-faceted approach to addressing collegiate alcohol use comes from an examination of the findings from the research hypotheses examined in the study. As reviewed in the discussion on Hypothesis One, Bischoff (2002) posited that natural recovery is a complex process, and not a simple dichotomy. Perry's scheme (1968/1999), which serves as the theoretical underpinning for the current study, suggests similarly that all students do not develop in exactly the same way. As discussed in more detail in Chapter Two, Perry found that as students progress through the developmental positions, they sometimes employ strategies that serve as alternatives to growth that partially protect them from the dissonance that is part of the process of growth. The work of both Bischoff and Perry suggest that while similarities exist in the process of natural recovery and growth for individuals, each person

ultimately experiences it in nuanced ways. This supports the notion that alcohol education and intervention efforts that are multi-faceted and adaptable to the needs of the individual student may be the most effective, as they can be shaped to meet each student at his or her position of development. While individually based counseling or interventions, including empirically based alcohol education programs may be sufficient for some students, other students my benefit from educational efforts that involve the larger community.

Hypothesis Two, as discussed previously, illustrates that students become more complex as they progress through college. This knowledge that students become more complex each year they are in college holds implications for being able to tailor alcohol education to specific groups of students. For example, sophomores may need different types of information and intervention than freshmen or seniors. Specifically, freshmen with little previous experience with alcohol may benefit from programs focusing on risk-reduction strategies and general information on how alcohol impacts individuals physiologically. Sophomores, and students with prior experience with alcohol, may benefit more from programs focused on how to delineate whether their personal drinking behavior is low-risk or high-risk. As noted in the discussion for Hypothesis Three, Walter's (2002) found that part of the difficulty of studying natural recovery stems from the problem of setting a window of time to examine it. Additionally, Bischoff's (2002) findings (that were explored in the discussion on Hypothesis One) suggest that natural recovery may take several different forms, and the findings of Dawson et al. (2006) (that were included in the earlier

discussion on Hypothesis Three) suggest that individuals who have longer alcohol use histories may take longer to naturally recover. Together these findings suggest that alcohol education that works for some students may not work for other students who differ in both developmental level and in their length of use of alcohol. These findings intersect with the recommendation that alcohol education include the larger community in two ways. First of all, the work of Sprinthall (1978) suggests that if students are placed in a new role (i.e., that of a member of the larger community) and given new experiences (i.e., interacting with the broader community), they may develop in ways that positively influence the development of naturally recovery. Alcohol education efforts that both involve the local community and promote interaction between college students and the larger community may provide both new roles and new experiences that would promote student development. Additionally, if the larger community were included in both alcohol education and research efforts, it would allow for researchers to see how collegiate alcohol use changes across the span from freshman year through becoming a part of the larger community as alumnae.

Implications for Counselor Education. The results of this study hold several implications for Counselor Education in the following areas: (a) counselor training and preparation, (b) promotion of cognitive development, and (c) collaborative development of more comprehensive models of natural recovery.

Counselor training and preparation. Research shows that for 80-90% of college students, alcohol use is part of the collegiate experience (Hingson et al., 2002). While not all college students will develop problematic patterns of alcohol

use during college, some studies have shown up to 44% of college populations engaging in heavy episodic drinking (DeJong, 1995). Additionally, Hypothesis Three preliminarily indicates students at higher levels of complexity may still experience increased alcohol related problems. This suggests that it is important for Counselor Education programs to provide all counseling students with a strong clinical foundation that includes exposure to theories and techniques of substance abuse counseling. It is especially important for Counselor Education programs that are preparing students to work with college students to provide them with a comprehensive understanding of collegiate alcohol use. Such a comprehensive understanding would involve the ability to diagnose and treat substance abuse disorders at all grade levels in a college student population. Specifically, counselors and counselor trainees need skills that will allow them to intervene with both students who are engaging in alcohol abuse, as well as with students who have developed alcohol dependence.

Promotion of cognitive development. CACREP training and professional licensure requirements in Virginia require that counselors have completed specific course work that prepares them to both diagnose and treat substance use disorders. Because of these mandates and the demonstrated importance of having clinical staff with these skills sets, Counselor Education programs that train students to work with college students should offer specific course work to prepare counselor trainees for these roles. The promotion of cognitive development is significant in the context of the current study because, as discussed during the examination of Hypothesis Two, cognitive development may

be one factor that influences the larger process of natural recovery. The findings of the current study could not confirm this link. However, because it is a central understanding of cognitive developmental theory that individuals function more adequately at higher levels of development, and because research discussed previously has shown increased development is linked with improved adjustment to college (Pancer et al., 2000) and self-efficacy (Lawson et al., 2007), it would stand to reason that promoting cognitive development is beneficial even if it cannot yet be proven to influence natural recovery. By designing curricula that are developmentally focused, counselor-training programs can equip student counselors with the tools to understand and assist college students as they experience many developmental challenges including those related to alcohol use.

As discussed more specifically in Chapter Two, higher levels of cognitive development are correlated with the ability to deal with the environment in more complex and nuanced ways. Counselor Education programs have a unique opportunity to promote increases in students' cognitive development, thereby affording them greater flexibility in the ways they work with clients, and skills needed to foster developmental growth in their clients. As discussed in Chapter One, the interaction that individuals have with their environment, along with their level of physiological maturity are both important elements in fostering growth (King, 1978). Sprinthall suggested that the combination of providing individuals with new experiences, and requiring them to assume new roles two specific environmental conditions that help to foster developmental growth (Sprinthall, 1978). Counselors Educators who work with college student personnel can work

to educate them about implementing programs that set the facilitative conditions for cognitive development. The Deliberate Psychological Education (DPE) model proposed by Sprinthall & Mosher (1978) (and discussed in Chapter Two) is one example of tools that Counselor Educators can provide to college student personnel to assist them in helping to foster the cognitive development of their students. As discussed previously in this chapter, even though the current study was unable to definitively link gains in cognitive development with decreases in hazardous drinking, previous research has shown increased complexity to be positively correlated with problem solving and empathy (Santrock, 2007) and tolerance of diversity (Guthrie, 1996). This suggests that promoting gains in cognitive development in college students may be advantageous, even though the current study has not shown it to impact alcohol use directly.

   Collaborative development of more comprehensive models of natural recovery. Bischoff (2002) & Misch (2007) suggested the need for the development of more comprehensive models of natural recovery. The current study's findings support this need as well; specifically the findings of Hypothesis One and Hypothesis Three. These findings suggest that the connection between level of cognitive development and the level of hazardous alcohol related problems are too complex to be fully explained using existing models. Counselor Educators can make significant contributions to the theoretical understanding of natural recovery through future research that addresses the methodological shortcomings of the current study. Examining natural recovery through the assessment of cognitive development, in addition to using constructs such as

Loevinger's ego development (1985) and the Trans-theoretical Model of Change

as suggested by Prochaska, DiClemente, and Norcross (1993), will aid in

developing a more complete and nuanced understanding of natural recovery.

Additionally, Counselor Educators can make contributions to the body of

knowledge through the development of interventions that promote of the complex

process of natural recovery.

Implications for Counseling Practice

In addition to the implications for Counselor Education discussed above,

this study also has implications for counseling practitioners who work with

college students, and illustrates the need for: (a) counselors who are trained in

both college student development, as well as screening, brief intervention, and

treatment of alcohol use disorders in college students; (b) providing students

access to resources for making changes in their alcohol use, and (c) counselors

who can educate both students and administrators about the powerful change

students' alcohol use that can occur when interventions are initiated on both the

campus and system level, as well as at the level of the individual student.

Counselor training. Because the majority of college students drink at

some point during their college career, counselors in all settings who work with

college and college-age students need to be specifically equipped to provide

screening for alcohol related disorders, and skilled in providing brief intervention

and treatment (Hingson et al., 2002). As this study has recommended, college-

age students can benefit from alcohol education at any point in their

developmental trajectory; thus, a counselor's understanding of different

developmental stages and their related behaviors and treatment needs may be essential for effective work with this client population.

Resources for change. Students need access to resources for making cultural changes in their fraternities and sororities regarding alcohol use, as well as in their individual drinking behavior. This might take the form of harm reduction based programming, as discussed in Chapter Two, which involves educating students about how to minimize the potential hazards of drinking, and which could be delivered to an entire fraternity or sorority chapter. It could also take the form of providing access for students to an alcohol screening using the RAPI, or similar instrument, and a trained clinician who can interpret the results. While Misch (2007), Walters (2000), and Dawson et al. (2006) have noted that many college students do naturally recover from patterns of hazardous drinking, this is not true for all students. Participants in the current study, in fact, appeared to experience increased alcohol related problems at higher grade levels (as discussed in Hypothesis Three). This would suggest that older and more cognitively complex students might have an increased need for access to assistance. For this reason, it is important that in addition to having access to screening and brief interventions, campuses provide students at all academic levels with access to counselors who have the training necessary to provide more long-term clinical interventions to assist with emerging alcohol use disorders.

Fostering Systemic Change. The AMOD research discussed in Chapter Two illustrates how powerfully campus environments can shape student behavior. While individual change and intervention is needed, it is, alone, not enough to

create meaningful change in alcohol use on college campuses. Environmental change, or change at the system level must be coupled with this individual change in order to affect more significant positive impact. Previous research has addressed the importance of the individual interacting with the environment in order to catalyze growth (King, 1978; Sprinthall, 1978). As discussed during the discussion of Hypothesis Three, it is possible that the campus environments experienced by participants in this study were not adequate to promote sufficient growth to encourage natural recovery. By fostering systemic change in how alcohol is both perceived and used on college campuses, environments that are more conducive to encouraging the development of natural recovery may be created. Counselors working in college settings can have an important impact on promoting this change by advocating for the use of evidence-based alcohol education and counseling models. Through the use of evidence based practices, such as those suggested by NIAAA in *A Call to Action: Changing the Culture of Drinking at U.S. Colleges*, educating administrators about models of natural recovery, and advocating for the allocation of meaningful campus resources to address the issue of collegiate alcohol use, counselors and counselor educators can help foster systemic change.

Limitations of the Study

Limitations to the current study were discussed in depth in Chapter Three; however they are summarized below to emphasize their importance in interpreting the findings of this study. In particular, sampling, instrumentation, and methodology limitations will be emphasized.

Sampling

Sampling is a critical part of research design, and the way the sample was chosen for this study has significant implications for how the results can and cannot be generalized to both the larger student population at the participant schools, as well as to students at other schools (Gall, Gall, Borg, 2003, p. 169). As previously mentioned in the discussion of the findings for Hypothesis One, both the sampling methods, as well as the population sampled, could have significantly impacted the results of this study.

The sample used for this study was selected from Greek fraternity and sorority students at two public, liberal arts colleges in Virginia. As mentioned previously, it cannot be assumed that the sample used in this study was representative of the larger student body at each individual school or to the student bodies at other colleges and universities. Replication of this study with participants that include both fraternity/sorority affiliated and unaffiliated students would help provide a more detailed understanding of whether the patterns detected in this study were representative of larger trends with collegiate drinkers.

Fraternity and sorority members were chosen as the target population for this study because they represented a convenience sample. While this allowed the researcher to access large numbers of individuals during data collection, it failed to provide for random sampling of participants and, thus, limited the ability to generalize the findings to a larger population. While on the day of data collection students could choose to not fill out a survey, concerns about being different from the rest of the group may have influenced students' choice to participate, albeit

reluctantly. Replicating this study using a randomly selected comparison group of freshmen and alumni students, who are not fraternity or sorority members, would help eliminate this shortcoming in the sampling of this study.

Instrumentation

The RAPI was chosen to assess for alcohol related problems because of its strong reliability and validity, while the LEP was chosen for both its psychometric properties along with being one of the few instruments of its type. Even though both instruments have been used extensively in other research, it is possible that the choice of instruments, how they were proctored, and students' understanding of them represent limitations to this study. During the administration of the instruments, few students had questions about the demographic questionnaire, or the RAPI. However, even though participants appeared to understand the RAPI, there were some missing scores that had to subsequently be replaced due presumably to the difficulty in reading the instrument's seven-page, single sided, layout and relatively small font size. Based on the researchers' observations during the data collection, the inability of some participants to be able to easily read the RAPI was one limitation. During each administration of the LEP, students generally had questions about the two scores for each of its five domains, as well as about ranking the top three choices. Specifically, they needed clarification that they needed to answer the 13 questions for each domain, and then also rank order the three questions that were most important to them for each domain. Because of the large size of the LEP packets, students had to frequently flip back and forth between the sections in order to mark the correct answers on

their score sheet. These observations made by the researcher during data collection suggest that initially some students were confused by the format of the instrument. One recommendation for overcoming the format of the instrument would be to reformat the instruments as online instruments. By using either e-readers or a computer lab during the data collection, many individuals could still participate in data collection at one time.

Methodology

Perhaps the most obvious limitation of this study was the use of a cross-section study design, rather than a longitudinal study design. Although the study design was chosen intentionally to fit within the parameters of a dissertation research project, it represents a significant limitation to this study. Comparing students' cognitive development and alcohol use to that of their peers versus tracking individual students' cognitive development and alcohol use over time provided a useful but incomplete understanding to the phenomenon of natural recovery. Further research is needed to understand the relationship between cognitive development and its influence on collegiate alcohol use. As Walters (2000), Bischoff (2002), and others have noted, lack of a standard definition of natural recovery makes it difficult to compare future research with past research that has examined the phenomenon of natural recovery. One gap in the understanding of natural recovery is how to set a measurable, standardized, time frame for exploring natural recovery. Walters noted that the length of follow up varied from one to 27 years in the studies he examined (2000). When this tremendous variance is combined with Perry's (1968/1999), and Baxter-

Magolda's (1992) suggestions that student development continues well beyond the college years, one can see the difficulty of studying how natural recovery and cognitive development are related given that both processes are likely continuing well beyond students' time on campus. Future studies that examine natural recovery in college students could add to the body of knowledge of natural recovery in a significant way by extending window they study to include the five years after students graduate from college.

Future Research

Asking similar research questions, but employing a longitudinal study design in future studies may discover a richer and more nuanced understanding of natural recovery. One factor that was not assessed in the current study was the culture on each campus in respect to alcohol. Current research illustrates the power of expectancies both at the individual and campus level in influencing college students' use of alcohol. Social events where alcohol us used are one part of this collegiate culture for members of fraternities and sororities (NIAAA, 2002, p. 2). They may take the form of planned events at a fraternity house, or formals and semi-formals, but in any form, they are a significant part of the social landscape. The data collection was not planned with an emphasis on the context in which significant events where alcohol was used took place. Walter's (2000) work suggested the importance of social support, new relationships, and identity transformation as part of the mechanism that is involved in natural recovery. Research that assesses and measures the culture and subcultures surrounding alcohol on college campuses and how these intersect with the process of natural

recovery has the potential to promote understanding of natural recovery in a more complex and meaningful way.

Walters (2000) also highlighted the complexity of choosing a window of time for use in studies of natural recovery. One implication of both Walter's findings and those of this study is for future studies to employ a longitudinal design but also to track students' cognitive development and alcohol use over longer periods of time. Dawson et al. (2006) examined the importance of life transitions to the process of natural recovery, and research from the Monitoring the Future (Johnston, O'Malley, Bachman, & Schulenberg, 2012) suggests that many students already come to college with significant experience with alcohol. Longitudinal studies that track participants from high school through college and into the first few years after college would help provide a more detailed understanding of the cognitive developmental changes that occur during these important windows of growth and development and how they intersect with alcohol use for many college students.

Factors examined in this study were developmental factors hypothesized to be involved in the process of natural recovery. Drawing on the research in Chapter Two, one implication for future research would be to look more broadly at other types of factors that may be linked to natural recovery in college students (e.g., financial problems or health concerns). The literature regarding the role of significant life events on the process of natural recovery would suggest examining how new role taking experiences such as dating a significant other, choosing a career, joining a fraternity, taking a leadership role on campus, and working to

help pay for college could influence natural recovery (Dawson et al., 2006). Bischoff cautioned that conceptualizing natural recovery as a process, with only two possible outcomes, is an oversimplification (2002). Thus, another implication for future research would be to explore the possibility that there are multiple developmental paths that lead to natural recovery as well as multiple potential outcomes. This might be examined through the use of a broader national sample to compare the experiences of individuals who naturally recovery with no help, those who naturally recover with some assistance, and those who recover after formal treatment.

Conclusions

Natural Recovery is a complex phenomenon, and as such, it is difficult to define, operationalize, and study. While the results of this study did not fully confirm the research hypotheses that were being tested, they did provide some valuable insights into the complicated relationship between cognitive development and drinking behaviors and some clear directions for future research. As continued insight is gained into the process of natural recovery, both alcohol education and therapeutic interventions can be developed which more fully meet the needs of the college student population.

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Appendix A

Email to Chapter Presidents

Dear Fraternity and Sorority Chapter President:

Are you searching for a fun activity that your chapter members can do together which will enhance chapter spirit? I would like to solicit your participation in a study, which could help you win a Nintendo Wii that your chapter could either use, or raffle to fund your philanthropy efforts.
I am writing to share information with you concerning a unique opportunity for us to collaborate on a project examining how college students' drinking patterns change over time. This study has been approved by both the College of William and Mary and Christopher Newport University Institutional Review Boards for the Protection of Human Subjects.

As part of the confidentiality of the study, the fraternities and sororities that participate will not be identified in any way. Individual participants are kept completely anonymous as well.

By opting to participate, your chapter will be entered in a drawing for a Nintendo Wii. As this research project will take place only at William and Mary and Christopher Newport University, there will a very small pool of chapters who are competing for the Wii. Additionally, participation in this important research study may also count toward organizational service portfolios.

The goal of this study is to learn more about how some students drinking patterns decrease during the time they are in college. The information gained from the study will be used to provide better alcohol education to fraternities and sororities in the future. My research interest in fraternities and sororities is due to the fact that I am working to find ways to deliver alcohol education that is not preachy and better meets the needs of the chapters. My experience is that some of the current methods leave something to be desired.

I am looking for chapters that will volunteer to let me come into their chapter meetings and proctor two short surveys. This will take approximately 45 minutes to an hour total to complete, and responses are completely anonymous. The survey is given with pencil and paper, so no special space or equipment is needed. If there are times outside chapter meetings, which are more convenient for me to meet with members from your chapter, I am more than willing to schedule times which are convenient for you. Please contact me at david.keel@cnu.edu or 757-594-7047 (work) or 804- 873-5472 (cell) so that we can arrange a time for me to meet with your chapter.

Thanks for your willingness to consider participating in this project.

Sincerely,

Dave Keel

Appendix B

Demographic Questionnaire

1) College or University Attended: Christopher Newport   William and Mary

2) Age:_____

3) Gender: M   F

4) Class: Sophomore   Junior   Senior
(Please answer this question based on how many semesters you have been a student, not your number of credit hours earned)

5) How old were you when you had alcohol for the first time?

6) Have you ever worked with a counselor or other helping professional to address your drinking? (Please circle one)
Yes   No

7) If you answered yes to question 7, approximately how many sessions did you attend?

8) Have you ever attended a self-help group, like Alcoholics Anonymous to help you make changes in your drinking?

9) If you answered yes to question 9, approximately how many sessions did you attend?

Appendix C

<u>**R. A. P. I**</u>

Different things happen to people while they are drinking ALCOHOL or as a result of their ALCOHOL use. Some of these things are listed below. Please indicate how many times each has happened to you during the last three years while you were drinking alcohol or as the result of your alcohol use. When marking your answers, use the following code:

0 = never
1 = 1-2 times
2 = 3-5 times
3 = 6-10 times
4 = more than 10 times

How many times did the following things happen to you while you were drinking alcohol or because of your alcohol use during the last 3 years?

0 1 2 3 4 Not able to do your homework or study for a test
0 1 2 3 4 Got into fights, acted bad, or did mean things
0 1 2 3 4 Missed out on other things because you spent too much
        money on alcohol

0 1 2 3 4 Went to work or school high or drunk
0 1 2 3 4 Caused shame or embarrassment to someone
0 1 2 3 4 Neglected your responsibilities

0 1 2 3 4 Relatives avoided you
0 1 2 3 4 Felt that you needed more alcohol than you used to use in
        order to get the same effect
0 1 2 3 4 Tried to control your drinking by trying to drink only at
        certain times of the day or certain places

0 1 2 3 4 Had withdrawal symptoms, that is, felt sick because you
        stopped or cut down on drinking
0 1 2 3 4 Noticed a change in your personality
0 1 2 3 4 Felt that you had a problem with alcohol

0 1 2 3 4 Missed a day (or part of a day) of school or work
0 1 2 3 4 Tried to cut down or quit drinking
0 1 2 3 4 Suddenly found yourself in a place that you could not
        remember getting to

0 1 2 3 4 Passed out or fainted suddenly
0 1 2 3 4 Had a fight, argument or bad feelings with a friend
0 1 2 3 4 Had a fight, argument or bad feelings with a family member

0 1 2 3 4 Kept drinking when you promised yourself not to

0 1 2 3 4 Felt you were going crazy

0 1 2 3 4 Had a bad time

0 1 2 3 4 Felt physically or psychologically dependent on alcohol

0 1 2 3 4 Was told by a friend or neighbor to stop or cut down
            drinking

SCORING PROCEDURE FOR THE RAPI

Simply add the numbers from each response together to form a total score.

Mean Scores Currently Available:

Clinical Sample* N Mean

14-16 year old males 42 23.3

14-16 year old females 19 22.2

17-18 year old males 43 21.1

17-18 year old females 15 26.0

Nonclinical Sample* N Mean

15 year old males 151 7.5

15 year old females 147 5.9

18 year old males 211 8.2

18 year old females 208 7.4

                    *In both samples means are based upon users only (drank at least one drink in the last year)

Appendix D

I, (print name here)_____, am
willing to participate in a study of Fraternity and Sorority members to evaluate the
correlation between developmental level and level of alcohol use. I understand
that this study is being conducted by David S. Keel, a doctoral candidate in
counseling at the College of William and Mary.

As a participant in this study, I am aware that I am being asked to complete three
different research instruments: Learning Environment Preferences (LEP), the
Rutgers Alcohol Problem Index (RAPI), and a brief demographic questionnaire.

I am aware that my participation is voluntary even though this is being proctored
during my chapter meeting. Even after filling out these instruments I may
indicate to the researcher that I do not want my data to be used and I may
withdraw from the study with no penalty.

The instruments and demographic data will be confidential and identified only by
a code which I will chose. This code allows the researcher to identify both my
instruments and demographic data as coming from the same participant. It does
not allow me to be identified.

I also understand that a copy of the results of this study will be emailed to me
upon request. I am aware that I am to report dissatisfactions with any aspect of
this research to the Chair of the Protection of Human Subjects Committee, Dr.
Tom Ward at (757) 221-2317, or tjward@wm.edu.

By participating in this study, I understand that there are no obvious risks to my
physical or mental health.

Confidentiality Statement

As a participant in this study, I am aware that all records will be kept confidential
and my name will not be associated with any of the results of this study.

I fully understand the above statements, and do hereby consent to participate in
this study.

_____   _____
     Date   **Participant's Signature**

LEARNING ENVIRONMENT PREFERENCES

This survey asks you to describe what you believe to be the most significant issues in your **IDEAL LEARNING ENVIRONMENT**. Your opinions are important to us as we study how students think about teaching and learning issues. We ask, therefore, that you take this task seriously and give your responses some thought. We appreciate your cooperation in sharing what you find most important in a learning environment.

The survey consists of five sections, each representing a different aspect of learning environments. In each section, you are presented with a list of specific statements about that particular area. Try not to focus on a specific class or classes as you think about these items; focus on their significance in an *ideal* learning environment *for you.*

We ask that you do two things for each section of the instrument:

1. Please **rate** each item of the section (using the 1-4 scale provided below) in terms of its significance or importance to your learning.
2. Review the list and **rank** the three most important items to you as you think about your *ideal learning environment* by writing *the item numbers* on the appropriate spaces at the bottom of the answer sheet.

Please mark your answers on the separate answer sheet provided, and be sure to indicate both your ratings of individual items **and** *your ranking of the top 3 items in each section.* It is very important that you indicate your top three choices for each question area by writing the ITEM NUMBER in the spaces provided (1st choice, 2nd choice, 3rd choice).

Rating Scale:

1	2	3	4
Not at all significant significant	Somewhat significant	Moderately significant	Very significant

Before you begin, you may be asked to provide us with some background information. This information will be used to examine group differences; your name or social security number may be used at some point in the

future if a follow-up survey is required. ALL RESPONSES WILL BE KEPT CONFIDENTIAL. Again, thank you very much for sharing with us your ideas about learning.

DOMAIN ONE:
COURSE CONTENT/VIEW OF LEARNING

MY IDEAL LEARNING ENVIRONMENT WOULD:

1. Emphasize basic facts and definitions.
2. Focus more on having the right answers than on discussing methods or how to solve problems.
3. Insure that I get all the course knowledge from the professor.
4. Provide me with an opportunity to learn methods and solve problems.
5. Allow me a chance to think and reason, applying facts to support my opinions.
6. Emphasize learning simply for the sake of learning or gaining new expertise.
7. Let me decide for myself whether issues discussed in class are right or wrong, based on my own interpretations and ideas.
8. Stress the practical applications of the material.
9. Focus on the socio-psycho, cultural and historical implications and ramifications of the subject matter.
10. Serve primarily as a catalyst for research and learning on my own, integrating the knowledge gained into my thinking.
11. Stress learning and thinking on my own, not being spoon-fed learning by the instructor.
12. Provide me with appropriate learning situations for thinking about and seeking personal truths.
13. Emphasize a good positive relationship among the students and between the students and teacher.

PLEASE BE SURE TO REVIEW THE ABOVE LIST AND MARK YOUR THREE MOST SIGNIFICANT ITEMS (BY ITEM NUMBER) IN THE LINES PROVIDED ON THE ANSWER SHEET.

Rating Scale:

1	2	3	4
Not at all significant significant	Somewhat significant	Moderately significant	Very

DOMAIN TWO:
ROLE OF INSTRUCTOR

IN MY IDEAL LEARNING ENVIRONMENT, THE TEACHER WOULD:

1. Teach me all the facts and information I am supposed to learn.
2. Use up-to-date textbooks and materials and teach from them, not ignore them.
3. Give clear directions and guidance for all course activities and assignments.
4. Have only a minimal role in the class, turning much of the control of course content and class discussions over to the students.
5. Be not just an instructor, but more an explainer, entertainer and friend.
6. Recognize that learning is mutual--individual class members contribute fully to the teaching and learning in the class.
7. Provide a model for conceptualizing living and learning rather than solving problems.
8. Utilize his/her expertise to provide me with a critique of my work.
9. Demonstrate a way to think about the subject matter and then help me explore the issues and come to my own conclusions.
10. Offer extensive comments and reactions about my performance in class (papers, exams, etc.).
11. Challenge students to present their own ideas, argue with positions taken, and demand evidence for their beliefs.
12. Put a lot of effort into the class, making it interesting and worthwhile.
13. Present arguments on course issues based on his/her expertise to stimulate active debate among class members.

PLEASE BE SURE TO REVIEW THE ABOVE LIST AND MARK YOUR THREE MOST SIGNIFICANT ITEMS (BY ITEM NUMBER) IN THE LINES PROVIDED ON THE ANSWER SHEET.

Rating Scale:

1	2	3	4
Not at all significant significant	Somewhat significant	Moderately significant	Very

DOMAIN THREE:
ROLE OF STUDENT/PEERS

IN MY IDEAL LEARNING ENVIRONMENT, AS A STUDENT I WOULD:

1. Study and memorize the subject matter--the teacher is there to teach it.
2. Take good notes on what's presented in class and reproduce that information on the tests.
3. Enjoy having my friends in the class, but other than that classmates don't add much to what I would get from a class.
4. Hope to develop my ability to reason and judge based on standards defined by the subject.
5. Prefer to do independent research allowing me to produce my own ideas and arguments.
6. Expect to be challenged to work hard in the class.
7. Prefer that my classmates be concerned with increasing their awareness of themselves to others in relation to the world.
8. Anticipate that my classmates would contribute significantly to the course learning through their own expertise in the content.
9. Want opportunities to think on my own, making connections between the issues discussed in class and other areas I'm studying.
10. Take some leadership, along with my classmates, in deciding how the class will be run.
11. Participate actively with my peers in class discussions and ask as many questions as necessary to fully understand the topic.
12. Expect to take learning seriously and be personally motivated to learn the subject.
13. Want to learn methods and procedures related to the subject--learn how to learn.

PLEASE BE SURE TO REVIEW THE ABOVE LIST AND MARK YOUR THREE MOST SIGNIFICANT ITEMS (BY ITEM NUMBER) IN THE LINES PROVIDED ON THE ANSWER SHEET.

Rating Scale:

1	2	3	4
Not at all significant significant	Somewhat significant	Moderately significant	Very

DOMAIN FOUR:
CLASSROOM ATMOSPHERE/ACTIVITIES

IN MY IDEAL LEARNING ENVIRONMENT, THE CLASSROOM
ATMOSPHERE AND ACTIVITIES WOULD:

1. Be organized and well structured—there should be clear expectations
set (like a structured syllabus that's followed).
2. Consist of lectures (with a chance to ask questions) because I can get
all the facts I need to know more efficiently that way.
3. Include specific, detailed instructions for all activities and assignments.
4. Focus on step-by-step procedures so that if you did the procedure
correctly each time, your answer would be correct.
5. Provide opportunities for me to pull together connections among various
subject areas and then construct an adequate argument.
6. Be only loosely structured, with the students themselves taking most of
the responsibility for what structure there is.
7. Include research papers, since they demand that I consult sources and
then offer my own interpretation and thinking.
8. Have enough variety in content areas and learning experiences to keep
me interested.
9. Be practiced and internalized but be balanced by group
experimentation, intuition, comprehension, and imagination.
10. Consist of a seminar format, providing an exchange of ideas so that I
can critique my own perspectives on the subject matter.
11. Emphasize discussions of personal answers based on relevant
evidence rather than just right and wrong answers.
12. Be an intellectual dialogue and debate among a small group of peers
motivated to learn for the sake of learning.
13. Include lots of projects and assignments with practical, everyday
applications.

PLEASE BE SURE TO REVIEW THE ABOVE LIST AND MARK YOUR
THREE MOST SIGNIFICANT ITEMS (BY ITEM NUMBER) IN THE LINES
PROVIDED ON THE ANSWER SHEET.

Rating Scale:

1	2	3	4
Not at all significant significant	Somewhat significant	Moderately significant	Very

DOMAIN FIVE:

EVALUATION PROCEDURES

EVALUATION PROCEDURES IN MY IDEAL LEARNING ENVIRONMENT WOULD:

1. Include straightforward, not "tricky," tests, covering only what has been taught and nothing else.
2. Be up to the teacher, since s/he knows the material best.
3. Consist of objective-style tests because they have clearcut right or wrong answers.
4. Be based on how much students have improved in the class and on how hard they have worked in class.
5. Provide an opportunity for me to judge my own work along with the teacher and learn from the critique at the same time.
6. Not include grades, since there aren't really any objective standards teachers can use to evaluate students' thinking.
7. Include grading by a prearranged point system(homework, participation, tests, etc.), since I think it seems the most fair.
8. Represent a synthesis of internal and external opportunities for judgment and learning enhancing the quality of the class.
9. Consist of thoughtful criticism of my work by someone with appropriate expertise.
10. Emphasize essay exams, papers, etc. rather than objective-style tests so that I can show how much I've learned.
11. Allow students to demonstrate that they can think on their own and make connections not made in class.
12. Include judgments of the quality of my oral and written work as a way to enhance my learning in the class.
13. Emphasize independent thinking by each student, but include some focus on the quality of one's arguments and evidence.

PLEASE BE SURE TO REVIEW THE ABOVE LIST AND MARK YOUR THREE <u>MOST SIGNIFICANT</u> ITEMS (BY ITEM NUMBER) IN THE LINES PROVIDED ON THE ANSWER SHEET.

Rating Scale:

1	2	3	4
Not at all significant significant	Somewhat significant	Moderately significant	Very

LEARNING ENVIRONMENT PREFERENCES ANSWER SHEET

STUDENT CODE NUMBER: _____

Rating Scale: 1   2   3   4
           Not at all   Somewhat   Moderately   Very
           significant   significant   significant
           significant

For each domain, record your rating of each item (using the rating scale described above) on the lines by the appropriate item numbers.

DOMAINS

Course Content/	Role of Evaluation	Role of	Classroom
View of Learning	Instructor Procedures	Student/Peers	Atmosphere

1._____	1._____	1._____	1._____	1._____
2,_____	2,_____	2,_____	2,_____	2,_____
3._____	3._____	3._____	3._____	3._____
4._____	4._____	4._____	4._____	4._____
5._____	5._____	5._____	5._____	5._____
6._____	6._____	6._____	6._____	6._____
7._____	7._____	7._____	7._____	7._____
8._____	8._____	8._____	8._____	8._____
9._____	9._____	9._____	9._____	9._____
10._____	10._____	10._____	10._____	10._____
11._____	11._____	11._____	11._____	11._____
12._____	12._____	12._____	12._____	12._____
13._____	13._____	13._____	13._____	13._____

Now record your **TOP THREE CHOICES** for each domain area by writing the **ITEM NUMBERS,** not your ratings, of these choices in the spaces provided below. (For example, if you consider item # 2 the most significant issue for your own learning related to the domain of "Role of Instructor," write "2" next to "1st" under that domain below.)

COURSE CONTENT	ROLE OF EVALUATION INSTRUCTOR PROCEDURES	ROLE OF STUDENT/PEERS	CLASSROOM ATMOSPHERE

•

1ST_____   1ST_____   1ST_____   1ST_____
1ST_____

2ND_____   2ND_____   2ND_____   2ND_____
2ND_____

3RD_____   3RD_____   3RD_____   3RD_____
3RD_____

Vita
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Doctor of Education

1999-2001   North Carolina State University
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Abstract

A SYSTEMATIC /STRUCTURAL EXAMINATION OF FACTORS THAT FACILITATE AND INHIBIT NATURAL RECOVERY FROM ALCOHOL ABUSE IN COLLEGE STUDENTS

Student, David Keel, Ph. D. The College of William and Mary in Virginia, 2013. 154 pp.
Chairperson: Professor Rip McAdams

The purpose of this study was to investigate the factors involved in natural recover or spontaneous remission from high-risk alcohol use in college students. The author hoped to explore the relationship between cognitive development and college students' drinking behaviors. Fraternity and sorority students from The College of William and Mary and Christopher Newport University served as participants in this study. The two universities were chosen because their undergraduate enrollments were approximately equal, and both campuses possessed a similar number of active fraternity and sorority chapters. Participants completed a demographic questionnaire, an instrument to assess for problems caused by their drinking, and an instrument designed to measure their level of cognitive complexity.

It was hypothesized that as students became for cognitive complex over time, that their alcohol use would become less hazardous. This was not supported by the findings however, and participants instead appeared to engage in higher levels of hazardous drinking as they became more cognitively complex.