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Predicting the outcome of leadership identification from a college student's experiences

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NOTE TO USERS

PREDICTING THE OUTCOME OF LEADERSHIP IDENTIFICATION FROM A COLLEGE STUDENT'S EXPERIENCES

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by

Robert G. Wood

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FROM A COLLEGE STUDENT'S EXPERIENCES

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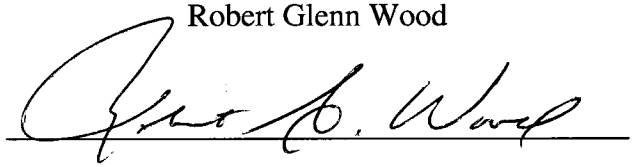

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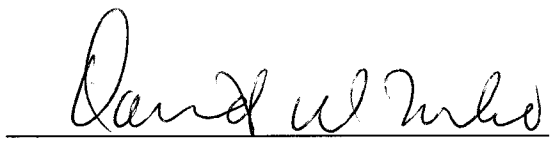

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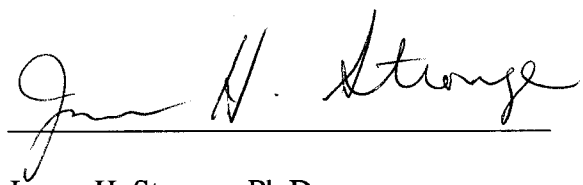

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PREDICTING THE OUTCOME OF LEADERSHIP IDENTIFICATION FROM A COLLEGE STUDENT'S EXPERIENCES

ABSTRACT

This purpose of this study was to investigate if student leadership can be predicted and how student leaders differ from those who do not assume positions of leadership at the College of William and Mary (W&M). A key element of this study lies in the examination of differences between non-leader students and student leaders in their responses on a college survey given to all seniors.

The demographic data collected for this research included gender, ethnic group and domicile. The population of this study (N = 4,037) is all seniors who graduated in May 2001, 2002, and 2003. The Office of Institutional Research provided the aggregate data on graduating seniors. The sample (N = 1,937) is all the seniors who completed the sections of Senior Survey pertaining to gender, ethnic group and domicile and who were scheduled to gradate in May 2001, 2002 or 2003, representing 48% of the graduating seniors from 2001 to 2003.

In an analysis on involvement in co-curricular activities, student leaders were found to be more involved in a social fraternity or sorority than non-leader students. An analysis examined the possibility that the outcome of a student's perception of his knowledge could be predicted using involvement in co-curricular activities and leadership identification. The results were significant but minimal contributions by leadership identification and involvement in a social fraternity/sorority were found. Involvement as a student leader is useful in predicting a student's grade point average. Involvement as a

student leader did not help in predicting post graduation plans. Lastly, involvement as a student leader does little in predicting the outcome of a student's perception of his skills and knowledge and William and Mary's contribution to his skills and knowledge.

Research on student leadership, such as this study on the identification of the differences between non-leader students and student leaders, should be continued. Student Affairs professionals need to understand the outcomes of being involved as a student leader. Student affairs practitioners will find relevance in continuing this research to better understand the impact of having been a student leader.

ROBERT GLENN WOOD, JR.

EDUCATIONAL POLICY, PLANNING AND LEADERSHIP

THE COLLEGE OF WILLIAM AND MARY

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This study on student leaders has been a long time goal and would not have been possible without the support of many colleagues and family. The development of student leaders was my career for a short time, but has evolved into what will be a lifelong passion to get others to recognize the importance of this aspect of the college student experience.

The members of my committee served an important role in the development of this study and in my development as a professional. First, I would like to thank my dissertation committee – Dr. David Leslie, Dr. Tom Ward and Dr. James Stronge. Their guidance and collaboration in this effort, particularly David as the committee chairman and Tom as the methodologist, were invaluable. I had the pleasure to work with professionals such as Vice President Sam Sadler, Dr. Daina Henry, Dr. Susan Bosworth and Karen Schwartz who showed great patience and interest in the subject of this research, student leaders.

Lastly, I wish to thank my family for providing endless love, encouragement and support over the many years of this endeavor. To my grandparents and parents, I thank you for providing the example that through hard work many things are possible. To my children, Megan and Drew, thank you for understanding the task that faced your father was of his own making which attempts to provide a good example for the both of you. To my loving wife, Judy, thank you for your love and support with understanding that this was a journey of learning which we shared.

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Chapter One

Introduction

Nurturing leadership has long been recognized as an essential dimension of higher education. Colleges and universities emphasize the development of student leadership skills and often declare this a curricular goal in mission statements, institutional literature, and on websites. This focus on leadership responds to society's desire for educated leaders who are prepared to contribute to their fields of professional study and their communities (Zimmerman-Oster & Burkhardt, 1999).

Some university students join organizations and assume leadership positions in hope of developing leadership skills. This experience may be their only exposure to leadership development. Formal leadership course work may or may not be available to provide a foundation of leadership skills.

Research on student leaders and student leadership development has had numerous findings. Leading researchers of student leadership development have found involvement in leadership positions has positive effects (Astin, 1977, 1984, 1993). Having increased confidence in their leadership abilities is one of the positive effects students experience as a result of their involvement as a student leader. (Zimmerman-Oster & Burkhardt, 1999). Additionally, students in leadership development programs have increased confidence in their leadership skills and they are more willing to serve as leaders in student organizations (Cress, Astin, Zimmerman-Oster, & Burkhardt, 2001). Students involved as leaders scored significantly higher on the Student Developmental Task and Lifestyle Inventory than non-leaders in Developing Purpose, Educational Involvement, Life Management, and Cultural Participation (Cooper, Healy, & Simpson, 1994). Participants

in leadership activities were better able to plan and implement programs and become involved in co-curricular activities (Cress, et al., 2001).

Student leadership development is important from the personal satisfaction level and from the professional education level. Families of the students view leadership development as an important outcome of their children's undergraduate experiences. Parents recognize the career benefits of well-developed leadership skills (e.g., the ability to communicate, commitment to civic responsibility, conflict resolution skills, ability to plan and the willingness to take risk) (Cress et. al., 2001). Employers look for employees who possess basic leadership skills that will help them to collaborate effectively with others and share responsibilities.

Because leadership experience is beneficial for the student and the college and because specific experiences may help develop leadership skills, this study will examine relationships between aspects of the student experience and emergent leadership status. Leadership involvement has quality and quantity components that are hypothesized to be directly proportional to participation in leadership activities (Astin, 1993).

In the literature review, the researcher will explore theoretical constructs of leadership and the literature on student leadership development programs and their effects on leadership skill. In addition, the researcher will review the relationship between student involvement and emergent leadership skills and research on student leadership theory.

Statement of the Problem

Colleges and universities bear the obligation of developing future leaders (Boyer, 1987). With this obligation in mind, the researcher examined the relationship between

student involvement and the perceptions of their experiences in a higher education setting. Understanding how experiences and involvement of student leaders differ from those of non-leader students will assist educators and administrators as they design more effective leadership experiences and development programs for their institution. Improved leadership development programs enable institutions to utilize scarce resources more effectively to meet students' learning and development needs.

Measurement of student leadership is important (Cooper, et al., 1994). Claiming graduates are prepared to function as leaders in various social, economic, and political contexts requires colleges and universities to provide accreditation agencies the evidence used to substantiate these claims. Accrediting agencies expect to find a culture of evidence that student leadership development is occurring. Further, they expect that colleges will collect evidence to use for improvement of the student leadership development experience.

Theoretical Rationale

Involvement results in outcomes (Astin,1984). Studies of student involvement suggest students involved as leaders are more likely to have increased confidence in their skills and abilities.

The theoretical rationale for conducting this study falls along the research that leadership opportunities will influence a student's performance in college. Thus, this research examined what can be proposed as an outcome (skills, knowledge and experiences) by students involved in leadership positions as an undergraduate student at the College of William and Mary.

Importance of Study

This study is important for a number of reasons. First, the literature suggests that involved student leaders may enhance their skills with leadership opportunities. Second, studies show involved students have increased confidence in their abilities and leadership skills with leadership training and experience. This research aims to explore the findings in these studies and focus on some abilities that may illustrate increased perceptions of skills, knowledge and confidence. Lastly, this research seeks to add to the ongoing discussion on involvement as non-leader students and student leaders.

There are many reasons student leadership development is important and needs studying at William and Mary. As students navigate the college experience, it is important to investigate how student leaders perceive their personal change and knowledge and skills development in comparison to non-leader students. Another reason is that student leadership development is necessary for the graduate of William and Mary who desires to make an impact in his or her chosen career. Accrediting agencies look into all areas of student growth and assertions that student leadership development is an outcome will require documentation. Lastly, involvement as a student leader results in the outcome of student development in both academic and non academic areas (Astin, 1975, 1977, 1993). These are the important aspects of student leadership development and explain the need for research in this area.

It is important to study student leaders at the College of William and Mary so that student affairs professionals at this institution and other similar institutions can gain a better understanding of the differences between non-leader students and student leaders. With the findings from this study, student affairs professionals will gain insight into the

experience of the student leader at William and Mary. Leadership as an outcome of the college experience will be better understood as a result of this research, thus informing and improving the process of student leadership development. This study is needed because very little is known about how student leaders differ from non-leader students.

Statement of the Purpose

This study sought to investigate if student leadership can be predicted and how student leaders differ from those who do not assume positions of leadership at the College of William and Mary (W&M). A key element of this study lies in the examination of differences between non-leader students and student leaders in their responses on a college survey given to all seniors. Student affairs professionals will benefit if evidence is provided that student leadership development is an outcome at their institution.

For the past three years, seniors at the College of William and Mary have completed an annual online survey designed to collect attitudinal data on their experience at the College of William and Mary, covering such areas as academic, social, and co-curricular activities. In addition, students provide information that is used to identify them as a positional leader.

The Office of Assessment at the College of William and Mary has collected data on seniors and has used it for many different purposes. However, there still exists a lack of understanding about student leaders and their college experiences. The aim of this dissertation is to gain an understanding of the differences between self-identified non-leader students and student leaders at the College of William and Mary and to determine

if student leadership can be predicted from aspects of their college experience as reported on a student survey.

Seniors who identified themselves as leaders were compared with those students who did not identify themselves as leaders. Using demographic variables for comparison, this research may provide a better understanding about student leaders' college experiences, perceptions of their skills and knowledge and the College's contribution to those skills and knowledge. No previous data analysis has been conducted on this group of students at the College comparing non-leader students and student leaders. This study is intended to provide insights into the student leadership experience, both formal and informal, at the College of William & Mary.

Research Questions

The following questions will guide this study:

1. Are student leaders more involved in co-curricular activities than non-leader students?
2. Can perceived student skills be predicted with a student's involvement in co-curricular activities and identification as a student leader?
3. Can the student's perceived knowledge level and grade point average be predicted with a student's involvement in co-curricular activities and identification as a student leader?
4. Can a student's post-graduation plans be classified on the basis of his involvement in co-curricular activities and his leadership identification?

5. Can perceived student skills and knowledge be predicted with the student's perceived contribution of W&M to his skills and knowledge and leadership identification?

6. Can W&M's perceived contribution to the student's skills and knowledge and the student's perception of his skills and knowledge be used to predict a student's leadership identification?

Operational Definitions

A major problem that complicates the study of student leadership is the lack of a consistent definition of operational terms. To some, leadership and involvement are synonymous. For the purpose of this study, the following definitions are used.

Leadership – "The art of mobilizing others to want to struggle for shared aspirations (p. 30)" (Kouzes & Posner, 1995). Leadership is the process by which an individual inspires a group of individuals to work together toward a common goal (Northouse, 2001).

Involvement – The investment of physical and psychological time and energy into activities, tasks and people (Astin, 1984).

Student Leader – Defined by the student, if a student selects "Yes" on the Senior Survey that he or she had held an office in the organizations listed in the co-curricular activities section of the survey.

Non-Leader Student – Defined by the student, if a student selects "No" on the Senior Survey that he or she had not held an office in the organizations listed in the co-curricular activities section of the survey.

Limitations

For this study, the researcher examined senior survey results from academic years 2001, 2002, and 2003 at the College of William and Mary. The college was selected because of the access to data provided to the researcher from the senior surveys. The Senior Survey (SS) measured student perceptions of their skills and knowledge and the college's contribution and not actual test scores on skills and knowledge.

Researchers should use caution when generalizing the findings to other institutions of similar size and stature because, among other things, the sample of respondents to the survey is neither random, nor systematic. The identification of student leaders in the Senior Survey is limited to one self-report question about leadership positions in co-curricular activities and may not identify "emergent" leadership roles not associated with formal positions. Completing this survey was optional for the students, but highly encouraged. Students were sent e-mail encouraging them to complete the Senior Survey, but no incentives were provided for those who completed it. Student perceptions are self-reported and the usual limitations associated with such assessments apply. The sample for this study is limited to students at the College of William and Mary, a group of high-achieving college students who are not representative of high-achieving college students nationally.

Assumptions

The major assumptions underlying this research are:

- Students answered questions on the Senior Survey honestly.
- Students have different experiences in higher education.

W&M students have access to the Internet in the library and at numerous computer labs distributed across campus. Thus, it is unlikely that only students with highly developed computer skills completed the Senior Survey.

Chapter Two

From the founding of colleges and universities in this country in the 1600s, student leadership development has been a part of higher education (Rudolph, 1990). One of the earliest roles of higher education was to produce leaders for our fledgling nation. In *The American College & University - A History*, Rudolph wrote "A religious commonwealth would require an educated clergy, but it also needed leaders disciplined by knowledge and learning, it needed followers disciplined by leaders, and it needed order" (p. 7). Granted a royal charter in 1693, the College of William and Mary (W&M) in Virginia was established to produce learned and disciplined leaders (Morpurgo, 1976; Rudolph, 1990). In 1724, a patron of the college recommended that W&M be a school of civil service training (Rudolph, 1990). Although the recommendation was never acted upon, the graduating classes at W&M provided "appointed surveyors, clerks to the colonial government, and county clerks" (p. 7). W&M was expected to produce the public servants Virginia needed.

Historically, student leadership roles have often included: resident dorm supervisors, peer counselors, student government officers, fraternity and sorority officers, and leaders in a variety of organizations on campus. Students develop their leadership skills through many different outlets. Clubs and organizations on campus need student leaders to accomplish their goals. There are paid positions on campus, such as dorm supervisor or University Center supervisor, which require the leadership skills of students. If the university did not have students filling these leadership roles, it would have to pay market rates to hourly or salaried full-time employees to do the work. By involving students, the

College adds depth to their experience and saves expenditures on salaries, wages, and benefits. Both student and college benefit from the arrangement.

Students take on a variety of leadership positions while at institutions of higher education. While students take on these leadership positions, colleges and universities have created leadership development programs to help students better understand leadership (Spitzberg, 1986). Researchers believe students are most affected by leadership development programs when a comprehensive approach is taken. Researchers support a comprehensive approach which has leadership development within and outside the classroom. This comprehensive approach to leadership development integrates the academic and co-curricular experience for students (Roberts & Ullom, 1989).

Institutions of higher education also experience external pressure to develop leadership skills in students. External pressures of accountability from parents, alumni, and state and federal governments encourage colleges and universities to develop leadership values and skills to prepare graduates for the job market. While some colleges and universities provide only a minimal amount of leader development for their student leaders in the form of seminars or classes, there is a growing trend for institutions to assert in mission statements that leadership development is a critical component of the educational experience (Roberts, 1997).

Some students take the time while at a university to learn leadership skills. They then apply what they have learned to guide the organizations that they have been elected to lead (Chambers, 1994). In looking to define student leadership, Erwin and Marcus-Mendoza (1988) classify student leaders as action-oriented students who "focus on the present and future states, look for the incongruity between the two, and consider

alternative plans of action" (p. 357). Action-oriented student leaders seek out possible alternatives and commit themselves and their organizations to a course of action (Erwin & Marcus-Mendoza, 1988). These action-oriented students are more apt to participate in purposeful activities such as making decisions and working through failures. Therefore, action-oriented students are more inclined - because of the confidence they have gained - to attempt difficult tasks, such as attending graduate school. Action-oriented students are involved students.

As an example of the breadth and depth of the projects involved student leaders undertook during the 2001 – 2002 school year at William and Mary, Vice President for Student Affairs Sam Sadler and Assistant Vice President for Student Affairs Ginger Ambler provided two examples of student leadership. Student leaders in the Class of 2002 chose challenging events in a variety of areas. Student leaders were instrumental in planning and running the nation's largest on-campus bone marrow drive. Additionally, they provided leadership in the college's Model United Nations team which placed for the 4th year in a row in the World Championships (Sadler, S. W. & Ambler, V. M., personal communication, December 9, 2002).

Leadership Theory

Countless studies have explored the phenomenon called leadership. The leadership theorists have attempted to define it, model it, and count it. There are many conflicting and like-minded views of leadership and how leadership is developed. The leadership literature extensively covers leadership development and provides list after list of characteristics that theorists suggest may explain the concept of leadership and how one

becomes a leader. A few of definitions from the leading theorists in the field of leadership will illustrate there are several different types of leaders and that definitions of leadership vary among theorists.

Table 2.1 summarizes selected leading theorist's views on leadership.

Table 2.1: *Leadership Theorists Summarization*

LEADERSHIP THEORISTS	THEORY	SUMMARY
French and Raven	Power and Influence	Five Bases of Power Behavior of leader, reaction of follower
Burns	Transactional Transformational	Balancing mission accomplishment and Follower needs
Bolman and Deal	Change the Future	Social architect, follower empowerment
Gardner	Leader/Team Goal Oriented	Process of Persuasion: Guide team to Achieve tasks important to leader and team
Sergiovanni	Moral Leadership	Servant Leadership: Leader responsible For ethically leading the group
Kouzes and Posner	Leadership is everybody's business	Leadership is an art: Leadership development is essential for a leader to be effective

A review of research and theory on leadership in general and student leadership in particular will provide a conceptual framework. In the basic concept of leadership, French and Raven (1968) see leadership as power. French and Ravin view power in terms of influence; influence in the ability to enact change. A leading theorist in leadership, Burns (1978) defines leadership characteristics as being collective, dissensual, causative, morally purposeful and elevating. Bolman and Deal (1991) describe the effective leader as a social architect, a catalyst or servant, an advocate or symbolically a prophet. Gardner (1990) defines nine tasks a leader should be able to accomplish: envisioning goals, affirming values, motivating, managing, achieving workable unity, explaining, serving as a symbol, representing the group, and renewing. Kouzes and

Posner (1995) characterize leader actions as challenging the process, inspiring a shared vision, enabling others to act, modeling the way, and encouraging the heart. This short listing illustrates the differing views on leadership theory. A closer examination of each theorist's propositions reveals further differences in their concept of leadership.

In their basic view of the elements of leadership, French and Raven (1968) describe the power of leaders as complex and often hidden from those outside the group. French and Raven, in their article on social power, describe power and influence and look into the behavior of a leader who uses his power and what is the reaction of the group to the leader's actions. In their descriptions of the bases of power, French and Raven (1968) give an example of legitimate power as an election. An election is a group legitimizing "the authority of one individual or office ... which has a legitimate range of power associated with it" (p. 265). French (1968) goes on to say that power and the ability to influence the group may not reside in one leader, but leadership may be distributed among many members or in a few leaders within the group.

Leadership happens when leaders realize intended, real change that meets people's needs. Meeting needs often requires two types of leadership: transactional and transformational (Burns, 1978). On one hand, the transactional leader has values that include honesty, responsibility and honoring commitments. For example, this type of leader conducts cost-benefit analyses while assuring followers that their needs will be met if a satisfactory effort is put forth. Examples of the values of the transformational leader are liberty, justice, and equality. The transformational leader focuses beyond the individual needs and attempts to get participants to work toward goals that benefit the entire organization. Burns (1978) contends that effective leaders use both transactional

and transformational leadership to motivate the followers of the organization to achieve desired goals.

To achieve a goal, a process needs to be in place. Processes used by the socially-minded leaders vary. The leader that is a social architect uses analysis and design to frame his leadership style. Catalysts, another type of leader described by Bolman and Deal (1991), are human resource leaders who support the empowerment of their followers. Advocate leaders build an effective coalition or team. Symbolic leaders inspire or frame experiences to be effective (Bolman & Deal, 1991).

Gardner (1990) sees leadership as a "process of persuasion." Effective leaders persuade groups to push toward objectives that are important to both leader and the team. Key leadership attributes Gardner (1990) identifies include: intelligence, willingness, task competence, people skills, resolution, confidence, dominance, and ascendance.

A brief explanation of each of Gardner's (1990) attributes concerning persuasion will illuminate his views on leadership. Intelligence as an element of leadership includes problem solving, setting priorities, and the potential to judge those whom are being led (Gardner, 1990). Willingness is the ability to step forward and make decisions and "exercise initiative in social situations, to bear the burden of making decisions, to step forward when no one else will" (p. 49). Task competence is knowledge of situations from different levels and perspectives and how decisions affect each level and perspective. Choosing the right time to act and to determine when followers are ready to move forward requires perceptive people skills. After charting the course, leaders need to stay on track or followers may find them lacking in resolution. Gardner (1990) points out that an effective leader must take risks and display confidence that this is the right path to

take so those being led will follow. Dominance and ascendance can be seen as the confidence to take charge or to act in the void of direction.

Another aspect of leadership theory is the characteristic of moral judgment. Sergiovanni (1996) suggests that leadership is done out of a feeling of obligation, duty, dedication, desire to help, or a sense of citizenship. It may be viewed as one's responsibility to the organization. He views leadership as an ethical bonding relationship where leaders and the led are bound together. In a similar vein, virtuous organizations are led by leaders that show a caring ethic and there exists the servant leader (Sergiovanni, 1996).

In the *Leadership Challenge*, Kouzes and Posner (1995) say leadership is an art and open to interpretation. One interpretation may be that leaders believe they can lead. Leaders believe they can lead and they have a set of skills that enables them to do so. Leadership skills, however, require development and refining to be effective. Leaders seek opportunities for self-development (Kouzes & Posner, 1995).

Looking into some of the misconceptions about leadership, Kouzes and Posner (1995) identified several myths. One myth: leadership is lonely. The traditional view of leadership has been one singular person standing out in front of an organization, not always connected with the needs and desires of the organization's members. Often these leaders are without confidants and colleagues. Another myth: leaders are born. Kouzes and Posner (1995) suggest that leadership is "an observable, learnable set of practices" (p. 16). Since these myths are simply myths with ties to leadership theory, we shift focus to those programs that are chartered with developing student leadership.

Student Leadership Development Programs

When looking for data on leadership development programs, Schwartz, Axtman, and Freeman (1998) reported there were 700 student leadership development programs at colleges and universities. Carry (2003) more recently estimated that there are over 900 college leadership programs at colleges and universities across the United States. This represents an increase of 200 programs in five years and illustrates the growing interest in student leader development at colleges and universities.

Today, the W. K. Kellogg Foundation funds numerous leadership development programs at institutions of higher education (Carry, 2003). The Kellogg Report (2001) contends "higher education plays a major part in shaping the quality of leadership in American society. Our colleges and universities not only educate each new generation of leaders in government, business, science, law, medicine, the clergy and other advanced professionals, but they are also responsible for setting the curriculum standards and training the personnel who will educate citizenry at the pre-collegiate level" (p. 1). Our nation expects institutions of higher education to provide a basic understanding of leadership and how to put these skills into action. Colleges and universities should have a designed curriculum that approaches leadership development orthogonally to achieve leadership development as an outcome for students (Leslie, 2003).

For nearly 20 years, there have been leadership development program models that are designed to help students "better understand the nature of leadership and develop leadership skills themselves" (Spitzberg, 1986, p. 3). Some colleges offer student leadership programs to improve the student leader's performance, enhance the skills and leadership potential in the leadership role he occupies. The study of leadership and

leadership development is on the rise at many institutions of higher education (Kezar & Moriarty, 2000).

In a review of college and university mission statements, Clark (1985) found the development of leadership skills was identified to be as high a priority as preparing broadly educated individuals. A diametrically opposed view; however, can also be found at some colleges and universities. An evaluation of the current leadership development programs refutes that assertion. Despite the increased pressures of external forces, colleges and universities are not preparing students in leadership development to deal with major economic, societal, and environmental issues upon graduation (Cress et al., 2001). Researchers have found "... developing leadership values and skills for effective civic involvement is often a secondary rather than a primary function of colleges and universities" (Cress et al., 2001). Thus, those studying this issue have differing views on what types of student leadership development programs are needed and the outcomes of these programs.

Types of Student Leadership Development Programs

According to Callahan and Mabey (1985), collegiate student leadership programs can be grouped into three types. The first type of program involves noncredit experiential activities coordinated primarily through student affairs administrators. The academic leadership type offers credit courses or course content that focuses on narrow aspects of leadership. The final type is the professional program that involves a sequence of related courses and experiences that address leadership from a disciplinary perspective.

Numerous approaches to devising and instituting leadership programs are found in current student leadership literature. In his book on student leadership development programs, Roberts (1981) relays the work of the Task Force on Leadership that was sponsored by the American College Personnel Association (ACPA). According to Anthony-Gonzalez and Roberts (1981), all leadership development programs fall into one of three distinct categories: leadership training, leadership education, and leadership development. Leadership training is designed to improve the skills of a leader currently occupying a leadership position. Leadership training activities explore the overall concept of leadership capabilities. Leadership education is similar to the academic courses Callahan and Mabey (1985) identified, in that, students learn about leadership rather experiencing it. Leadership development programs involve activities that investigate the complex theories of leadership and human development.

Callahan and Mabey (1985) cite traditional student affairs programs, academic leadership programs and professional programs (e.g., law, business, and education) as approaches to develop student leaders. Traditional student affairs programs consist of noncredit, experiential activities run by student leaders and coordinated by and with student affairs personnel. Academic leadership programs are often credit courses with a curriculum that offers biographies, fundamental leadership skills and knowledge, leadership characteristics, and relationship building between leaders and followers. The professional program is a series of courses dedicated to the study of leadership from the discipline or field perspective. Callahan and Mabey suggest student leadership development programs have become formal and established with explicit intentions of

teaching leadership. Having formal and established intentions for a student leadership development program was a change in the approach to student leadership development.

There is concern, however, that many current leadership development programs have been developed using mostly male, Caucasian, upper-middle-class students, meaning the effects cannot be generalized to many other students interested in leadership development (Acker, 1993; Amey & Twombley, 1992). Most samples used to design models related to leadership traits, behavior, power and influence, and cognitive skills, are based on research using Caucasian males (Acker, 1993; Amey & Twombley, 1992). Primarily using Caucasian males, most student leadership models emphasize hierarchy; one way or directive power and influence processes, individuals in competition for rewards, productivity, rationality, one way communication, formal structured relationship with others, and separation between leaders and followers (Astin & Leland, 1991).

Kezar and Moriarty (2000) recommend institutions of higher education consider gender and ethnicity when designing student leadership development programs. They suggest offering a broader set of leadership activities will allow more students to enhance their leadership skills than current activities allow. As this section illustrates, formal leadership development programs can take different approaches.

Student Leadership Development Outcomes

Recognizing different types of leadership programs, the W.K. Kellogg Foundation (Zimmerman-Oster & Burkhardt, 1999) funded 31 projects between 1990 and 1998 to evaluate leadership programs such as those suggested by Anthony-Gonzalez, Roberts (1981) and Callahan and Mabey (1985). The primary objective of the Kellogg study was

to compare the various types of leadership programs in the areas of curriculum, leadership opportunities, mentoring, leadership improvement plans and collaborative leadership activities (Zimmerman-Oster & Burkhardt, 1999). In an evaluation of the leadership development programs, the Kellogg Foundation addressed many of the concerns identified by Kezar and Moriarty (2000) in their study of gender and ethnic issues of student leadership development. Prior to the project, Kellogg assumed society needed better-qualified leaders: that leadership skills could be taught and that the college settings are the appropriate environment to learn leadership development skills and theories (Zimmerman-Oster & Burkhardt, 1999). Initial information from the Kellogg Foundation reported student leaders had increased confidence in their abilities and leadership skills. Leaders were also found to be less authoritarian and held an ethical view of leadership.

Astin (1977) says that involvement in leadership programs and activities is positively related to developmental outcomes. Some of the desired outcomes from participating in leadership development programs are for the participants to show growth in civic responsibility, leadership skills, multicultural awareness, and an understanding of leadership theories. As an illustration, civic responsibility can be viewed as a willingness to promote racial understanding, become involved in political activities and attempt to influence social values on issues such as the environment (Cress, et al., 2001).

In a study completed by Cress and colleagues (2001), student leaders reported a stronger or much stronger "understanding of self" when participating in leadership education. Data from 875 students at 10 institutions found positional leaders who participated in leadership education were more likely to report "growth in their commitment to civic responsibility, conflict resolution skills, ability to plan and

implement programs and activities and willingness to take risk" (p. 18). Additionally, descriptive and multivariate analyses showed the respondents reported gains in the goals of the programs: leadership skills, values, and cognitive understanding. Overall, students involved in leadership education reported changes greater than non-participants in the areas of social and personal values, leadership ability and skills, civic responsibility, multicultural awareness and community orientation and leadership understanding and commitment" (p. 19).

A review of leadership development programs provides clear evidence of student gains in knowledge of leadership (Cress, et al., 2001). Researchers point to "a strong indication that leadership potential exists in every student and that colleges and universities can develop this potential through leadership programs and activities" (Cress, et al., 2001, p. 23).

Evaluation of Student Leadership Development Programs

With over 900 leadership development programs in the United States, educators are concerned about assessment and how to evaluate leadership development programs (Chambers, 1994). In striving for orthogonality across all aspects of higher education, Astin (1993) asks us to look for the "value added" of programs such as leadership development.

Zimmerman-Oster and Burkhardt (1999) found four components that set these 31 programs in the Kellogg study apart from other leadership programs. In contextual terms, those programs that were the most successful institutionalized these hallmarks of excellence in student leadership development. First, the mission of the college and that of

the leadership development program were strongly connected. Second, the leadership development program included an academic component with theoretical linkages to curricular and co-curricular activities. Third, the program was ideally housed under the purview of academic and student affairs and not in one department. Lastly, strong program leadership was provided by faculty-level director or experienced student affairs professionals who had researched student leadership development or was highly experienced in the student affairs arena. Leadership provided by a faculty-level director demonstrated a commitment to student leadership development. Faculty-level directors understand the theoretical framework of leadership and had comprehensive knowledge of the current literature.

The philosophy of effective programs included a working definition of leadership that focuses "on ethical and socially responsible behavior, recognizes that leadership is a relational process and emphasizes the potential for all people to lead" (Zimmerman-Oster & Burkhardt, 1999, p. 13). Intellectual development of students includes an experiential learning opportunity such as mentoring a fellow student currently in a leadership position. Finally, students are challenged with developing skills such as collaboration and critical thinking to gain an understanding of leadership theory.

Another characteristic of successful leadership development programs is the ability of the institution to sustain them over time (Zimmerman-Oster & Burkhardt, 1999). Programs are sustained when the faculty and administrators remain committed. The process, outcome and impact objectives of the leadership development program are clearly defined and quantifiable. There is an evaluation plan of the program and thus the results are used to strengthen and revise the program. A leadership development program

is sustained if there is a strategic plan that includes a vision and plan that goes beyond the initial three years planned for the program. If a change in the culture occurs and the community and institution is committed to producing leaders for social change then the program is sustained.

Building on the four components found in exceptional leadership development programs, Zimmerman-Oster and Burkhardt (2001) extracted 15 common practices. The findings are summarized in Table 2.2.

Table 2.2: *Common Practices of Successful Leadership Development Programs*

Self Assessment and Reflection	Built into the program was self-assessment for the students. Often in the form of journals, students could reflect on their leadership development.
Skill Building	Seminars and workshops covered topics such as creative thinking, decision-making, communication, networking, cultural competence and conflict resolution.
Problem Solving	Experiential learning through simulations and discussions of personal dilemmas and social issues bring to light creative problem solving techniques.
Intercultural Issues	Issues in gender, race, class and ethnicity are addressed in leadership programs meant to heighten intercultural awareness.
Service Learning and Servant Leadership	Students volunteer in service projects to learn what servant leadership means. These experiences are self-initiated through community or agency initiated projects to assist a community in need.
Outdoor Activities	Team-building activities and time for individual and group reflection add to leadership development. Trust, management of group issues and the ability to facilitate creative thinking and sharing evolve during retreats or physical challenges.
Student Leadership of Programs	Learning as they perform administrative activities, students bring real-world experiences to workshops and program evaluations.

Mentoring	Bringing together an experienced leader with a student allows both to benefit from weekly meetings, a shadowing experience or an internship.
Community Involvement	This common practice is a two-way street. Students involve themselves in community projects. The community participates in seminars and workshops highlighting leadership theory and student involvement in civic projects.
Public Policy	Social responsibilities are key to leadership development programs. A public policy issue is selected and students work toward resolving the problem in the community.
Targeted Training and Development	Focused on the positional leaders on campus, particular leadership challenges are addressed in target training for student leaders involved in student organizations.
Faculty Incentives	Although many faculty members are interested in leadership development, faculty incentives are useful in encouraging participation. Course-release time from their teaching load or a stipend has been used to sustain student leadership development programs
Student Recognition	A central component of these student leadership development programs is commending success. Certificates or awards provide the incentive for students to participate in these leadership programs.
Co-curricular Transcripts and Portfolio Development	Student leadership development programs were added to official transcripts. This provided employers additional information when making an employment decision.
Capstone Experiences	A culminating experience that pulls the many events and activities of student leadership development together. The capstone experience can be course work, mentoring other students or other experiential activities.

Evaluation of student leadership programs can enrich the process of student leader development, improve the quality of the programs and provide answers to the accountability questions (Chambers, 1994). Additionally, program evaluations can address the orthogonal issues that many college administrators and members of the faculty want to avoid answering (Leslie, 2003). Evaluation of student leadership programs, however, is confounded because development takes place over time and

students are influenced by many factors other than student leadership development programs (Chambers, 1994).

Chambers (1994) found leadership educators eager to collaborate in order to improve student leadership development. Because of a lack of consensus regarding student leadership program evaluation, leadership educators saw the need to work together to devise, execute, and assess programs. Furthermore, Chambers (1994) cites the need for leadership educators to work as a team in the development of different evaluations suited to match the student leadership development program. Chambers (1994) recommended further study on the assessment of outcomes in student leadership development programs. The evaluation of orthogonal goals would be an essential part of these studies.

Leadership development programs are an important element when developing leaders, but Astin's Theory of Involvement details the concept that informal opportunities to lead and patterns of engagement may be at least as important. Therefore, my study looks into the responses from senior at W&M to see if there are patterns of informal activity and experience that contributes to the emergence of leadership.

Involvement

In foundational work on student leadership, Astin (1984) researched what it means for college students to be involved. In examining involvement, a highly involved student would participate in co-curricular activities, focus his time and effort in and outside of the classroom, and have extensive peer and faculty interaction. Along with the quantitative aspect of his theory, the qualitative feature would be the level of participation and the role a student chose to take in activities in and outside the classroom. He examined this

relationship between student involvement and learning (in and out of the classroom) and proposed five postulates:

(a) Involvement is defined as the investment of psychological and physical energy in the student experience.

(b) Involvement occurs along a continuum; that is, students invest different amounts of energy in a given activity.

(c) Involvement has both quantitative and qualitative features.

(d) The amount of student learning and personal development associated with any educational program is directly related to the capacity of that policy or practice to increase student involvement.

(e) The effectiveness of any educational practice is directly related to the capacity of that policy or practice to increase involvement (p. 298).

Student involvement in college activities is positively related to developmental outcomes (Astin, 1984). Astin (1985) used his theory to explain the impact of involvement on college students. Surmising the basic tenet of Astin's Theory of Involvement is the more students are involved; the more that they learn from their college experiences (Astin, 1985). Involvement is defined not by what a student thinks, but what a student does. Astin (1975) theorized that involved students remained at institutions of higher education. Later studies found that a student's involvement was related to cognitive and affective development (Astin, 1996).

Astin (1985) defined involvement as "the investment of physical and psychological energy in various objects" (p. 36). Student involvement requires the commitment of "both physical and psychological energy devoted to the academic experience" (Cress, et

al., 2001, p. 16). Both elements, physical and psychological, speak to Pace's (1984) notion of "quality of effort". A quality of effort is the amount of student involvement in learning and personal development which is directly proportional to the characteristic and capacity for leadership learning (Pace, 1984). From these differing views on involvement, there is no clear consensus.

In his definition of involvement, Astin (1985) uses the term objects. Objects can be seen as the whole of the student experience or individual events that occurred during the student's years in higher education. As stated in the postulates, involvement implies a continuum of effort. A student may put forth differing degrees of effort toward involvement in different objects. Different students may also invest different degrees of involvement in the same object. There is also the commitment and time devoted to an activity that Astin (1985) defines as a quantitative and qualitative feature of involvement. Thus the time a student decides to spend involved in activities impacts the effects of the college experience.

Astin (1993) identified two types of involvement as closely related to attainment of cognitive and affective outcomes. The two types of involvement were academic related activities and peer/faculty socialization. Recent studies have supported this finding that student involvement in both academic and interpersonal activities had a significant positive correlation with student development including leadership development (Kezar & Moriarty, 2000). To broaden this concept, Astin (1993) found that students involved in leadership activities with their peers achieved at higher levels in cognitive and affective outcomes. There is much evidence to show that student involvement has a direct, positive effect on student learning in and out of the classroom (Pascarella & Terenzini,

1991). However, the quantitative and qualitative investment of a student's involvement can have a positive or negative affect which is dependent upon the activities the student selects (Astin, 1996).

Numerous studies have been conducted on the impact of student involvement in activities. Studies on student involvement in athletics, fraternities and sororities, co-curricular activities and employment while being a student provide varying results.

The results of studies concerning involvement in intercollegiate sports vary widely. Winter, McClelland, and Stewart (1981) found student's involved in intercollegiate sports had gains in critical thinking and analytical skills for both genders. Other studies; however, showed negative effects of involvement in intercollegiate athletics on student learning and development. A study completed by Pascarella, Bohr, Nora and Terenzini (1995) found first-year male football and basketball athletes had lower scores in reading comprehension, mathematics and critical thinking compared to non-athletic males. Additionally, Pascarella and associates (1995) confirmed the finding of lower cognitive outcomes such as critical thinking for first-year male football and basketball athletes.

Many studies have been completed on college students involved in social fraternities and sororities. Many of the findings report a negative influence when college students are involved in social fraternities and sororities. Terenzini, Pascarella and Blimling (1996) found white first-year students were negatively affected in reading, mathematics, and critical thinking skills, while fraternity membership had a positive influence on non-white first-year students. In a similar study that same year, Pascarella, Edison, Nora, Hazedorn and Terenzini (1996) had the same finding that the largest negative impact of

involvement in a social fraternity or sorority was observed for white first-year students and a small positive impact for non-white first-year students.

Involvement in other co-curricular activities has shown a positive effect on student learning and development (Cooper, et. al., 1994). Cooper and associates (1994), using Chickering's vectors, found students involved in co-curricular activities changed while in college by developing purpose and autonomy as compared to other students not involved in co-curricular activities. They also found student leaders of co-curricular activities sustained and with further developed leadership skills.

Pascarella, Ethington and Smart (1988) had previously found in their research that involvement as a student leader in co-curricular activities developed civic values and had a positive effect on these values. Later Kuh (1995) exposed that student leaders involved in co-curricular activities had positive gains in interpersonal competence and cognitive complexity.

Involvement in full or part-time employment has been the subject of numerous studies. Astin (1993) argued that "working at a full-time job is associated with a pattern of outcomes that is uniformly negative" (p. 387) when students are seeking a bachelor's degree. Astin (1993) reported; however, that students involved in part-time work had a positive effect on self-reported cognitive and affective growth. Terenzini and associates (1996) disagreed with Astin's finding on students involved in full-time employment. Terenzini and associates (1996) found that a student involved in full-time employment had no effect on cognitive gains. However, Terenzini and associates agreed with Astin's earlier finding on student involvement in part-time work. Looking in other areas of

student employment, Kuh (1995) found that work on or off campus was associated with positive gains in interpersonal and practical competence.

Student Leadership Development Theory

Student leadership development can be viewed as self-development. Thus, student leaders may be serving in leadership positions because the opportunities provided outside the classroom foster self-development. Leadership activities provide for learning, self development, and student development. In their studies on leadership activities, Cress, Astin, Zimmerman-Oster and Burkhardt (2001) found all these components to be "inextricably intertwined and inseparable" (p. 17). It is not surprising researchers found student leaders to have increased confidence in their abilities and student leaders expressed a greater than before willingness to serve as student leaders. These students were honing their leadership skills and obtaining self-development through leadership positions in campus organizations (Cress, Astin, Zimmerman-Oster, & Burkhardt, 2001). Students learn through involvement in informal experiences as well as the formal leadership development programs.

Student leaders find ways to overcome obstacles that present themselves during their leadership experience (Stanford, 1992). Student leaders sought opportunities to become involved in spite of obstacles that tended to prevent other students from becoming involved. For example, in a study on student leaders, Stanford (1992) found student leaders were not discouraged from taking on positions of leadership because they did not live on campus which in turn took extra effort on their part to stay involved in the organizations they led.

Researchers have shown that students involved in extra-curricular activities report positive educational and social experiences during their college years (Astin, 1984). Overall, researchers report increased intellectual development and success in academic goals by student leaders (Cooper, et al., 1994). This finding is also supported in a later study covering developmental outcomes of student leaders (Cress, Astin, Zimmerman-Oster, & Burkhardt, 2001). Furthermore, in seminal studies, Astin (1975) reported evidence of leadership development and success in career goals when a student is involved in leadership activities. The college experience for the involved student is beneficial not only from the perspective of knowledge gained in the classroom, but ancillary outcomes that are attained outside the classroom.

Additional benefits may be gained when students elect to become leaders of campus organizations. A comparison of student leaders with non-leader students may provide an insight into gains that occur when a student becomes a leader. In a study by the W. K. Kellogg Foundation, student leaders were found to have increased confidence in their leadership skills and more of a willingness to serve in the role as a leader (Zimmerman-Oster & Burkhardt, 1999). Additionally, student leaders were more cooperative, less authoritarian and held more ethical views of leadership (Cress, et al., 2001).

After broadening the scope of studies on leadership, researchers have found women's leadership styles emphasize more participation in the organization, reciprocity and collectivity, responsibility toward others and empowering others to act, and a de-emphasizing of hierarchical relationships (Astin & Leland, 1991). Studies on racial and ethnic groups found leadership styles that stressed being helpful to others, less structure, a

personalized style of leadership, and soliciting more communication with members of the organization (Kezar & Moriarty, 2000; Kruger & Carter, 1991).

In examining data from the Cooperative Institutional Research Program (CIRP) 1987 Freshman Survey and the 1991 Follow up to the CIRP Freshman Survey, Kezar and Moriarty (2000) conclude that the leadership development process differs between gender and ethnic groups of students. Kezar and Moriarty (2000) found Caucasian women and African American men developed leadership skills while in non-positional leadership experiences. They found positional leadership experiences were not important to leadership skill development of women or African American men.

Research on student involvement and student leadership has found many gains in the formal and informal experiences of college. These gains however are tied to the students' investment of psychological and physical energy that Astin speaks to in his theory on involvement. Just as there is an investment of energy along a continuum, the students' gains are of a quantitative and qualitative nature. Self-development is tied to the opportunities for student involvement presented to the student.

Summary

Institutions of higher education have a goal to bring about a desirable change in their students (Astin, 1997). Leadership development is an important objective for institutions of higher education, but leadership theory is broad and expansive in its concepts. An increasing number of colleges and universities are implementing student leadership development programs. Leadership is hard to define and even more difficult to put into practice; however, institutions try to develop leadership in their students through formal

programs. The theory of involvement has a solid foundation; however, student leadership development theory follows a path similar to leadership theory with a wide range of inquiries. Involvement as a student leader can provide many benefits for the student and the institution through out-of-class experiences. Focused on the college student's leadership experience, researchers point to the achievement of academic goals and gains in the student's abilities to lead other students.

Institutions have implemented formal leadership development programs, but theory expresses the concept that students also learn to lead by informal ways. Understanding the differences between non-leader students and student leaders and measuring the outcomes of involvement such as leadership development can enable an institution to provide opportunities for involvement that will improve the student's educational experience.

Chapter Three

Research Methodology

The purpose of this study was to explore the differences between non-leader students and student leaders at the College of William and Mary. The researcher examined the results of the senior survey and looked for relationships that may exist between student knowledge, skills, and experiences for student leaders. Is there a relationship between students who self-identify as a non-leader or a leader and their experiences in co-curricular activities and their perceptions of their skills, knowledge and the contribution of their institution of higher education to their skills and knowledge? This chapter outlines specific procedures taken to determine whether a relationship exists between a student's self-reported leadership experience and his responses to questions on his current knowledge and skill levels and other outcomes while in college. To support the procedures examining student leadership, the review of literature focused on leadership theory, student leadership development programs with varying goals, and student leadership development theory. This study grouped students who self-identify as leaders in the co-curricular activity section of the Senior Survey. Five components of the student experience measured in the Senior Survey served as independent variables: (a) leadership identification, (b) the student's perceived skills and knowledge levels, (c) involvement in co-curricular activities, (d) William and Mary's perceived contribution to his skills and knowledge levels, and (e) post-graduation plans. Specifically, this study investigated if individual students can be grouped as a student leader or a non-leader student on the basis of one or more of the measures in the Senior Survey.

The survey was designed to provide quantitative information. The quantitative information covers demographics, a student's perception of his skill and knowledge levels, co-curricular activity involvement, and post-graduate plans.

In the 1980s, colleges and universities began to establish specific leadership programs and student leadership curricula which represented a substantive change in allowing leadership development to occur with little structure and guidance. A major reason for the paradigm shift was Astin's Theory of Involvement. Student leadership development through informal experience and structured leadership development programs has become a priority for institutions of higher education.

Setting

This study examined the reported experiences of non-leader students and student leaders at the College of William and Mary. The College of William and Mary is a public, residential, liberal arts university located in Williamsburg, Virginia. Currently, the total student enrollment at William and Mary is approximately 7,500 students. The undergraduate population is approximately 5,500 students. (http://www.wm.edu/about/at_a_glance.php) The Common Data Set 2002-2003 for W&M provided the following information on students. Out-of-state students comprise 34% of the undergraduate student population. Students living in college-owned, operated or affiliated housing constitute 75% of the undergraduates. The average age of full-time undergraduate student is 20. After enrolling, 91% of the undergraduate students graduate within six years. Of the degree-seeking undergraduate students who were freshman in the fall 2001 semester, 96% were enrolled in the fall 2002 semester.

Students at the College of William and Mary come from all fifty states, the District of Columbia, Guam and 43 foreign countries. Nearly 80% of the freshman class graduated in the top 10% of their high school class. The middle 50% of the current freshman class has SAT scores ranging from 1280 to 1430. Needs-based financial aid is awarded to 28% of all students at the college totaling $14 million in 2002-2003 school year. (http://www.wm.edu/about/glance.php)

Sample Selection

Students at William and Mary independently decided to participate in the Senior Survey. Notices were sent to students via email and encouragement was provided in email messages to students telling them of the importance of completing the Senior Survey. All students that completed the Senior Survey are included in this research.

Senior Survey Development

Students complete the SS to give a student's perspective on the William and Mary experience by self-reporting behavior. The first Senior Survey was telephonically completed in 1992 by the Office of Assessment as a follow-up to a historical knowledge test that had been given to a sample of the 1991 graduating senior class. The 1992 Senior Survey focused on students' curricular activities and general education. The 2002 survey used in this analysis includes some items from earlier surveys. The current survey has been expanded to include co-curricular and post-graduation experiences. The plan is to work toward "a longitudinal survey strategy that tracks students from freshman to senior years and beyond" (S. L. Bosworth, personal communication, December 5, 2002).

Until the fall of 2002, the SS results were used for department and program reviews. In the fall of 2003, data on the survey population by department and program were distributed electronically through faculty and staff digests. The results of the survey were summarized in a series of tables and graphs and combined with other related items and provided to unit faculties, external review teams, internal review teams, the Dean of Undergraduate Studies and the Dean of the Faculty (S. L. Bosworth, personal communication, December 5, 2002).

Items selected for the SS came from many different sources. The Office of Assessment collects items from surveys such as the National Survey of Student Engagement, which earlier used campus-wide surveys conducted with William and Mary seniors and other resources. When developing instruments and specific survey items, special consideration is given to external agencies such as the State Council of Higher Education for Virginia and the Southern Association of Colleges and Schools (S. L. Bosworth, personal communication, December 5, 2002). Pilot testing was not conducted in the early 1990's; however, pilot testing has been conducted in the past three years with students who helped to refine the survey questions (S. L. Bosworth, personal communication, March 20, 2003). Because of the pilot testing, questions have been deleted and added over the past three years changing the SS each year.

Many members of the college community have submitted questions for inclusion in the SS, but the survey has not been developed using this as the sole process. Every attempt is made to accommodate internal requests relating to student curricular and co-curricular experiences. Additional surveys have been designed for specific topics such as volunteer activities. In the near future, the Office of Student Affairs will review draft

instruments presented by representatives from different academic departments (S. L. Bosworth, personal communication, December 5, 2002).

The College of William and Mary conducts the Senior Survey electronically. The Office of Assessment found paper surveys increased response rates by less than five percent and thus could not justify the expenditure of resources for such a small return (S. L. Bosworth, personal communication, December 5, 2002). The Senior Surveys for 2001, 2002 and 2003 are attached as Appendix A.

Thus administered electronically, students scheduled to graduate in the spring are sent an e-mail asking them to complete the survey and providing a website. Students access the survey through the website, provide a password and complete the survey online. Two reminders are sent out to seniors in the spring semester. No incentives are provided to get seniors to complete the survey (S. L. Bosworth, personal communication, December 5, 2002).

Instrumentation

This study used the Senior Survey at the College of William and Mary. The SS is an instrument distributed by the Office of Assessment to undergraduate seniors at the institution.

The number of sections has varied over the three years of data collected for this research. In 2001, there were nine sections, 2002 six sections and in 2003 eight sections. Demographic information was collected from another database as the student logged in using an assigned student number. The sections of the surveys which were used in this

study were: W&M education goals, post graduate plans, and co-curricular activities sections.

Participants

Participants were the members of the 2001, 2002, and 2003 Senior Class who completed the Senior Survey. The research data was drawn from an online Senior Survey in which students participate voluntarily.

This study examines two different groups of seniors. Two of the key terms in this study are non-leader students and student leaders. Non-leader students are those students whom checked the "NO" box when asked if they had held any office in the organizations listed as co-curricular activities. Student leaders are self-identified in the Senior Survey when they check the box "YES" in the co-curricular activities section that they held an office in one of the organizations listed as a co-curricular activity.

Procedures

The Office of Assessment at The College of William and Mary granted permission to use the data from years 2001, 2002 and 2003 of the Senior Survey for this proposal on August 11, 2003. The researcher has worked closely with the Office of Assessment to assemble a Statistical Package for the Social Sciences (SPSS) file that contains all the pertinent information. This research was found to comply with appropriate ethical standards and was exempted form the need for formal review by the College of William and Mary Protection of Human Subjects Committee.

The Office of Assessment provided the researcher the following information for each student: (a) employment, and post-graduation plans (b) friendship data, (c) co-curricular activities and (d) general education goals and responses to questions on the Senior Survey pertaining to his perceptions of his level of knowledge and skills on a broad list of topics. The University Registrar provided the student's grade point average, domicile information, residency status, place of residence and information on academic major to the Office of Assessment which was added to the SPSS file. The Office of Institutional Research provided demographic data on all the May graduates for 2001 – 2003. The SS is an Internet-based survey that collects the data and saves it into a database for the Office of Assessment. The researcher conducted all the analyses using the statistical software package SPSS 11.0 for data analysis. Appendix B is a code book which matches the data provided by the Office of Assessment to the questions in the Senior Survey.

Data Analysis

A central question of this research is to determine if individual students can be classified into groups (leaders and non-leaders) on the basis of quantitative perception predictor variables (knowledge, skills, experiences, and institution contribution). The questions and procedures of this research are presented in Table 3.1.

Table 3.1: *Research Questions and Procedures*

QUESTION	PROCEDURE	DATA SET	RESEARCH QUESTION
1	Multivariate ANOVA	CA, L	CA → L
2	Factor Analysis Multiple Regression	CA, L, S	CA + L → S
3 3a	Factor Analysis Multiple Regression	CA, L, K CA, L, GPA	CA + L → K CA + L → GPA
4	Discriminant Analysis	CA, L, PGP	CA + L → PGP
5	Factor Analysis Multivariate ANOVA Multiple Regression Pearson Correlation	C(S), C(K), L, S, K	L + C(S + K) → (S +K)
6	Multivariate ANOVA	S, K, C(S), C(K), L	S + K + C(S + K) → L

CA – Co-curricular Activities
L – Leadership Identification
S – Student Skills
K – Student Knowledge
GPA – Grade Point Average
PGP – Post Graduation Plans
C(S) – W&M Contribution to Student Skills
C(K) – W&M Contribution to Student Knowledge

The following questions will guide this study: 1. Are student leaders more involved in co-curricular activities than non-leader students? 2. Can the variation and covariation be identified between non-leader students and student leaders with their involvement in co-curricular activities and the student's perception of his skill level? Can perceived student

skills be predicted with a student's involvement in co-curricular activities and identification as a student leader? 3. Can the variation and covariation be identified between non-leader students and student leaders with their involvement in co-curricular activities and the student's perception of his knowledge level and grade point average? Can the student's perceived knowledge level and grade point average be predicted with a student's involvement in co-curricular activities and identification as a student leader? 4. Can a student's post-graduation plans be classified on the basis of his involvement in co-curricular activities and their leadership identification? 5. Using multiple independent variables, can perceived student skills and knowledge be predicted with the student's perceived contribution of W&M to his skills and knowledge and leadership identification? 6. Can the variation and covariation be identified between non-leader students and student leaders with their perceived levels of skill and knowledge? Can W&M's perceived contribution to the student's skills and knowledge and the student's perception of his skills and knowledge be used to predict a student's leadership identification?

A multivariate analysis of variance (MANOVA) can evaluate whether the population means on a set of dependent variables (involvement in co-curricular activities) vary across levels of a factor (student leader or non-leader student). In the Senior Survey, students self-identify as leaders or non-leaders of co-curricular activities.

Multiple regression and multiple linear regression will be used on the data collected using non-experimental designs. With unordered sets of predictors, the research question divides the predictors into two sets, non-leader student and student leader. The multiple regression analysis will examine the validity of each set of predictors (skills, knowledge

and grade point average), the incremental validity of each set of predictors over the sets of predictors, and the validity of all the sets in combination.

Discriminant analysis is "a type of multiple regression analysis involving the use of two or more measured variables to predict a single criterion variable that is categorical in nature" (Gall, Borg, & Gall, 1996). The discriminant analysis equation can use the scores of involvement in co-curricular activities and post graduation plans in an attempt to predict the category - non-leader student and student leader - to which an individual belongs.

Pearson correlations look to determine the degree to which two variables are linearly related (Gall, Borg, & Gall, 1996). Bivariate correlelational statistics can be conducted using a student's perceptions of his skills and knowledge and the student's perceptions of William and Mary's contribution to his skills and knowledge.

All of these analyses were conducted using the SS data from 2001, 2002, and 2003. The primary analysis will be on questions common to all three years of data. Follow-up analyses could be conducted on questions where there are significant results.

After studying the results of the analysis of the Senior Survey responses, the researcher's goal was to provide some insights into the student leadership experience at William and Mary. One outcome may be that student leadership can be predicted from a set of measures on student experiences as an undergraduate. Additionally, a deeper understanding of the differences between non-leader students and student leaders may be the result of this research. The researcher expects to find a difference in the self-evaluation of their skills, knowledge levels, grade point averages, perceptions in the contributions of W&M and post-graduation plans.

Ethical Considerations

The researcher obtained permission to conduct this survey from the Human Subjects Review Committee at the College of William and Mary. Because the students are all seniors and expected to have graduated, no attempt will be made to inform them that their survey responses are being used in this study. Privacy of the student's response on the SS will be protected.

Data in the Senior Survey do not contain any identification and cannot be linked to a specific student. Individuals gave consent to use the data for research when they completed the survey. The college collected the data and shared the data for research.

Chapter Four

Data Analysis

The purpose of this study was to determine if student leadership can be predicted statistically, to test the assumption that student leadership is associated with distinctive experience patterns for students at William and Mary, and how student leaders differ from those who do not assume positions of leadership at the College of William and Mary (W&M). The goal was to compare the experiences of non-leader students with student leaders at the college. Two groups of students were examined based on their self-identification as a student leader or not of a co-curricular activity at W&M.

The Senior Survey is administered at the College of William and Mary during the senior year to undergraduate students who are eligible to graduate in May. For this research, data were collected from surveys administered in 2001, 2002 and 2003. Astin's Theory of Involvement was discussed in detail in the review of literature and parts of the theory were used as the conceptual framework for this study. This chapter presents the results of multivariate analysis of variance, factor analysis, multiple regression, discriminant analysis and Pearson correlations. The alpha level was .01 for the analyses. The six research questions used to guide this study were:

1. Are student leaders more involved in co-curricular activities than non-leader students?
2. Can perceived student skills be predicted with a student's involvement in co-curricular activities and identification as a student leader?

3. Can the student's perceived knowledge level and grade point average be predicted with a student's involvement in co-curricular activities and identification as a student leader?
4. Can a student's post-graduation plans be classified on the basis of his involvement in co-curricular activities and his leadership identification?
5. Can perceived student skills and knowledge be predicted with the student's perceived contribution of W&M to his skills and knowledge and leadership identification?
6. Can W&M's perceived contribution to the student's skills and knowledge and the student's perception of his skills and knowledge be used to predict a student's leadership identification?

Demographics

The demographic data collected for this research included gender, ethnic group and domicile. The population of this study (N = 4,037) is all seniors who graduated in May 2001, 2002, and 2003. The Office of Institutional Research provided the aggregate data on graduating seniors. The sample (N = 1,937) is all the seniors who completed the sections of Senior Survey pertaining to gender, ethnic group and domicile and who were scheduled to gradate in May 2001, 2002 or 2003. To determine if the sample is representative of the graduating population at the College of William and Mary a statistical comparison was conducted by the researcher and the population and the sample were found to be demographically similar. A Chi Square was run and statistically there

was no difference between the population and the sample. The graduating senior demographics for the population and the sample are presented in Table 4.1.

Table 4.1: *Demographics of Graduating Undergraduate Population and Sample (2001 – 2003)*

	SURVEY POPULATION		SAMPLE	
	N	%	N	%
Gender				
Female	2339	57.9	1260	65.1
Male	1698	42.1	670	34.9
Ethnic Group				
White	3451	85.5	1603	86.5
Asian	287	7.1	126	6.8
Black	162	4.0	63	3.4
Hispanic	125	3.1	51	2.8
American Indian	12	.3	10	.5
Domicile				
In State	2596	64.3	1249	64.5
Out of State	1441	35.7	688	35.5

Findings

The findings of this research are presented according to the questions that guided this study. Using the Senior Survey (SS), research question one sought to determine if the means of the involvement in co-curricular activities is the same for non-leader students and student leaders at the College of William and Mary.

Differences between Non-Leader Students and Student Leaders in their Involvement in Co-curricular Activities

Are student leaders more involved in co-curricular activities than non-leader students? The section in the SS on co-curricular activities listed ten activities listed on all three years of the Senior Survey. Respondents to the SS indicated the number of years they were involved in the ten co-curricular activities. Responses ranged from zero to four. The data was found to be bimodal and have a large standard deviation.

After reporting their involvement in co-curricular activities, respondents self-identified by marking "YES" or "NO" on the SS if they had held an office in the co-curricular activities section of the SS. Student leaders had a higher mean of involvement than non-leader students in honor societies and fraternities, concentration-related clubs, social fraternities/sororities, service clubs, volunteer activities, intramural and club sports, drama, dance, music and the arts, religious organizations and working for pay on or off campus. Non-leader students had a higher mean of involvement than student leaders in intercollegiate athletics. Additionally, student leaders had a higher average grade point average than non-leader students. The descriptive statistics are shown in Table 4.2.

Table 4.2: *Descriptive Comparison of Non-leader Students and Student Leaders' Involvement in Co-curricular Activities and their Grade Point Average*
$CA \rightarrow L$

	NON-LEADER STUDENT		STUDENT LEADER	
Co-curricular Activities	Mean	Standard Deviation	Mean	Standard Deviation
Honor Society/ Fraternity	1.35	2.361	1.82	2.640
Concentration-related Clubs	1.02	1.898	1.55	2.332
Social Fraternity/Sorority	.81	1.939	2.27	2.979
Service Clubs	.60	1.608	1.39	2.424
Volunteer Activities	1.63	2.236	2.42	2.730
Intercollegiate Athletics	.82	2.127	.56	1.763
Intramural or Club Sports	1.87	2.560	2.65	2.930
Drama, Dance, Music or Arts Group	.98	2.176	1.61	2.674
Religious Organizations	1.10	2.277	1.86	2.893
Work for Pay on or off Campus	3.00	2.756	3.14	2.773
Grade Point Average	3.12	.494	3.21	.427

The Wilks' Λ of .864 is significant, (F (10, 1926) = 30.219, p <.001), indicating that the population means of non-leader students and student leaders are not the same for co-curricular activities. The multivariate $\eta^2 = .136$ indicates 14% of the multivariate variance of the non-leader student and student leader is associated with the group factor. The results of the MANOVA and tests of between–subjects effects are reflected in Table 4.3.

Table 4.3: *Tests of Between-Subjects Effects for Non-leader Students and Student Leaders Involved in Co-curricular Activities*

$CA \rightarrow L$

OFFICE IN CO-CURRICULAR ACTIVITIES	TYPE III SUM OF SQUARES	DF	MEAN SQUARES	F	SIG	PARTIAL ETA SQUARED
Honor Society/ Fraternity	93.698	1	93.698	14.341	.000	.007
Concentration-related Clubs	115.918	1	115.918	23.834	.000	.012
Social Fraternity/Sorority	883.351	1	883.351	121.420	.000	.059
Service Clubs	256.746	1	256.746	52.957	.000	.027
Volunteer Activities	260.719	1	260.719	38.994	.000	.020
Intercollegiate Athletics	29.788	1	29.788	8.387	.004	.004
Intramural or Club Sports	253.698	1	253.698	31.914	.000	.016
Drama, Dance, Music or Arts Group	164.024	1	164.024	25.643	.000	.013
Religious Organizations	242.738	1	242.738	32.925	.000	.017
Work for Pay on or off Campus	7.583	1	7.583	.990	.032	.001

Although significant, involvement in a social fraternity or sorority explains only 6% of the variation of means between non-leader students and student leaders. The following co-curricular activities explain between 1% and 3% for each activity the variation between non-leader students and student leaders: service club – 2.7%, volunteer activities – 2%, religious organizations – 1.7%, intramurals or club sports – 1.6%, drama, dance, music and the arts – 1.3%, and concentration-related clubs – 1.2%. The large size of the sample results in the high sensitivity of a MANOVA.

Prediction of Skills Perception with Involvement in Co-curricular Activities and Leadership Identification

Can perceived student skills be predicted from a student's involvement in co-curricular activities and identification as a student leader? Do student leaders have a higher perception of their skills than non-leader students? In the first part of a two part question, research question two requires a factor analysis to identify factors that statistically explain the variation and covariation among co-curricular activities and a student's perception of his skills. This technique was selected to observe if a large number of overlapping measured variables could be reduced to a smaller number of factors.

To determine the structure of the co-curricular and skill variables, the items were each entered into a Maximum Likelihood Factor Analysis. Maximum Likelihood Factor Analysis is a data reduction technique to reduce the number of redundant measured variables. The eigenvalues represent the amount of variance accounted for by a factor. The eigenvalues helped to decide which factors should be entered into the co-curricular activities factor analysis. The criteria used to decide on how many factors to extract was based on a cumulative eigenvalue percentage reaching 85%. Eight factors are required to exceed the standard of a cumulative percentage of 85%, thus proving nothing is gained from entering only eight factors when there are 10 factors total.

The results for the co-curricular variables are presented in Table 4.4. From these results, it is evident that the ten co-curricular activities should not be combined.

Table 4.4: *Co-curricular Activities Factor Analysis*

FACTOR	INITIAL EIGENVALUES		
	Total	% of Variance	Cumulative %
1	2.670	26.698	26.698
2	1.145	11.446	38.143
3	1.007	10.066	48.209
4	.951	9.509	57.718
5	.848	8.484	66.202
6	.786	7.861	74.063
7	.762	7.620	81.683
8	.634	6.342	88.025
9	.623	6.233	94.258
10	.574	5.742	100.000

The results for the skills variables appear in Table 4.5. The factor analysis indicated that the skill variables could be reduced to a single variable that retains 91.3% of the original variability. Therefore, the skill variables were combined to form a new single skill factor which is called the skill factor. The skill factor will reduce overlapping variables and reflect the broader conceptual dimension of a student's perception of his skills.

Table 4.5: *Student Skills Perception Factor Analysis*

FACTOR	INITIAL EIGENVALUES		
	Total	% of Variance	Cumulative %
1	7.305	91.314	91.314
2	.173	2.160	93.474
3	.130	1.628	95.102
4	.118	1.472	96.574
5	.094	1.171	97.746
6	.075	.942	98.688
7	.056	.700	99.388
8	.049	.612	100.00

In the second part to research question two, a stepwise regression analysis was conducted to determine if the independent variables - involvement in co-curricular activities and leadership identification - would predict a student's perception of his skill levels. In a previous factor analysis, the eight skill questions on the SS were combined into a single factor, the skill factor. The skill questions dealt with the student's perception of his current skill levels in effective speaking and writing, leadership, critical thinking, interpersonal abilities, computer, historical inquiry and aesthetic abilities.

The results of the stepwise regression analysis are reported below. The results present an evaluation of how well the skill factor - a student's perception of his skills - is predicted by leadership identification and involvement in co-curricular activities as indicated by variables: honor society fraternities, concentration-related clubs, social

fraternities/sororities, service clubs, volunteer activities, intercollegiate athletics, intramural or club sports, drama, dance, music or arts, religious organizations and work for pay on or off campus. The stepwise regression indicated a significant positive contribution by leadership identification and a significant negative contribution by involvement in a social fraternity/sorority. The predictors student leader or non-leader student and involvement in a social fraternity or sorority accounted for a significant amount of the skill variability, $R^2 = .013$, $F\ (2, 1646) = 10.429$, $p < .001$. The regression weights for the equation are reported in Table 4.6. While the results are statistically significant, they have essentially no practical significance because of the small improvement that is achieved in predicting a student's perception of his skills from involvement in co-curricular activities and leadership identification.

Table 4.6: *Coefficients Predicting Skills Perception with Involvement in Co-curricular Activities and Leadership Identification*
$CA + L \rightarrow S$

	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
	B	Std Error	Beta	t	Sig.
Leadership Identification	.138	.033	.105	4.178	.000
Social Fraternity/Sorority	-.016	.006	-.070	-2.793	.005

Prediction of Knowledge Perception with Involvement in Co-curricular Activities and Leadership Identification

Can the student's perceived knowledge level be predicted from a student's involvement in co-curricular activities and identification as a student leader? Do student leaders have a higher perception of their knowledge than non-leader students? In the first part of a two part question, research question three requires a factor analysis to identify factors that statistically explain the variation and covariation among co-curricular activities and a student's perception of his knowledge. Results from the previous factor analysis on co-curricular activities were used in this research question. This technique was selected to observe if a large number of overlapping measured variables in a student's perception of his knowledge could be reduced to a smaller number of factors.

To determine the structure of the knowledge variable, the items were entered into a Maximum Likelihood Factor Analysis. The items are the student's perception of his current knowledge levels of philosophical and religious systems, important events that have shaped Western and non-Western societies, politics, leading historical figures, masterworks and movements in art, music and literature, and wars and revolutions. The results for the knowledge items are presented in Table 4.7. From these results, it is evident that the seven perceptions students have of their knowledge can be combined into a single new knowledge factor.

Table 4.7: *Student Knowledge Perceptions Factor Analysis*

FACTOR	INITIAL EIGENVALUES		
	Total	% of Variance	Cumulative %
1	6.134	87.635	87.635
2	.291	4.160	91.795
3	.177	2.529	94.324
4	.148	2.116	96.439
5	.126	1.797	98.236
6	.066	.943	99.180
7	.057	.820	100.000

In the second part of research question three, a stepwise regression analysis was conducted to determine if the independent variables, involvement in co-curricular activities and leadership identification, would predict a student's perception of his knowledge levels. In a previous Factor Analysis, all seven knowledge questions on the SS were combined into a single factor, the knowledge factor. The knowledge questions dealt with the student's perception of his current knowledge levels of philosophical and religious systems, important events that have shaped Western and non-Western societies, politics, leading historical figures, masterworks and movements in art, music and literature, and wars and revolutions.

The results of the stepwise regression analysis are reported in Table 4.8. The results present an evaluation of how well a student's perception of his knowledge is predicted by leadership identification and involvement in co-curricular activities as indicated by

variables: honor society fraternities, concentration-related clubs, social fraternities/sororities, service clubs, volunteer activities, intercollegiate athletics, intramural or club sports, dance, drama, music or art, religious organizations and work for pay on or off campus. The stepwise regression indicated a significant but positive minimal contribution by leadership identification and a significant but negative minimal contribution by involvement in a social fraternity/sorority in predicting a student's perception of his knowledge. The predictors - non-leader student or student leader and involvement in a social fraternity or sorority - accounted for the variability in knowledge, $R^2 = .005$, $F\ (2, 1648) = 4.499$, $p < .011$. The regression weights for the equation are reported in Table 4.8.

While some of the results are statistically significant, they have essentially no practical importance because of the small improvement that is achieved in predicting a student's perception of his knowledge from involvement in co-curricular activities and leadership identification.

Table 4.8: *Coefficients Predicting Knowledge Perception with Involvement in Co-curricular Activities and Leadership Identification*
$CA + L \rightarrow K$

	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
	B	Std Error	Beta	t	Sig.
Leadership Identification	.096	.039	.062	2.450	.014
Social Fraternity/Sorority	-.015	.007	-.057	-2.267	.024

Prediction of a Student's GPA by Measures of Involvement in Co-curricular Activities and Leadership Identification

Can the student's grade point average be predicted from a student's involvement in co-curricular activities and identification as a student leader? Do student leaders have a higher GPA than non-leader students? In research question three alpha, a stepwise regression analysis was conducted to determine if the independent variables - involvement in co-curricular activities and leadership identification - would predict a dependent variable or target, a student's grade point average. An earlier factor analysis reported in Table 4.4, shows that the co-curricular activities could not be combined to form a single factor.

The results of the stepwise regression analysis are shown in Table 4.9. The results present an evaluation of how well a student's grade point average is predicted by leadership identification and involvement in co-curricular activities as indicated by variables: honor society fraternities, concentration-related clubs, social fraternities/sororities, service clubs, volunteer activities, intercollegiate athletics, intramural or club sports, drama, dance, music or art, religious organizations and work for pay on or off campus. The stepwise regression indicated significant positive contribution by leadership identification involvement in a honor society/fraternity and a significant negative contribution to predicting a student's grade point average by involvement in an social fraternity/sorority, working for pay on and off campus, intercollegiate athletics, and intramural or club sports. It should be noted, however, that a student's grade point average is established before involvement in an honor society/fraternity and is in reality a form of recognition for achieving a specific grade point average.

The predictors - involvement in an honor society/fraternity, social fraternity/sorority, working for pay on and off campus, intercollegiate athletics, intramural or club sports and student leader or non-leader student - accounted for variability in self-reported knowledge, $R^2 = .329$, F (6, 1930) = 158.070, $p < .001$. The regression weights for the equation are reported in Table 4.9. The results are significant and the positive and negative predictors of involvement in a co-curricular activity and leadership identification are useful in predicting a student's grade point average. Involvement in an honor society or fraternity and identification as a leader had a positive impact on a student's grade point average. Involvement in a social fraternity or sorority, working for pay on or off campus, involvement in intercollegiate athletics or intramural or club sports had a negative impact on a student's grade point average. It is important to note that with involvement in an honor society/fraternity excluded; only leadership identification as a leader has a positive impact on a student's grade point average.

Table 4.9: *Coefficients Predicting a Student's GPA with Involvement in Co-curricular Activities and Leadership Identification*
CA + L → GPA

	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
	B	Std Error	Beta	t	Sig.
Honor Society/Fraternity	.095	.003	.543	28.973	.000
Social Fraternity/Sorority	-.019	.003	-.119	-6.147	.000
Work for Pay on or off Campus	-.015	.003	-.093	-4.976	.000
Leadership Identification	.079	.019	.081	4.182	.000
Intercollegiate Athletics	-.012	.004	-.050	-2.671	.008
Intramural or Club Sports	-.008	.003	-.049	-2.585	.010

Prediction of Post Graduation Plans with Involvement in Co-curricular Activities and Leadership Identification

Can a student's post-graduation plans be classified on the basis of his involvement in co-curricular activities and his leadership identification? Do student leaders post graduation plans differ from non-leader students? In the analysis of data for research question four, a stepwise discriminant analysis was conducted to determine whether two predictors – involvement in co-curricular activities and leadership identification – could predict post graduation plans for graduate school recorded in the Senior Survey. Seniors completing the SS could report either that they planned to attend graduate school, that they had no plans to attend graduate school, or they did not answer the question. As reported previously, a factor analysis, reported in Table 4.4, shows the co-curricular activities could not be combined to form a single factor; thus, each item of co-curricular activities was entered into the analysis.

The overall Wilks' lambda was significant, $\Lambda = .96$, χ^2 (3, $\underline{N} = 1393$) = 62.67, $\underline{p} < .001$, indicating that overall the predictors differentiated among the two possible answers to attend graduate school following graduation. Variables used in the analysis are reported in Table 4.10.

Table 4.10: *Discriminant Analysis Variable*
CA + L → PGP

	TOLERANCE	F TO REMOVE	WILKS' LAMBDA
Honor Society/Fraternity	.973	39.235	.983
Volunteer Activity	.961	7.278	.961
Leadership Identification	.979	5.222	.959

The discriminant function has an eigenvalue of .046 and a canonical correlation of .21. The group classification results in planning to attend graduate school or not is shown in Table 4.11. The classification results permit a determination of how well group membership can be predicted.

Table 4.11: *Classification Results Predicting Post Graduation Plans with Involvement in Co-curricular Activities and Leadership Identification*
CA + L → PGP

			PREDICTED GROUP MEMBERSHIP		
			No Plans to Attend Graduate School	Graduate School	Total
Original	Count	No Plans	872	63	935
		Graduate School	377	81	458
	%	No Plans	93.3	6.7	100.0
		Graduate School	82.3	17.7	100.0
Cross-validated	Count	No Plans	872	63	935
		Graduate School	377	81	458
	%	No Plans	93.3	6.7	100.0
		Graduate School	82.3	17.7	100.0

a. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
b. 68.4% of original grouped cases correctly classified.
c. 68.4% of cross-validated grouped cases correctly classified.

With a base rate of 67.1%, a 68.4% original and cross-validated grouped case represents a minimal improvement in the ability to assess the accuracy in prediction of group membership. So small is the improvement that it has no practical significance in

predicting a student's post graduation plans with involvement in co-curricular activities and leadership identification.

Prediction of a Student's Skills and Knowledge with his Perception of William and Mary's Contribution to his Skills and Knowledge and Leadership Identification

Can perceived student skills and knowledge be predicted from the student's perceived contribution of W&M to his skills and knowledge and leadership identification? Do student leaders have a higher perception of their skills and knowledge than non-leader students? Research question five is a four part question. The first part is a factor analysis on all the questions pertaining to a student's perception of William and Mary's contribution to his skills and knowledge. The remaining three parts to research question five are a Multivariate ANOVA, a stepwise regression analysis and Pearson Correlation.

Research question five required a factor analysis to identify factors that statistically explain a student's perception of William and Mary's contribution to his skills and knowledge. The factor analysis was used to determine the students' perceptions of William and Mary's contribution to their current skill levels in effective speaking and writing, leadership, critical thinking, interpersonal abilities, computer, historical inquiry and aesthetic abilities and knowledge levels of philosophical and religious systems, important events that have shaped Western and non-Western societies, politics, leading historical figures, masterworks and movements in art, music and literature, and wars and revolutions could be reduced to a single factor. Factor analysis allows a researcher to observe if a large number of overlapping measured variables could be reduced to a smaller number of factors.

To determine the structure of a student's perception of William and Mary's contribution to skills and knowledge the co-curricular and skill variables, the items were each entered into a Maximum Likelihood Factor Analysis. The results of the student's perceptions of William and Mary's contribution to his skills and knowledge variables are presented in Table 4.12. From these results, it is evident the 15 perceptions of William and Mary's contribution to the student's skills and knowledge should be combined into a single factor, the William and Mary Contribution.

Table 4.12: *Student's Perceptions of William and Mary's Contribution to Skills and Knowledge Factor Analysis*

FACTOR	INITIAL EIGENVALUES		
	Total	% of Variance	Cumulative %
1	12.242	81.611	81.611
2	.664	4.427	86.038
3	.327	2.181	88.219
4	.254	1.691	89.910
5	.222	1.483	91.393
6	.198	1.319	92.712
7	.174	1.161	93.873
8	.167	1.113	94.986
9	.151	1.010	95.995
10	.128	.853	96.848
11	.113	.751	97.599
12	.101	.674	98.273
13	.093	.621	98.894
14	.087	.581	99.474
15	.079	.526	100.000

The section in the Senior Survey on a student's perception of his skills and knowledge and a student's perception of William and Mary's contribution to his skills and knowledge was common to the three years of the study. Respondents to the SS rated their skills, the skill factor, knowledge, the knowledge factor, and William and Mary's contribution to their skills and knowledge, the William and Mary contribution. Responses ranged from one to five for each question. Respondents also self-identified if they had held an office in the co-curricular activities section of the SS. In reviewing the descriptive statistics, student leaders had a higher mean on their perception of their skills and knowledge and their perception of William and Mary's contribution to their skills and knowledge than non-leader students.

The descriptive statistics are shown in Table 4.13.

Table 4.13: *Descriptive Statistics of Non-leader Students and Student Leaders' Perceptions of Their Skills and Knowledge and William and Mary's Contribution to Their Skills and Knowledge*
L + C(S + K) → (S +K)

	NON-LEADER STUDENT		STUDENT LEADER	
Leadership Identification	Mean	Standard Deviation	Mean	Standard Deviation
Skill Factor	.435	.632	.553	.597
Knowledge Factor	.413	.740	.489	.705
William and Mary Contribution	.374	.796	.520	.797

The Wilks' Λ of .864 is significant, (F (3, 1638) = 5.938, p <.001), indicating that the population means of non-leader students and student leaders are not the same for the skill factor, the knowledge factor and the perception of William and Mary's contribution to the student's skills and knowledge. The multivariate η^2 = .011 indicates 1% of the multivariate variance of the non-leader student and student leader is associated with the

group factor. The results of the MANOVA and tests of between–subjects effects are reflected in Table 4.14.

Table 4.14: *Tests of Between-Subjects Effects for Non-leader Students and Student Leaders' Perceptions of Their Skills and Knowledge and William and Mary's Contribution to Their Skills and Knowledge*
L + C(S + K) → (S +K)

LEADERSHIP IDENTIFICATION	TYPE III SUM OF SQUARES	DF	MEAN SQUARES	F	SIG	PARTIAL ETA SQUARED
Skill Factor	4.858	1	4.858	13.139	.000	.008
Knowledge Factor	2.018	1	2.018	3.935	.047	.002
William and Mary Contribution	7.598	1	7.598	11.973	.001	.007

Although significant, a student's perception of his skills, the skill factor, a student's perception of his knowledge, the knowledge factor, and the perception of William and Mary's contribution to his skills and knowledge each explain less than 1% of the variation of means between non-leader students and student leaders. The large size of the sample results in the high sensitivity of a MANOVA.

In the third part of a four part question, research question five, a stepwise regression analysis was conducted to determine if a student's perception of William and Mary's contribution to his skills and knowledge and leadership identification would predict a student's perception of his skill and knowledge levels. As a result of the Factor Analysis reported in Table 4.12, all fifteen perceptions of William and Mary's contribution to the student's skill and knowledge perceptions on the SS were combined into a single factor, the William and Mary Contribution. The student's perceptions of William and Mary's contribution to his skill level dealt with effective speaking and writing, leadership, critical

thinking, interpersonal abilities, computer, historical inquiry and aesthetic abilities. The student's perceptions of William and Mary's contribution of his knowledge level dealt with philosophical and religious systems, important events that have shaped Western and non-Western societies, politics, leading historical figures, masterworks and movements in art, music and literature, and wars and revolutions.

The results of the stepwise regression analysis are reported below. The results present an evaluation of how well a student's perception of his skills is predicted by a student's perception of William and Mary's contribution to his skills and knowledge as indicated by the variables used in the factor analysis in Table 4.12, the William and Mary Contribution and leadership identification. The stepwise regression indicated significant contributions by the perception of William and Mary's contribution to the student's perception of his skills and not leadership identification. The perception of William and Mary's contribution to the student's skills and knowledge accounted for a significant amount of the perception of the student's skill variability, $R^2 = .401$, $F\ (1, 1645) = 1101.157$, $p < .001$. The regression weights for the equation are reported in Table 4.15. The results are significant and useful in predicting a student's perception of his skills with his perceptions of William and Mary's contribution to his skills and knowledge.

Table 4.15: *Coefficients of Perceptions of Student Skills with William and Mary's Contribution to Their Skills and Knowledge and Leadership Identification*
$L + C(S + K) \rightarrow S$

	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
	B	Std Error	Beta	t	Sig.
William and Mary Contribution	.482	.015	.633	33.184	.000

In a continuation of part three of research question five, a stepwise regression analysis was conducted to determine if a student's perception of William and Mary's contribution to his skills and knowledge, would predict a student's perception of his knowledge levels.

The results of the stepwise regression analysis are reported below. The results present an evaluation of how well a student's perception of his knowledge is predicted by a student's perception of William and Mary's contribution to his skills and knowledge as indicated by the variables used in the factor analysis in Table 4.12, the William and Mary Contribution and leadership identification. The stepwise regression indicated significant contributions by the student's perception of William and Mary's contribution to the student's perception of his knowledge and not leadership identification. The perception of William and Mary's contribution to the student's skills and knowledge accounted for a significant amount of the perception of the student's knowledge variability, $R^2 = .356$, $F(1, 1649) = 910.253$, $p < .000$. The regression weights for the equation are reported in Table 4.16. The results are significant and useful in predicting a student's perception of his knowledge with his perception of William and Mary's contribution to his skills and knowledge.

Table 4.16: *Coefficients of Perceptions of Student Knowledge with William and Mary's Contribution to Their Skills and Knowledge and Leadership Identification*
L + C(S + K) → K

	UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS		
	B	Std Error	Beta	t	Sig.
William and Mary Contribution	.534	.018	.596	30.170	.000

In the fourth part to research question five, the study sought to determine if there was a correlation between a student's perception of his skills, knowledge and leadership identification and the student's perception of William and Mary's contribution to his skills and knowledge. The student's perceptions of his skill levels covered effective speaking and writing, leadership, critical thinking, interpersonal abilities, computers, historical inquiry and aesthetic abilities. The student's perceptions of his knowledge levels dealt with philosophical and religious systems, important events that have shaped Western and non-Western societies, politics, leading historical figures, masterworks and movements in art, music and literature, and wars and revolutions. Leadership identification dealt with students acknowledging positional leadership in co-curricular activities. The questions on the student's perceptions of William and Mary's contribution covered the same topic areas for skill and knowledge.

A Pearson correlation was conducted using the student's perceptions of his skills, the skills factor, and knowledge, the knowledge factor, leadership identification and the perception of William and Mary's contribution to his skills and knowledge, the William and Mary contribution, as four variables. The factor analysis allowing the combination of questions on skills and knowledge can be found in Table 4.5, Table 4.7 and Table 4.12.

The results of the Pearson correlation are shown in Table 4.17.

Table 4.17: *Correlation of Perceptions of Student Skills and Knowledge with William and Mary's Contribution to his Skills and Knowledge and Leadership Identification*
L + C(S + K) → (S + K)

		WILLIAM AND MARY CONTRIBUTION FACTOR
Skill Factor	Pearson Correlation	.844**
	Sig. (2-tailed)	.000
	N	2510
Knowledge Factor	Pearson Correlation	.822**
	Sig. (2-tailed)	.000
	N	2515
Leadership Identification	Pearson Correlation	.081**
	Sig. (2-tailed)	.001
	N	1659

**. Correlation is significant at the 0.01 level (2-tailed).

The results of the correlational analyses presented in Table 4.17 show that two correlations, a student's perception of his skill and knowledge, were statistically significant and were greater than or equal to .35. There is a strong correlation between a student's perception of his skills and knowledge and his perception of William and Mary's contribution to his skills and knowledge. While leadership identification is statistically significant, there is not a strong correlation between leadership identification and a student's perception of William and Mary's contribution to his skills and knowledge.

Differences between Non-Leader Students and Student Leaders in their Perception of their Skills and Knowledge and William and Mary's Contribution to their Skills and Knowledge

Can W&M's perceived contribution to the student's skills and knowledge and the student's perception of his skills and knowledge be used to predict a student's leadership identification? Do student leaders have a higher perception of their skills and knowledge and William and Mary's contribution to their skills and knowledge than non-leader students? Research question six sought to determine if the population means of a student's perception of his skills and knowledge and the student's perception of William and Mary's contribution to his skills and knowledge is the same or different for non-leader students and student leaders at the College of William and Mary. The student's perceptions of his skill levels covered effective speaking and writing, leadership, critical thinking, interpersonal abilities, computers, historical inquiry and aesthetic abilities. The student's perceptions of his knowledge levels dealt with philosophical and religious systems, important events that have shaped Western and non-Western societies, politics, leading historical figures, masterworks and movements in art, music and literature, and wars and revolutions. The questions on the student's perceptions of William and Mary's contribution covered the same topic areas for skill and knowledge.

A multivariate analysis of variance was conducted using the perception of a student's skills and knowledge and the perception of William and Mary's contribution to a student's skills and knowledge as three single variables. The factor analysis allowing the combination of these questions can be found in Table 4.5, Table 4.7 and Table 4.12.

The results of the descriptive statistics are shown in Table 4.18.

Table 4.18: *Descriptive Statistics of Non-leader Students and Student Leaders Perceptions of their Skills and Knowledge and their Perceptions of William and Mary to their Skills and Knowledge*
$S + K + C(S + K) \rightarrow L$

	NON- LEADER STUDENT		STUDENT LEADER	
	Mean	Standard Deviation	Mean	Standard Deviation
Skill Factor	.435	.631	.552	.596
Knowledge Factor	.413	.740	.488	.705
William and Mary Contribution	.373	.795	.520	.797

The Wilks' Λ of .989 is significant, (F (3, 1638) = 5.938, p <.001), indicating that the population means of non-leader students and student leaders are not the same for student skills and knowledge and William and Mary's contribution to skills and knowledge. The multivariate η^2 = .011 indicates 1% of the multivariate variance of the non-leader student and student leader is associated with the group factors. The results of the tests of between–subjects effects are reflected in Table 4.17.

Table 4.19: *Tests of Between-Subjects Effects of Non-leader Students and Student Leaders with Perceptions of their Skills and Knowledge and their Perceptions of William and Mary to their Skills and Knowledge*
$S + K + C(S + K) \rightarrow L$

	TYPE III SUM OF SQUARES	DF	MEAN SQUARES	F	SIG	PARTIAL ETA SQUARED
Skill Factor	4.858	1	4.858	13.139	.000	.008
Knowledge Factor	2.018	1	2.018	3.935	.047	.002
William and Mary Contribution	7.598	1	7.598	11.973	.001	.007

Although significant, all three variables, the skill factor, knowledge factor and William and Mary Contribution, each explain less than 1% of the variation of means

between non-leader students and student leaders and thus are of little practical importance. The large size of the sample results in the high sensitivity of a MANOVA.

Summary

The analyses at various levels illustrated that non-leader students and student leaders had distinct and differing experiences during their college experience. These findings in many cases provide clarification to findings of the leading theorists in student leadership development. It is important, however, to recognize that the large sample resulted in sensitivity that made the findings statistically significant, but in some cases of less practical importance.

In an analysis on involvement in co-curricular activities, only one co-curricular activity surfaced as significant with any practical importance. Involvement in a social fraternity or sorority explained 6% of the variation of means between non-leader students and student leaders. Student leaders were found to be more involved in a social fraternity or sorority than non-leader students.

Looking further into the student experience, an analysis was conducted to see if a student's involvement in co-curricular activities and leadership identification could predict an outcome of a student's perception of his skills. The results are significant; however, they are not practical because of the small improvement that is achieved in predicting a student's perception of his skills. Likewise, an analysis examined the possibility that the outcome of a student's perception of his knowledge could be predicted using involvement in co-curricular activities and leadership identification. The results were significant but minimal contributions by leadership identification and involvement a

social fraternity/sorority were found. Thus, involvement as a student leader did little in assisting the prediction of a student's perception of their skills and knowledge.

An analysis looked into the possibility of predicting the outcome of a student's grade point average using involvement in co-curricular activities and leadership identification. The results are significant and the predictors of involvement in a co-curricular activity and leadership identification were useful in predicting a student's grade point average. Involvement as a student leader is useful in predicting a student's grade point average.

In attempting to predict post graduation plans from a student's involvement in co-curricular activities and leadership identification, the results showed a minimal improvement in the ability to assess the accuracy in prediction of attending graduate school. Involvement as a student leader did not help in predicting post graduation plans.

An assessment was conducted to determine if a student's perception of his skills and knowledge are impacted by his perception of William and Mary's contribution to his skills and knowledge. In both cases of a student's perception of his skills and knowledge, the results are significant and useful in predicting a student's perception of his skills and knowledge with his perceptions of William and Mary's contribution to his skills and knowledge. The last analysis delved into predicting leadership identification with a student's perception of his skills and knowledge and his perception of William and Mary's contribution to his skills and knowledge. Although significant, all of the perception variables explain less than 1% of the variation between means of non-leader students and student leaders. Lastly, involvement as a student leader does little in predicting the outcome of a student's perception of their skills and knowledge and William and Mary's contribution to their skills and knowledge.

A summary and discussion of the highlights of this chapter is provided in the next chapter. Chapter V looks into the motivation for this research and relates the findings of this study to the findings of the leading theorists in student leadership and offers some implications for future research on this topic.

Chapter V

Summary and Discussion

The purpose of this study was to determine if differences existed between non-leader students and student leaders such that student leadership could be predicted and how student leaders differed from those who do not assume positions of leadership at the College of William and Mary. The key element in this study was the comparison of non-leader students and student leaders through their responses on a college survey given to all seniors.

Respondents to the Senior Survey self-selected as whether or not they were leaders in the co-curricular section of the survey. One thousand, three hundred thirty-two seniors identified themselves as having been positional leaders in co-curricular activities. Six hundred four did not identify themselves as having held an office in co-curricular activities.

This study explored the following research areas. The research explored the question if student leaders are more involved in co-curricular activities than non-leader students. The study examined if leadership identification could be predicted with responses to questions on a student's perception of his skill and knowledge levels and grade point average. A follow-on question dealt with the probability that a student's leadership identification could be predicted based on the student's perceived contribution of W&M to his skills and knowledge. Lastly, this research combined a student's perception of his skills and knowledge and William and Mary's contribution to his skills and knowledge to see if leadership identification could be predicted.

This study addressed how non-leader students' and student leaders' involvement in co-curricular activities differed. The theoretical foundation for this research came from Astin's (1984) Theory of Involvement. Astin (1993) proposed that a student involved in leadership activities with his peers achieved at higher levels in cognitive and affective outcomes. He said that students who are actively involved in their college experience will benefit from involvement. Astin (1984) theorized that involvement has both a quantitative and qualitative component and that involvement takes place along a continuum where students expend differing amounts of energy and effort in various experiences.

Discussion of the Results

The central question of this research examined if there were differences between non-leader students and student leaders. Results of this study show there are differences between non-leader students and student leaders. The format for the discussion of results follows the questions that guided this research.

Differences between Non-Leader Students and Student Leaders in their Involvement in Co-curricular Activities

The first analysis looked at a student's involvement in co-curricular activities and if the sample means of a non-leader student and a student leader in co-curricular activities were different. This study found the Wilks' Λ of .86 to be significant and thus a difference does exist between a non-leader student and a student leader involved in co-curricular activities. Although significant, the differences between the means of non-

leader students and student leaders are small, 5.9% variance of means between non-leader students and student leaders for involvement in social fraternities or sororities and less than 3% for all other measured involvement in co-curricular activities such as service clubs, volunteer activities, religious organizations, intramural or club sports, drama, dance, music and the arts and curriculum-related clubs. Student leaders had a higher level of involvement in honor societies, curriculum-related clubs, social fraternities and sororities, service clubs volunteer activities, intramural or club sports, drama, dance, music and arts, religious organizations on campus and worked for pay. Non-leader students had a higher level of involvement in intercollegiate sports.

This research found student leaders were involved in more co-curricular activities than non-leader students with the exception of involvement in intercollegiate sports. Astin's (1984) Theory of Involvement says that students invest differing amounts of energy and involvement into an activity such as a volunteer organization and that with increased involvement there will be some amount of student learning and personal development.

Prediction of Skills Perception with Involvement in Co-curricular Activities and Leadership Identification

The second analysis investigated if a student's perception of his skills could be predicted by his involvement in co-curricular activities and his leadership identification. The study found involvement in a social fraternity or sorority and leadership identification were the best predictors of a student's perception of his skills; although significant the two variables of involvement in a social fraternity or sorority and

leadership identification could explain only 1% of the variance and is not a predictor of a student's perception of his skills.

Prediction of Knowledge Perception with Involvement in Co-curricular Activities and Leadership Identification

The third analysis looked to see if involvement in a co-curricular activity and leadership identification were good predictors of a student's perception of his knowledge. The findings were similar to the results on a student's perception of his skills. Although the results were significant, involvement in co-curricular activities such as social fraternities and leadership identification are not predictors of a student's perception of his knowledge because involvement in co-curricular activities accounts for less than 1% of the variance.

Prediction of a Student's GPA by Measures of Involvement in Co-curricular Activities and Leadership Identification

In the second part of the third analysis, the question was if a student's grade point average would be impacted by using involvement in co-curricular activities and leadership identification. The findings were significant that student's grade point average could be predicted using his involvement in co-curricular activities and leadership identification. Involvement in an honor society or fraternity and identification as a leader had a positive effect on the ability to predict a student's grade point average. Involvement in social fraternities or sororities, working for pay, intercollegiate athletics and intramural or club sports had a negative effect on a student's grade point average.

the difference between non-leader students and student leaders when comparing a student's perception of his skills, knowledge and William and Mary's contribution to his skills and knowledge and thus has little practical importance.

Future Research Directions

Research on student leadership, such as this study on the identification of the differences between non-leader students and student leaders, should be continued. Student Affairs professionals need to understand the outcomes of being involved as a student leader. Student affairs practitioners will find relevance in continuing this research to better understand the impact of student development on student leadership development.

Research such as this should be expanded to investigate other types of students than those at a highly-selective, small liberal arts college on the east coast. This research should be expanded to gather data on students not just when they are seniors but during all of their years at an institution to investigate the results longitudinally. This research should be replicated with future seniors at William and Mary to investigate further results and determine if a senior class' perception of their skills and knowledge and William and Mary's contribution changes over time.

The Senior Survey has provided the basis for this research in identifying differences between non-leader students and student leaders. Additional questions should be added to the Senior Survey or student affairs professionals should design an instrument to use in evaluating the attainment of leadership skills valued by the college.

contribution to his skills and knowledge. Leadership identification was not useful in predicting a student's perception of his skills and knowledge. Additionally, the analyses found a strong correlation between a student's perception of his skills and knowledge and his perception of William and Mary's contribution to his skills and knowledge. A student at the College of William and Mary perceives his skill and knowledge levels are directly attributable to being a student at William and Mary. Students at the College of William and Mary feel strongly that their skills and knowledge are directly attributable to their attendance at this institution. More than the general structure and intensity of a student's academic engagement, the student's perception of his skills covered a wide range of topics such as - effective speaking and writing, leadership, critical thinking, interpersonal abilities, computers, historical inquiry and aesthetic abilities. The student's perceptions of his knowledge levels dealt with philosophical and religious systems, important events that have shaped Western and non-Western societies, politics, leading historical figures, masterworks and movements in art, music and literature, and wars and revolutions.

Differences between Non-Leader Students and Student Leaders in their Perception of their Skills and Knowledge and William and Mary's Contribution to their Skills and Knowledge

The last research question sought to determine if leadership identification could be predicted through a student's perception of his skills, knowledge and the student's perception of the institution's contribution to his skills and knowledge. For example, did a student leader have more confidence in his leadership skills because he was involved as a student leader? Although significant, leadership identification accounts for only 1% of

Astin (1984) found that student involvement in college co-curricular activities has a positive impact on developmental outcomes. This study has found that not all types of involvement in co-curricular activities have a positive effect on the ability to predict a student's grade point average. This research suggests that not all types of involvement in co-curricular activities have a positive impact on developmental outcomes on college students and supports Astin's findings and the research done by others studying student involvement. Because the questions on the SS did not differentiate between part and full-time employment, the findings of working for pay could not be related to research completed by Terenzini, Pascarella, and Blimling, Astin, and Kuh.

Prediction of Post Graduation Plans with Involvement in Co-curricular Activities and Leadership Identification

The fourth question in this study examined a student's post graduation plans. The question was whether a student's post graduation plans could be predicted using his involvement in co-curricular activities and leadership identification. Although the findings were significant, the prediction of attending graduate school or not did not improve with the knowledge of involvement in co-curricular activities or leadership identification.

Prediction of a Student's Skills and Knowledge with his Perception of William and Mary's Contribution to his Skills and Knowledge and Leadership Identification

This research in the fifth question found that a student's perception of his skills and knowledge were significant in predicting the student's perception of William and Mary's

There are over 250 co-curricular activities on campus at William and Mary. Additionally, the Office of Student Affairs offers five signature programs for leadership development which could be a promising area of research to identify additional differences between non-leader students and student leaders. The outcome of involvement in these 250 co-curricular activities and five programs of leadership development should be investigated to determine how best to improve leadership development at William and Mary.

Conclusion

This research adds to the body of literature on the student experience and student leadership. It is the only research that attempts to predict student leadership identification by using student experiences in co-curricular activities, perceptions of their skills, knowledge and the institution's contribution to their skills and knowledge, the student's grade point average and the student's post graduation plans. This study had four major findings:

- Student leaders are significantly more involved in co-curricular activities than non-leader students.
- A student's grade point average can have a significant negative relation to his involvement in co-curricular activities such as social fraternities or sororities, working for pay, intercollegiate athletics and intramural or club sports.
- A student's grade point average can have a significant positive relation to his involvement as a student leader.

- Students at the College of William and Mary closely associate their perceived level of skills and knowledge in their senior year with the College's perceived contribution to their skills and knowledge rather than with other measured experiences in leadership while at William and Mary.

References

Acker, J. (1993). Hierarchies, jobs, bodies: A theory of gendered organizations. *Gender and Society*, 4(2), 139-158.

Amey, M., & Twombley, S. (1992). Re-visioning leadership in community colleges. *The Review of Higher Education*, 15(2), 125-150.

Anthony-Gonzalez, M. L., & Roberts, D. C. (1981). A comprehensive leadership program model. In D. C. Roberts (Ed.) *Student leadership programs in higher education* (pp. 19-26). Carbondale, IL: University of Southern Illinois Press/ACPA Media.

Astin, A. W. (1975). *Preventing students from dropping out.* San Francisco: Jossey-Bass.

Astin, A. W. (1977). *Four critical years.* San Francisco: Jossey-Bass.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25, 297-308.

Astin, A. W. (1985). *Achieving educational excellence.* San Francisco: Jossey-Bass.

Astin, A. W. (1993). *What matters in college: Four critical years revisited.* San Francisco: Jossey-Bass.

Astin, A. W. (1996). Involvement in learning revisited: Lessons we have learned. *Journal of College Student Development, 37* (2), 123-134.

Astin, A. W., & Astin, H. S. (2000). *Leadership reconsidered: Engaging higher education.* Battle Creek, MI: W. K. Kellogg Foundation.

Astin, H. S., & Leland, C. (1991). *Women of influence, women of vision: A cross generational study of leaders and social change.* San Francisco: Jossey-Bass.

Bolman, L. G., & Deal, T. E. (1991). *Reframing organizations: Artistry, choice and leadership.* San Francisco: Jossey-Bass.

Boyer, E. L. (1987). *College: The undergraduate experience in America.* New York: Harper and Row, Publishers.

Burns, J. M. (1978). *Leadership.* New York: Simon and Schuster.

Callahan, M. M., & Mabey, C. (1985). Undergraduate leadership development. *AAHE Bulletin*, 37(7), 3-6.

Carry, A. (2003). *Left behind: Student leadership programs in higher education.* Retrieved February 1, 2003 from www.naspa.org.

Chambers, T. (1994). Criteria to evaluate student leadership programs: What leadership educators consider important. *NASPA Journal*, 31(3), 225-234.

Clark, K. E. (1985). Teaching undergraduates to be leaders. *AAHE Bulletin*, 37(7), 11-14.

Cooper, D. L., Healy, M. A., & Simpson, J. (1994). Student development through involvement: Specific changes over time. *Journal of College Student Development*, 35, 98-102.

Cress, C. M., Astin, H. S., Zimmerman-Oster, K., & Burkhardt, J. C. (2001). Developmental outcomes of college student's involvement in leadership activities. *Journal of College Student Development*, 42(1), 15-27.

Erwin, T. D., & Marcus-Mendoza, S. T. (1988). Motivation and students' participation in leadership and group activities. *Journal of College Student Development*, 29(3), 356-361.

French, J. R. P. (1968). A Formal Theory of Social Power. *Group Dynamics* (Cartwright, D. & Zander, A., Ed), 557-568.

French, J. R. P., & Raven, B. (1968). The Bases of Social Power. *Group Dynamics* (Cartwright, D. & Zander, A., Ed), 259-269.

Gardner, G. W. (1990). *On Leadership.* New York: The Free Press.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational Research.* White Plains, New York: Longman Publishers.

Kezar, A., & Moriarty, D. (2000). Expanding our understanding of student leadership development: A student exploring gender and ethnic identity. *Journal of College Student Development*, 41(1), 55-69.

Kouzes, J. M., & Posner, B. Z. (1995). *The Leadership Challenge.* San Francisco: Jossey-Bass.

Kruger, K., & Carter, S. (1991, February). *Leadership development and diversity: Competing or complementary priorities?* Paper presented at the Maryland Student Affairs Conference, University of Maryland, Baltimore County.

Kuh, G. D. (1995). The other curriculum: Out-of-class experiences associated with student learning and personal development. *Journal of Higher Education,* 66, 123-155.

Leslie, D. W. (2003). [Outcomes and Assessments of Undergraduate Education] Unpublished raw data.

Morpurgo, J. E. (1976). *Their majesties' royall colledge in the seventeenth and eighteenth centuries.* Washington, DC: Hennage Creative Printers.

Northouse, P. G. (2001). *Leadership theory and practice (2nd ed).* Thousand Oaks, CA: Sage Publications.

Pace, C. (1984). *Measuring the quality of college student experiences.* Los Angeles: University of California, Higher Education Research Institute.

Pascarella, E. T., Bohr, L., Nora, A., & Terenzini, P. T. (1995). Intercollegiate athletic participation and freshman-year cognitive outcomes. *Journal of Higher Education,* 66, 369-387.

Pascarella, E. T., Edison, M., Whitt, E. J., Nora, A., Hagedorn, L. S., & Terenzini, P. T. (1996). Cognitive effects of greek affiliation during the first year of college. *NASPA Journal,* 33, 242-259.

Pascarella, E. T., Ethington, A. A., & Smart, J. C. (1988). The influence of college on humanitarian/civic involvement values. *Journal of Higher Education,* 59, 413-437.

Pascarella, E. T., & Terenzini, P. T. (1991). *How College Affects Students.* San Francisco: Jossey-Bass.

Roberts, D. C. (1997). The changing look of leadership programs. *Concepts & Connections: A newsletter of leadership educators,* 5(2), 1, 3, 4, 11-14.

Roberts, D. C. (1981). *Student leadership programs in higher education.* Carbondale, IL: ACPA Southern Illinois University Press.

Roberts, D. C., & Ullom, C. (1989). Student Leadership Program Model. *NASPA Journal,* 27(1), 67-74).

Rudolph, F. (1990). *The American college & university - A history.* Athens, GA: University of Georgia Press.

Schwartz, M. K., Axtman, K. M., & Freeman, F. H. (1998). *Leadership education source book* (7th ed.). Greensboro, NC: Center for Creative Leadership.

Sergiovanni, T. J. (1996). *Moral Leadership.* San Francisco: Jossey-Bass.

Spitzberg, I. J. (1986). *Campus programs on leadership.* Washington, DC: Association of American Colleges.

Stanford, S. W. (1992). Extracurricular involvement and development among undergraduate student leaders. *College Student Affairs Journal*, 12(1), 17-24.

Terenzini, P. T., Pascarella, E. T., & Blimling, G. S. (1996). Students' out-of-class experiences and influence on learning and cognitive development: A literature review. *Journal of College Student Development*, 37, 149-162.

Winter, D., McClelland, D., & Stewart, A. (1981). *A new case for the liberal arts: Assessing institutional goals and student development.* San Francisco: Jossey-Bass.

Zimmerman-Oster, K., & Burkhardt, J. (1999). *Leadership in the making: Impact and insights from leadership development programs in U.S. colleges and universities.* Battle Creek, MI: W. K. Kellogg Foundation.

APPENDIX A

Senior Surveys 2001–2003

SENIOR SURVEY

2001

William & Mary Annual Senior Survey

Today's Date:

Please list your preferred email address:

The following questions address your specific post-graduation plans. The information will be used to help us prepare W&M students for post-graduate studies and careers.

EMPLOYMENT

Please describe your Post Graduate work status. Please Select:

If you chose "other", please explain here:

If **employed**, please complete the following section. If planning to attend **graduate school**, skip to the **next section**.
If working **and** attending graduate school, please complete **both sections**.

Job Title:

Employer:

Business City: State:

Salary: Signing Bonus:

How did you learn about this job? Please Select:

If you chose "other", please explain here:

Is this job related to your concentration(s)?

_ YES _ NO

Which of the following categories best describes your career field?

ARTS:	Please Select:	MEDICAL/HEALTH SCIENCES:	Please Select:
BUSINESS:	Please Select:	MUSEUM/LIBRARY:	Please Select:
COMMUNICATIONS:	Please Select:	NON-PROFITS:	Please Select:
EDUCATION:	Please Select:	PHYSICAL SCIENCES/MATH:	Please Select:
GOVERNMENT:	Please Select:	SOCIAL SCIENCES / RELIGION:	Please Select:
INTERNATIONAL:	Please Select:	TECHNOLOGY:	Please Select:
LEGAL:	Please Select:	TRAVEL / RECREATION:	Please Select:
LIFE SCIENCES:	Please Select:	OTHER:	

Continue Survey

William & Mary Annual Senior Survey, cont'd

GRADUATE AND PROFESSIONAL SCHOOL APPLICATIONS

Have you applied to graduate or professional school? NO (Click on Continue Survey)
YES (address questions below)

Please list up to five schools and programs (field of study) you have applied to in order of preference.
Also, indicate the status of your application.

	Name of School	Department/Program	Degree	Application Status
1.				Please Select
2.				Please Select
3.				Please Select
4.				Please Select
5.				Please Select

As of right now, which school do you plan to attend?

Continue Survey

William & Mary Annual Senior Survey, cont'd

GRADUATE SCHOOL AND PROFESSIONAL EXAMINATIONS

Please indicate which, if any, professional and qualifying examinations you have taken. If available, please provide scores so we can gauge how well our students are prepared for these examinations.

Taken exam?		Examination	Highest scores received (if not yet available indicate NAV)
YES	NO	**GREs (Graduate School)**	Verbal Quantitative Analytical
YES	NO	**GRE Subject test**	Subject: Score:
YES	NO	**LSAT (Law)**	SCORES:
YES	NO	**MCAT (Medical College)**	Biological Sciences Physical Sciences Verbal Reasoning Writing Sample
YES	NO	**GMAT (Business)**	Total Score: Quantitative: Verbal:
YES	NO	**Other:**	TEST NAME & SCORES:

Close Window

William & Mary Annual Senior Survey, cont'd.

Internships and Externships

Did you participate in any **externships** (1-5 days spent mostly observing)?	◯ Yes	◯ No
Did you participate in any **internships** (at least 1-3 months of hands-on practical experience?	◯ Yes	◯ No

Please list the specific internship/externship site(s), marking all items that apply.

Externship	Internship	Site (include department/program)	Academic Credit	Stipend Wage
◯	◯	1.	◯	◯
◯	◯	2.	◯	◯
◯	◯	3.	◯	◯
◯	◯	4.	◯	◯
◯	◯	5.	◯	◯

On the whole, were any of the internships/externships helpful in deciding on a career?	◯ Yes	◯ No
Did any of the internships/externships help you in some way to find a job or gain acceptance to grad school?	◯ Yes	◯ No

Co-curricular Activities

Please indicate which (if any) years you participated in the following College activities:	Did not participate	Freshman	Sophomore	Junior	Senior
Concentration-related club	◯	◯	◯	◯	◯
Honor society/fraternity	◯	◯	◯	◯	◯
Social fraternity/sorority	◯	◯	◯	◯	◯
Service club	◯	◯	◯	◯	◯
Volunteer activity (please specify:	◯	◯	◯	◯	◯
Intercollegiate athletics	◯	◯	◯	◯	◯
Intramural or club sports	◯	◯	◯	◯	◯
Drama, dance, music or arts group	◯	◯	◯	◯	◯
Religious organization	◯	◯	◯	◯	◯
Work for pay on or off campus	◯	◯	◯	◯	◯
Student publications	◯	◯	◯	◯	◯
Study abroad	◯	◯	◯	◯	◯
List any other activity(ies) and years involved:					
During your senior year, about how many hours per week have you been involved in these types of activities?					
Have you held any offices in these organizations?		◯ YES		◯ NO	

Friends			
How many close friends do you have?			
How many of your friends are:			
From W&M	Please Select:	Your same sex	Please Select:
Attending (attended) another 4-year college	Please Select:	Your same race or ethnicity	Please Select:
Involved in clubs/organizations with you	Please Select:	In your major	Please Select:
About your same age	Please Select:	Co-workers	Please Select:

Continue Survey

William & Mary Annual Senior Survey - cont'd.

Concentration Information

Please mark your **primary** concentration: Please Select.

If Other, please define:

If applicable, please mark your **secondary** concentration: Please Select.

If Other, please define:

Concentration Writing Proficiencies

How did you fulfill the Concentration Writing Requirement in your primary concentration?

In fulfilling the Writing Requirement in your **primary** concentration, how often did the following occur?	rarely	sometimes	regularly
You had opportunities to practice your writing.			
An instructor commented on your writing:			
You rewrote papers based on an instructor's comments:			

If applicable, how did you fulfill the Writing Requirement in your **secondary** concentration? (if not applicable, scroll to "Concentration Advising".)

In fulfilling the Writing Requirement in your secondary concentration, how often did the following occur?	rarely	sometimes	regularly
You had opportunities to practice your writing.			
An instructor commented on your writing:			
You rewrote papers based on an instructor's comments:			

Concentration Advising

How many times during your **junior** year did you meet with your **primary** concentration advisor?

How many times during your **senior** year did you meet with your **primary** concentration advisor?

Why did you meet with your **primary** concentration advisor? *(mark all that apply)*

- To discuss my course schedule
- To get information about requirements for graduation
- To discuss post-graduation plans
- Other *(please specify)*:

How many times during your **junior** year did you meet with your **secondary** concentration advisor?

How many times during your **senior** year did you meet with your **secondary** concentration advisor?	

Why did you meet with your **secondary** concentration advisor? *(mark all that apply)*

- To discuss my course schedule
- To get information about requirements for graduation
- To discuss post-graduation plans
- Other *(please specify)*:

Please indicate the extent to which you agree with the following statements about your **primary** concentration advisor.	strongly agree	agree	disagree	strongly disagree	NA
My advisor is usually available when I needed to see him or her					
My advisor understands and communicates College policies and procedures					
My advisor encourages me to make my own decisions					
My advisor is interested in my development as an individual					
My advisor has informed me about the Office of Career Services.					
My advisor discusses other College resources with me (e.g., Study Skills, Writing Center)					
I am satisfied overall with the advice I have received.					
I am satisfied with the advice I have received about careers					
I am satisfied with the advice I have received about graduate or professional schools.					

Please indicate the extent to which you agree with the following statements about your **secondary** concentration advisor.	strongly agree	agree	disagree	strongly disagree	NA
My advisor is usually available when I needed to see him or her					
My advisor understands and communicates College policies and procedures					
My advisor encourages me to make my own decisions					
My advisor is interested in my development as an individual					
My advisor has informed me about the Office of Career Services.					
My advisor discusses other College resources with me (e.g., Study Skills, Writing Center)					
I am satisfied overall with the advice I have received.					
I am satisfied with the advice I have received about careers					
I am satisfied with the advice I have received about graduate or professional schools.					

Comments About Concentration Advisors

Continue Survey

William & Mary Annual Senior Survey - cont'd.

W&M LIBRARIES

How frequently do you use any of the William and Mary libraries or their online resources?	Please Select:
Which William and Mary library do you use most frequently?	Please Select:

How frequently do you use a College library (or their web pages) to do the following.

Use print indexes, databases, bibliographies	Please Select:
Use online or electronic indexes, databases, bibliographies, full-text journals	Please Select:
Study	Please Select:
Check out books or other materials	Please Select:
Read journals or newspapers	Please Select:
Meet with friends	Please Select:
Go to the Swem Cafe'	Please Select:

How frequently do you use the following library resources or services?

LION (the online catalog)	Please Select:	Videos	Please Select:
Library web site	Please Select:	Government publications	Please Select:
Interlibrary loan services (materials not available on campus)	Please Select:	Archives, manuscripts, rare books	Please Select:
Computer lab	Please Select:	Microfilm and microfiche	Please Select:
Reference service (in person, by telephone, email, or web)	Please Select:		

How satisfied are you with the College of William & Mary libraries?	Please Select:

Comments about the libraries at William and Mary.

Continue Survey

William & Mary Annual Senior Survey

W & M General Education Goals

How many of your courses this year (Fall 2000, Spring 2001) included class discussions?

In how many of your courses this year (Fall 2000, Spring 2001) were you assigned each of the following activities?

Discussion leader:

Informal (round table) report of your work.

Formal group presentation or debate:

Formal individual presentation/speech of at least 5 minutes:

Thinking about your *academic* experiences at William and Mary, overall would you say you are:	very dissatisfied	dissatisfied	neither dissatisfied nor satisfied	satisfied	very satisfied
Thinking about your *social* experiences at William and Mary, overall would you say you are:	very dissatisfied	dissatisfied	neither dissatisfied nor satisfied	satisfied	very satisfied

The College lists the following skills as goals of general education.

Please rate your **current skill level** on a scale of **1 to 5**, and then indicate how it compares to your skill level when you first came to W&M.	low 1	2	3	4	high 5	Current skill level compared to when you entered W&M
Effective writing						Please Select.
Effective speaking						Please Select.
Proficiency in a foreign language						Please Select.
Mathematical/statistical skills						Please Select.
Leadership skills						Please Select.
Computer skills						Please Select.
Interpersonal skills						Please Select.
Scientific method skills						Please Select.
Historical inquiry skills (i.e., ability to verify facts through analysis and comparison of texts and archives)						Please Select.
Critical thinking skills (i.e., inductive and deductive reasoning skills)						Please Select.
Aesthetic skills (i.e., understanding of creative processes and						

	media)						Please Select.
	Information literacy skills (searching, selecting, evaluating and using resources, including those on the Internet)						Please Select.

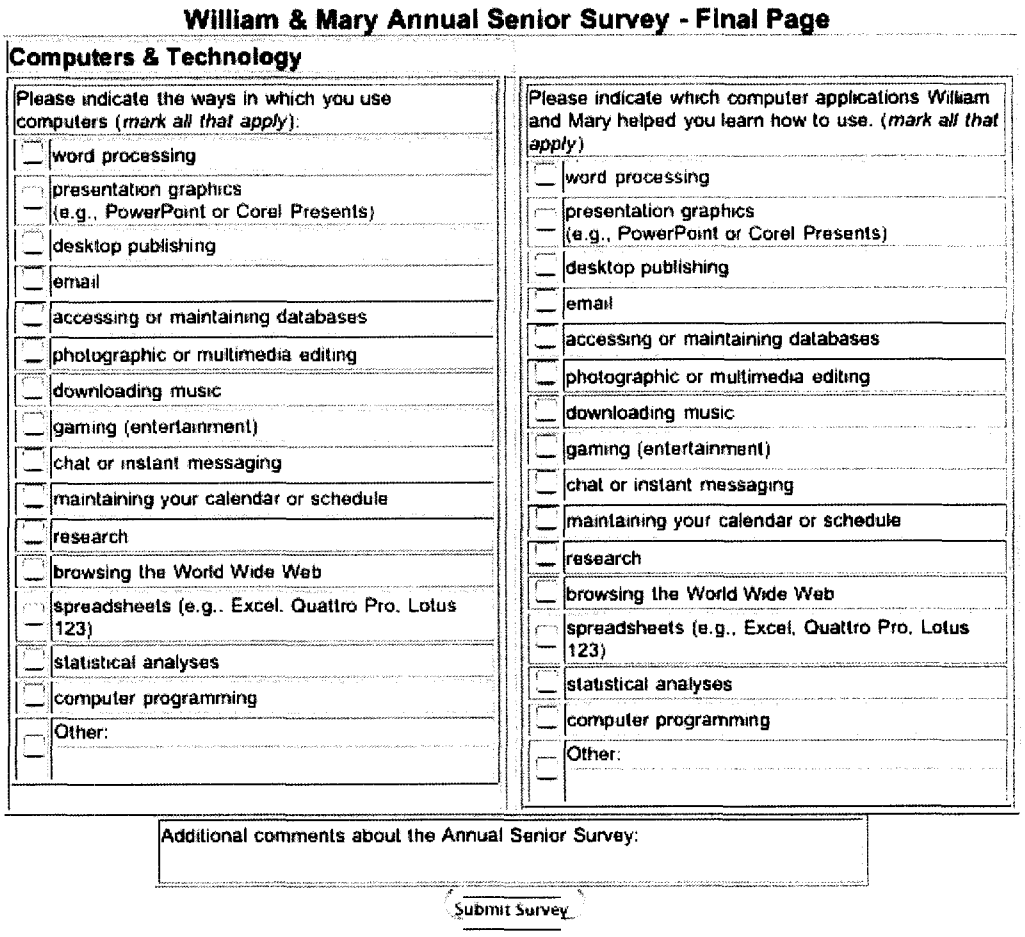
How much did **W&M contribute** to your personal growth in each of these skills?	very little		some		very much
	1	2	3	4	5
Effective writing					
Effective speaking					
Proficiency in a foreign language					
Mathematical/statistical skills					
Leadership skills					
Computer skills					
Interpersonal skills					
Scientific method skills					
Historical inquiry skills (i.e., ability to verify facts through analysis and comparison of texts and archives)					
Critical thinking skills (i.e., inductive and deductive reasoning skills)					
Aesthetic skills (i.e., understanding of creative processes and media)					
Information literacy skills (searching, selecting, evaluating and using resources, including those on the Internet)					

The College also lists the following broad areas of knowledge as goals of general education.

Please rate your **knowledge level** for each one on a scale of 1 to 5, with 1 meaning you believe your knowledge level is low to 5 meaning your knowledge level is high, and then indicate if it compares to your knowledge level when you first came to W&M.		**low** 1	2	3	4	**high** 5	**Current knowledge level compared to when you entered W&M**
	Major philosophical and religious systems						Please Select.
	The physical realm and major advances in the natural sciences						Please Select.
	Important events that have shaped Western societies						Please Select.
	Important events that have shaped non-Western societies						Please Select.
	Politics						Please Select.
	Leading historical figures						Please Select.
	Masterworks and movements in art, music, and literature						Please Select.
	Individual and social behavior and major advances in the social/behavioral sciences						Please Select.
	Wars and revolutions						Please Select.
	Important applications of Mathematics						Please Select.

How much did the College contribute to your **personal growth** in each of these **knowledge areas**?		very little 1	2	some 3	4	very much 5
	Major philosophical and religious systems					
	The physical realm and major advances in the natural sciences					
	Important events that have shaped Western societies					
	Important events that have shaped non-Western societies					
	Politics					
	Leading historical figures					
	Masterworks and movements in art, music, and literature					
	Individual and social behavior and major advances in the social/behavioral sciences					
	Wars and revolutions					
	Important applications of Mathematics					

Continue Survey



William & Mary Annual Senior Survey - Final Page

Computers & Technology

Please indicate the ways in which you use computers (*mark all that apply*):

- word processing
- presentation graphics (e.g., PowerPoint or Corel Presents)
- desktop publishing
- email
- accessing or maintaining databases
- photographic or multimedia editing
- downloading music
- gaming (entertainment)
- chat or instant messaging
- maintaining your calendar or schedule
- research
- browsing the World Wide Web
- spreadsheets (e.g., Excel, Quattro Pro, Lotus 123)
- statistical analyses
- computer programming
- Other:

Please indicate which computer applications William and Mary helped you learn how to use. (*mark all that apply*)

- word processing
- presentation graphics (e.g., PowerPoint or Corel Presents)
- desktop publishing
- email
- accessing or maintaining databases
- photographic or multimedia editing
- downloading music
- gaming (entertainment)
- chat or instant messaging
- maintaining your calendar or schedule
- research
- browsing the World Wide Web
- spreadsheets (e.g., Excel, Quattro Pro, Lotus 123)
- statistical analyses
- computer programming
- Other:

Additional comments about the Annual Senior Survey:

Submit Survey

SENIOR SURVEY

2002

William & Mary Annual Senior Survey

W & M General Education Goals, p.1-3

How many courses did you take in Fall 2001 and Spring 2002?

How many of those courses included class discussions?

In how many of those courses were you assigned each of the following activities?

Discussion leader:

Informal (round table) report of your work:

Formal group presentation or debate:

Formal individual presentation/speech of at least 5 minutes:

Thinking about your *academic* experiences at William and Mary, overall would you say you are:	very dissatisfied	dissatisfied	neither dissatisfied nor satisfied	satisfied	very satisfied
Thinking about your *social* experiences at William and Mary, overall would you say you are:	very dissatisfied	dissatisfied	neither dissatisfied nor satisfied	satisfied	very satisfied

Continue Survey

William & Mary Annual Senior Survey

W & M General Education Goals, p.2-3

The College lists the following skills as goals of general education.

Please rate your **current skill level** on a scale of **1** to **5**, and then indicate how much **W&M contributed** to your personal growth in each of these skills.	low 1	2	3	4	high 5	**W&M's *contribution* to your personal growth in each of these *skills*:**
Effective writing						Please Select:
Effective speaking						Please Select:
Proficiency in a foreign language						Please Select:
Mathematical/statistical skills						Please Select:
Leadership skills						Please Select:
Computer skills						Please Select:
Interpersonal skills						Please Select:
Scientific method skills						Please Select:
Historical inquiry skills (i.e., ability to verify facts through analysis and comparison of texts and archives)						Please Select:
Critical thinking skills (i.e., inductive and deductive reasoning skills)						Please Select:
Aesthetic skills (i.e., understanding of creative processes and media)						Please Select:
Information literacy skills (searching, selecting, evaluating and using resources, including those on the Internet)						Please Select:

Continue Survey

William & Mary Annual Senior Survey

W & M General Education Goals, p.3-3

The College also lists the following broad areas of knowledge as goals of general education.						
Please rate your **knowlege level** for each one on a scale of 1 to 5, with 1 meaning you believe your knowledge level is low to 5 meaning your knowledge level is high, and then indicate how much did the College contribute to your **personal growth** in each of these **knowledge areas**?	**low** 1	2	3	4	**high** 5	**W&M's contribution to your *personal growth*:**
Major philosophical and religious systems	○	○	○	○	○	Please Select:
The physical realm and major advances in the natural sciences	○	○	○	○	○	Please Select:
Important events that have shaped Western societies	○	○	○	○	○	Please Select:
Important events that have shaped non-Western societies	○	○	○	○	○	Please Select:
Politics	○	○	○	○	○	Please Select:
Leading historical figures	○	○	○	○	○	Please Select:
Masterworks and movements in art, music, and literature	○	○	○	○	○	Please Select:
Individual and social behavior and major advances in the social/behavioral sciences	○	○	○	○	○	Please Select:
Wars and revolutions	○	○	○	○	○	Please Select:
Important applications of Mathematics	○	○	○	○	○	Please Select:

Final Comments:

Submit Survey

WILLIAM & MARY ANNUAL SENIOR SURVEY p.1-4

POST GRADUATE PLANS

Please list your preferred email address:

The following questions address your specific post-graduation plans. The information will be used to help us prepare W&M students for post-graduate studies and careers.

EMPLOYMENT

Please describe your Post Graduate work status: Please Select:

If you chose "other", please explain here:

If **employed**, please complete the following section. If planning to attend **graduate school**, click on "Continue Survey" at the bottom of the page to skip to the **next section**.
If working **and** attending graduate school, please complete **both sections**.

Job Title:

Employer:

Business City: State:

Salary: Signing Bonus:

How did you learn about this job? Please Select:

If you chose "other", please explain here:

Is this job related to your concentration(s)?

YES NO

Continue Survey

WILLIAM & MARY ANNUAL SENIOR SURVEY, cont'd. p.2-4

POST GRADUATE PLANS

Which of the following categories best describes your career field?

ARTS.	Please Select.	MEDICAL/HEALTH SCIENCES.	Please Select.
BUSINESS.	Please Select.	MUSEUM/LIBRARY.	Please Select.
COMMUNICATIONS.	Please Select.	NON-PROFITS.	Please Select.
EDUCATION.	Please Select.	PHYSICAL SCIENCES/MATH.	Please Select.
GOVERNMENT.	Please Select.	SOCIAL SCIENCES / RELIGION.	Please Select.
INTERNATIONAL.	Please Select.	TECHNOLOGY.	Please Select.
LEGAL.	Please Select.	TRAVEL / RECREATION.	Please Select.
LIFE SCIENCES.	Please Select.	OTHER.	

Have you completed a School of Education Program? YES NO Select program

Continue Survey

William & Mary Annual Senior Survey, cont'd p.3-4

GRADUATE AND PROFESSIONAL SCHOOL APPLICATIONS

Have you applied to graduate or professional school? NO (Click on Continue Survey)
YES (address questions below)

Please list up to five schools and programs (field of study) you have applied to in order of preference.
Also, indicate the status of your application.

Name of School	Department/Program	Degree	Application Status
1.			Please Select:
2.			Please Select:
3.			Please Select:
4.			Please Select:
5.			Please Select:

As of right now, which school do you plan to attend?

Continue Survey

William & Mary Annual Senior Survey, cont'd p.4-4

GRADUATE SCHOOL AND PROFESSIONAL EXAMINATIONS

Please indicate which, if any, professional and qualifying examinations you have taken. If available, please provide scores so we can gauge how well our students are prepared for these examinations.

Taken exam?		Examination	Highest scores received (if not yet available indicate NAV)
YES	NO	**GREs (Graduate School)**	Verbal Quantitative Analytical
YES	NO	**GRE Subject test**	Subject: Score:
YES	NO	**LSAT (Law)**	SCORES:
YES	NO	**MCAT (Medical College)**	Biological Sciences Physical Sciences Verbal Reasoning Writing Sample
YES	NO	**GMAT (Business)**	Total Score: Quantitative: Verbal:
YES	NO	**Other:**	TEST NAME & SCORES:

Submit Survey

WILLIAM & MARY ANNUAL SURVEY

Internships and Externships

Did you participate in any **externships** while attending William & Mary? (1-5 days spent mostly observing)	Yes	No
Did you participate in any **internships** while attending William & Mary? (at least 1-3 months of hands-on practical experience)	Yes	No

Please list the specific internship/externship site(s), marking all items that apply:

Externship	Internship	Site (include department/program)	Did you receive Academic Credit?	Were you paid a Stipend/Wage?
		1.		
		2.		
		3.		
		4.		
		5.		

On the whole, were any of the internships/externships helpful in deciding on a career?	Yes	No
Did any of the internships/externships help you in some way to find a job or gain acceptance to grad school?	Yes	No

Submit Survey

William & Mary Annual Senior Survey

Concentration Information

Please mark your **PRIMARY** Concentration: Please Select:

If Other, please define:

If applicable, please mark your **SECONDARY** Concentration: Please Select:

If Other, please define:

If applicable, please mark your **MINOR**. Please Select:

If Other, please define:

Close Window

William & Mary Annual Senior Survey, cont'd (p.2-4)

Concentration Writing Proficiencies

How did you fulfill the Concentration Writing Requirement in your primary concentration?

In fulfilling the Writing Requirement in your **primary** concentration, how often did the following occur?	rarely	sometimes	regularly
You had opportunities to practice your writing:	◡	◡	◡
An instructor commented on your writing:	◡	◡	◡
You rewrote papers based on an instructor's comments:	◡	◡	◡

If applicable, how did you fulfill the Writing Requirement in your **secondary** concentration? (if not applicable, scroll to "Concentration Advising".)

In fulfilling the Writing Requirement in your secondary concentration, how often did the following occur?	rarely	sometimes	regularly
You had opportunities to practice your writing:	◡	◡	◡
An instructor commented on your writing:	◡	◡	◡
You rewrote papers based on an instructor's comments:	◡	◡	◡

Comments about your concentrations or this survey:

Continue Survey

William & Mary Annual Senior Survey, cont'd (p.3-4)

Concentration Advising

How many times during your **junior** year did you meet with your **primary** concentration advisor?

How many times during your **senior** year did you meet with your **primary** concentration advisor?

Why did you meet with your **primary** concentration advisor? *(mark all that apply)*

- To discuss my course schedule
- To get information about requirements for graduation
- To discuss post-graduation plans
- Other *(please specify)*:

How many times during your **junior** year did you meet with your **secondary** concentration advisor?

How many times during your **senior** year did you meet with your **secondary** concentration advisor?

Why did you meet with your **secondary** concentration advisor? *(mark all that apply)*

- To discuss my course schedule
- To get information about requirements for graduation
- To discuss post-graduation plans
- Other *(please specify)*:

Continue Survey

William & Mary Annual Senior Survey, cont'd (p.4-4)

Concentration Advising, cont'd.

Please indicate the extent to which you agree with the following statements about your **primary** concentration advisor.	strongly agree	agree	disagree	strongly disagree	NA
My advisor is usually available when I needed to see him or her	⌣	⌣	⌣	⌣	⌣
My advisor understands and communicates College policies and procedures	⌣	⌣	⌣	⌣	⌣
My advisor encourages me to make my own decisions	⌣	⌣	⌣	⌣	⌣
My advisor is interested in my development as an individual	⌣	⌣	⌣	⌣	⌣
My advisor has informed me about the Office of Career Services.	⌣	⌣	⌣	⌣	⌣
My advisor discusses other College resources with me (e.g., Study Skills, Writing Center)	⌣	⌣	⌣	⌣	⌣
I am satisfied overall with the advice I have received.	⌣	⌣	⌣	⌣	⌣
I am satisfied with the advice I have received about careers	⌣	⌣	⌣	⌣	⌣
I am satisfied with the advice I have received about graduate or professional schools.	⌣	⌣	⌣	⌣	⌣

Please indicate the extent to which you agree with the following statements about your **secondary** concentration advisor.	strongly agree	agree	disagree	strongly disagree	NA
My advisor is usually available when I needed to see him or her	⌣	⌣	⌣	⌣	⌣
My advisor understands and communicates College policies and procedures	⌣	⌣	⌣	⌣	⌣
My advisor encourages me to make my own decisions	⌣	⌣	⌣	⌣	⌣
My advisor is interested in my development as an individual	⌣	⌣	⌣	⌣	⌣
My advisor has informed me about the Office of Career Services.	⌣	⌣	⌣	⌣	⌣
My advisor discusses other College resources with me (e.g., Study Skills, Writing Center)	⌣	⌣	⌣	⌣	⌣
I am satisfied overall with the advice I have received.	⌣	⌣	⌣	⌣	⌣
I am satisfied with the advice I have received about careers	⌣	⌣	⌣	⌣	⌣
I am satisfied with the advice I have received about graduate or professional schools.	⌣	⌣	⌣	⌣	⌣

Comments About Concentration Advisors

Submit Survey

WILLIAM & MARY ANNUAL SURVEY

CO-CURRICULAR ACTIVITIES

Please indicate which (if any) years you participated in the following College activities:	Did not participate	Freshman	Sophomore	Junior	Senior
Concentration-related club					
Honor society/fraternity					
Social fraternity/sorority					
Service club					
Volunteer activity (please specify:					
Intercollegiate athletics					
Intramural or club sports					
Drama, dance, music or arts group					
Religious organization					
Work for pay on or off campus					
Student publications					
Study abroad					

List any other activity(ies) and years involved:	
During this academic year, about how many **hours** per week have you been involved in these types of activities?	
During this academic year, about how many **times** per week did you participate in these types of activities?	
Have you held any offices in these organizations?	YES NO

Comments:

Continue Survey

WILLIAM & MARY ANNUAL SURVEY

During your time at W &M did you.	Did not participate	Freshman	Sophomore	Junior	Senior
Use a W&M recreational facility?					
Attend a W&M artistic performance or exhibit?					
Attend a W&M sporting event?					

About how many **times during this academic year** did you participate in these types of activities?

How many close friends do you have?

How many of your friends are:

From W&M	Please Select.	Your same sex	Please Select.
Attending (attended) another 4-year college	Please Select.	Your same race or ethnicity	Please Select.
Involved in clubs/organizations with you	Please Select.	In your major	Please Select.
About your same age	Please Select.	Co-workers	Please Select.

Comments:

Submit Survey

SENIOR SURVEY

2003

William & Mary Annual Senior Survey

Concentration Information

Please mark your **PRIMARY** Concentration: Please Select:

If Other, please define:

If applicable, please mark your **SECONDARY** Concentration: Please Select:

If Other, please define:

If applicable, please mark your **MINOR**. Please Select:

If Other, please define:

Close Window

William & Mary Annual Senior Survey, cont'd

GRADUATE AND PROFESSIONAL SCHOOL APPLICATIONS

Have you applied to graduate or professional school? _ NO (scroll to next section. Grad School & Prof. Exams)
_ YES (address questions below)

Please list up to five schools and programs (field of study) you have applied to in order of preference. Also, indicate the status of your application.

Name of School	Department/Program	Degree	Application Status
1.			Please Select.
2.			Please Select.
3.			Please Select.
4.			Please Select.
5.			Please Select.

As of right now, which school do you plan to attend?

Continue Survey

William & Mary Annual Senior Survey, cont'd

GRADUATE SCHOOL AND PROFESSIONAL EXAMINATIONS

Please indicate which professional and qualifying examinations you have taken. If available, please provide scores so we can gauge how well our students are prepared for these examinations.

Taken exam?		Examination	Highest scores received (if not yet available indicate NAV)
◡YES	◡NO	**GREs (Graduate School)**	Verbal Quantitative Analytical
◡YES	◡NO	**GRE Subject test**	Subject: Score:
◡YES	◡NO	**LSAT (Law)**	SCORES:
◡YES	◡NO	**MCAT (Medical College)**	Biological Sciences Physical Sciences Verbal Reasoning Writing Sample
◡YES	◡NO	**GMAT (Business)**	Total Score: Quantitative: Verbal.
◡YES	◡NO	**Other:**	TEST NAME & SCORES:

Continue Survey

WILLIAM & MARY ANNUAL SURVEY

Internships and Externships

Did you participate in any **externships** while attending William & Mary? (1-5 days spent mostly observing)	Yes	No
Did you participate in any **internships** while attending William & Mary? (at least 1-3 months of hands-on practical experience)	Yes	No

Please list the specific internship/externship site(s), marking all items that apply:

Externship	Internship	Site (include department/program)	Received Academic Credit	Paid a Stipend/Wage
		1.		
		2.		
		3.		
		4.		
		5.		

On the whole, were any of the internships/externships helpful in deciding on a career or major?	Yes	No
Did any of the internships/externships help you in some way to find a job or gain acceptance to grad school?	Yes	No

Close Window

William & Mary Annual Senior Survey

SWEM LIBRARY

Please indicate your satisfaction level with the services provided by Swem Library:	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
1) Willingness to help users						
2) Space that facilitates quiet study						
3) Complete runs of journal titles						
4) Employees who are consistently courteous						
5) Electronic resources accessible from my dorm or home						
6) A library website enabling me to locate information on my own						
7) Timely document delivery/ interlibrary loan						
8) Easy-to-use access tools that allow me to find things on my own						
9) Information easily accessible for independent use						
10) Employees who have the knowledge to answer user questions						
11) Convenient business hours						
12) A comfortable and inviting location						
13) Comprehensive print collection						
14) Convenient access to library collections						
15) Comprehensive collections of full-text articles online						

What suggestions do you have for improving the library and its services?

Please indicate the degree to which you agree with the following statements:	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1) In general, I am satisfied with the way in which I am treated at the library.					
2) In general, I am satisfied with library support for my learning and research needs.					

How would you rate the overall quality of the service provided by the library?	Extremely Good	Good	Neutral	Bad	Extremely Bad

Please indicate your major uses of the library:

Use computer	Ask for reference help	Study
Read print resources	Use online resources	Meet with friends
Check out books or other materials		Do not use

How often do you use the library's books or journals at the library?	Please Select:
How often do you use online library resources away from the library?	Please Select:
Please enter any comments about library services:	

Close Window

William & Mary Annual Senior Survey

Concentration Advising

Did you have an assigned/designated advisor in your **primary** concentration?	◯YES ◯NO
Did you meet with any other faculty member(s) in your **primary** concentration in an advising capacity?	◯YES ◯NO

How many times did you meet with these faculty members?	Advisor	Other Advising Faculty Member(s)
Junior year:		
Senior year:		

Why did you meet with these faculty members? *(mark all that apply)*

__ To discuss my course schedule

__ To get information about requirements for graduation

__ To discuss post-graduation plans

__ Other *(please specify)*.

Did you have an assigned/designated advisor in your **secondary** concentration?	◯YES ◯NO ◯N/A
Did you meet with any other faculty member(s) in your **secondary** concentration in an advising capacity?	◯YES ◯NO ◯N/A

How many times did you meet with these faculty members?	Advisor	Other Advising Faculty Member(s)
Junior year:		
Senior year:		

Why did you meet with these faculty members? *(mark all that apply)*

__ To discuss my course schedule

__ To get information about requirements for graduation

__ To discuss post-graduation plans

__ Other *(please specify)*.

Continue Survey

William & Mary Annual Senior Survey

WHEN DO YOU EXPECT TO GRADUATE FROM W&M?

Fall 2002 **Spring 2003** **Summer 2003** **Other**

ORAL COMMUNICATION

How many courses did you take in Fall 2002?

How many of those courses included class discussions?

In how many of those courses were you assigned each of the following activities?

- Discussion leader:
- Informal (round table) report of your work:
- Formal group presentation or debate:
- Formal individual presentation/speech of at least 5 minutes:

Continue Survey

William & Mary Annual Senior Survey

W & M GENERAL EDUCATION: SKILLS

The College lists the following skills as goals of general education.

Please rate your **current skill level** on a scale of **1 to 5**, and then indicate how much **W&M contributed** to your personal growth in each of these skills.	low 1	2	3	4	high 5	**W&M's *contribution* to your personal growth in each of these *skills*:**
Effective writing						Please Select:
Effective speaking						Please Select:
Proficiency in a foreign language						Please Select:
Mathematical/statistical skills						Please Select:
Leadership skills						Please Select:
Computer skills						Please Select:
Interpersonal skills						Please Select:
Scientific method skills						Please Select:
Historical inquiry skills (i.e., ability to verify facts through analysis and comparison of texts and archives)						Please Select:
Critical thinking skills (i.e., inductive and deductive reasoning skills)						Please Select:
Aesthetic skills (i.e., understanding of creative processes and media)						Please Select:
Information literacy skills (searching, selecting, evaluating and using resources, including those on the Internet)						Please Select:

Continue Survey

William & Mary Annual Senior Survey

W & M GENERAL EDUCATION: KNOWLEDGE

The College also lists the following broad areas of knowledge as goals of general education.

	Please rate your **current knowledge level** on a scale of **1 to 5**, and then indicate how much **W&M contributed** to your personal growth in each of these knowledge areas.	low 1	2	3	4	high 5		**W&M's contribution to your *personal growth*:**
	Major philosophical and religious systems							Please Select:
	The physical realm and major advances in the natural sciences							Please Select:
	Important events that have shaped Western societies							Please Select:
	Important events that have shaped non-Western societies							Please Select:
	Politics							Please Select:
	Leading historical figures							Please Select:
	Masterworks and movements in art, music, and literature							Please Select:
	Individual and social behavior and major advances in the social/behavioral sciences							Please Select:
	Wars and revolutions							Please Select:
	Important applications of Mathematics							Please Select:

Comments about W&M General Education:

Close Window

William & Mary Annual Senior Survey

COMPUTERS & TECHNOLOGY

Please indicate the ways in which you **use computers** and **which computer applications William & Mary helped you learn how to use**. (*mark all that apply*)

Use computers	W&M helped you learn	Application
		word processing
		presentation graphics (e.g., PowerPoint or Corel Presents)
		desktop publishing
		email
		creating and maintaining databases
		accessing databases (e.g., Lion at Swem)
		photographic or multimedia editing
		downloading music
		gaming (entertainment)
		chat or instant messaging
		maintaining your calendar or schedule
		research
		browsing the World Wide Web
		spreadsheets (e.g., Excel, Quattro Pro, Lotus 123)
		statistical analyses
		mathematical or statistical software for coursework or research (e.g., Maple, Matlab, SPSS, SAS, S-plus)
		computer programming
		Other:

Are there any computer applications you would like to have learned or studied further at William & Mary? **If yes, what applications?:**	**YES**	**NO**
Are the college computer labs on campus adequate for your academic needs?	**YES**	**NO**
Comments about the Computers & Technology Survey:		

Close Window

WILLIAM & MARY ANNUAL SURVEY

CO-CURRICULAR ACTIVITIES

Please indicate which (if any) years you participated in the following College activities:	Did not participate	Freshman	Sophomore	Junior	Senior
1. Concentration-related club					
2. Honor society/fraternity					
3. Social fraternity/sorority					
4. Service club					
5. Volunteer activity (please specify)					
6. Intercollegiate athletics					
7. Intramural or club sports					
8. Drama, dance, music or arts group					
9. Religious organization					
10. Student publications					
11. Work for pay on or off campus					
12. List any other activity(ies) you have been involved in and the years (freshman, sophomore...) you were involved:					

DURING THE FALL 2002 SEMESTER, please indicate, on average, about how many *hours* and the number of *times per week* you participated in the first ten activities listed above(#1-10), worked for pay on or off campus (#11), and/or participated in any other activities you listed for #12:

	Hours per week	Times per week	Notes
ACTIVITIES (#1-10 above)	Please Select	Please Select	
WORK FOR PAY (#11 above)	Please Select	Please Select	
OTHER ACTIVITIES (#12 above)	Please Select	Please Select	

At any time during your years at W &M did you hold any offices in the organizations listed above (1-12)? YES NO

During your time at W &M did you:	Did not participate	Freshman	Sophomore	Junior	Senior
13. Use a W&M recreational facility?					
14. Attend a W&M artistic performance or exhibit?					
15. Attend a W&M sporting event?					

About how many *times* DURING THE FALL 2002 SEMESTER did you participate in activities 13 - 15? Please Select — Notes:

Since coming to William & Mary, have you studied abroad? YES NO

If Yes, check type of program(s):
Summer Program Semester Program Year Program

Did you receive academic credit? YES NO

Comments about W&M activities:

Close Window

William & Mary Annual Senior Survey

COMPUTERS & TECHNOLOGY

Please indicate the ways in which you **use computers** and **which computer applications William & Mary helped you learn how to use**. (*mark all that apply*)

Use computers	W&M helped you learn	Application
		word processing
		presentation graphics (e.g., PowerPoint or Corel Presents)
		desktop publishing
		email
		accessing or maintaining databases
		photographic or multimedia editing
		downloading music
		gaming (entertainment)
		chat or instant messaging
		maintaining your calendar or schedule
		research
		browsing the World Wide Web
		spreadsheets (e.g., Excel, Quattro Pro, Lotus 123)
		statistical analyses
		computer programming
		Other:

Comments about the Annual Senior Survey:

Submit Survey

William & Mary Annual Senior Survey

Today's Date:

Please list your preferred email address:

The following questions address your specific post-graduation plans. The information will be used to help us prepare W&M students for post-graduate studies and careers.

EMPLOYMENT

Please describe your Post Graduate work status: Please Select:

If you chose "other", please explain here:

If **employed**, please complete the following section. If planning to attend **graduate school**, skip to the **next section**.
If working **and** attending graduate school, please complete **both sections**.

Job Title:

Employer:

Business City: State:

Salary: Signing Bonus:

How did you learn about this job? Please Select:

If you chose "other", please explain here:

Is this job related to your concentration(s)?

_ YES _ NO

Which of the following categories best describes your career field?

ARTS:	Please Select	MEDICAL/HEALTH SCIENCES:	Please Select:
BUSINESS:	Please Select	MUSEUM/LIBRARY:	Please Select:
COMMUNICATIONS:	Please Select	NON-PROFITS:	Please Select:
EDUCATION:	Please Select	PHYSICAL SCIENCES/MATH:	Please Select:
GOVERNMENT:	Please Select	SOCIAL SCIENCES / RELIGION:	Please Select:
INTERNATIONAL:	Please Select	TECHNOLOGY:	Please Select:
LEGAL:	Please Select	TRAVEL / RECREATION:	Please Select:
LIFE SCIENCES:	Please Select	OTHER:	

Continue Survey

William & Mary Annual Senior Survey, cont'd.

Internships and Externships

Did you participate in any **externships** (1-5 days spent mostly observing)?	◯ Yes	◯ No
Did you participate in any **internships** (at least 1-3 months of hands-on practical experience?	◯ Yes	◯ No

Please list the specific internship/externship site(s), marking all items that apply:

Externship	Internship	Site (include department/program)	Academic Credit	Stipend Wage
◯	◯	1.	☐	☐
◯	◯	2.	☐	☐
◯	◯	3.	☐	☐
◯	◯	4.	☐	☐
◯	◯	5.	☐	☐

On the whole, were any of the internships/externships helpful in deciding on a career?	◯ Yes	◯ No
Did any of the internships/externships help you in some way to find a job or gain acceptance to grad school?	◯ Yes	◯ No

Co-curricular Activities

Please indicate which (if any) years you participated in the following College activities:	Did not participate	Freshman	Sophomore	Junior	Senior
Concentration-related club	☐	☐	☐	☐	☐
Honor society/fraternity	☐	☐	☐	☐	☐
Social fraternity/sorority	☐	☐	☐	☐	☐
Service club	☐	☐	☐	☐	☐
Volunteer activity (please specify:	☐	☐	☐	☐	☐
Intercollegiate athletics	☐	☐	☐	☐	☐
Intramural or club sports	☐	☐	☐	☐	☐
Drama, dance, music or arts group	☐	☐	☐	☐	☐
Religious organization	☐	☐	☐	☐	☐
Work for pay on or off campus	☐	☐	☐	☐	☐
Student publications	☐	☐	☐	☐	☐
Study abroad	☐	☐	☐	☐	☐
List any other activity(ies) and years involved:					
During your senior year, about how many hours per week have you been involved in these types of activities?					
Have you held any offices in these organizations?		◯ YES		◯ NO	

William & Mary Annual Senior Survey

W & M General Education Goals

How many of your courses this year (Fall 2000, Spring 2001) included class discussions?

In how many of your courses this year (Fall 2000, Spring 2001) were you assigned each of the following activities?

Discussion leader:

Informal (round table) report of your work:

Formal group presentation or debate:

Formal individual presentation/speech of at least 5 minutes:

Thinking about your *academic* experiences at William and Mary, overall would you say you are:	very dissatisfied	dissatisfied	neither dissatisfied nor satisfied	satisfied	very satisfied
Thinking about your *social* experiences at William and Mary, overall would you say you are:	very dissatisfied	dissatisfied	neither dissatisfied nor satisfied	satisfied	very satisfied

The College lists the following skills as goals of general education.

Please rate your **current skill level** on a scale of **1 to 5**, and then indicate how it compares to your skill level when you first came to W&M.	low 1	2	3	4	high 5	**Current skill level compared to when you entered W&M**
Effective writing						Please Select.
Effective speaking						Please Select.
Proficiency in a foreign language						Please Select.
Mathematical/statistical skills						Please Select.
Leadership skills						Please Select.
Computer skills						Please Select.
Interpersonal skills						Please Select.
Scientific method skills						Please Select.
Historical inquiry skills (i.e., ability to verify facts through analysis and comparison of texts and archives)						Please Select.
Critical thinking skills (i.e., inductive and deductive reasoning skills)						Please Select.
Aesthetic skills (i.e., understanding of creative processes and						

APPENDIX B

SENIOR SURVEY DATA CODES

2001 – 2003

IDENTIFIERS (2001, 2002, 2003)

RECORD – Student number assigned by the Office of Assessment

GRADYR – Survey year: 2001, 2002, and 2003

DEMOGRAPHICS (2001, 2002, 2003)

GENDER – M = Male, F = Female

RACE – A = Asian, B = Black/African-American, H = Hispanic, I = Indian/subcontinent, N = Native American, U = Unreported, W = White/Caucasian

DomCode – I = In-state, O = Out-of-state

CUM_GPA – Cummulative Grade Point Average

Greek_ho – lived in Greek housing, yes, no or no response

Spec_hou – lived in special interest housing such as Chinese House, yes, no or no response.

GENERAL EDUCATION (2001, 2002)

cldisc# : How many courses included class discussion: for "all, 1/2, etc." use 8 as total # of courses

ORAL COMMUNICATION INDEX: TYPES OF ASSIGNMENTS (2001, 2002)

orlindx4: total # of types of oral communication assignments: discussion leader, informal report of work, group presentation, individual speech:

0=no assignments 4=four types of assignments

y_o_lead: yes/no: In how many courses were you assigned: discussion leader (string) RECODE: 0=none/missing, 1=at least one such assignment

y_o_rept: yes/no: In how many courses were you assigned: informal report of your work (string) RECODE: 0=none/missing, 1=at least one such assignment

y_o_grp: yes/no: In how many courses were you assigned: formal group presentation or debate (string) RECODE: 0=none/missing, 1=at least one such assignment

y_o_spch: yes/no: In how many courses were you assigned: individual presentation/speech (string) RECODE: 0=none/missing, 1=at least one such assignment

OVERALL SATISFACTION (2001, 2002)

acadexp: Thinking about your academic experiences at W&M, overall would you say you are: 1=very dissatisfied, 2= dissatisfied, 3= neither satisfied/dissatisfied, 4= satisfied, 5=very satisfied

socexp: Thinking about your academic experiences at W&M, overall would you say you are: 1=very dissatisfied, 2= dissatisfied, 3= neither satisfied/dissatisfied, 4= satisfied, 5=very satisfied

GENERAL EDUCATION: SKILLS & KNOWLEDGE LEVELS (2001, 2002, 2003)

Please rate your current skill (knowledge) level on a scale of 1 (low) to 5 (high).

curwrite: rate level: effective writing

curspeak: rate level: effective speaking

curfrlng: rate level: proficiency in foreign language

curmath: rate level: mathematical skills

curlead: rate level: leadership skills

curcomp: rate level: computer skills

curipers: rate level: interpersonal skills

cuscimet: rate level: scientific method skills

cuhisinq: rate level: historical inquiry skills

curthink: rate level: critical thinking skills

curaesth: rate level: aesthetic skills

cuinflit: rate level: information literacy skills

kphilsys: rate level: philosophical/religious systems

knatsci: rate level: physical realm & advances in natural sciences

kwestsoc: rate level: important events that have shaped Western societies

knonwest: rate level: important events that have shaped non-Western societies

kpolitic: rate level: politics

khistfig: rate level: leading historical figures

kartslit: rate level: masterworks/movements in art, music, literature

ksocbehv: rate level: individual/social behavior & advances in social sciences

kwarsrev: rate level: wars & revolutions

kmathapl: rate level: important applications in mathematics

GENERAL EDUCATION: W&M CONTRIBUTION TO SKILLS & KNOWLEDGE (2001, 2002, 2003)

Please ...indicate how much W&M contributed to your personal growth in each of these skills. Scale: 1 (low) to 5 (high).

2001: 5-pt scale; 2002: 3-pt scale: 2002 RECODED 1=very little, 3=some, 5=very much

wmwrite: W&M contribution: effective writing

wmspeak: W&M contribution: effective speaking

wmforlng: W&M contribution: proficiency in foreign language

wmmath: W&M contribution: mathematical skills

wmlead: W&M contribution: leadership skills

wmcomp: W&M contribution: computer skills

wmipers: W&M contribution: interpersonal skills

wmscimet: W&M contribution: scientific method skills

wmhisinq: W&M contribution: historical inquiry skills

wmthink: W&M contribution: critical thinking skills

wmaesth: W&M contribution: aesthetic skills

wminflit: W&M contribution: information literacy skills

wmphil: W&M contribution: philosophical/religious systems

wmnatsci: W&M contribution: physical realm & advances in natural sciences

wmwstsoc: W&M contribution: important events that shaped Western societies

wmnonwst: W&M contribution: impt. events that shaped non-West. societies

wmpoltic: W&M contribution: politics

wmhisfig: W&M contribution: leading historical figures

wmartlit: W&M contribution: masterworks/movements in art, music, literature

wmsocbhv: W&M contribution: indiv./soc. beh. & advances in social sciences

wmwars: W&M contribution: wars & revolutions

wmmathap: W&M contribution: important applications in mathematics

POST GRADUATION PLANS (2001, 2002, 2003)

work#: Post Graduate work status: 2=plans to work, 0=no response/no plans to work

gradsch#: Plans to attend grad/prof school? 2=plans to attend, 0=no response/no plans to attend

CONCENTRATION WRITING PROFICIENCY (2001, 2002, 2003)

In fulfilling the Writing Requirement in your primary concentration, how often did the following occur? RECODED: highest of primary and secondary:

3=regularly, 2=sometimes, 1=rarely, 0=no response

cwrprac: had opportunity to practice writing

cwrcomm: instructor commented on writing

cwrwrite: rewrote papers based on instructor comments

ADVISING (2001, 2002, 2003)

Please indicate the extent to which you agree with the following statements about your primary concentration advisor? RECODE – highest of primary and secondary:

4=strongly agree, 3=agree, 2=disagree, 1=strongly disagree, 0=N/A

advavail: advisor usually available when I need to see him/her

advwmpol: advisor understands/communicates college policies and procedures

advown: advisor encourages me to make my own decisions

advindev: advisor interested in my development as individual

advresou: advisor discusses other College resources with me (e.g. Study Skills, Writing Center)

advsat1: I am satisfied with the overall advice I have received

advsat2: I am satisfied with the advice I received about careers

advsat3: I am satisfied with the advice I have received about grad. or prof. schools

advsat4: satisfaction with post-grad advice: highest rating of career (advsat2) or school advice (advsat3)

CO_CURRICULAR ACTIVITIES (2001, 2002, 2003)

Activities: List of 11 and other

Please indicate which (if any) years you participated in the following College activities

(1^{st} reference to an activity: # of years participated: 0-4, 2^{nd} reference: 1=marked, 0=not marked)

a_conc, a_concy: Concentration-related club

a_honors, a_honory: Honor society/fraternity

a_frat, a_fraty: Social fraternity/sorority

a_service, a_servcy: Service club

a_volunt, a_voly: Volunteer activity

a_athl, a_athly: Intercollegiate athletics

a_sports, a_sporty: Intramural or club sports

a_arts, a_artsy: Drama, dance, music or arts group

a_relig, a_religy: Religious organizations

a_work, a_worky: Work for pay on or off campus

a_public, a_publiy: (2001,2002) Student publications

a_other, a_othery: other activities: (# years when available, 1 if activity listed, years not listed)

CALCULATED ACTIVITIES VARIABLES (2001, 2002, 2003)

act_hr#: # hours per week involved in co-curricular activities during senior year

RECODE (from string to numeric): 0 to 40+ (91 respondents indicated they participated 40 or more hours in co-curricular activities. Of this group, initial range was 40 to 300, with 73 respondents indicating 40 to 50 hours and 18 respondents indicating more than 50 hours)

act#: # of activities involved in (1-12)

act_yrs: longest duration of involvement in activity (1-4)

cocuroff: Have you held any offices in these organizations?

FRIENDS (2001, 2002)

friends#: number of close friends

How many friends are from: 0=no response, 1=none, 2= some, 3= most, 4= all

frndwm: W&M

frndsex: Your same sex

frnd4yr: Attending (attended) a 4-year college

frndrace: Your same race or ethnicity

frndclub: Involved in clubs/organizations with you

frndmaj: In your major

frndage: About your same age

frndcowk: Co-workers

MAJORS (2001, 2002, 2003)

Area of major(s): RECODED: 1=humanities, 2=social sciences, 3=natural sciences, 4=business, 5=interdisciplinary and/or majors in two disciplines

RECODED from self-reported primary and secondary concentrations and SIS data. Self reports are coded first, and if not available, SIS data are used.

MAJORS TO AREAS

HUMANITIES (AREA I):
- Art
- Art History
- Classical Studies (Latin)
- English
- Modern Languages: French, German, Hispanic Studies (Spanish)
- Music
- Philosophy

Religion
Theatre & Speech

SOCIAL SCIENCES (AREA II)
Anthropology
Economics
Government
History
Kinesiology
Psychology
Sociology

NATURAL SCIENCES (AREA III)
Biology
Chemistry
Computer Science
Geology
Mathematics
Physics

BUSINESS (AREA IV)
Business: Accounting, Finance, Marketing, Operations & Information Technology

INTERDISCIPLINARY (AREA V)
American Studies
International Relations
International Studies (e.g., East Asian Studies, Latin American Studies, 'Middle Eastern Studies)
Interdisciplinary Studies:
Biological Psychology
Black Studies
Environmental Science/Studies (Environmental Geology, Environmental Geology Ethics)
Linguistics
Literary & Cultural Studies
Medieval Renaissance Studies
Women's Studies
Public Policy

SECONDARY MAJOR ONLY

Education: Elementary, Secondary (certification)

MINORS ONLY

Chinese, Film Studies – not coded unless part of interdisciplinary major (e.g., LCST – Film studies)